

CREDIT RISK MODEL: THE CONCEPTUAL FRAMEWORK OF SME FINANCING

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ABSTRACT

Forecasting of small and medium enterprise (SME) loan default is very crucial and widely studied as it gives a significant impact on SME 's finance in decision-making process. This study proposes to define and construct SME's credit risk model in SME financing process by financial provider (FP) in Malaysia. The first part of this paper discussed about financial tools used to measure SME's financial performance. The measurement is considered from different aspect in order to give more accurate result. The extent of existing literature about the framework of the model using both financial and non-financial factors (FNF) are explained in the second part of this paper. The used of these factors will give a huge picture on evaluation SME's performance for effective risk management initiative. The last section analyzing the important of prudent credit risk model by FP in assisting them to operate with low cost and low non-performing loan (NPL).

Keywords: *Credit Risk, SME Financing, Financial Risk Management*

1. INTRODUCTION

SME constitute 97.3% with 645,136 of all business in Malaysia and contributing 57.5% of total employment in the country (SME CORP, 2014), however the total contribution of 33.1% gross domestic product and 19% export are still lagging behind compare to the other Asia country. In The Eleventh Malaysia Plan covering 2016 until 2020 wanted all parties to support in enhancing their capability to stay competitive and resilient to the domestic market as well as discover a new opportunity in global market.

In order to expand the business, SME need financially and non-financially support. Financial institutions are now offering a lot of product to fund the companies. In addition SME Bank is established to fully offer funding for SME. However how long this trend will remain since the SME bank is now suffering with high non performing loan (NPL) at 12.3% compare to other commercial bank that perform as lower as 3.15% (SME Bank, Annual report 2014).

Every bank has their own model in measuring the company's performance, even though they possessed the best model, default is still happen. This study aims to develop a model to assess company credit risk. The measurement of company's financial performance is taken from different aspects. It is suggested by previous research to not only focus on one aspect, precise measurement should be considered from different view.

The model is estimates to provide creditors in analyzing financial strength of SMEs before making important decisions in giving out loan to SMEs. Early sign can be traced to anticipate the event of default. Prudent measurement will improve effectiveness in the banking system in operating with low cost and low NPL.

Financial institution or creditor has applied a best model in assessing and predicting the company's financial health before considering loan and investment to the company. However with the help of the existing model, non-performing loan still occur. Therefore the existing model needs to be improved in order to reduce and control any default of loan from the company.

This model will provide in depth information to financial institution, creditor and investor and act as an additional tool in assessing company performance. In short will reduce a probability of default and convince all parties to invest. This is in conjunction with Malaysian government plan setting a target of a 40% contribution to GDP by 2020 from the current level of 33%.

1.1. SME Background in Malaysia

SME in Malaysia has been divided into three categories namely, micro, small and medium as defined by SME Corp Malaysia 2014.

Category	Micro	Small	Medium
Manufacturing	Sales turnover not exceeding RM300,000 or full-time employees not exceeding 5	Sales turnover from RM300,000 to less than RM15 million or full-time employees from 5 to less than 75	Sales turnover from RM15 million to not exceeding RM50 million or full-time employees from 75 to not exceeding 200
Services and Other Sectors		Sales turnover from RM300,000 to less than RM3 million or full-time employees from 5 to less than 30	Sales turnover from RM3 million to not exceeding RM20 million or full-time employees from 30 to not exceeding 75

Figure 1: Definition of SME, SME CORP

2. LITERATURE REVIEW

2.1. Importance of Credit Risk Assessment

Increasing number of SME in developing countries has proven as a critical sector in enhancing economic growth and contributes to human development especially in eliminating poverty and boost up standard of living. SMEs must be supported to focus on both incremental as well as radical innovations to remain competitive (Ramayah et al, 2009). Furthermore SME recently has outperformed the other company in contributing to a certain percentage to economies worldwide (Altman & Sabato, 2007)

Small and medium enterprise is likely to bring high income to country, based on the statistic percentage contribution of SMEs to GDP in comparison to the other Asia country indicate that China with 59%, Indonesia 57%, Singapore 50%, Thailand 37% and Malaysia only contributed 33%. However in Malaysia even though is still low but the government is developing a lot of facilities and opportunity to SME in expanding the business. The Government injects an amount of fund to SME and encourages the participation from financial institution in granting loan to SME. However due to high uncertainty and increase in default loan by SME makes creditor take a deep precautions before decide on loan approval.

