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Financial Distress Prediction Model for Thai and Chinese SMEs

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Abstract

In this paper an empirical study of the financial characteristics of Thai and Chinese Small and Medium-sized Enterprises (SMEs) is presented. The samples of the study were selected from the Market for Alternative Investment (MAI) of the Stock Exchange of Thailand and the Shenzhen Stock Exchange, China, and, both of which cater for SMEs. Samples were drawn for non-financially distressed SMEs, which comprised the vast majority. Another set of samples was also drawn of a small, but important subset of financially distressed firms. The financial characteristics, in the form of fourteen ratios, of all samples were analysed using parametric and non-parametric tests in order to determine the extent of differences between Thai and Chinese SMEs. The results showed an important similarity in that both Thai and Chinese SMEs have low levels of long-term debt. There were significant differences between Thai and Chinese non-financially distressed SMEs in terms of asset structure, total debt, asset turnover, interest, tax and profit. There were fewer differences between Thai and Chinese financially distressed SMEs, which suggest that the effects of distress are universal, the most notable significant difference being the lower profit for Thai distressed SMEs due to higher interest charges. These results have useful implications for stakeholders in SMEs in both countries.

JEL CLASSIFICATION: G01, G33, M13, M21, M41, O16

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Chapter One: Introduction

1.1 Introduction and Problem Statement

The existence and contribution that Small and Medium-sized Enterprises (SMEs) are predominant in most of the economies across the globe in both developed, and emerging, countries. The economic activities of the vast majority of SMEs flow towards large enterprises and other sectors of the economy. It is perceived that no economy can be sustained without a vibrant SMEs sector to reinforce social wellbeing and equity. The support of financially healthy SMEs is deemed to be indispensible for emerging countries such as China rather than industrialized ones. The social networking and family involvement in SMEs can commensurate a large portion of the population in productive activities. The financial distress of SMEs may have severe consequences for the common people as well as the economy as awhole due to its very nature and contribution. Business failure nowadays occurs across the globe; it rather becomes a recurring event despite the fact that the factors, both internal and external to the firm, that lead a business to failure may vary across business types and countries. With numerous internal factors including ineffectiveness of management, the major external factors are economic recession, high interest rates, inflation, government regulation etc. could all contribute to a firm's financial distress. Charalambous (2004) contends that in the past two decades business failures have occurred at higher rates than at any other time since the early 1930s. The failure of a business has severe economic consequences and substantial costs, both financial and psychological, to the numerous parties involved. The economic cost of business failures is significant in terms of both direct and indirect effects that include among others the expenses of either liquidating or attempting to restructure the internal financial domain of the business, accounting and legal fees and other professional service costs resulting due to the crisis.

It is conceivable that 'financial distress' of a firm ultimately leads to insolvency and business failure. Lee and Yeh (2004) identified a firm as financially distressed when: a) it defaults on loan repayments, b) its net worth falls below half of its stock, c) it engages in loan term negotiations. Asquith et al. (1994) identified an unhealthy firm if in any two consecutive years the firm's earnings before interest, tax, depreciation and amortization are less than 80% of its interest expense. Again, Elloumi and Gueyle (2001) classified a financially distressed firm as one that had experienced negative earnings per share consecutively for 5 years. Wruck (1990) classified a firm as being financially distressed when its cash flows are not sufficient to cover its current obligations. Whitaker (1999) contends a firm as being in financial distress when cash flows are less than the current maturities of long-term debt. They imply that poor financial performance is the root cause of a firm falling into financial distress.

Financial insolvency is one of the most significant threats for many businesses in Thailand since the economic crisis in 1997. Many businesses in Thailand have become bankrupt as a result of a chain-effect to other associated and connected businesses. As business collapse occurs, Small and Medium Enterprises (SMEs) have been seen as one of the key engines to sustain economic growth in Thailand. Although business failure was studied widely for large enterprises to identify the early detection symptoms, or signs that lead to developing financial difficulty, or potential business failure, the Thai SME sector has not received sufficient research attention despite the recent trend of emphasis on SMEs (Bàkiewicz 2005).

China has achieved great success regarding economic development over the past three decades. The report of National Bureau of Statistics 2011 cited that the GDP had reached an average of 8 percent in 2008, 9.2 percent in 2009 plus a further increase to 10.3 percent in 2010 (Chinadaily, 2011). With the start of China's reforms in late 1970s, SMEs in China

begun to flourish, as symbolized by the booming township and village enterprises (TVEs) in rural areas. After nearly three decades of development, the number of SMEs in China amounted to 22 million (China Labor Statistical Yearbook, 2005), and the share of SMEs in the total number of enterprises was 99.3% in 2004 (Yu, 2007). Moreover, since 2006 China has become the international hub in attracting both foreign investments, both direct and portfolio, and currency reserves. In spite of these facts, the achievement was not reflected in the overall performance of the stock markets in Shanghai and Shenzhen. There was a sharp fall in 2001 within these markets that led many businesses to collapse for numerous reasons. With the introduction of the first Bankruptcy Law, which came into effect in November 1988, many companies, especially those non-listed companies, either declared liquidation or bankruptcy. Many researchers and other associated stakeholders, with academic rigor and insight, identified the underlying causes of the market meltdown such as, inadequate market transparency, poor government regulation, lack of sound and reliable models to support the assessment of a company's financial situation and identification of potential distress (Altman et al., 2007). These obstacles have a major influence on all types of enterprises in China, whether they are large or small, private or state-owned enterprises (SOEs). However, in regard to small and medium sized enterprises (SMEs) the challenges are more difficult to resolve.

With the enforcement of regulations to delist enterprises suffering financial difficulties from the Chinese stock market in 2001 there was a dramatic increase of interest from both domestic and international investment of market participants. However, other features, such as the structure of equity (e.g. tradable/non-tradable shares), preference for Chinese investors which favours long term holdings over several years, as well as differences in historical background all contribute to the seemingly unique financial characteristics of Chinese

enterprises. Thus, it is imperative that a sound and reliable set of indicators are not only identified but also established to investigate the survivability of Chinese SMEs that have been facing financial difficulties. As it is desirable to discern the potential risks and signs of financial failure in advance, the earlier it is possible for the business' managers to take effective steps to improve administration before the financial situation of the enterprise becomes a major crisis. This also enables the investors and creditors to identify the importance and assess the effects of the risks, and implement their own counter-measures.

1.2 Objectives of the research

The objectives of this research are 1) to investigate the significant differences between Chinese and Thai SMEs for both non-financially distressed and financially distressed SMEs; 2) to develop a financial distress predicting model for both Thai and Chinese SMEs in order to see or investigate the failure possibility. In case that the result of the first objective does not support in developing a predictive model for both Thai and Chinese SMEs, at least a model for Thai SMEs should be in place.

1.3 Research Methodology

Both parametric and non-parametric approaches are employed in this research. For the first objective, the parametric; T-Test and non-parametric; Mann Whitney U-Test are used to investigate the significant differences between Chinese and Thai SMEs using three statistical significance levels of 0.05, 0.01 and 0.001. In developing a model according to the second objective of this research, the logistic regression analysis is employed. In this research, a study of financial ratios consisting of 14 variables is taken.

1.4 Contributions of the research

The contributions of the research are:

1) To understand the financial characteristics and situations of the SMEs in Thailand and China
2) To develop a predictive model in order to distinguish financially distressed firms out of non-distressed firms as an early warning tool for SMEs both in Thailand and China. The result of the research will bring an awareness of SMEs characteristics and financial problems to all associate parties. The effects of the increasing concern in the distressed situation in ASEAN countries, especially in China, will largely influence other relating countries' economics.
3) Advantages of using the model will assist the companies and relating parties to acknowledge the financial situations of those companies they involve with and will assist those parties to consider and take appropriate steps to improve their management at the early stage.
4) To provide some suggestions how to effectively use the model, what indicators from financial statements that should be in concern and to provide some suggestions for a future research.

1.5 Conclusions

Since the Chinese businesses influence a wide range of other business and internationally, especially Thailand where Chinese products have heavily influxed into the country, and affect the business in Thailand in a major concern, therefore an understanding of the Chinese, as well as Thai, SMEs is a must. This research albeit aims to distinguish the financial characteristics that are in common between Thai and Chinese listed SMEs by considering two main focus aspects; i) non-financially distressed SMEs and ii) financially distressed SMEs.

This paper is also making an attempt to develop a predicting model of failure likelihood in order to provide an early warning to SMEs and other stake parties to the failure possibility that might occur. This paper will begin with an overview of existing literature in regard to definitions, environment and difficulties faced by both countries in the SME's perspective in Chapter Two. Determining the definitions for non-financially distress and financially stressed firms as well as the features that characterise SMEs of both groups where data has been collected from the main securities market of China, the Shenzhen Stock Exchange, and the Stock Exchange of Thailand, and other relevant issues will be discussed in Chapter Three. The development of the research method and hypotheses, where variables used in the paper were carefully selected from several different variables identified in previous research will be discussed in the Chapter Four; with the empirical results of the study presented and discussed in Chapter Five. The implication of these results and conclusion will be offered at the end of this paper.

Chapter Two: Literature Review

2.1 Introduction

The purpose of this chapter is to introduce small and medium-sized enterprises (SMEs) including their definitions, their characteristics and other related interesting issues. Their distinctive characteristics, which set them apart from large firms, financial structure, access to finance, causes of success and failure, limitations and Thai and Chinese contexts of SMEs are discussed in this chapter. Small businesses make a major economic and social contribution to economies. They provide approximately half of the employment opportunities and contribute a substantial proportion of national output. Ang (1992) indicated that there are some characteristics, which they have in common. They are just not a scaled down version of large firms. Therefore, their characteristics, and limitations are different to what large firms confront. Even though they were viewed as having higher risks than large firms, unable to exploit economies of scale, and were seen as not being internationally competitive, these attitudes started to change as a number of disadvantages of largeness began to emerge. Large firms can become bureaucratic, inflexible and lack an effective and quick response to consumer demand, while these problems are less likely to happen in the case of small firms. Moreover, business opportunities for small firms are increasing through the increasing affordability of computer technology, and the increasing proportion of national output provided by the service sector. Typically, more than 95 per cent of all enterprises are small and medium-sized enterprises. SMEs provide approximately 75 per cent of the net employment positions in the United States, for example. Banks and other financial institutions as the main sources of external finance of SMEs also confront a challenge in dealing with SMEs. Developing understanding of their characteristics, advantages and limitations will encourage related parties to work with SMEs in an effective way.

2.2 SME Definition

SMEs are identified in a number of ways considering different aspects of the internal structures of the businesses. The size of total assets, amount of fixed assets, total assets in the balance sheets, total sale volume or some combination of these factors have mostly been employed to identify SMEs. However, the number of employees is considered to be the most frequently identifying factor used in many countries (Asian Productivity Organization; Storey 1994). For instance, the definition of the European Commission states that small and medium-sized enterprises are firms that employ less than two hundred and fifty staff and have an annual turnover not exceeding €50 million or an annual balance sheet total not exceeding €43 million (European Commission 2003) (by conversion quote in a standard currency – typically 1USD equals €1.31229 or 1€ equals 0.762021 USD as of 3 May 2012 from http://www.x-rates.com/). The definition of SME as used by the new Basal Capital Accord considered those businesses with a sales volume of less than US$65 million as SMEs (Altman and Sabato 2007). In the USA businesses are classified as very small enterprises if they employ less than twenty staff, small enterprises if they employ less than one hundred staff, and medium enterprises if they employ less than five hundred employees (Office of Advocacy 1984). Within the manufacturing business sector of Australia, small enterprises are those that employ less than one hundred staff, with medium enterprises being those firms that employ less than two hundred staff (Holmes and Kent 1991; Meredith 1982). The nations of China, Indonesia, Japan, Korea, Malaysia, and Singapore also utilise the number of employees as the basis for the classification of firms, however with different levels of employment size as cut off points (Khader and Gupta 2002). Thus, it can be argued that where both categories of the value of fixed assets and the number of employees are placed, the firm is either a small or a medium one, the lower of the two will determine how the

enterprise should be classified (Institute for Small and Medium Enterprises Development 2006).

Given that there is no universally accepted definition of small, medium, and large business, thus a broad range of definitions have been adopted by many researchers (Keats & Bracker, 1988). Definition of SMEs can be identified in various ways, for instance categorize by total assets or total fixed assets or by the number of employees. Table 1 shows the criteria being used in different countries.

Table 1: SME's Definitions

Country	Category of industry	Criteria
Australia	Manufacturing	Small enterprises, <100 employees Medium enterprises, < 200 employees
China	SMEs	Depends on product group, usually < 200 employees
Indonesia	SMEs	< 100 employees
Japan	Manufacturing Wholesale trade Retail trade & Services	< 300 employees or asset capitalisation <¥300 < 100 employees or asset capitalisation <¥100 < 50 employees or asset capitalisation <¥ 10 (Conversion rate: 1¥ = 0.01244 USD or 1 USD = 80.3856 ¥ as of 3 May, 2012 from http://www.x-rates.com/d/JPY/table.html)
Korea	Manufacturing Service	< 300 employees < 20 employees
Malaysia	SMIs	< 75 full-time workers or a shareholder fund of < RM 2.5 million (Conversion rate 1RM= 0.329757 USD or 1 USD = 3.03254 RM as of 3 May, 2012 from http://www.x-rates.com/d/MYR/table.html)
	SIs	Manufacturing establishments employing between 5 and 50 employees, or with a shareholders' fund of up to RM 500,000
	MIs	Manufacturing establishments employing between 50 to 75 full-time employees or with a shareholders' fund of between RM 500,000 and RM 2.5 million
Singapore	Manufacturing Services	<SGD 12 million fixed assets < 100 employees (Conversion rate 1SGD = 0.804745 USD or I USD = 1.24263 SGD as of 3 May, 2012 from http://www.x-rates.com/d/SGD/table.html)
USA	Very small enterprises Small enterprises Medium enterprises	< 20 employees 20 – 99 employees 100 – 499 employees
Vietnam	SMEs	No fixed definition, generally < 200 employees

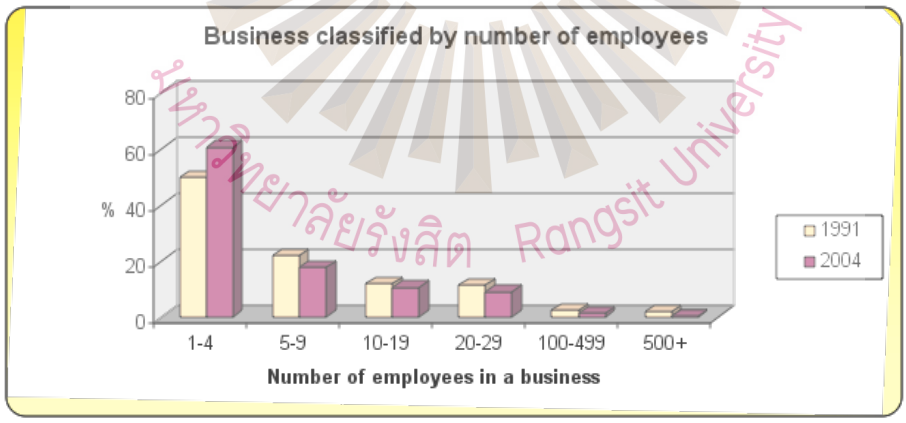
SMIs: Small and Medium Industries,
SIs: Small Industries,
MIs: Medium Industries.
Source: Asian Productivity Organization (2002)

2.3 Small and Medium-sized Enterprise Characteristics

In recent years, there has been significant growth in the public concern of the influence of small businesses in the economy within each country and the world. Small businesses are the majority of all business internationally. For example, the statistics regarding business size in the United States in 1991, 50 per cent of business employed 1-4 people in 1991, while about 22 per cent employed 5-9 people. This means more than 70 per cent of all businesses employed less than 10 people *(see Figure 1)* (Dennis, 1993). In 2004, the statistics regarding business size from the U.S. Census bureau showed an increase of small business; about 60 per cent of businesses employed 1-4 people, 18 per cent employed 5-9 people, which results in 78 per cent of all businesses employing less than 10 people (U.S. Census Bureau, 2004).

