THE VALUE OF GOVERNANCE VARIABLES IN PREDICTING FINANCIAL DISTRESS AMONG SMALL AND MEDIUM-SIZED ENTERPRISES IN MALAYSIA

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ABSTRACT

Predicting financial distress among SMEs can have a significant impact on the economy as it serves as an effective early warning signal. The study develops distress prediction models combining financial, non-financial and governance particularly ownership and board structures, on the likelihood of financial distress by using the logit model. The final sample for the estimation model consists of 172 companies with 50% non-failed cases and 50% failed cases for the period from 2000 to 2012. The prediction models perform relatively well especially Model 3 that incorporates governance, financial and non-financial variables, with an overall accuracy rate of 93.6% and 91.2% in the estimated sample and holdout sample respectively. This evidence shows that the models serve as effective early warning signals which are beneficial for monitoring and evaluation purposes. Controlling shareholder, number of directors and gender of managing director are found to be significant predictors of financially distressed SMEs.

Keywords: Financial distress, governance, logit model, small and medium-sized enterprises, classification accuracy rate

INTRODUCTION

The consequences of financial distress have a far-reaching impact on stakeholders of a company either directly or indirectly. Major stakeholders in a company stand to lose most of their investment. Creditors may receive partial or no repayment of their initial loans depending on whether their loans were secured or unsecured, employees will lose their jobs, the government collects less company and personal taxes, and social problem might increase. The contributions of Altman (1968), Altman, Edward, Haldeman, and Narayanan, (1977), Beaver (1966), Blum (1974), Deakin (1972), and Ohlson (1980) among others have spawned huge literature on the topic of financial distress. Since then a number of models have been proposed in order to correctly predict corporate failure but mostly in large public listed firms due to easy access to their financial data. However, very little research on small and medium enterprises (SMEs) has been done as a result of difficulty in accessing their financial data and other information.

In recent years, SMEs are viewed to be the leading contributor to the national economy development in terms of developing entrepreneurship using indigenous skills and technologies, creating employment opportunities, building market competitiveness through innovation and allowing government to realise poverty free society (Jahur & Quadir, 2012). Small business in Malaysia plays a significant role towards economy development in the country. Statistics from the Department of Statistics Malaysia (Department of Statistics Malaysia, 2013) highlighted that SMEs account for 97.3% of the total business formation in Malaysia (645,000). Since 2004, the contribution of SMEs to GDP growth has steadily outperformed the growth of the general economy (SME Corporation Malaysia, 2014). SMEs annual growth rate was 6.3% in 2013 while the overall economic growth stood at 4.7% in 2013 (SME Corp., 2014). Furthermore, SMEs share to gross domestic product increased from 29.4% in 2005 to 33.7% in 2013 (SME Bank, 2014). This sector also contributes 59% of employment and 19% of exports in 2013.

Most of the research done in Malaysia regarding corporate failures have been focusing on public listed entities due to easy access of financial data using many bankruptcy prediction models such as univariate analysis, logit regression model, multiple discriminant analysis (MDA), hazard model and probit model (see Abdullah, Ahmad & Md. Rus, 2008; Ahmad, Mohd, Rizal & Marzuki, 2008; Md-Rus, Nisham, Abdul Latif, & Nadakkavil, 2013; Norfian, 2013; Zulkarnian, Ali, Md. Nasir, & Mohamad 2001; Zulridah, 2012). There is limited research in Malaysia looking into the prediction of SMEs failure. Due to the important role of SMEs in the economic growth of Malaysia, the study will examine the

manufacturing sector of Malaysian SMEs in order to predict financially distressed SMEs as early as two years using financial, non-financial and corporate governance information and to check on the accuracy rate of the model. The remainder of this paper proceeds as follows. The next section covers an overview of the literature on failure prediction. Subsequently, the sample and research design are elaborated. This is then followed by the analysis of results and conclusion.