Credit risk is defined as possibility of loss due to default in financing. It involves the borrower's failure to repay or meet a contractual obligation. According to Norlida et al (2015) credit risk depends on the ability of borrower to generate adequate cash flows through operation, earnings, or asset sales to meet their future interest and principle payment of the outstanding debt. Credit risk is widely review and draw attention from Basel Committee in establishing policies for financial institution guidance, (Basel Committee, 2011). The committee identified credit risk as the dominant risk for banking and firms related to lending and deposit activities. Therefore Credit risk assessment system is very crucial in determining a capability of the company to pay the loan. Lack of skill and knowledge on predicting credit assessment will cause wrong interpretation, as a result it cause inaccurate findings.

Most of the previous researches agreed that, every financial institution and company with core business in lending must have an appropriate and perfect credit assessment model. The vital valuation is financial stability in assessing company's performance. Furthermore based on the extensive literature the measurement should consider from all aspect to determine the overall performance of the company. Financial information is major contribution in analyzing the company's performance. It assists stakeholders to make informed judgments considering numerous proportions of financial information in combination, (Godfrey et al, 2010).

In recent years, financial market volatility and economic uncertainty has attracted financial institution to focus on credit risk management. The existing models on assessing company credit worthiness are still weak and need to

be improved, with the help of the existing model, the creditors still suffer with a high percentage of loan default by SME.

Assessing credit risk is said as the leading topic in modern finance, financial institution has heavily focused on the topic due to increasing number of default loan by applicant. They use both internal and external credit scoring in making decision on loan approval (Dean & Silvia, 2008). Credit risk management is very crucial to make them retain and compete internationally. Financial institution has increased the awareness and precaution in granting loan to potential applicant in order to control loan default (Lin, 2009).

Identify the qualified loan receiver is critical, SMEs are said as more riskier than large business (James & Hwan, 2006) (Barbara et al, 2008). During a process of giving out loan, financial institutions stand with their own credit risk model. It is significant to have separate credit risk model for SME and large company (Altman & Sabato, 2007). This is agreed by Beck (2007) proved that small and medium enterprises are more constrained by financing and other institutional obstacles than large enterprise, researcher used the concept of the access possibilities frontier to clarify the difficulties in managing risk and transaction costs involved in SME especially in developing countries. Furthermore, there is no evidence that SME loan portfolios are steadily less risky or require less economic capital, than corporate loan portfolios.

As a developing country, credit risk assessment is vital in order to attract and sustain the investor's confidence to invest in Malaysia; therefore the prudent credit risk assessment should help in improving the financial system of the country. The bankruptcy rate in Malaysia shows a growth pattern and it reflected the increase rate in failure of debt repayment (Norlida et al, 2015)

Wide literature has been developed on predicting credit risk among SME. The element contained assessment from different view and yet contributes to the sound empirical study. No single measurement of financial performance is adequate for evaluating the company's performance (Damona, 2004). Evaluating from four aspect of measurement namely, measuring liquidity, leverage, profitability and efficiency of the companies is the major finding of this study. When evaluating the overall performance, often encounter the existence of multiple measurement of performance (Shashua et al, 1974).

This study focuses on assessing SME credit risk by developing a model to predict the company loan default. The model will consider both financial and non-financial factor. Financial ratio will be used to measure the company financial performance. In addition size, educational level of company's owner and type of industry are taken into consideration on non-financial factor.

2.2. Financial Factor

A wide literature and previous study has considered financial factor or quantitative data into their study (Fabi et al, 2005). Profitability, leverage and liquidity ratio are the most significant explanatory power in explaining the company financial performance, (James & Hwan, 2006) (Allen et al, 2004) (kanitsorn & Dessalegn, 2011). A credit risk model developed by Dietsch and Petey (2002) focused on one-factor model to evaluate default probabilities by using asset correlation in SME.

Financial ratio is a common and powerful tool used in assessing company's performance. It is highly significant in picturing a correlation between earning and probability of default (Barbara et al 2008). The ratio can demonstrate an outstanding idea of company financial situation (Dean & Silvia 2008). Altman and Sabato, (2007), have developed a model using a complete set of financial ratio considering profitability, leverage and liquidity ratio in order to find out the company with prudent creditworthiness. These categories of ratio are enough in predicting the likelihood of SME experiencing financial distress. Financial soundness of SME is more exact when considering various ratios in combination instead of single ratio (kanitsorn & Dessalegn, 2011)

Jaroslav et al (2014) in their study indicate that financial ability of borrower is an important factor, this reflect to the capacity to repay their obligation to the bank which is determined by the level of financial performance of the company. Besides it will affect the business operation and transform to financial crisis. According to Kalogeras (2011), the first step in the assessment of financial viability was the financial analysis.