Figure 1: Percent of Enterprises by Employment size

Size of the enterprises classified by number of employees starts from 1-4 employees as a micro business to very large with employees exceeds 500



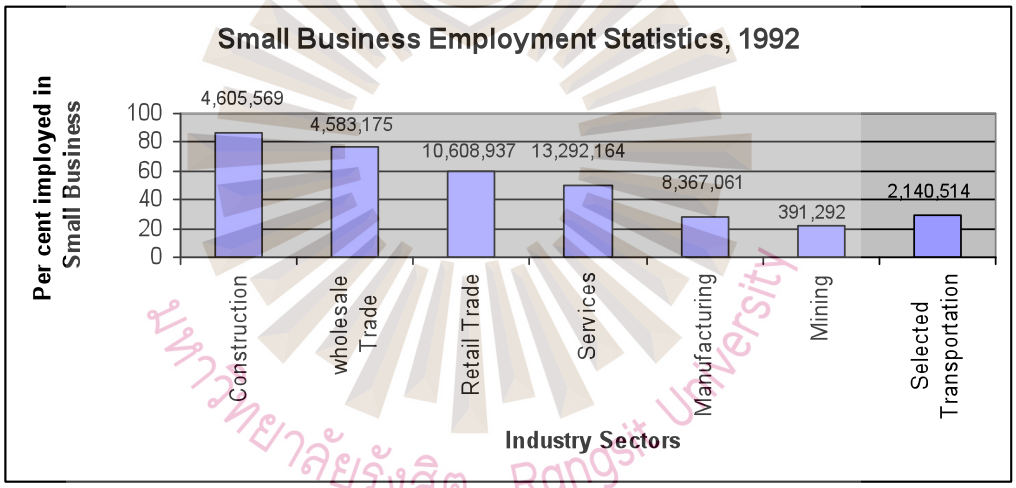
Source: U.S. Small business administration 1991 and U.S.Census Bureau 2004

When considering business by industry sector, some industries lend themselves to small business operation more than others. For instance, in 1992, 86.8 per cent of companies in the construction industry were classified as small by the United States Small Business

Administration (SBA). Manufacturing industries have long been associated with mass employment, as well as mass production, yet SBA data shows that nearly 30 per cent of manufacturers are classified as small. About 60 percent of all retail businesses are small, employing a total of 10.6 million people in selling goods to consumers. More than 75 per cent of wholesale businesses are small, as 4.5 million people are employed by this sector. As indicated by industry percentages and by numbers of employees, small businesses are important in every industry sector. Figure 2 shows the comparison of sectors and the number of employees (Executive Office of The President, 1992).

Figure 2: Small business employment statistics - by sectors

Number of small business employment classified by sectors – where construction was the main sector that provided jobs to market and wholesale and retail were second and third



Data Source: A report of the President Transmitted to the Congress 1992 (Executive Office of The President, 1992)

Even though small business might be differently classified in each country, it generally holds the main portion of the business. For instance, in Australia small businesses produce one-third of the gross domestic product and accounts for about half of private sector employment. Remarkably, 50 per cent of Australian firms have no employees, with 75 per cent of these non-employing firms owned and operated by a single individual (Australian Bureau of

Statistics, 2000). Therefore, it can be said that small business comprises more than 95 per cent of all businesses and provides approximately half of the employment in the industrialized world although the actual proportions vary from country to country. A knowledge and understanding of the characteristics of small business will assist all those concerned to better deal with existing, potential and problems that occur in regard to SMEs.

Ang (1991) stated that small businesses face special problems that others do not, because they have no publicly traded securities and, therefore, no objective basis for valuation. Also the disadvantage of their size leads to the problem of a lack of economies of scale. The differences in the capital structures and access to capital markets by small business have been attributed to gaps in the supply of finance and knowledge gap – small enterprise owner-managers lack understanding of the various sources of finance available and skills in accessing them. Myers (1984) concluded in his article that capital structure – various sources of funds and the debt to equity mix – has proved to be a perennial puzzle in finance. The variation in the use of debt and the lack of use of equity were addressed by Myers (1984) who explained both in terms of a pecking order theory. Problems which small business faced lead some small businesses to fail because they lacked liquidity, good management and external challenges. Some of these affected the ability of small businesses to grow and many businesses that cannot resolve their problems finally fail to continue the business.

2.3.1 Characteristics of small business

Small firms are not just scaled down versions of large firms. Several studies have concluded that financial management of small enterprises is or should be qualitatively as well as quantitatively different from that of large enterprises. They have their own characteristics which might lead to the conclusion that a small enterprise is not a ‘little big enterprise’

(Welsh and White 1981; Levin and Travis 1987; Bygrave and Petty 1991). Being a small firm is not just about size, small firms have common important defining characteristics as follows.

1. No market influence

The small firm has a small share of the market, as it is not large enough, it does not have market power (Australian Bureau of Statistics, 2000; Beddall, 1990; Burns, 2001) the ability to influence the prices or national quantities of the goods or services. Many of the most successful small firms operate in market niches, which are small, have no clear competition and are likely to operate their business in a single market, or a limited range of markets. Related to this is the characteristic that most small firms are over reliant on a small number of customers.

2. Independence

The small firm is independent and it does not form part of a large enterprise. An important aspect of a small firm is that the owner-managers are typically free from outside control in taking their principal decisions (Burns, 2001). Many owner-managers of small firms are family members who want to start doing business and most of them organise and personally manage by their own judgement and abilities. They derive satisfaction from building business by their own ability. They are often reluctant to delegate responsibilities or install formal organisation structures (Burns, 2001; S. Holmes & Zimmer, 1994).

3. Personal influence

The small firm is typically managed in a personalised way and not through the formalized management structure. Business owners are involved in all aspects of the management of the business and are involved in all major decision making. A major advantage of small business

is that a quick decision can be made to meet the demands of a sudden market change (Burns, 2001).

4. Lack of liquidity

Nearly all small businesses begin business with personal equity finance. At some stage, they may lack liquidity when they want to expand their business to do something else such as buying new machinery, or offering credit sales to new customers. Therefore, small businesses often have restrained access to financial resources (Ray & Hutchinson, 1983). However, many of them finance the business themselves and do not rely on outside equity. Some small businesses choose not to grow beyond their own control and capacity (Huang & Brown, 2000). On the other hand, for a number of reasons it is very difficult for small businesses to raise sufficient finance from banks or from other financial institutions; small businesses may lack good management, they may lack accurate financial statements and may have little opportunity to find appropriate market niches. However, many small businesses want to be independent so that they do not have to rely on external equity. They then decide to limit their growth, so that aspects of the business remain under their control.

5. Lack of economies of scale

Large businesses are thought to have the ability to achieve lower unit costs of production because they run production in massive quantities, and they have financial strength which allows them to access a wider capital market, providing them with good and long term conditions. On the other hand, small enterprises can not access many of the benefits of the economies of scale. Economies of scale often are offset by agency costs in large firms (Burns, 2001).

6. No publicly traded securities

Small firms are less likely to qualify as publicly traded securities. Ang (1991) raises several issues pertaining to the capital structure of small firms and described small firms as having no publicly traded securities and access to fewer sources of financing. They cannot seek debt or equity directly from the public market.

7. Higher business risk

Small firms are often viewed as having a high business risk (Beddall, 1990; Cassar & Holmes, 2001; Vos & Nyamori, 1997). This characteristic is developed from a reflection of other problems such as liquidity stress, limited and restrained access to financial resources, high competition, undiversified investments, lack of economies of scale and the objectives of the owners in doing business which may pursue other desires rather than profit maximization. Lack of business skill or other personal aspects will relatively affect firm performance at the end.

2.3.2 Financial characteristics of small business

Small firm characteristics are viewed as different from those of large firms. There is not only the size matter, but also the difference of nature of business, which makes small business different from other business even to itself at different stages. Small business characteristic at the initiation stage is different from the development, growth, maturity or decline stage. Hutchinson and Ray (1986) have reviewed the financial lifecycle of small growth firms in relating the stages of development to the financial stress factors associated with each stage. The results have been found that small firms are undercapitalised at the initiation stage. Their financial structure is often not well managed. Once the initial stage develops to the next, the stress of overtrading provides a recurrent liquidity problem and the situation is getting more serious as they reach a further stage. The study of Miller and Friesen (1984)

concluded that although distinct stages exist, they do not necessarily occur in order, some firms may jump across stages and the length of stages may vary and the changes that occurred when a firm moved to a new stage is highly multiform. Churchill and Lewis (1983) focused on growth in developing five stages of small business growth namely existence, survival, success, take-off, and resource maturity. The conclusion found that small business is concerned with different things when they progress to different stages. For example, at the existence stage, the organizational structure tends to be simple and centred around the owner-manager, while the survival stage, establishing a profitable operation is the key to an ongoing business. When they reach a stage of take-off or rapid growth, business management of small firms is far more complex as liquidity stress is more likely to occur, and delegation and professional management is needed to keep the business successful. The importance of cash changes according to the stage changes, where it is extremely necessary at the beginning stage but much more manageable at the success stage, and is of more concern when the business reaches the success and rapid growth stages. Ray and Hutchinson (1983) found that the financial characteristics of growth firms are very similar to those of bankrupt firms. As the firms move to a rapid growth stage, a finance gap often occurs. Liquidity stress gradually developes as the stage of the firm progresses.

The characteristics of small firms are not only different from those of large firms, but also differ among themselves at different stages in their development. Financial characteristics of small firms then are more likely to deviate and develop to either more or less problem concerns when they develop to the different stages of the business lifecycle. Considering financial characteristics the differences of small firms to large firms have been accepted by most investigators, however, the lifecycle stages of small firms need to be considered as this may influence the differences in financial characteristics.

Financial characteristics of small firms overall are found to be inconsistent. In this study, there are three main focuses on financial characteristics of small firms: liquidity, financial leverage, and profitability. It has been found that several studies may have different conclusions regarding these three matters. Some have found that small firms had greater liquidity stress, greater geared leverage, but less profitability than large firms while others found contradictory results.

With regard to liquidity, small firms which usually begin the business by the owners' funding are viewed to have less liquidity than large firms as they are depending on fewer owner shareholders' funding. From the perspectives of banks, other financial institutions and other related external parties, small firms are more likely viewed as having high-related risks, being owner-centred and being disadvantaged in many aspects. Access to external funding of small firms is more difficult. Under these views, small firms are viewed as having less liquidity (Bate (1971), Gupta (1969), Walker and Petty (1978) and Wilson (1979) cited in McMahon, Holmes, Hutchinson, & Forsaith, 1993, p. 189). While the studies of many researchers found the result differed, small firms have been found to be more liquid than large (Chen and Balke (1979) and Elliott (1972) cited in McMahon, et al., 1993, p. 189) while others found no significant differences between small and large firms (Bolton Committee (1971) and the United States Small Business Administrative (1984) cited in McMahon, et al., 1993, p. 189).

Financial leverage in small firms is found not to be different from large firms in many studies (Bolton (1971), Chen and Balke (1979), Elliott (1972), Tamari (1980), and Wilson (1979) cited in McMahon, et al., 1993, p. 180), while only Bates (1971 cited inMcMahon, et al., 1993, p. 189) found that debt ratio of small firms was lower than that of large firms. Some other studies found small firms leverage to be more highly leveraged than large firms. The high level of leverage is associated with the problem of under-capitalisation which in turn has

two components; first small firms are more likely to depend on debt rather than equity, and second they are more reliant on short-term liability rather than long-term liability (Davidson & Dutia, 1991).

The argument regarding profitability of small firms has been discussed for several decades as some studies found small firms to be lower than that of large, for instance the firms in the United States Studies; such as Anderson (1967), Gupta (1969), United States Small Business Administration (1984), in the United Kingdom such as Bates (1971)). Only a few found small firms were more profitable than large (Bolton (1971) and Wilson (1979) cited in McMahon, et al., 1993, p. 189).

Recent findings by Davidson and Dutia (1991) have increased the understanding on the matter of liquidity, financial leverage and profitability in small firms. They found that small firms are less liquid, highly leveraged and less profitable when compared to large firms. They also found that small firms carry proportionally more cash and total current assets than large firms but they turn out to have less liquidity because of the great use of short-term liabilities.

In summary, these findings suggest that inconsistent differences between small and large firms have occurred in the matters of liquidity, financial leverage and profitability. However, there are two differences in financial characteristics between small and large firms on which most people agree. First, the variability in profitability of small firms is greater than that of large firms (Anderson (1967), Bolton (1971), Singh and Whittington (1968), Storey et al. (1987), Tamari (1980) and Whittington (1971) cited in p. 189). Second, small firms have lower levels of long-term liabilities to total assets than large firms (Bates (1971), Bolton (1971), Davidson and Dutia (1991), Gupta (1969), Tamari (1980), US Small business Administration (1984), Walker and Petty (1969) and Wilson (1979) cited in McMahon, et al.,

1993, p. 189).