LITERATURE REVIEW

Edmister (1972) was among the earliest in looking into SMEs business failure by using MDA statistical technique to discriminate among loss and non-loss SME borrowers. His analysis resulted with MDA model with seven financial ratio variables. Classification accuracy rate of the model was 93%, while model error was 7%. The research reveals that classifying ratios by quartile is a particularly valuable tool, as demonstrated by the use of quartiles in every variable of the study. This is because extreme values are negated and are therefore prevented from unduly affecting the function parameters (Edmister, 1972). The model of Lussier (1995) utilised qualitative data to predict financial distress among SMEs which was considered among the first model that utilised such data. The model consists of 15 major variables identified in 20 studies. It uses non-financial and resource-based theory (RBT) as it helps to better understand the role of resources in new ventures by focusing on the identification and acquisition of resources that are crucial for the firms' long-term success (Lichtenstein & Brush, 2001). The model was tested and replicated by other researchers outside the US market such as by Houben, Bakker and Vergauwen (2005), Lussier and Halabi (2010), Lussier and Pfeifer (2001), Teng, Bhatia and Anwar (2011) in Croatia, Netherlands, Chile and Singapore market, respectively. In the research of Lussier (1995), Lussier and Pfeifer (2001) and Teng et al. (2011) found that staffing was a significant predictor among the non-financial factors while Lussier (1995) and Lussier and Pfeifer (2001) found that education was also a significant factor. Furthermore, managerial expertise is also found to be significant in explaining financial distress among SMEs (Houben et al., 2005; Teng et al., 2011). However, Keasey and Watson (1987) argued that non-financial data could only marginally predict failure and non-failure of SMEs. Thus, financial data would still need to be considered.

The model of Altman and Sabato (2007) utilised the short-term to equity book value, earnings before interest, tax, depreciation and amortisation (EBITDA) to total assets, EBITDA to interest expenses, cash to total assets and retained earnings to total assets. Data was derived from COMPUSTAT which consist of 120 failed and 1890 non-failed companies over a period from 1994 to

2002. Their empirical result showed that the prediction accuracy could be enhanced by 30% if a prediction model specific to SMEs was used on the holdout sample. The logit model used in their analysis performed slightly better in discriminating between failed and non-failed companies than the MDA. As such the result contradicted to Bellovary (2007) which showed that MDA had more predictive accuracy than that of logit model in his review of failure prediction studies. Further evidence of SMEs failure prediction was carried out by Behr and Guttler (2007) for the German market. The sample of their study consists of 40,154 firm-year observations covering from 1992 to 2002 by using the logit model analysis to develop failure prediction model. The authors used financial and non-financial data to predict failure of SMEs. Among the variables used, external equity financing, equity ratio, growth of equity ratio, return on sales, depreciation ratio, return on sales growth, temporary liquidity problems, size of firms, location of firm head office, business sector and legal form of business were significant predictors of failure. The equity ratio of SMEs in Germany was found by Behr and Guttler (2007) to be relatively low as most of the firms relied on individual financing, friends, family and business associates. The accuracy rate of their model was 85%.

Altman, Sabato and Wilson (2010) explore the effect of the introduction of non-financial information as predictor variables into the models developed by Altman and Sabato (2007). They employed a large sample from the UK which includes 5,749,188 sets of accounts for businesses that survive in the period 2000 to 2007 and 66,833 companies that fail during those periods. They retained data from 2006/7 as a test sample. The data analysed for failed companies are the last set of accounts filed in the year preceding insolvency. Their findings showed that qualitative data such as company filing histories, legal action by creditors to recover unpaid debts, comprehensive audit report/opinion data and firm specific characteristics make a significant contribution to increase the default prediction power of risk models built specifically for SMEs, consistent to the study by Blanco, Irimia dan Oliver (2007). Abdullah, Ahmad, Md. Rus and Zainuldin (2014) is the first research that utilises financial and non-financial information to predict corporate failure among SMEs in Malaysia. Their research studied 132 privately-owned SMEs in the manufacturing sector in Malaysia during the period 2000 to 2010. Their empirical result shows that higher gearing and lower profitability entailed higher probability of failure and when firm age is added to the model as non-financial variable, they found it to be significant and increase the model's classification accuracy.

RESEARCH METHODOLOGY

Companies Commission of Malaysia (CCM) database was used in this study to identify the sample which consists of both distressed and non-distressed SMEs for a 12-year period from 2000 to 2012. Companies were matched based on the same industry group and close in asset size, i.e. failed companies were matched against healthy companies that have almost similar total assets. Financial statements are used to extract the financial variables and the companies profile was used to obtain the non-financial and corporate governance variables. As mentioned earlier, the study focused on companies in the manufacturing sector as the sector contributes significantly to the economic development of Malaysia.