Credit risk assessment model is normally relates to financial ratio analysis. In decades, financial ratios have been applied and its accuracy has been proven to determine financial status of the firm. Financial ratio is calculated based

on information gathered from financial statement; therefore the company should provide precise accounting figures (Norlida et al, 2015)

2.3. Non-financial Factor

In developing a credit risk assessment model, company's performance must be assessed from both financial and non-financial factor. Qualitative information is crucial as it act as supplementary tools for credit risk prediction (Dean & Silvia, 2008). It is agreed that quantitative data are not sufficient in explaining company's performance, it needs to be supported with soft fact (qualitative data) such as number of employees, region where the business carried out and industry type (Bina, 2003).

Simon (2013) discovered that firm credit assessment is typically based only on hard information, however, in his study, he emphasized the relevance of including soft information in addition to hard information to improve credit default prediction. He found that the soft information improved the credit default prediction model (Simon , 2013)

Very limited research is available in considering role of qualitative information such as management quality and market position (Bina, 2003). In addition, non-financial factors include age of company, educational level of owner of the company need to be taking into consideration (kanitsorn & Dessalegn, 2011). Barbara et al (2008) has considered both financial and non-financial factor such as profitability, debt level, sector and geographical or location matter in her study.

Dietmar & Timm, (1998) found that increase in loan volume might require bank to demand collateral if the company's size is small. Therefore it is important to connect between the loan volume and company's size before bank granted financing to the company.

In existing Credit risk assessment model, loan provider includes various types of hard information (quantitative information), even though the model release almost 80% accuracy, but Francesco et al (2013) strongly suggest to consider non financial factor in future model in order to understand how this type of data affect financial and credit historical determinants.

According to Bogdan (2013) banks must use different type of information, skills and the experience of the management team, quality of the ownership, the company strategy and market share should be considered to get more precise lending decision.

Type of ratio	Reference
Profitability	James & Hwan (2006), Allen et al (2004) kanitsorn & Dessalegn (2011), Fabi et al (2005) Dietsch & Petey (2002), Barbara et al (2008) Dean & Silvia (2008), Altman & Sabato (2007)
Liquidity ratio	James & Hwan (2006), Allen et al (2004) kanitsorn & Dessalegn (2011), Dietsch & Petey (2002) Barbara et al (2008), Dean & Silvia (2008) Altman & Sabato (2007)

Leverage Ratio	James & Hwan (2006), Allen et al (2004) kanitsorn & Dessalegn, (2011),Fabi et al (2005) Dietsch and Petey (2002), Barbara et al (2008) Dean & Silvia (2008), Altman & Sabato (2007)
Activity Ratio	Dietsch and Petey (2002)
Investment Ratio	Sugessted by: Bina (2003)
Size of the company	Barbara et al (2008)
Type of industry	Suggested by: Bina (2003),kanitsorn & Dessalegn (2011) Altman & Sabato (2007)
Educational Level of Owner of the company	Sugessted by:Bina (2003), kanitsorn & Dessalegn (2011) Dean & Silvia, (2008)

Figure 2: Summary of Literature Review

3. METHODOLOGY

All data in this research will be gathered from both primary and secondary data. Financial statement of the company consists of income statement and balance sheet will be bought from Companies Commission of Malaysia (SSM). Both types of distress and non-distress company will be used as a sample of study.

In developing the model, information will be gathered from different sources such as journals, books, magazines, newspaper and relevant web sites contributed to better understanding of research.

From literature review, it helps the researcher to set direction and determine relevant variables that in turn led to hypotheses development. Through extensive reading of previous research hypothesis will be developed for this study. Statistical analysis will be employed to analyze the accuracy of the model in order to assess company's capacity in securing loan.

This study will close the gap by develop a model to predict the company credit assessment with considering both financial and non financial factor .The assessment includes five categories of financial ratio, while, size, educational level of owner of the company and type of industry represent non financial factor.

3.1. Hypothesis

Use hypothesis to test the significant variable with high capability to assess credit risk.

H₁: Company with low profitability ratio is likely to have high credit risk leading to failure in SME financing.