The financial characteristics in matters of liquidity, financial leverage, and profitability of small firms are generally found to be different from large firms. These characteristics then are expected to be more dramatically different when the small firms are financially distressed and the comparison with non-distressed small firms is made. As their liquidity becomes strained, finding external funding is a need, their liabilities are often found to be high when compared to total assets. The distressed small firms then can often be found to be less profitable or making losses.

2.3.3 Financial structure and access to finance of small business

Considering the previously discussed literature, internal sources are considered the most important source of small enterprise financing. Funding from the owners in the form of owners equity or liability at the initial stage is quite common for small businesses. The problem of distinguishing between debt and equity in small firms may become blurred. While considering external sources of finance, bank financing is still the most widely used for small enterprises. The way a firm uses the various sources of finance is, therefore, important to the value of a firm, as the sources of finance are not costless. Financial resources with different costs are required by firms and reflect the firm's value.

These financial resources include:

- debt, the cost of which is the interest paid
- equity, the cost of which is represented by the shareholders' required rate of return
- mixture of both debt and equity which leads to the determination of a weighted average cost of capital

The value of a firm to its shareholders increases by changing the firm's mixture of debt and equity (Beal & Goyen, 2005). In general, the costs of debt are usually lower than the costs of equity. In other words, more debt would lower the weighted average cost of capital and increase the value of the firm. This would suggest by Modigliani and Miller (1958) that firms should use debt only to fund operations. However, this would require a consideration of the Miller-Modigliani Theorem, trade-off, agency cost and pecking order theories, which will be discussed in more detail in the following chapter.

Small enterprises have found that they preferred to self finance more than large enterprises, Modigliani and Miller (1958) concluded that small enterprises, compared to large, tended to be more self-financing, had lower liquidity, rarely issued stock, had lower leverage, relied more on bank financing and used more trade credit and directors loans.

Many researchers have found that small enterprises on average face the problem that accessing finance is more difficult and more expensive than for large enterprises. For example, Groves and Harrison (1974) outline the issues underlying the concept of a finance gap that small companies were hit harder by taxation, and face higher investigation costs for loans. They, therefore, are less able to satisfy loan requirements. Tamari (1980) states the viewpoint of the financial structure of small firms that they have limited access to the capital and money markets and suffer from chronic undercapitalization. As a result, they, therefore, are likely to have excessive recourse to expensive funds, which act as a brake on their economic development. The Bureau of Industry Economics (1984) observes that there is inadequate knowledge of the sources of available finance as well as a lack of expertise in preparing comprehensive applications for finance.

Myers (1984) explained the variation in the use of debt and the lack of use of equity in terms of a pecking order theory. Firms would prefer to use internal finance first, followed by debt

and would only issue equity as a last resort. Myers (1984) also summarises the pecking order framework associated with small enterprises that:

> in this story, there no well-defined target debt-equity mixes, because there are two kinds of equity, internal and external, one at the top of the pecking order and one at the bottom. (Myers, 1984, p. 581)

The finance gap explains the differences in the capital structures of small firms as opposed to large firms. These differences were attributed to a fundamental difference in the pecking order framework (POF) of small and large firms. Small firms operate under a constrained POF.

Finance gap as defined by MacMillan Committee (1931) refers to the situation in which an enterprise has grown to a size where it has made maximum use of short-term finance but is not yet big enough to approach the capital market for longer-term finance, particularly equity (Beal & Goyen, 2005).

The finance gap as described by Holmes et al. (2003) has two components:

- Knowledge gap: The apparent restricted use of debt is in direct consequence of a limited awareness of the appropriate sources of finance and the relative advantages and disadvantages of these sources.
- Supply gap: Funds are either unavailable to smaller businesses or more frequently, the cost of debt to small firms exceeds the cost of debt to large firms.

Hardman (1996) studied firms both small and large in the United States and found that large firm managers have a POF which extends across a more diverse range of funding options and may incur search costs. At the same time, small firms might not have many opportunities to

be accepted for financing from large banks because they are considered risky due to their small scale and many other disadvantages of being a small business. This would support the concept of a supply gap, which small firms often face. As small firms are not often required to prepare the financial statements, balance sheets or other important financial reports they also have been seen to be unprepared for doing formal business and seem to have less respect for other financial institutions (Hardman, 1996). Likewise, banks in China typically do not loan to SMEs.

However, the POF still fits the small firms, as managers tend to be the business owners and they do not normally want to dilute their ownership claim. An owner-manager would prefer internal funds (retained earnings), as a form of funding to ensure the maintenance of control over the operations and assets. Where debt funding becomes necessary, debt will be sought that does not constrain management. Therefore, owner-managers would favour short-term debt, which does not tend to involve debt covenants and security over specific operating assets.

Even though the POF is applicable to both small and large firms, differences between the capital structures of the two groups have been detailed. First of all, small firms usually do not have the option of issuing additional equity to the stock market and secondly owner-managers are strongly adverse to any dilution of their ownership interest and control.

Governments have also been concerned that a major problem faced by small firms is that finance is not readily available. Owner-managers are unaware of the various sources of finance available to them. Wiltshire (1971), in a report of a committee on small business in Australia was concerned about the lack of financial assistance in the form of advice, and made recommendations to provide government facilities for this purpose. This problem may be expressed by the term of “supply-side deficiencies”. However, there is not only the

problem which small firms face on the supply-side but also on the demand-side because some of them are not able to enter the market or in other words, they are not in the stage of investment readiness. They do not want to lose their power of decision-making, and/or dilute their interest and control. Therefore, small enterprises sometimes do not want to rely on outside help.

General problems which impact on small businesses are that owners are basically responsible for the source of funds and often reluctant to delegate responsibilities to set up a formal organisational structure (Holmes & Zimmer, 1994). Furthermore, they are viewed as having relatively higher business risks such as management ability, liquidity stress, competition, undiversified investment and the business objectives of the owners. They are also more likely to be at risk, as unlisted firms are difficult to assess and attract investment because of the limited data available and lack of a market quotation (Vos & Nyamori, 1997). As they are small, the managers or owner-managers often lack management skills (Beddall, 1990). The owners may be unprepared in education and experience for doing business. They may not know what kind of financial report would assist them to make better decisions when they are in changing circumstances. Some of them take control of businesses, which have been passed on from their parents where they might not know how to administer and manage the businesses with a reasonable level of risk. These are discovered to be some of small business's general problems.

2.3.4 Financial choices of small business

The financial choices of small business which have been adapted from Holmes and Kent (1991), and Holmes et al. (2003) can be summarized as follows:

1. Internal sources

As has been mentioned before, most small enterprises rely on personal finance which comes from the owners or owner-managers. Holmes and Kent (1991) found that at the start-up stage, 74 per cent of the sources of funds of Australian firms come from the owners as the first priority. The second priority, in fact 19 per cent of all Australian firms, borrowed money from banks. Following the start-up stage, borrowing from banks increased in importance yet additional funds provided by the owners were still ranked ahead of bank financing as the major source, with 45 per cent of small enterprises indicating this as the major source of additional funding compared to 39 per cent for bank borrowing. After the creation of the new small enterprise, the greatest source of finance is likely to be retained profits.

2. Bank finance

Bank finance is the most important single source of external finance for small enterprises. When compared with large firms, small firms rely more on bank sources of finance such as overdrafts and loans (Holmes, et al., 2003). Overdrafts are provided by banks and financial institutions on current or cheque accounts. An overdraft is a permitted over-drawing of funds beyond the credit balance in the account. However, applicants for overdrafts are normally charged establishment fees and account keeping fees, as well as an interest rate on outstanding funds based on the indicator or benchmark rate plus a margin for perceived risk on a day-to-day basis. Apart from overdrafts, small enterprises might rely on term loans. However, term and interest rate conditions are things which have to be considered for small enterprises because they always face high interest rates and also have to be concerned about matching objectives of the source and the use of these funds. In order to minimize the cost of borrowing on a term loan a business would need to have a cash management system to ensure that unused borrowed funds were not lying idle in a bank account or in the form of cash. An

overdraft has the advantage to small enterprises of minimising their need to develop cash management systems.

3. Trade credit

Trade credit is very important in small enterprise financing. It is credit that is granted by one firm to another to facilitate trade. The granting of trade credit allows a purchase to be made without the immediate payment of cash or the use of a credit card. Accounts payable are a major source of funds for small enterprises. The purchase of goods and services on credit obviously conserves the funds of the small enterprise for other purposes. Therefore, this is likely to cause problems for rapidly growing small enterprises which have sales volumes on large credit. Because the flexibility that trade credit provides and it is extended without formal agreement and restriction, trade credit is possibly the most important source of short-term credit for business and it is popular for small enterprise financing (Bates, 1971; S Holmes, et al., 2003; Wilson, 1979).

4. Factoring

Factoring is when businesses are involved with selling their accounts receivable at a discount for cash to another party that takes over the right to collect the amounts owing. Factoring is a method of obtaining short-term finance, in that the borrower gives the lender the right to collect the cash owing on its invoices for a fee. Additionally, factoring firms may reduce the foreign exchange risk by contracting to pay for invoices in the home currency. Factoring is normally highly suitable for businesses who have rapid sales growth and are unable to meet large orders or seasonal peaks, and regularly exceed their current overdraft limits and are fully borrowed against fixed assets. Factoring may not typically make sense for all small firms but for some small firms that face a finance gap and would like to avoid using its own funds to provide credit, factoring can be one of the available choices. It allows small firms to

receive funds more quickly from the finance company that takes over the collection of the accounts receivable. Furthermore, factoring can be used for leasing assets. Instead of spending time monitoring and collecting accounts receivable payments, small business-owners can spend time on more productive activities (Holmes, et al., 2003).

5. Lease and Hire purchase

A lease allows the firm to use the asset without owning it, by making regular lease payments; whereas hire purchase allows the firm to purchase the asset over a period of time, by making regular payments with the asset acting as security in the case of default. The main practical difference between the two methods is their tax treatment. Interest rates on lease and hire purchase schemes may be higher than on loans; however, for a firm with little security these methods might be the only way to secure assets for the firm.

6. Stock market listing

When a business develops to a stage where it requires significantly more finance, it might be a good solution for it to list on the stock market. Access to capital markets is an important strategy in obtaining finance, and the implementation of a stock market flotation is a major change for many small enterprises. It involves making a large part of the shareholding of a company available to many people in order to ensure an active market in the shares. The capital market is seen to be a source of finance with almost unlimited funds from all the various financial sources. However, it is not easy for small enterprises to enter the stock market because it is difficult to ascertain their real value. The other reasons for small business not entering in the stock market are the higher cost, loss of control by the original shareholders, increase disclosure requirements and a reduction in the directors' freedom of action with the resulting impact being that small businesses are very hesitant to list their shares on the stock market (Beal & Goyen, 2005).

Many owner-managers, particularly at start-up, try to avoid borrowing or using other people's resources wherever possible. Many owner-managers make extensive use of personal credit cards because of the problems they face in securing other sources of finance. Most small firms; however, will need to obtain some form of external finance at some point in their growth which might be an overdraft or short or long-term loans. The principle sources and uses of finance are often matched to the term-duration of the use to which it is placed. Most firms use a range of financing to suit their differing needs and circumstances as can be seen in the following table (Adapted from Beal and Goyen (2005).

Table 2: Sources and Uses of Finance

Term of finance	Source of finance	Use of finance
Short-term	• Internal source • Trade credit • Factoring • Overdraft and short-term bank loans	Working capital
Long-term	• Medium and long-term bank loans • Leasing • Hire purchase • Equity ○ Personal investment ○ Stock market	Fixed or permanent assets such as land Buildings, furniture, Equipment, plant, Vehicles etc

Source: Adapted from Source and uses of finance table of Beal and Goyen 2005

Funds of small firms are coming from several sources as mentioned above such as internal source (owner funds), bank finance, trade credit, and so forth. From the study of Berger and Udel (2002) small firm finance in the United States based on data from the 1993 National Survey of Small Business Finance, the significant results found that small firms as a whole (all non-farm, non-financial, non-real-estate small business) depend on both debt (50.37 per cent) and equity (49.63 per cent). The biggest debt category is funds provided by commercial

banks (18.75 per cent) and next is trade credit (15.78 per cent). The biggest equity category is funds provided by the principal owner who is typically the person who has the largest ownership share and has the primary authority to make financial decisions (31.33 per cent). The following table, adapted from Berger and Udell (1998), shows the financial structure of US small businesses.

Table 3: Estimated Distributions of Debt and Equity for US Small Businesses

(% of Total Equity plus debt)

	Source of Debt				Source of Equity								*Total Equity plus Debt*
	Commercial Banks	Finance Co.	Other Fin.Insts.	Trade Credit	Principal Owner	Other Debt	***Total Debt***	Principal Owner	Angel Finance1	Venture Capital2	Other Equity	***Total Equity***	
A: All Nonfarm, Non financial, Nonreal-Estate Small business	18.75	4.91	3.00	15.78	4.10	3.83	50.37	31.33	3.59	1.85	12.86	49.63	100.00
B: Breakout by Size of Small Business													
B.1 Smaller (<20 employees & < $1mill.sales)	14.88	3.08	3.53	11.81	5.59	5.11	44.00	44.53	n.a.	n.a.	n.a.	56.00	100.00
B.2 Larger (≥ 20 employees & ≥ $1mill.sales)	19.94	5.47	2.83	17.01	3.63	3.45	52.33	27.22	n.a.	n.a.	n.a.	47.67	100.00
C. Breakout by Age of Small Business													
C.1 Infant (0-2 years)	15.66	8.33	3.84	13.40	6.04	4.83	52.10	19.61	n.a.	n.a.	n.a.	47.90	100.00
C.2 Adolescent (3-4 years)	30.84	2.51	2.36	13.42	6.19	5.31	60.63	13.37	n.a.	n.a.	n.a.	39.37	100.00
C.3 Middle-Ages (5.24 years)	17.86	5.85	2.87	17.10	3.91	4.41	42.00	31.94	n.a.	n.a.	n.a.	48.00	100.00
C.4 Old (25 or more years)	17.25	3.28	3.38	13.86	3.68	2.05	43.50	35.42	n.a.	n.a.	n.a.	56.50	100.00

Source: Adapted from Berger and Udell (1998, Table 1).

Most of the underlying data are from the 1993 National Survey of Small Business Finance.

1 Angels are high net worth individuals who provide direct funding to early-stage new business.
2 Venture capital is the formal intermediated venture capital market. Elsewhere, venture capital is often used to refer to all sources of non-insider private equity, including angel finance.