The final sample for the estimation model consists of 172 companies (50% non-failed cases and 50% failed cases). Twenty percent of the estimated sample were retained as a test sample (hold-out sample). The companies were selected based on the SME's definition adopted by the National SME Development Council (2013) and these companies are classified under winding off by court order or creditors request in Part X Section 218 of 1(e) and (2) of Malaysian Companies Act 1965. Data for two years prior to failures were used in the estimation analysis because most of the failed companies did not submit their financial reports when the winding-up period approached, which led to a very small sample for the year prior to failure.

To investigate whether governance variables influence the occurrence of distress, a logistic regression model of the following form is estimated:

$$Y_{it} = \alpha_0 + \beta_1 CONT_{it} + \beta_2 FRGN_{it} + \beta_3 NDIR_{it} + \beta_4 GENDER_{it} + \beta_5 TLA_{it} + \beta_6 SLA_{it} + \beta_7 LQT_{it}$$

$$+ \beta_8 STA_{it} + \beta_9 EBIT_{it} + \beta_{10} NIS_{it} + \beta_{11} LogTA_{it} + \beta_{12} LogCAP_{it} + \beta_{13} AGE_{it} + \mu_t$$

where *i* refers to company, *t* refers to time, and *Y* is a binary variable that equals to 1 for distress, zero otherwise, CONT is a dummy for controlling shareholder that equal to 1 if shareholders own more than 25% of the company's outstanding shares and zero otherwise, FRGN is a dummy for foreign ownership that equal to 1 and zero otherwise, NDIR is number of directors in the board, GENDER is a dummy where if the managing director is a male, it would equal to 1 otherwise zero, TLA is a ratio of total liabilities to total assets, SLA is a ratio of short term liabilities to total assets, LQT a ratio of current assets to current liabilities, STA is a ratio of sales to total asset, EBIT is a ratio of earnings before interest and tax to total asset, NIS is a ratio of net income to share capital, LogTA is logarithm of total assets, LogCAP is logarithm of share capital and AGE is years of SMEs business operations.

A forward stepwise procedure is applied which allowed the predictor variables to be included only based on the contribution made. A stepwise procedure is usually applied when there is lack of theoretical basis in the selection of the predictor variables (Low, Fauzias, & Zainal Ariffin, 2001). Model 1 utilising only financial and non-financial variables as used by Abdullah et al. (2014) is to act as a benchmark by which to compare the results obtained by Model 2 and 3. Model 2 would only include the governance variables whereas Model 3 incorporates both financial, non-financial and governance variables is designed to test whether the three set of information in conjunctions are able to produce superior result to those obtained from either Model 1 or Model 2.

EMPIRICAL RESULTS

Table 1 presented the results of mean differences on the variables used to estimate the logit model. Overall, out of the 13 independent variables, foreign owners, liquidity and logarithm of total assets are not significantly different between distressed and non-distressed SMEs. The result indicated that 92% of distressed SMEs are holding 25% or more of the voting right whereas only 30% of the non-distressed SMEs are holding 25% or more of the voting right. For non-distressed SMEs, the average board size is four directors while for distressed SMEs, the average board size is only two directors. Keasey and Watson (1987) highlighted some benefits for SMEs to have a large number of directors in the board among which he argued it will increase efficiency of the board as directors will have better chances for communicating, listening to each other, and keeping the discussions on track.

Furthermore, consistent with the previous researches (Altman, 1968; Beaver, 1966; Blanco et al., 2007; Shane, 1996), distressed SMEs are having a high level of debt liabilities and lower liquidity which resulted in negative basic earnings power and net income to share capital. However, both groups are considered to be relying heavily on short term liabilities to finance their day-to-day business operations. Smaller companies often rely heavily on trade finance from suppliers when bank finance is not available to them (Altman et al. 2010).