H₂: Company with high leverage ratio is likely to have high credit risk leading to failure in SME financing.

H₃ : Company with low liquidity ratio is likely to have high credit risk leading to failure in SME financing.

H₄ : Company with low activity ratio is likely to have high credit risk leading to failure in SME financing.

H₅ : Company with low investment ratio is likely to have high credit risk leading to failure in SME financing.

H₆ : The small company is likely to have high credit risk leading to failure in SME financing.

H₇ : Company's owner with low educational level lead to high credit risk leading to failure in SME financing.

3.2 Research Framework

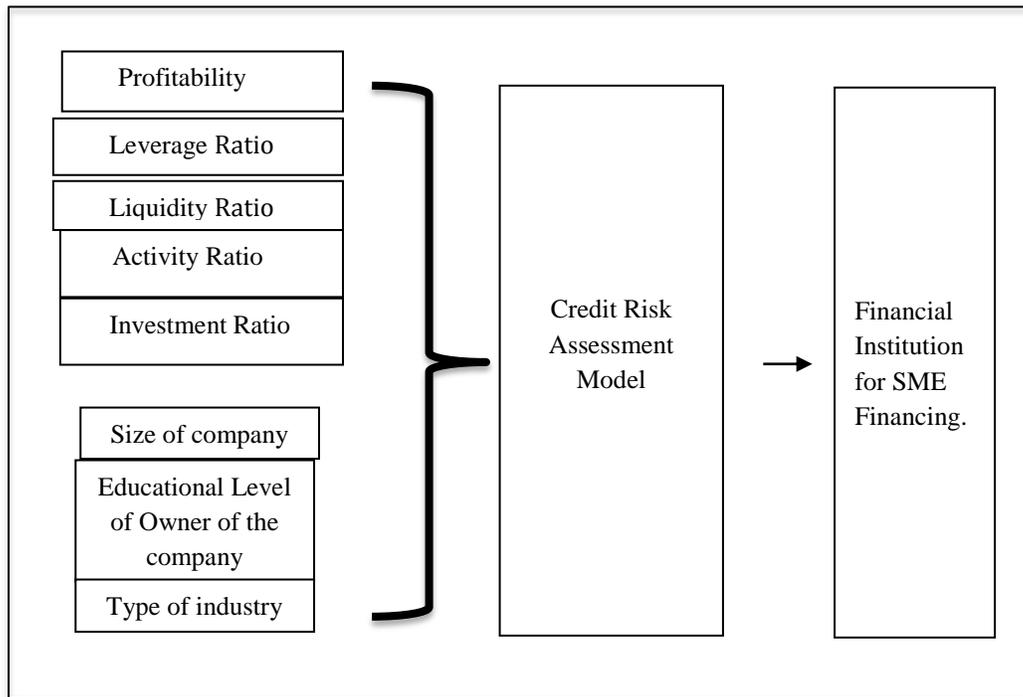


Figure 3: Research Framework

4. CONCLUSION

This study attempts to enhance the research contributions in the aspects of measuring company's performance by considering from both financial and non-financial factor. A few aspects in five categories of financial ratio will be explained and bring information in detail on financial part, while three factors represent non-financial factor.

Most of the previous research only focused on financial factor namely profitability, leverage, liquidity and activity (kanitsorn & Dessalegn, 2011), (Altman and Sabato, 2007) (James & Hwan, 2006). The researcher believed that these aspects are very powerful in determining the company financial performance and the information are enough in developing a model on credit risk assessment.

In addition in improving the model, this research will include another category of financial ratio namely investment ratio which will give more impact and accuracy in measuring financial health of the company. Besides an additional category of financial ratio, this study proposes to consider non-financial factors specifically size, educational level and types of industry into the model as it will bring in depth picture of the company performance in assessing credit risk. Company's size has been tested before, while type of industry and educational level of owner of the company is proposes as future research to improvise the existing model.

After completing this study, research institution will have a better reference in assessing company's credit risk. Creditor, investor and fund provider will have precise model in assessing company's credit risk in order to reduce loan default. In addition all identified problems will be answered and benefit will goes to all parties involve. SME's manager and financial consultant can use the model in setting their business strategies and advising client in developing good and prudent financial standing.

Besides that the study is expected to contribute massive idea to policy maker especially in identifying the major problem that they have to solve in bridging the industry to support the New Economic Model by contributing to the per capita income in 2020.

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