2.4 SMEs Facing Difficulties

It has been established in the literature that there are numerous differences between small and medium enterprises when compared to large businesses (Hall, 1995; Pratten, 1991; Tam, Moon, Ng, and Hui, 2007). However, the vast majority of SMEs have remained at the centre of economic growth, as well as social wellbeing, while others are continuing as support industries for the larger companies and businesses. In general, the significance of SMEs in the employment sector by creating positions and stimulating economic growth has been recognised (Bàkiewicz, 2005; Veskaisri, 2007). For example SMEs comprise a fundamental unit in the Thai economy, constituting over 99 percent of the total number of enterprises in the country (Office of SMEs Promotion, 2007). The success or failure of SMEs will inevitably, therefore, affect other associated businesses. Encouraging and supporting the growth of SMEs also contributes towards the success of both economic and social objectives, such as expanding workers' skills or alleviating poverty in inner cities or declining regions (Schlogl, 2004). Given the substantial contribution SMEs make to most economies concern for their sustainability has become a major concern for policy makers and the business community. The economic crisis of 1997 promoted the governments in many countries to have greater concern for the economic recovery and growth of SMEs (Bàkiewicz, 2005; Swierczek and Ha, 2003). However, despite the recent generalised emphasis on SMEs, this sector in the economy has received insufficient research attention (Bàkiewicz, 2005).

It has been documented in the literature that SMEs confront several challenges during the period of operation that may contribute to the potential causes for failure. These challenges fall into four categories: i) limited financial resources; ii) the loss of competitive advantage in the market place; iii) lack of good internal administration, and

finally, iv) ineffective support from government (Office of SMEs Promotion, 2006 and 2007).

A primary source of SME failure has been identified as inadequate financial resources (Coleman, 2000; Van Auken and Neeley, 1996). The reliance on private markets limits the types of financing SMEs can receive. Berger and Udell (1998) contend that these financial limitations, coupled with the small firm's initial use of internal sources of capital, resulted in a unique situation in which capital structure decisions are made. Cancer and Knez-Riedl (2005) argue that many companies use the concept of cash flow to support short-term decisions. SMEs seek adequate funding for their business in order to remain viable (Huang, Soutar and Brown, 2002). These strategies can include attracting sufficient funds, creating external links with other companies, having skilled employees, taking risks, and using networks; all of which actually add further financial burdens to the already financially stressed SMEs for their continued success (Vermeulen, 2005).

Understandably SMEs are not financially equipped to compete directly against larger enterprises because of their limited resources (Hyder and Abraha, 2004). However, even with limited resources, the competitive nature of SMEs allows them to protect their specialized niche market in which they generate sufficient profits, regardless of the size of their market share (Lambert and Cooper, 2000).

In China, SMEs foster market diversification, promote innovation, and provide many employment opportunities. Yet the development of viable and efficient SMEs is hampered by several constraints. The lack of capital is becoming the predominant financial difficulty because SMEs are credit insufficient and vulnerable to credit crunches during times of financial crises. Compared to medium enterprises, the smaller enterprises, especially those that are privately and individually owned, have to deal with the obstacle

of raising the initial investment, let alone on-going finances (Tambunan, 2008). Most small enterprises get their initial capital by the owner/operator personally borrowing from relatives or friends, as with a low credit ranking commercial banks are not willing to take on the potential high risk of defaulting on the granted loan (Yuan and Vinig, 2007).

Weinberg (1994) states that the access of SMEs to information regarding investment is limited, thereby inhibiting their ability for possible investment and potential growth. Spanos, Prastakos and Papadakos (2001) conclude in their study that SMEs faced difficulties of size-related disadvantages, limited access to the skills of employees, lack of advanced and high technology skills, and limited access to high quality financial resources, all contributed to SMEs focusing on gaining access to new and high cost resources. Apart from the financial difficulties mentioned above, some other common constraints include challenges in procuring raw materials, lack of access to relevant business information, difficulties in marketing and distribution, low technological capabilities, high transportation costs, human resource problems, concerns caused by cumbersome and costly bureaucratic procedures, policies and regulations that generate market distortions, including corporate operating management challenges. As China only emerged in 1992 it can still be considered as an emerging nation on the world economic stage, with most of the state-owned enterprises yet to privatised. So, effective corporate management systems are still being formulated, introduced and established in most large-sized enterprises, let alone SMEs (Barth, Lin and Yost, 2011).

Determining the actual cost of business failure is often difficult because the line between business success and failure is not always clear. Branch (2002) categorizes bankruptcy-related costs into four different areas: 1) the real cost borne by the distressed firms; 2) the real costs directly borne by the claimants; 3) losses to the distressed firms that are offset

by gains to other firms; and 4) the real costs borne by parties other than the distressed firms and/or its claimants. Branch's study shows that the claimants recover approximately 56 percent of the bankrupt firms' pre-distress value (PDV). Dealing with financial distress, total bankruptcy-related costs to firms and claimants are approximately 13 to 20 percent of the distressed firms' PDV. Furthermore, indirect bankruptcy costs include the loss of sales, profits and goodwill. These losses are incurred on account of reduced consumer confidence that results from the individual customer/client's decisions towards the distressed firms and their inability to obtain goods, credit or to issue securities. Beyond these losses, the distressed companies may be occupied in taking steps to avoid bankruptcy to the extent that normal business operations are disregarded (Ross, Westerfield and Jordan, 2008; Warner, 1977). Therefore, as going bankrupt is expensive, firms will spend resources to avoid it. In addition to the substantial direct and indirect costs of business failure, there are other dimensions to SME failure that should be considered. First, the probability of both personal and business bankruptcy, including the subsequent liquidation is much higher with small enterprises. Second, the direct costs of bankruptcy and liquidation fall more heavily in relative terms on small enterprises. Third, there may be some other indirect costs associated with bankruptcy and liquidation that are not readily apparent (Holmes et al., 2003).

A firm's aggregate level of debt tends to be a good starting point for assessing its economic stability. In particular, high levels of debt tend to create real costs at both the micro- and macro-economic levels (Bernanke et al., 1988), with both direct and indirect consequences. Nonetheless, the question of 'how high is high?' has always been unanswerable. Firms with high levels of debt are less likely to be able to get favorable terms and conditions for their businesses and may become bankrupt. The consequences are enormous both to the businesses themselves and the macro-economy at large.

Unsurprisingly, the possibility of serious consequences of high levels of firm debt seems to engender a high level of attention yet, it has not always been easy to determine the proportion of debt and equity that would maximise the chances of a business to survive economic downturns (Warner, 1977). This issue is an important one as failure of SMEs costs society in a variety of ways. Davidson and Dutia (1991) found that small firms have less liquidity and more leveraged than large firms, yet tend to have lower profit margins. In the case of financially distressed firms, the financial characteristics are even more extreme with low liquidity, high leverage and low or negative profits (losses). As financially distressed firms tend to exhibit low liquidity and high levels of long term debt, financial ratios can be examined to predict the chances of business failure.

2.5 Causes of small business failure and success

The risk of business failure is a common perception concerning small firms. Such limitations may influence business failure. Financial problems such as the limited and unaccessed sources of finance associated with poor financial management have been shown to be significant causes of small business failure. A number of reasons give the answers to why many small firms do fail. However, failure may broadly involve bankruptcy, liquidation, voluntary wind-up (instigated by creditors) or voluntary closure, or the business may continue to operate with less returns. As often, the small business returns can be intangible such as flexible working hours, basing operations from home, personal reputation, employment of family members. In fact, many businesses cease operations without necessarily failing; such as when the business owner dies, retires or seeks higher returns in other business (Berryman, 1982). This cause of cessation of business may occur without obvious records. The causes of small business failure have become clearer and together with consideration of the causes that support a successful

business, these will possibly help enterprises not only to remain in business but to become successful.

2.5.1 Causes of small business failure

Many small firms either stagnate or fail. In the UK most do not grow to any size- almost two-thirds of businesses comprise only one or two people, and often the second person is the spouse. Half of the businesses cease trading within three years of being established, although, as has been pointed out this does not necessarily mean that the closure has left creditors unpaid. Perry and Pendelton (1983) estimated that 50 per cent of new small businesses fail within two years and only 20 per cent of new small businesses survive ten years. When the number of start-ups increases, the number of businesses ceasing to trade tends to increase as well. For the sole business owner this might lead to their personal bankruptcy as creditors pursue their debts by claiming their personal assets. For a limited company, an inability to pay creditors can lead to insolvency and then liquidation. Statistically, total insolvencies are defined as all liquidation of insolvent companies plus all personal bankruptcies. This is what most people would agree to term as business failures.

Perry and Pendelton (1983) mention that the causes of small business failure of 90 percent of businesses are associated with management inadequacy which consists of either management inexperience and/or incompetence. The summary of the causes of business-related bankruptcy as reported in the Annual Australian Bankruptcy Reports (Australian Parliament, 2001), collected data from 4,964 business bankruptcies across the whole private sector, from 1997 to 2001. The main causes of business-related bankruptcy followed the same pattern, and during 2000-2001 the main cause of bankruptcy was

"Economic conditions" 40 per cent, followed by "Lack of capital" 15 per cent and "Lack of business ability" 11 per cent.

Berryman (1982) summarised the two major causes of business failure as cited by a number of small business authors. I) Management inadequacy accelerates the rate of failure, which includes a lack of knowledge or experience but may also relate to an inability to adapt or cope with factors external to the enterprise, such as seasonal or economic conditions, and may also relate to limited access to the information required to help business decisions. II) Inadequate or poor accounting records which relate to deficiencies in accounting knowledge and lack of accounting management advice that contributes to the final failure of businesses. Apart from these causes of small business failure, there are other minor factors that contribute to business failures: excessive interest, excessive drawings, inability to collect debts, failure to keep proper books, seasonal conditions, gambling or speculation and finally personal reasons, for example ill health.

Storey (1998) identifies a number of factors that influence the probability of business failure, that are not necessarily independent of each other. The factors, which Storey identifies as having the strongest influences are:

- age of business: Young firms are more likely to fail than older firms. Half of the number of firms ceases trading within their first three years of existence. The longer a firm survives, the less likely it is to fail.
- size of business: Large firms have more assets and are in a financial position to overcome adversity in the short term, whereas smaller firms with limited resources have a weaker position during times of adversity.
- past growth: Firms that grow within a short period after start-up are less likely to fail than those that fail to do so.

- sector: Failure rates vary from sector to sector with the construction and retail sectors showing the highest rate of failures.
- management: Skills of the owner-manager as well as the employees are important to the business success including owner-managers' education, qualifications and personal business administration experience.
- economic conditions: Small firms are traditionally thought to be vulnerable to changes in economic activity with business failures expected to increase in times of recession.

Business type has been one of the considering factors of small business failure. Ang (1991) argued that typically owner-managers of small firms have no or ineffective limited liability. This is probably due to the unlimited personal liability of sole proprietors and partners. Furthermore, they have no publicly traded securities; therefore, they have no objective basis for valuation and incur higher costs when external funding is needed. The owner-managers have no or little diversified portfolios. There is evidence that franchises have a lower chance of failure than other business. Johns, Dunlop and Sheehan (1989) indicated that advertising, followed by quantity discounts, professional advice and assistance are the major benefits that are associated with franchising. More surprising, from the work of Storey (1998) it was concluded that limited companies are more susceptible to possible failure than either sole-proprietorships or partnerships.

Presumably, failure is mainly influenced by management inadequacy, economic conditions and lack of capital and business abilities. These factors involve those, which are both inside and outside the owner-manager's control. The new are more likely to fail than the old established, the very small are more likely to fail than their larger counterparts, and for new firms probably the most powerful influence on their survival is

whether or not they grow within a short period after start-up. These factors are either under or not under the control of the owner-manager.

In a survey of the literature regarding small business failure and bankruptcy by Berryman (1982), causes of business failure were summarised in the following table which suggests small business failures go towards one underlying factor, that is management incompetence.

Table 4: Causes of Business Failure

Cause	*Details*	*Percentage of articles giving this cause*
Accounting	Credit management	50
	Control of accounts payable	22
	Inventory control	39
	Administration of fixed assets	22
	Cash flow analysis, liquidity	28
	Working capital analysis	6
	Budgeting for growth	11
	Heavy operating expenses	6
	Inadequate or no accounting records	33
Marketing	Inadequate sale	17
	Marketing deficiencies	22
	Location	22
Finance	Lack of initial capital	28
	Lack of finance	6
	Over geared	11
Other endogenous areas	Competitive weakness	6
	Operating problems	6
	Excessive drawings	22
	Underestimating	6
	Tax planning	6
	Deficiency in accounting knowledge	22
	Lack of management and financial advice	11
	Lack of managerial experience	22
	Personal problems	6
	Absence or inadequacy of board of directors function	11
Exogenous factors	Economic condition	22
	Seasonal conditions, including floods and droughts	11
	Personal problems	17
	Fraud	22
Behavioural aspects	Problems with delegation	11
	Reluctance to seek help	22
	Excessive optimism	6
	Unaware of environment	7
	Inability to adapt to change	11
	Thinness of management talent	11

Source: Small business failure and bankruptcy by Berry man (1982)

Management inadequacy such as poor credit management is found to be a main problem that causes business failure (50 per cent), followed by inventory control (39 per cent) and inadequate or no accounting records (33 per cent). Interestingly, lack of initial capital (28 per cent) and lack of finance (6 per cent) is found to be less serious than management inadequacy. Berryman (1982) concluded that deficiency in accounting knowledge and lack of management advice are contributing factors to business failure. As a consequence of inexperience, management often fails to access or prepare information to assist in structured business decision making and this is often a cause of small business failure. Similarly Berryman's (1982) conclusion, according to most studies relating to failure of firms, about 90 per cent of all failures can be traced to lack of adequate management as a major cause of business failure (Wyant 1972; Argenti 1975; The CPA Journal 1975).

2.5.2 Causes of small business success

After considering the causes of business failure, the question arises as to what are the causes of business success. Burns (2001) stated that the elements of business success can vary from situation to situation but the major elements are the entrepreneurial character, the business culture, and company strengths. First, the owner-manager must want to succeed and possess the characteristics of an entrepreneur. It is not just that the role as the founder and the qualities and skills needed to manage the business successfully changes, but it is also the application of the functional disciplines of marketing, accounting and personnel management. The entrepreneur who wants to be a leader in a growth business needs to change the way it operates and become more formal without becoming more bureaucratic. And all of these changes need to be properly managed if the firm is to grow

successfully. The entrepreneur needs to be well-educated, start the business with positive motivations, and be willing to share ownership of the business with other key managers. Secondly, the business culture is a very key factor to business success. Having the correct culture is probably more important than the right structure. Part of the culture must be the ambition to grow. Companies, which have risen to positions of global leadership over the last 20 years invariably, began with ambitions that were out of proportion to their size or resources. They maintained an obsession with winning long enough to succeed. Lastly, knowing the company strengths is a need. A company needs a good management team and good financial control systems. It needs to know who its customers are and the reasons they purchase from them rather than competitors. It needs to know what strengths it has and how they can be promoted to build, to support and sustain the business while improving weaker aspects of the firm.