Table 1
Descriptive statistics

| Variables | Panel Pool (two years prior) | | | | | |
| | Mean | S.D. | Mean | S.D. | *p*-value (two-tail) | VIF |
	Distressed SMEs (172)		Non-distressed SMEs (172)			
FRGN	0.290	0.457	0.230	0.425	0.389	1.170
CONT	0.920	0.275	0.300	0.439	0.000***	1.449
NDIR	2.260	0.490	3.560	1.523	0.000***	1.350
GENDER	0.940	0.235	0.520	0.504	0.000***	1.463
TLA	1.639	1.698	1.069	1.707	0.000***	1.534
SLA	0.932	0.129	0.867	0.184	0.008***	1.251
LQT	1.583	5.414	2.103	4.136	0.481	1.184
STA	1.238	1.332	0.946	0.706	0.074*	1.322
EBIT	−0.269	0.594	0.023	0.141	0.000***	1.562
NIS	−0.795	1.908	0.089	2.188	0.005***	1.247
LogTA	15.495	1.415	15.566	1.498	0.747	1.640
LogCAP	14.266	1.477	13.715	1.585	0.000***	1.370
AGE	14.870	7.162	20.260	5.537	0.000**	1.277

*, **, *** significant at 10%, 5% and 1% levels respectively. Foreign owner (FRGN), gender of MD (GENDER), controlling shareholder (CONT), number of directors (NDIR), age of company (AGE), logarithm of total assets (LogTA), logarithm of share capital (LogCAP), total liabilities to total assets (TLA), short term liabilities to total assets (SLA), liquidity (LQT), sales to total assets (STA), earnings before interest and tax to total assets (EBIT), net income to share capital (NIS).

A Pearson correlation test was employed to investigate the relationship between the independent variables and the results are summarised in Table 2. The findings show that the correlation among the variables is relatively low ranging from 0.007 to 0.427 and majority of the relationships are insignificant. However, FRGN against TLA, GENDER against CONT, GENDER against EBIT, CONT against NDIR, CONT against AGE, NDIR against AGE, LogTA against LogCAP, TLA against STA, TLA against EBIT and SLA against STA are found to be significant. To further verify that multicollinearity is not a problem to this study, a variance inflating factor (VIF) is reported in Table 1. The R^2 are relatively low for all variables. The VIF ranges from 1.170 to 1.640 which is less than 10 indicating there is no issue of multicollinearity to this study.

Table 2
Pearson correlation

	FRGN	GENDER	CONT	NDIR	AGE	logTA	logCAP	TLA	SLA	LQT	STA	EBIT	NIS
FRGN	1												
GENDER	−.089	1											
CONT	−.065	.427***	1										
NDIR	.093	−.215***	−.333***	1									
AGE	−.100	−.230***	−.331***	.256***	1								
lgTA	−.062	.150	.106	.174**	.063	1							
logCAP	.074	.235***	.209***	−.016	−.027	.383***	1						
TLA	.203***	−.038	.065	−.185**	.051	−.396***	−.024	1					
SLA	−.102	.142	.093	−.299****	−.094	−.169**	.135	.149	1				
LQT	.073	.033	.022	.050	−.034	−.041	.063	−.215***	.100	1			
STA	−.179**	.149	.120	−.097	−.075	.090	.085	−.094	.171*	.152**	1		
EBIT	−.051	−.219***	−.234***	.161**	.007	.161**	−.126	−.268***	−.117	.086	−.335***	1	
NIS	−.040	−.194**	−.111	.151**	−.053	.010	−.165**	−.127	−.036	.112	−.031	.366***	1

*, **, *** significant at 10%, 5% and 1% levels respectively. Foreign owner (FRGN), gender of MD (GENDER), controlling shareholder (CONT), number of directors (NDIR), age of company (AGE), logarithm of total assets (LogTA), logarithm of share capital (LogCAP), total liabilities to total assets (TLA), short term liabilities to total assets (SLA), liquidity (LQT), sales to total assets (STA), earnings before interest and tax to total assets (EBIT), net income to share capital (NIS).

A stepwise logistic regression was run and presented in Table 3. Model 3 which combined financial, non-financial and governance variables appear to perform better as compared to Model 1 (benchmark) and Model 2 based on Hosmer and Lemeshow (HL) test and classification accuracy of the model. The Hosmer and Lemeshow test for logistic regression is widely used to answer the question on how well does the model fit the data. Overall, Models 2 and 3 from the logit analysis fit the data because the observed and expected event rates in sub-groups are similar which indicate that the models are consistent with the data. A high p-value 0.405 and 0.306 for Model 2 and Model 3 respectively implies that the models fit the data. Model 1 with a p-value of 0.075 barely passes the test, as it deviates from the 5% significant level, but it fulfils the 90% confidence level. Thus, the model is still considered to fit the data. There are seven variables found to be significant which are CONT, NDIR, GENDER, TLA, EBIT, LogCAP and AGE with a respective likelihood ratio (LR) of 28.363, 23.263, 12.066, 3.656, 14.233, 8.600 and 14.964 indicating a rejection of the null hypothesis that the coefficients of independent variables are zero. Likelihood ratio is considered more accurate in estimating the statistical significance of an independent variable to the explanation of dependent variable (Menard, 1995; as cited in Abdullah et al., 2014).