Harrison and Taylor (1996) concluded that making the right business decisions is essential for business success. Making no business decisions can be just as disastrous as making bad decisions. Competing on quality rather than price is an important element of success for small firms, including domination of a market niche, competing in areas of strength, having tight financial and operating controls, and frequent product or service innovation.

Timmons (1999) stated that successful entrepreneurs are patient leaders, capable of instilling tangible visions and managing for the long haul. He concluded six dominant characteristics of successful entrepreneurs: leadership, commitment and determination, opportunity obsession, tolerance of risk, creativity, and motivation to excel.

2.6 Importance of SME sustainability

Due to the substantial contribution SMEs make to most economies concern for their sustainability has become a major interest for policy makers and the business community. The success, or the failure, of SMEs will inevitably, therefore affect other associated businesses. While the support for developing and encouragement for expansion and growth of SMEs contributes towards the success in both the economic and social spheres such as the development of employee's skills or alleviating poverty in inner cities or declining regions (Schlogl, 2004).

In general, the significance of SMEs has been recognized in terms of employment creation and stimulating economic growth (Bàkiewicz, 2005; Veskaisri, 2007). For instance, SMEs comprise a fundamental unit in the Thai economy, constituting over 99 percent of the total number of enterprises in the country (Office of SMEs Promotion, 2007). As a result of this recognition and its importance to the nation's economy, the issue of the sustainability of SMEs has become increasingly important in the development of government policies. The Asian economic crisis of 1997 increased the concern of many governments to have a greater concern for the economic recovery and growth of SMEs (Bàkiewicz, 2005; Swierczek & Ha, 2003). However, despite the generalised emphasis on SMEs, this sector in the economy has received insufficient research attention (Bàkiewicz, 2005) whereas research regarding large enterprises has been conducted. Against this background, many researchers have developed models for predicting the likelihood of the success or failure of SMEs using several statistical approaches such as multiple discriminant analysis (MDA), logistic regression (LOGIT), probit analysis (PROBIT), and Linear probability model (LPM). All of these models has the objective of identifying financial concerns as a potential early warning of possible financial failure, and therefore

facilitate other decision makers to understand the financial profile of businesses (Ahn, et al., 2000), and inform policy-makers by highlighting key priority areas.

2.7 Unhealthy SMEs definition

SME failure rates are often very difficult to trace properly due to the lack of a clear definition for SME's failure. When analyzing business failure, it is important to distinguish between failure and closure, successful and unsuccessful, or between healthy and unhealthy firms. Watson and Everett (1996, 1999) summarized five categories of failure: i) ceasing to exist; ii) closing business or a change in ownership; iii) filing for bankruptcy; iv) closing to limit losses and v) failing to reach financial goals.

Business failure can take several forms, including excessive liability, financial deficit, insolvency, default, distress, non-performing loans, business termination, and/or bankruptcy and liquidation (Kraus and Litzenberger, 1973). Interestingly, some firms experiencing financial difficulties manage to survive in the market place without ceasing to operate or declaring bankruptcy. Bernanke et al. (1988) argue that bankruptcy costs are actually quite small and can often be avoided by the renegotiation of debt terms or by the acquisition of the firm by a third party. However, Bernanke et al. (1988) indicate that the most important costs occur when firms are close to bankruptcy and want to access to loans from financial institutions or further investment from interested parties, as well as from suppliers, who are hesitant to enter long-term financial agreements to take advantage of productive or market opportunities. Thus, these difficulties reduce their ability to gain finances on reasonable terms and thus the ability to continue to operate profitably within the market, which results in the firms moving closer to declaring bankruptcy.

Previous researchers have employed different approaches with regard to the selection of financially healthy and unhealthy firms. Lee and Yeh (2004) identified a firm as

unhealthy when: a) they default on loan repayments, b) their net worth falls below half of its stock, c) they engage in loan term negotiations. Wruck (1990) classified a firm as being financially distressed when its cash flows are not sufficient to cover its current obligations. Whitaker (1999) contend a firm being in financial distress when cash flows are less than the current maturities of long-term debt. Asquith et al. (1994) identified an unhealthy firm if in any two consecutive years the firm's earnings before interest, tax, depreciation and amortization are less than 80% of its interest expense. Again, Elloumi and Gueyle (2001) classified a financially distressed firm as one that had experienced negative earnings per share consecutively for five years.

2.8 Thai Context of SMEs

In 2010, the Thai economy finally emerged growth continuously from the previous year with a growth rate accounted for 7.8% over the previous year of -2.2% and hit the highest growth rate for a decade of a history of Thailand. The Gross Domestic Product (GDP) totaled at THB 10,103 billion while the GDP of SMEs figured at THB 3,747 billion, accounted for 37.1 % of the whole country GDP. From the year 2000 till date, it is found that the SME impact has gradually declined from 42 % of GDP in 2000 to 39.3 % in 2005 and 37.1 % in 2010 whereas large enterprises are still maintained the engine of growth of the country.

Table 5: Thai Gross Domestic Product (GDP) for 2000 – 2010

Item	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1. Thai GDP (Billion THB)	4,923	5,134	5,452	5,939	6,577	7,093	7,850	8,530	9,075	9,051	10,103
2. GDP Growth rate (%)	4.8	2.1	5.4	7.1	6.3	4.5	5.1	4.9	2.5	-2.2	7.8
3. GDP of SMEs (Billion THB)	2,062	2,161	2,248	2,367	2,598	2,790	3,051	3,299	3,458	3,418	3,747
4. GDP of SMEs as percentage of Total GDP	42.0	42.1	41.3	39.9	40.0	39.3	38.9	38.7	38.1	37.8	37.1

Source: Office of the National Economic and Social Development Board

SMEs are fundamental units of the Thai economy, constituting over 99 per cent of the total number of enterprises in the Country (Office of SMEs Promotion 2007). In Thailand, SMEs are categorised by the Institute for Small and Medium Enterprises Development (2006) into three major features: production, service and trading (wholesale and retail) and they are classified as small or medium enterprises through the amount of fixed assets, excluding land, and the number of employees where production accounted for 32.33 per cent, service section accounted for 31.62 per cent and trading sectors 28.19 per cent, while the unspecified section was 7.86 per cent of total SMEs.

However, the database in 2009 indicated that there were some SMEs regarded as unspecified in terms of economic activities, which was representing a proportion of 12.3 per cent. This may cause the number of SMEs under the retail trade sector decreased.

The importance of SMEs in employment creation and stimulating economic growth has been recognised (Bàkiewicz 2005; Veskaisri 2007). As a result of this recognition, the issue of sustainability of SMEs has been gaining momentum as a significant factor in the development of government policies. Although the Thai Government has implemented policies to enhance the capability of SMEs, the problem of SMEs potential failure still persists. The committee for the Promotion of SMEs summarised the obstacles faced by Thai SMEs in four main categories: limited financial access, the loss of competitive

advantage, the lack of good corporate governance, and ineffective support from the government (Office of SMEs Promotion 2006 and 2007). The financial aspect of SME failure has attracted particular policy attention in Thailand since the financial crisis of 1997. At that time, the percentage of non-performing loans (NPLs) to total credits of the country's financial system hit 47.7 per cent, which is the highest in the history of the country (Bank of Thailand 2008). This crisis triggered the Government's greater concern for economic recovery and growth (Bàkiewicz 2005; Swierczek and Ha 2003). The Thailand Ninth National Economic and Social Development Plan (2001–2006) (Thai 9th NESDP; Office of The National Economic and Social Development Board 2001) emphasized the concern for economic development, which promoted and encouraged a focus on SMEs development. The Thai Government, through the Office of SMEs Promotion (OSMEP), formulated the 1st SMEs Promotion Plan (2002-2006) that aimed at resolving the effects of the economic crisis and supporting the revival of SMEs.

Table 6: Thai GDP Classify by Business Activities

Unit : THB Billion	2006	2007	2008	2009	2010
GDP	7,850	8,530	9,075	9,051	10,103
Agricultural sector	847	911	1,057	1,053	1,256
Non-Agricultural sector	7,003	7,618	8,019	7,998	8,848
Mining	257	279	315	305	346
Manufacturing	2,748	3,034	3,170	3,084	3,599
Construction	234	249	261	244	269
Trading and Maintenance	1,120	1,214	1,283	1,280	1,324
Services	2,405	2,594	2,728	2,798	3,013
Private	2,055	2,221	2,328	2,375	2,573
Government	350	374	400	424	440
Electric, Gas, and Water supply	239	248	262	287	297
Unit : %					
GDP	100.00	100.00	100.00	100.00	100.00
Agricultural sector	10.79	10.68	11.64	11.63	12.43
Non-Agricultural sector	89.21	89.32	88.36	88.37	87.58
Mining	3.28	3.27	3.47	3.37	3.42
Manufacturing	35.01	35.57	34.93	34.08	35.63
Construction	2.99	2.92	2.87	2.70	2.67
Trading and Maintenance	14.27	14.23	14.14	14.14	13.10
Services	30.63	30.42	30.06	30.92	29.82
Private	26.17	26.03	25.65	26.24	25.47
Government	4.46	4.38	4.41	4.68	4.36
Electric, Gas, and Water supply	3.04	2.91	2.89	3.17	2.94

GDP for the whole country of Thailand in 2010 was accounted for THB 10,103 billion; increased from last year 11.62 per cent, where non-agricultural sector has been a main sector that contributed value of GDP to the country. The sector of manufacturing; accounted for 35 per cent, and services; accounted for 30 per cent have been two major businesses that stimulated economic of the country for a long time.

Table 7: GDP of Thai SME Classify by Business Activities

Unit : THB Billion	2006	2007	2008	2009	2010
SMEs	3,051	3,299	3,458	3,418	3,747
Mining	46	50	57	55	63
Manufacturing	925	1,021	1,067	1,038	1,211
Construction	194	206	215	202	222
Trading and Maintenance	894	968	1,024	1,021	1,056
Service	984	1,045	1,087	1,093	1,185
Electric, Gas, and Water supply	7	8	8	9	9
Unit : %					
SMEs	100.00	100.00	100.00	100.00	100.00
Mining	1.52	1.53	1.65	1.61	1.67
Manufacturing	30.32	30.95	30.85	30.37	32.33
Construction	6.35	6.24	6.23	5.90	5.94
Trading and Maintenance	29.30	29.36	29.61	29.88	28.19
Service	32.26	31.68	31.43	31.98	31.62
Electric, Gas, and Water supply	0.25	0.24	0.24	0.26	0.25

GDP of Thai SMEs was accounted for THB 3,747 billion in 2010 or representing a proportion of 37.1 per cent of total GDP of the country. Classified by business activities, manufacturing and services sub-sectors were the two main businesses of Thai SMEs, which is similar to that of the whole GDP of the country where trading and maintenance was ranking third form all business activities.

Table 8: GDP of Manufacturing Sector Classified by Sizes

Manufacturing	2006	2007	2008	2009	2010
GDP	7,850	8,530	9,075	9,051	10,103
Manufacturing	2,748	3,034	3,170	3,084	3,599
SMEs' Manufacturing	**925**	**1,021**	**1,067**	**1,038**	**1,211**
- Small enterprises	374	413	432	420	490
- Medium sized enterprises	550	608	635	618	721
Large Enterprises	**1,823**	**2,013**	**2,103**	**2,046**	**2,388**
	Proportion of Manufacturing to the Thai GDP (%)				
Manufacturing	35.01	35.57	34.93	34.08	35.63
Manufacturing of SMEs and Large as a proportion to Manufacturing GDP (%)					
SMEs' Manufacturing	33.65	33.65	33.65	33.65	33.65
Small enterprises	13.62	13.62	13.62	13.62	13.62
Medium sized enterprises	20.03	20.03	20.03	20.03	20.03
Large Enterprises	66.35	66.35	66.35	66.35	66.35

As manufacturing sector is the main business activity of Thailand, it accounts for THB 3,599 billion or representing a proportion of 35.63 per cent of all businesses in 2010. Within this sector, the majority of the business was contributed by large enterprises; 66 per cent of manufacturing sector, while the medium-sized enterprises contributed 20 per cent and about 14 per cent for small enterprises.

Table 9: GDP of Trading and Maintenance Classified by Sizes

Trading and Maintenance	2006	2007	2008	2009	2010
GDP	7,850.19	8,529.84	9,075.49	9,050.72	10,102.99
Trading and Maintenance	1,120.15	1,213.54	1,282.99	1,279.74	1,323.94
SMEs' Trading and Maintenance	893.84	968.35	1,023.77	1,021.18	1,056.45
Small enterprises	**762.32**	**825.88**	**873.14**	**870.93**	**901.01**
Medium sized enterprises	131.51	142.48	150.63	150.25	155.44
Large Enterprises	226.31	245.18	259.21	258.56	267.49
Proportion of Trading and Maintenance to the Thai GDP (%)					
Trading and Maintenance	14.27	14.23	14.14	14.14	13.10
Trading and Maintenance of SMEs and Large as a proportion to Trading and Maintenance GDP (%)					
SMEs' Trading and Maintenance	79.80	79.80	79.80	79.80	79.80
Small enterprises	**68.06**	**68.06**	**68.06**	**68.06**	**68.06**
Medium sized enterprises	11.74	11.74	11.74	11.74	11.74
Large Enterprises	20.20	20.20	20.20	20.20	20.20

Total GDP on trading and maintenance was accounted for THB 1,324 billion or representing 13.10 per cent of total GDP. This sector is normally ranked third when comparison of business activities is made. Interestingly, SMEs were the main enterprises that contributed GDP to the country. It is found that 68 per cent of trading and maintenance sector came from small enterprises while large enterprises and medium sized enterprises representing 20 and 12 per cent respectively.

Table 10: GDP of Services Sector Classified by Sized

Services	2006	2007	2008	2009	2010
GDP	7,850.19	8,529.84	9,075.49	9,050.72	10,102.99
Services	2,405	2,594	2,728	2,798	3,013
SMEs' Services	984.19	1,044.96	1,086.71	1,093.02	1,184.96
Small size enterprises	**766.29**	**812.83**	**845.86**	**849.74**	**922.57**
Medium size enterprises	217.91	232.13	240.85	243.28	262.38
Large Enterprises	**1,070.42**	**1,175.61**	**1,241.23**	**1,281.75**	**1,387.87**
Proportion of Services sector to the Thai GDP (%)					
Services	30.63	30.42	30.06	30.92	29.82
Services of SMEs and Large as a proportion to Services GDP (%)					
SMEs' Services	40.93	40.28	39.83	39.06	39.33
Small size enterprises	**31.87**	**31.33**	**31.00**	**30.37**	**30.62**
Medium size enterprises	9.06	8.95	8.83	8.69	8.71
Large Enterprises	**44.52**	**45.31**	**45.49**	**45.80**	**46.07**

Services sector was accounted for THB 3.013 billion or 29.82 per cent of Thai GDP in 2010. Within this sector, SMEs contributed THB 3,013 billion where small enterprises was the main contributors to Thai economy; 30.62 per cent of the sector, and large enterprises contributed 46.07 per cent of the sector.

2.9 Chinese Context of SMEs

In China, SMEs include state-owned SMEs, urban concentration SMEs, township and village enterprises (TVEs), private and individual enterprises, although the majority of SMEs are privately owned. SMEs in China are involved in many major economic sectors: industry (including manufacturing, mining, electricity, production and supply of fuel gas and domestic water), construction, transportation, postal service, wholesale and retail sales, lodging and catering. These sectors normally are classified as small or medium enterprises in terms of sales and/or the amount of total assets as well as the number of employees. While in Thailand, SMEs are categorised into three major sectors: production, service and trading, and classified as small or medium enterprises in terms of both the number of employees and the amount of fixed assets that exclude land. The classification criteria for Chinese SMEs can be seen in the following table (see Tables 11).

Table 11: Size Classification of Chinese SMEs

Sector	Employment (no. of people)	Sales (Million RMB)	Total assets (Million RMB)	Descriptions
Manufacturing	300-2,000	30-300	40-400	The medium enterprise has to reach minimum of the three indices; otherwise, small.
Construction	600-3,000	30-300	40-400	
Wholesale	100-200	30-300	no require-ments	The medium enterprise has to reach minimum of the two indices; otherwise, small.
Retail	100-500	10-150		
Transportation	500-3,000	30-300		
Postal service	400-1,000	30-300		
Lodging and catering	400-800	30-150		

Source: Adapted from Temporary Regulations of Standards for SMEs in China (State Economic and Trade Commision, 2003).

Unsurprisingly, the definition of Chinese SMEs covers much bigger enterprises when compared to the definition of Thai SMEs; an illustration of this difference is readily seen within the wholesale sector where in China a company will be classified as a medium-sized enterprise when it employs up to 200 people; while for the same sector in Thailand it is when an enterprise has a staff of up to 50 people.

2.10 The Value of Non-financial Data

Deloitte's Global Chief Executive, William Parrett (2007) mentioned the value of non-financial data such as employee commitment, customer satisfaction, quality of corporate governance and their operational performance. It has been argued that factors not clearly detailed in their financial statements, are really key to the company's success. Even though financial statements do have significant value, these non-financial indicators, forward-looking and sustainable types of information cannot be overlooked.

The occurrence of 'event' data, or non-financial data, such as evidence of company default on credit agreements, creditor's claim, late submission of company's financial statements, or general data such as age of the firm, structure of the firm's ownership, auditing reports may not always be available for stakeholders. However, such information is vital in order to distinguish the healthy firms from the unhealthy ones. As some of these event data signal financial distress, they are likely to be effective predictors of insolvency. The event data presents the likelihood of failure especially for small firms rather than very large firms. Parrett, went on to mention that nearly 9 in 10 of the CEOs surveyed stated that their ability to track financial performance was excellent or good but 7 in 10 mentioned their difficulty in tracking non-financial performance (Parrett, 2007). From the study of Stanford Graduation School of Business – Data on intangibles such as customer satisfaction, employee turnover, the speed of loan processing, and the average number of

products and services, can yield significant forecasts of earning only when they are analyzed in conjunction with financial statistics, according to recent research (Rajan and Peterson, 2005). However such non-financial information is not always publicly available due to the company's protection policy, or for privacy, or other measures and/or policies. Even when they are available, the overall quality of the information in terms of content and reliability is always a concern, and in most parts of the world reporting non-financial information remains a voluntary practice. In the case of China, especially this non-financial information is difficult to obtain, or access can only be informally, thus in this study this qualitative data has not been considered.

2.11 The Use of Financial Information

Several researchers used the financial characteristics of firms to develop a failure likelihood of SMEs success or failure using several statistical approaches such as multiple discriminant analysis (MDA), logistic regression (LOGIT), probit analysis (PROBIT), and Linear probability model (LPM). All of these models has the objective of identifying financial concerns as an early warning of potential financial failure, and therefore facilitate other decision makers to understand the financial profile of businesses (Ahn et al., 2000), and inform policy-makers by highlighting key priority areas. Early-warning systems are aimed at providing signals of potential financial distress. Previous studies for example Beaver (1966), Altman (1968, 1983 and 1993), McGurr and Devaney (1998), Deakin (1972 and 1977), Ohlson (1980), Coats and Fant (1993), Altman, Marco and Varetto (1994) and Edmister (1972) are among many researchers who intended to formulate sound predictive models to distinguish the distressed firms from the non-distressed firms. While a study for the prediction of financial distress enterprises in China began in 1999 (Chang-e, 2006), several research methods have been adopted so far, for

instance Jing (1999) used univariate discriminant analysis, Ling (2000) adopted the multiple discriminant analysis model based on the Z-Score developed by Altman and expanded the Z-China Score to support the identification of potential distressed firms, Shu-e and Li (2005) used the artificial neural network approach. Among these studies only a few were completed in the case of SMEs due to insufficient information of SMEs in the market. Nonetheless, the study of the variables used in previous studies can benefit the undertaking of research and investigation of Chinese SMEs. Although accounting information has certain limitations such as timeliness, window dressing etc., most researchers constructed failure prediction models using the financial variables such as CA/TL (current assets to total liability ratio), CA/TA (current asset to total assets ratio), CL/TA (current liability to total assets ratio), debt/equity ratio, WC/TA (working capital to total assets ratio), WC/TL (working capital to total liability ratio), cash flow/current liabilities, cash flow/total liabilities, LL/TA (long-term liability to total assets ratio), TL/TA (total liability to total assets ratio), sales/total assets ratio, EBIT/Sales (earnings before interest and tax expenses to total sales), EBIT/TA (earnings before interest and tax expenses to total assets), EAIT/TA (earnings after interest and tax expenses to total assets) and market value equity/total liabilities. In fact, these financial ratios are regarded as the most reliable in the understanding of the financial position of SMEs and the likelihood of default or being unhealthy, as in the model developed in Vassalou and Xing (2004).

As SMEs tend to exhibit risk characteristics that are different from those of large corporations, an understanding of these features assists greatly in the development of measures to prevent future failure. It is apparent that there is limited literature on the financial risk for Chinese SMEs in general. However, SMEs' financial characteristics cannot be overlooked due to its growing importance and tendency to increase over time

(Hutchinson and Michaelas, 2000). This paper seeks to provide further empirical evidence required for the testing and identification of financial uniqueness of Chinese SMEs, both financially healthy and unhealthy.

2.12 VARIABLES USED IN PREVIOUS RESEARCH

Several researchers have used the financial characteristics of entrprises to develop a failure prediction model for both large and small firms. The previous studies of scholars; for example Beaver (1966), Altman (1968, 1983, 1993) and McGurr and Devaney ((1998), Deakin (1972, 1977), and Edmister (1972); are just a few among many researchers who intended to formulate sound predictive models to distinguish the distressed firms from the non-distressed firms. While a study for the prediction of financial distress enterprises in China began in 1999 (Chang-e, 2006), several kinds of research methods have been adopted for instance, Jing (1999) used Univariate Discriminant Analysis, Ling (2000) adopted the Multiple Discriminant Analysis Model based on the Z-Score developed by Altman and developed the Z-China Score to support the identification of potential distress firms, while Shu-e and Li (2005) used the Artificial Neural Network Approach. Of these only a few were completed in the case of SMEs. Nonetheless, the study of the variables used in previous studies can benefit the undertaking of research and investigation of Chinese SMEs. Most researchers constructed failure prediction models using the variables such as CA/TL (current assets to total liability ratio), CA/TA (current asset to total assets ratio), CL/TA (current liability to total assets ratio), debt/equity ratio, WC/TA (working capital to total assets ratio), WC/TL (working capital to total liability ratio), cash flow/current liabilities, LL/TA (long-term liability to total assets ratio), TL/TA (total liability to total assets ratio), sales/total assets

ratio, EBIT/Sales (earnings before interest and tax expenses to total sales), EBIT/TA (EBIT to total assets), EAIT/TA (earnings after interest and tax expenses to total assets) and market value equity/total liabilities.

A considerable number of studies have focused largely on the incidence of bankruptcy in various settings. There has been advanced empirical research attempting to develop models using the financial data of firms that appear successful and those firms that fail or become bankrupt, such as the research by Beaver (1966), Altman (1968, 1983, 1993; 2007), Deakin (1972, 1976), Edmister (1972), Berryman (1982), Fulmer, Moon, Gavin and Ervin (1984). However, very little research has been undertaken on financial distress probability of the firm, in particular focusing on SMEs. Moreover little attention has been paid to creating a model to calculate the credit risk for SMEs (Altman and Sabato 2007; Altman et al. 2008). Such study is warranted to predict the failure of SMEs, as they tend to exhibit risk characteristics that differ from those of large corporations (Chan and Chen 1991; Holmes and Kent 1991; Hutchinson and Michaelas 2000; Walker and Petty 1978). Of particular interest is predicting business failure, which has been a major concern of researchers for several decades (Ahn, Cho and Kim 2000). While the study of business stability has been the major focus of many researchers (Altman and Sabato 2007; Altman, Sabato and Wilson 2008), some research focuses on finding the financial characteristics of SMEs (for example Dennis 1993; English 2001; Hall, Hutchinson and Michaelas 2000; Hatten 1997; Holmes, Hutchinson, Forsaith, Gibson and McMahon 2003; Holmes and Zimmer 1994; Huang and Brown 2000; Hutchinson, Meric and Meric 1988; McMahon, Holmes, Hutchinson and Forsaith1993; Chittenden, Hall and Hutchinson 1996), while others concentrate on the financial characteristics of large firms (such as Bei and Liu

2005; Chan and Chen 1991; Holmes and Kent 1990; Shu-e and Li 2005; Walker and Petty 1978).

Chapter Three: Research Methodology and Hypothesis setting

3.1 Research Methodology

As the first objective of this research is to investigate the differences of financial characteristics between Chinese and Thai SMEs, the study employed both parametric (Independent Sample T-Test) and non-parametric (Mann-Whitney U Test) approaches in the Statistical Package for the Social Sciences (SPSS) program in the process of data analysis. The validity of the study was limited to the reliability of the financial ratios collected from on-line financial statements of the listed SMEs. The study employed an analysis of numerous financial ratios that enable to differentiate financially distressed firms, and non-financially distressed firms, of the two countries using three statistical significance levels of 0.05, 0.01 and 0.001. The null hypotheses will be accepted if at least one of the results either on the parametric or non-parametric approaches shows a significance greater than 0.05.

The second objective of this research is to develop a financial distress predictive model for both Thai and Chinese SMEs. The study employed logistic regression analysis to develop the predictive model.

3.2 Term Definitions

There are several terms that need to be defined clearly, and in the correct context so that these key terms are understood and applied correctly to the results within the scope of this research.

3.2.1 SMEs Definition

As outlined in the preceding section, the commonly used bases for categorizing the size of enterprises include the number of employees, the amount of fixed assets, the volume of sales, the balance sheet outstanding, and the structure of shareholders. The number of employees is the most frequently used criterion in most countries around the world. However, in regard to China and Thailand such information is difficult to obtain, due to the fact that there is no official centre for this kind of information. Therefore, in this study an enterprise that was listed on the SME board of either the Shenzhen or MAI markets was considered as meeting the criteria as a small and medium-sized enterprise.

3.2.2 Non-Financially Distressed SME

A "non-financially distressed" SME refers to a firm that has no distressed qualities illustrated through the following criteria: bond default, bank loan default, delisting of a company, government intervention via special financing, filing for bankruptcy and liquidation. In this study, the definition also includes the presence of positive operating cash flow and profit at the time the sample was taken.

The seven hundred and sixty-nine (769) sets of financial statements - Balance Sheets, Comprehensive Income, and Statement of Cash Flow issuing during 2006 - 2009; of the companies listed on the Shenzhen Stock Exchange and fifty nine (59) sets of financial statements of MAI enterprises which showed healthy qualities were to be used as samples of non-financially distressed SMEs in this study as mentioned above.

3.2.3 Financially Distressed SME

The companies that were listed on the Shenzhen Stock Exchange, China between 2006 – 2009 which had the "unhealthy" or "financially distressed" qualities, such as those firms

that had defaulted on bonds and loans, had sought financial aid through government intervention and showed negative operating cash flow and low profit margins were used to represent the “unhealthy”, or financially stressed firms.

Of the SMEs that possessed these qualities on the Chinese Stock Markets a total one hundred and eighty-eight (188) sets of financial statements with a further thirty one (31) sets of financial statements from Thai enterprises listed on the MAI were then collected and used in this study as the representative of ‘financially distressed SMEs’.

Table 12: Number of Sample Sets of Financial Statement

	Number of collecting samples	
	Thai SMEs	Chinese SMEs
Non-financially distressed SMEs	59	769
Financially distressed SMEs	31	188
Total	90	957

Collected from MAI of Thailand and Shenzhen Stock Exchange of China, 2006 – 2009

One set of Financial Statement consists of one Balance Sheet, one Financial Statement and one Statement of Cash Flow of a selected sample

3.3 Research Variables

With these two different groups of SMEs, a total of fourteen independent variables were selected based on i) the most commonly used in previous studies, and ii) the availability of the data. As defined in Table 3, which follows, these variables were divided into three categories: liquidity, leverage and profitability, where the definitions are as follows:

1) Liquidity refers to how quickly and cheaply an asset can be converted into cash or the ability of current assets to meet current liabilities when due.
2) Leverage refers to the use of debt to supplement investment or the degree to which a business is utilizing borrowed money.
3) Profitability refers to an ability of a firm to generate net income on a consistent basis.

Table 13: Variable Definition

NO.	RATIOS	NAMES	DEFINITIONS
LIQUIDITY MEASURES			
1	CATA	CURRENT ASSETS TO TOTAL ASSET RATIO (UNIT: PER CENT)	The amount of cash, account receivables, bills, inventory and other current assets as a percentage of total assets
2	CACL	CURRENT ASSETS TO CURRENT LIABILIITY RATIO (UNIT: TIME)	The amount of cash, account receivables, bills, inventory and other current assets divided by current liability
3	WCTA	WORKING CAPITAL TO TOTAL ASSETS RATIO (UNIT : PER CENT)	The current assets less current liability as a percentage of total assets
4	CFCL	CASH FLOW TO CURRENT LIABILITY RATIO (UNIT: PER CENT)	The net total cash flow as a percentage of current liability
LEVERAGE MEASURES			
5	LLTA	LONG TERM LIABILITY TO TOTAL ASSETS RATIO (UNIT: PER CENT)	The amount of long-term liabilities as a percentage of total assets
6	TLTA	TOTAL LIABILITY TO TOTAL ASSETS RATIO (UNIT: PER CENT)	The amount of short-term and long-term liabilities as a percentage of total assets
7	DE	DEBT TO EQUITY RATIO (UNIT: TIME)	The amount of debt divided by equity
PROFITABILITY MEASURES			
8	TITA	TOTAL INCOME TO TOTAL ASSETS RATIO (UNIT: PER CENT)	The amount of total core and other income as a percentage of total assets
9	INTTI	INTEREST EXPENSE TO TOTAL INCOME (UNIT: PER CENT)	The amount of interest expenses as a percentage of total income
10	INTTA	INTEREST EXPENSES TO TOTAL ASSETS RATIO (UNIT: PER CENT)	Interest expenses as a percentage of total assets
11	TAXTI	TAX EXPENSE TO EARNINGS BEFORE INTEREST AND TAX EXPENSES	Tax expenses as a percentage of earnings before interest
12	TAXTA	TAX EXPENSE TO TOTAL ASSETS RATIO (UNIT: PER CENT)	Tax expenses as a percentage of total assets
13	EBITTA	EARNINGS BEFORE INTEREST AND TAX EXPENSES TO TOTAL ASSETS RATIO (UNIT: PER CENT)	All earnings before interest and tax expenses as a percentage of total assets
14	EAITTA	EARNINGS AFTER INTEREST AND TAX EXPENSES TO TOTAL ASSETS RATIO (UNIT: PER CENT)	All earnings after interest and tax expenses as a percentage of total assets

3.4 Hypothesis Setting

The hypotheses for the study, in the null form, are that;

HYPOTHESIS ONE (H_1): There will be no significant differences between Chinese and Thai SMEs for the above variables for both non-financially distressed and financially distressed SMEs.

If the result from the Hypothesis One (H_1) is to be accepted (the null hypothesis is accepted), it could translated that there is no significant differences between the Chinese and Thai SMEs. Therefore, the financial distressed predictive model for Thai and Chinese SMEs could be developed. If this is a case, the accuracy of the predictive model will be tested to assure whether the developed model is more accurate than the possible classification by chance. The second hypothesis will be as follows.

HYPOTHESIS TWO (H_2): A financial distressed predictive model for both Thai and Chinese SMEs is more accurate when compared with a possible classification by chance.

However, if this is not a case, a financial distress predictive model for Thai SMEs will only be developed. Therefore the second hypothesis will be as follows.

HYPOTHESIS TWO (H_2): A financial distressed predictive model for Thai SMEs is more accurate when compared with a possible classification by chance.

Chapter Four: Empirical results and discussions

4.1 Descriptive Results

The samples of the study were collected from the China SMEs Listed Board in Shenzhen and listed companies from Market for Alternative Investment (MAI), Thailand. The total number of companies listed on the SME board to date (3 March 2011) was five hundred and sixty-four (564) on Shenzhen and sixty five (65) on the MAI in total. In those 564 Chinese enterprises, there is a majority of 78 per cent (283 companies) that are private enterprises, with the remaining 21 per cent (76 companies) being Chinese state-owned enterprises (SOEs), while in the case of Thailand all listed SMEs are private-owned enterprises. Of these Chinese SMEs, 55 per cent had been established for between six and ten years, with the longest (105 years) established Chinese company being a private enterprise, that was established in 1905, Zhejiang Kan Specialities Material Co., Ltd.

To illustrate the financial status of the chosen enterprises for this study we investigated the means of several important financial figures. We found that size of the Chinese SMEs is larger than that of the Thai SMEs. For instance, for Chinese SMEs, asset size on average of the non-distressed SMEs was about USD184 million while it was only USD 28 million for Thai SMEs – thus the means for the Chinese figures were relatively larger in size when compared to those of the Thai companies. The equity mean for the non-distressed Chinese SMEs is USD 101 million which is quite similar to that of distressed SMEs but larger than that of Thai SMEs, which is in the range of USD 12 – 14 million (see Tables 14 and 15).

Table 14: MEANS of Important Items of the Chinese SMEs

Items	CHINESE SMEs (Average of 4 years: 2006 – 2009)					
	Non-Distressed SMEs			Distressed SMEs		
	Means (RMB M)	Means (USD M.)*	% of Total assets	Means (RMB M)	Means (USD M.)*	% of Total assets
Current assets	771.72	108.92	59.49	1,119.45	160.50	70.78
Total assets	1297.22	183.21	100.00	1,581.68	226.45	100.00
Current liabilities	499.03	70.28	38.47	761.64	109.07	48.15
Long-term liabilities	85.35	12.16	6.58	124.78	17.91	7.89
Equity	712.83	100.77	54.95	695.25	99.47	43.96
Earnings before interest and tax expenses	143.18	20.13	11.04	74.69	10.57	4.72
Earnings after interest and tax expenses	91.25	12.92	7.03	42.89	6.06	2.71

*Items of year 2006 converted to USD using exchange rate 1 Yuan = 0.128138 USD (29 Dec 2006)
Items of year 2007 converted to USD using exchange rate 1 Yuan = 0.137088 USD (31 Dec 2007)
Items of year 2008 converted to USD using exchange rate 1 Yuan = 0.146574 USD (31 Dec 2008)
Items of year 2009 converted to USD using exchange rate 1 Yuan = 0.146477 USD (31 Dec 2009)
Data source: Financial information, website http://www.szse.cn/main/en/ (Shenzhen Stock Exchange, 2010)
Data source: Exchange rate source, website http://www.x-rates.com/cgi-bin/hlookup.cgi (X-Rates, 2011)

Table 15: MEANS of Important Items of the Thai SMEs

Items	THAI SMEs(Average of 4 years: 2006 – 2009)					
	Non-Distressed SMEs			Distressed SMEs		
	Means (BAHT M.)	Means (USD M.) **	% of Total assets	Means (BAHT M.)	Means (USD M.) **	% of Total assets
Current assets	565.28	17.03	61.57	989.52	30.71	65.99
Total assets	919.60	27.66	100.00	1,499.58	45.99	100.00
Current liabilities	414.02	12.41	44.87	604.96	18.47	40.34
Long-term liabilities	80.52	2.42	8.75	433.34	13.50	28.90
Equity	425.06	12.83	46.38	461.25	14.03	30.76
Earnings before interest and tax expenses	217.38	6.58	23.79	144.41	4.34	9.63
Earnings after interest and tax expenses	80.08	2.42	8.77	11.39	0.33	0.76

**Items of year 2006 converted to USD using exchange rate 1 Baht = 0.0277008 USD (29 Dec 2006)
Items of year 2007 converted to USD using exchange rate 1 Baht = 0.0338983 USD (31 Dec 2007)
Items of year 2008 converted to USD using exchange rate 1 Baht = 0.0288018 USD (31 Dec 2008)
Items of year 2009 converted to USD using exchange rate 1 Baht = 0.0300213 USD (31 Dec 2009)
Data source: Financial information, website http://www.setsmart.co.th (Stock Exchange of Thailand, MAI,2010)
Data source: Exchange rate source, website http://www.x-rates.com/cgi-bin/hlookup.cgi (X-Rates, 2011)

These figures confirm previous studies such as Hutchinson and Michaelas (2000) that show that distressed SMEs have higher debt and therefore lower equity, and lower profit than non-financially distressed SMEs.

4.2 Test of Hypothesis One

H1: There will be no significant differences between Chinese and Thai SMEs for the above variables for both non-financially distressed and financially distressed SMEs.

Because of the variation in size of SMEs in the two countries, a 5 per cent trimmed mean was obtained by discarding the lower and higher 2.5 per cent of the scores and taking the mean of the remaining scores was considered in this study. It was found that CFCL is the most affected variable by utilizing the trimmed mean in the cases of the non-distressed and distressed Chinese and Thai SMEs. Because of the difference in sample size, the fourteen variables were tested using parametric t test and non-parametric Mann-Whitney U test. This only affected the results, as shown by shading in tables 18 and 19, for two variables for the non-financially distressed SMEs and for five variables for the financially distressed SMEs. The results, therefore, are generally consistent using both trimmed and untrimmed data and parametric and non-parametric tests.

4.2.1 Chinese and Thai non-financially distressed SMEs comparative results

Table 16: T-Test and Mann Whitney U-Test of Non-Financially Distressed SMEs

Variable Number	Variable Name	Mean		5% Trimmed Mean		Std. Deviation		T-Test		Mann Whitney U-Test	
		Chinese SMEs (769 CASES)	Thai SMEs (59 CASES)	Chinese SMEs	Thai SMEs	Chinese SMEs	Thai SMEs	Sig. 2 tailed	*t*	Sig. 2 tailed	Z
Liquidity											
1	CACL (Time)	3.03	2.26	2.39	1.96	4.44	2.13	.188 NS	1.317	**.030***	-2.164
2	CATA (%)	24.48	63.92	20.21	64.40	32.52	19.12	.000***	-9.190	.000***	-10.902
3	WCTA (%)	28.54	23.60	28.22	23.26	24.95	25.65	.144 NS	1.464	.137 NS	-1.487
4	CFCL (%)	66.94	51.15	32.38	39.72	289.97	74.79	.677 NS	.417	**.001*****	-3.415
Financial leverage											
5	LLTA (%)	4.56	4.74	3.41	3.32	7.78	8.64	.863 NS	-.173	.597 NS	-.529
6	TLTA (%)	37.38	45.07	36.76	44.91	21.20	20.93	.008 *	-2.653	.005 **	-2.825
7	DE (Time)	.77	1.23	.68	1.05	.77	1.31	.010 **	-2.644	.005 **	-2.801
Profitability											
8	TITA (%)	82.14	127.81	72.38	126.47	78.53	44.94	.000***	-4.410	.000***	-8.205
9	INTTI (%)	1.47	11.08	1.14	10.61	4.31	6.53	.000***	-11.108	.000***	-11.760
10	INTTA (%)	1.12	13.23	.28	12.76	18.66	7.87	.000***	-4.947	.000***	-12.621
11	TAXTI (%)	0.78	2.19	.56	2.10	1.62	1.56	.000***	-6.618	.000***	-8.126
12	TAXTA (%)	0.57	2.71	.41	2.61	1.20	1.95	.000***	-8.310	.000***	-9.375
13	EBITTA (%)	10.44	25.41	9.14	24.45	17.97	15.88	.000***	-6.909	.000***	-8.427
14	EAITTA (%)	7.52	9.47	7.01	9.06	5.49	6.38	.010**	-2.596	.024*	-2.265

***Significance at .1% level (0.001)
** Significance at 1% level (0.01)
* Significant at 5% level (0.05)
NS: Not significance

Table 16 shows many significant differenced between Chinese and Thai SMEs. Only two variables were not significantly different for both parametric and non-parametric tests. These were for WCTA and LLTA, indicating that both groups had similar liquidity and

long term debt.

It can be seen that the most significant difference, for both tests, for liquidity is for the proportion of current assets to total assets, which is much lower for Chinese SMEs than for Thai ones, 24.48% to 63.92%. This is likely due to a higher proportion of Chinese SMEs being engaged in manufacturing and so needing higher levels of fixed assets in the form of machinery.

When it comes to leverage, although long-term liabilities are similar for both groups at 3-5%, the total liabilities to total assets and debt to equity ratios show that Thai firms at 45.07% and 1.23 times, are significantly more highly leveraged than Chinese firms at 37.38% and 0.77 times. This may be due to easier access to short-term borrowing in Thailand or some impediments to borrowing in China.

All the profitability ratios are significantly different for Chinese and Thai firms. Chinese firms have lower asset turnovers, 82.14% to 127.81% which lead to lower profitability (before interest and tax). Chinese SMEs also have lower interest charges and lower taxes. Lower interest charges follow from the lower levels of borrowing by Chinese SMEs and they also seem to benefit from a lower tax regime. The lower interest and tax charges closes the gap between Chinese and Thai SMEs' profitability from 10.44% and 25.41% before interest and tax to 7.52% and 9.47% after interest and tax but the difference is still significantly higher for the Thai firms.

So, in summary there are significant differences between Chinese and Thai SMEs in terms of asset structure, short-term borrowings, interest, tax and profitability.

4.2.2 Chinese and Thai financially distressed SMEs comparative results.

Table 17: T-Test and Mann Whitney U-Test of Financially Distressed SMEs

Variable Number	Variable Name	Mean		5% Trimmed Mean		Std. Deviation		T-Test		Mann Whitney U-Test	
		Chinese SMEs (188 Cases)	Thai SMEs (31 CASES)	Chinese SMEs	Thai SMEs	Chinese SMEs	Thai SMEs	Sig. 2 tailed	*t*	Sig. 2 tailed	Z
Liquidity											
1	CACL (Time)	1.93	2.77	1.74	2.06	1.48	4.25	.282 NS	-1.095	.999 NS	-.002
2	CATA (%)	56.30	63.98	40.46	64.89	96.23	19.63	.659 NS	-.442	.000***	-4.725
3	WCTA (%)	23.28	18.97	23.98	18.77	27.43	25.97	.416 NS	.816	.283 NS	-1.074
4	CFCL (%)	12.59	124.34	5.25	50.05	69.77	415.73	.146 NS	-1.493	.000***	-3.965
Financial leverage											
5	LLTA (%)	5.08	7.99	3.57	5.12	9.88	16.90	.352 NS	-.944	.409 NS	-.826
6	TLTA (%)	47.59	52.99	47.28	53.78	18.04	26.35	.279 NS	-1.100	.059 NS	-1.891
7	DE (Time)	2.13	2.00	1.03	1.80	14.91	1.95	.963 NS	.047	.050 *	-1.960
Profitability											
8	TITA (%)	78.12	107.32	73.16	108.06	48.80	54.80	.003 *	-3.032	.001***	-3.298
9	INTTI (%)	3.92	12.83	1.81	12.83	19.47	58.18	.068 NS	-1.893	.000***	-6.172
10	INTTA (%)	0.90	9.20	.77	8.32	2.09	8.74	.000***	-5.258	.000***	-8.008
11	TAXTI (%)	1.09	0.99	.76	.90	2.29	1.08	.818 NS	.231	.781 NS	-.278
12	TAXTA (%)	0.69	1.27	.48	1.11	1.45	1.60	.067 NS	-1.884	.204 NS	-1.270
13	EBITTA (%)	4.87	6.83	5.23	5.73	10.46	11.01	.340 NS	-.957	.370 NS	-.896
14	EAITTA (%)	2.27	-3.64	3.20	-2.98	7.93	11.89	.011 *	2.690	.000***	-3.625

***Significance at .1% level (0.001)
** Significance at 1% level (0.01)
* Significant at 5% level (0.05)
NS: Not significance

From Table 17 it can be seen that there are fewer significant differences in the financial characteristics of Chinese and Thai financially distressed SMEs than there were for non-financially distressesd SMEs (Table 16). There are three significant differences for the parametric tests with an additional 5 for the non-parametric tests. This suggests that financially distressed SMEs may have more in common than their non-financially distressed counterparts. The most notable changes between Table 18 and Table 19 are for leverage and profitability.

For leverage, the financially distressed SMEs in both countries now have similarly high levels of total liabilities to total assets, TLTA. Despite this fact, when it comes to the

profitability variables, the interest charges, INTTA, for Thai SMEs are still significantly higher. This suggests that Thai SMEs pay higher rates of interest than Chinese SMEs. There ceases to be significant differences between the two countries for tax, TAXTI and TAXTA, presumably because in both cases the distressed SMEs are not making much, if any, taxable profit. Finally and most interestingly, although there continues to be a significant difference in net profitability, EAITTA, Thai distressed SMEs are now less, rather than more, profitable than their Chinese counterparts. This reflects the Thai SMEs' higher leverage costs.

4.3 Test of Hypothesis Two

The results from hypothesis one can be concluded that there are some significant differences of financial characteristics between the Chinese and Thai SMEs both in terms of financial distress and non-financial distress. In order to develop a predictive model for both Chinese and Thai SMEs the likeliness of those two groups of financial characteristics of the two countries is required. However, the result from hypothesis one cannot be fully supported. With those significant differences, the predictive model that could develop to apply for the two countries cannot be done. Therefore, only a predictive model for Thai SMEs is to be developed and tested. The second hypothesis of this research is ultimately stated as follows.

HYPOTHESIS TWO (H_2): A financial distressed predictive model for **THAI SMES** is more accurate when compared with a possible classification by chance.

After the variables used in this analysis were tested, to assess the Goodness-of-Fit of the estimated model, logistic regression maximized the "likelihood" that the event would occur. The four variables were entered using Forward Stepwise Wald, in which one

variable was entered into the model at a time, making four steps in total. The overall measure of the fitness of the model is assessed by the likelihood value (-2 times the log of the likelihood value referred to as -2LL or -2 likelihood). As Hair et al. (1998) indicated, a well-fitting model will have a small value for -2LL, and the minimum value for -2LL is zero. The result shows that the -2LL value was reduced from the base model value (Step 1) 131.228 to 39.291, a decrease of 91.937. The Cox and Snell R^2 indicates a greater model fit with higher values where the maximum value is 1, which in this study, was .417 at the first step, and increasing to .673 at the last step. Nagelkerke R^2 proposed a modification that had the range of 0 to 1, which in this study the Nagelkerke R^2 was .904. It can be seen that this model had a high degree of fit. Lastly, the HoSMBr and Lemeshow measurements showed no significance, indicating that there were no significant differences in the distribution of the actual and predicted dependent values. The model coefficient was found to be statistically significant at every single step. The first variable that was selected to enter into the equation (or Step 1) was LL/TA ratio with 83.0 per cent correct classification, to be followed by the WC/TA ratio (Step 2) with 93.7 per cent, then the TI/TA ratio (Step 3) with 95 per cent and finally the EBIT/TA ratio (Step 4) with 95.6 per cent respectively (see Table 20).

As the technique enables selection of the most powerful discriminatory variables to be included into the equation followed by the next most powerful, accuracy percentages were increased as every step was completed. Consequently, the model to discriminate between financially distressed and non-financially distressed SMEs was developed as follows.

$$\hat{Y}_{\text{Thai-SME}} = \frac{e^{1.031+0.065X1 - 0.049X2+ 0.018X3 +0.082X4}}{1+ e^{1.031+0.065X1 - 0.049X2+ 0.018X3 +0.082X4}}$$

Where

$\hat{Y}_{\text{Thai-SME}}$ = Overall score of Thai-SMEs

e = Mathematical constant (2.71828), the base of natural logarithm

X_1 = Working capital to total assets ratio (WC/TA)

X_2 = Long-term liabilities to total assets ratio (LL/TA)

X_3 = Total income to total assets ratio (TI/TA)

X_4 = Earnings before interest and tax expenses to total assets ratio (EBIT/TA)

The model's classification result achieved an accuracy of at least 90 per cent. Using $\hat{Y} \geq 0.50$ to determine non-financially distressed SMEs, with $\hat{Y} < 0.50$ to determine financially distressed SMEs, four cases of misclassification were revealed from the distressed group to the non-distressed group (Type I error), or 5.9 per cent being misclassified. There were three cases (or 3.3 per cent) of misclassification from the non-distressed group to the distressed group (Type II error). With a total of accuracy of 94.1 per cent regarding the non-financially stressed SMEs and 96.7 per cent regarding the financially stressed SMEs being classified correctly, this gave an overall accuracy rate of 95.6 per cent, which is much higher than the classification by chance, which is 51.046 per cent. The overall accuracy of 95.6 per cent of the model leads to the conclusion that the logistic regression model is useful for distinguishing between financially distressed and non-financial distressed firms. The high overall accuracy rate also shows that the method adopted here leads to a more reliable outcome than the proportional chance criterion. Thus, Hypothesis Two is supported.

Table 18: Classification Results

Step	Observed		Predicted status		
			FD-SMEs	NFD-MAIs	Accuracy (%)
Step 1	Status	FD-SMEs	46	22	67.6
		NFD-MAI	5	86	94.5
		Overall Percentage			83.0
Step 2	Status	FD-SMEs	62	6	91.2
		NFD-MAI	4	87	95.6
		Overall Percentage			93.7
Step 3	Status	FD-SMEs	64	4	94.1
		NFD-MAI	4	87	95.6
		Overall Percentage			95.0
Step 4	Status	FD-SMEs	64	4[I]	94.1
		NFD-MAI	3[II]	88	96.7
		Overall Percentage			95.6

a. The cut value is .500 point

[I]: Type One Error: Misclassification from the distressed SMEs to non-distressed SMEs

[II]: Type Two Error: Misclassification from the non-distressed SMEs to distressed SMEs

With respect to the nine variables used to construct the logistic predictive model, which was utilized for predicting the likelihood of survival, or failure, of Thai SMEs was established and is shown as follows.

$$\hat{Y}_{\text{Thai-SME}} = \frac{e^{1.031+0.065X1-0.049X2+0.018X3+0.082X4}}{1+e^{1.031+0.065X1-0.049X2+0.018X3+0.082X4}}$$

Four main variables, namely the working capital to total assets ratio (WC/TA), long-term liabilities to total assets (LL/TA), total income to total assets ratio (TI/TA) and earnings before interest and tax expenses to total assets ratio (EBIT/TA) were found to be the most powerful discriminatory variables. The holdout sample indicated that there was an overall accuracy of 95.6 per cent, which is much higher and reliable than the classification by chance (51.046 per cent). Thus, concluding that Hypothesis Two is supported, yet, the result revealed some errors, with four cases of Type I error (misclassification from the distressed to the non-distressed group) and three cases of Type II error (misclassification from the non-distressed to the distressed group).

Chapter Five: Conclusions and Suggestions

In this study we have attempted to identify the similarities and differences in financial characteristics of Chinese and Thai SMEs. The study obtained a total 957 sets of financial statements from the Chinese SMEs and 90 sets of financial statements from the Thai SMEs during 2006 – 2009. Of these, 20 per cent of Chinese SMEs are owned by the Chinese government or in other words are state-owned enterprises, with the remaining 80 percent being private enterprises whereas the Thai SMEs were all private enterprises. The SMEs were further divided as to whether they were financially distressed or not. Of the totals, 188 Chinese and 31 Thai SMEs were identified as financially distressed and exhibited the usual symptoms of low equity and low profitability.

The results of this study show: that Chinese and Thai SMEs have some financial characteristics in common and some that are different. For non-financially distressed, SMEs the most notable, commonly shared characteristic is that of low long-term liabilities at around 3-5% of total assets. This suggests that in both China and Thailand investment banking and the market for long-term debt are not well developed. The level of liquidity as measured by working capital to total assets was also similar for both countries but is not out of line with international norms at around 25%.

There are many notable differences between the two countries. Chinese SMEs have lower levels of current assets to total assets suggesting that they are more capital intensive which in turn indicates they are more likely to be involved in manufacturing activities and conversely that Thai SMEs are more involved in non-manufacturing activities such as services and trading. Although long-term debt levels are similar, Thai firms have higher

total liabilities to total assets suggesting that they have access to more short-term debt than Chinese firms. The fact that Chinese SMEs are more involved in manufacturing is borne out by the significant difference for asset turnover which is higher for the less capital intensive Thai SMEs. As a result of their higher borrowing, Thai SMEs pay significantly higher interest than Chinese SMEs. They also appear to pay significantly higher tax. Despite these higher charges, Thai SMEs still have significantly higher net profits.

When it comes to the financially distressed SMEs it was found that there were fewer differences between the two countries, which suggest that the characteristics of financial distress are more universal. This is encouraging for the use of techniques for predicting financial distress, such as multiple discriminant analysis and logistic regression analysis, which may be more widely applicable than might be expected. The major finding was that Thai SMEs pay much more in interest than Chinese SMEs. This results in Thai distressed SMEs having lower profit than Chinese SMEs unlike the Thai non-financially distressed SMEs that have higher profitability. The situation of the Thai SMEs well illustrates the benefits and dangers of leverage. In good times it leads to even higher profits but in bad times to even lower profits.

In summary, not all variables tested on hypothesis one are accepted, which mean there are some significant differences of financial characteristics of both Thai and Chinese SMEs in terms of financial distress and non-financial distress. Therefore, financial distress predictive model applied for both countries cannot be reached. This is also confirmed by the size of SMEs which Chinese firms that are classified as SMEs is larger than that of the Thai SMEs which this may bear some significance. Ultimately, financial distress predictive model is developed for Thai SMEs;

$$\hat{Y}_{\text{Thai-SME}} = \frac{e^{1.031+0.065X1 - 0.049X2+ 0.018X3 +0.082X4}}{1+ e^{1.031+0.065X1 - 0.049X2+ 0.018X3 +0.082X4}}$$

The overall accuracy of 95.6 per cent of the model leads to a fine conclusion that it is a significant tool of predicting the likelihood of distress of an SME and even more reliable than the proportional chance criterion. Thus, hypothesis two of the research is supported.

At a glance, working capital to total assets ratio (WC/TA) and long-term liabilities to total assets ratio (LL/TA) are the most predictive ratios to separate companies of financial concern and whether they potentially exhibit the characteristics of potential future financial distress. The companies that exhibit low WC/TA and high LL/TA ratios would be more likely to become financially distressed, while on the other hand high WC/TA and low LL/TA ratios could safely be assumed as predictors of non-financially distressed firms. Yet, to distinguish the financially distressed firms from the non-financially distressed firms or in other words to identify the debt crisis of a firm, use of the model $\hat{Y}_{Thai\text{-}SME}$ gives us good results, confirming the potential status of a firm.

The results of this study have implications in both the fields of finance and economical theory, as well as in practice and can benefit entrepreneurs and other interested associated parties. The continued sustainability of SMEs underpins the stability and strength of worldwide economies. There is a need to develop a systematic study of the precursor signs of potential business failure, thus extending and expanding upon the already existing body of knowledge and hopefully reduce the number of SMEs that fail and/or declare bankruptcy. There are a number of areas that require further academic focus, such as the establishment of a clear and concise definition of financially distressed SMEs used in academic research; as these results may not be able to be applied to the unlisted SMEs both of China and Thailand. Furthermore, the identification of the causes of failure and

other difficulties faced by SMEs, the indicators of potential future failure and the development of sophisticated mathematical models for predicting potential failure need to be further developed. The model for predicting the possibility of future failure should be in place in order to provide a warning and thereby assist stakeholders and other interested parties when they have to consider the allocation of resources of financially stressed SMEs. Of course, this requires the government and private agencies of both countries to establish a reliable industry database and develop a successful model in order to provide some facilities for SMEs development, with a means of predicting the potential future financial collapse of an enterprise. In the emerging economy of China, where the free market has not yet completely taken hold, a company's failure is possibly harder to predict and, to some extent, even harder to characterise due to the degree of protection provided by the government. For Thai SMEs the fully and consistent support from the government in encouraging the enterprises to list in the stock market and assist them financially with taxation and other financial incentive, is dramatically required.

As the consequence of business failures affects the sustainability of business over a wide range, there is a need to develop a systematic study of failures. A study of this kind will enhance the body of knowledge and hopefully reduce the number of failures. The model developed here could be employed by several stakeholders to identify financially distressed firms and assist with making decisions regarding resource allocation. Many areas need to be focused on, such as the identification of the causes of failure, the identification of the indicators of potential future failure and the development of sophisticated mathematical models for predicting failures. Additional variables used in the model and non-financial data are suggested to be included in future research.

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1992 - 2000	Bank of Ayudhaya, Bangkok, Thailand	Head of division of Chief Executive Officer	Analysing Non-Performing Loans (NPLs) and other financial ratios of the bank comparing with bank competitors Providing information to CEO for Credit risk management Supporting credit risk information of the bank and bank's competitors to CEO for Credit Rating Agency such as Moody's Investor Service, Standard & Poor's and other Credit Rating Agency
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RESEARCH DETAILS:

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2) Terdpaopong, K. "The characteristics of financially distressed SMEs in Thailand and changes as a result of restructuring process." Proceedings of Economics and Business Conference. ANU: Australia, 2008.

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5) Terdpaopong, K., Mihret, D. "Using financial performance measures for modeling SME credit risk: A Thai empirical evidence. Proceedings of 22nd Asian-Pacific Conference on International Accounting Issues. Gold Coast: Australia Co-Author, 2010.

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14) Yin, P. Y., Terdpaopong, K., “ Distinguishing Financially Healthy from Unhealthy SMEs in China”, Chinese Business Review (Acceptance and on the process of publishing)