Total debt ratio is positively related to failure as found in Model 3. The findings appears to be consistent with that of Abdullah et al. (2014) where they found debt ratio is significant to predict financially distressed SMEs at all prior periods of the study. Altman (1968), Beaver (1966), Blanco, Irimia and Oliver (2007), and Shane (1996) also reported that debt ratio had a significant predictive ability. Shane (1996) further illustrated that younger companies tend to take more debt as the owners have limited resources which could lead the company to having huge amount of debt outstanding. As a result, it drives the company to financially distressed situation if owners are unable to settle their obligations. Altman et al. (2010) also suggest that the high level of debt in SMEs both in terms of trade debt supplied to customer and trade credit obtained from suppliers is because small companies may try to boost sales by offering credit to beat their competitors, without the financial resources to sustain the strategy. As a result, this may lead to financial distress of SMEs as they may be unable to settle their debt to the supplier due to late payments from large customers taking extended credit. The higher the company's debt level, the more likely the company faces default due to high interest obligations. Furthermore, the less profitable the SMEs, the high propensity to fail as EBIT is negative. Distressed SMEs are less profitable as compared to the non-distressed SMEs and the finding is consistent with previous work of Abdullah et al. (2014).

Table 3
Stepwise logistic regression analysis for estimated models

Variables	Category	Model 1		Model 2		Model 3	
		Coefficient	Change in -2 Log Likelihood	Coefficient	Change in -2 Log Likelihood	Coefficient	Change in -2 Log Likelihood
FRGN	Governance			1.904	7.590 (0.006)***		
CONT	Governance			3.541	49.220 (0.000)***	4.053	28.363 (0.000)***
NDIR	Governance			−1.655	37.595 (0.000)***	−1.662	23.263 (0.000)***
GENDER	Governance			2.750	18.405 (0.000)***	3.334	12.066 (0.01)***
TLA	Financial					0.138	3.656 (0.056)*
STD	Financial						
LQT	Financial						
STA	Financial						
EBIT	Financial	−9.937	44.694 (0.000)***			−9.747	14.233 (0.000)***
NIS	Financial						
LogTA	Financial						
LogCAP	Financial	0.508	14.833 (0.000)***			0.734	8.600 (0.000)***
AGE	Non-financial	−.230	40.821 (0.000)***			−0.279	14.964 (0.000)***
Constant		−8.884		−.473		−2.202	
Hosmer & Lemeshow test		14.270 (0.075)		6.167 (0.405)		9.450 (0.306)	

*, **, *** significant at 10%, 5% and 1% levels respectively. **Model 1**: financial and non-financial variables; **Model 2:** governance variables; **Model 3:** combined model 1 and 2. Foreign owner (FRGN), gender of MD (GENDER), controlling shareholder (CONT), number of directors (NDIR), age of company (AGE), logarithm of total assets (LogTA), logarithm of share capital (LogCAP), total liabilities to total assets (TLA), short term liabilities to total assets (SLA), liquidity (LQT), sales to total assets (STA), earnings before interest and tax to total assets (EBIT), net income to share capital (NIS).

Model 3 shows that AGE of company is negatively related to failure and is significant in predicting failure among SMEs. The longer the company survives then the less likelihood that it is to fail. Finding is in line with previous studies like that of Abdullah et al. (2014), Altman et al. (2010), Blanco et al. (2007) and Shane (1996) among others all in support of the argument. The longer the company exists, the more chance of it to survive. In addition, results from the models suggest that controlling shareholders have a positive significant impact on predicting failure among SMEs in Malaysia. This indicates that the greater the holding of controlling shareholders, the higher is the likelihood of failure among

SMEs. Furthermore, a significant negative relationship of NDIR indicates that a larger board can decrease the probability of SMEs failure due to increase oversight and expertise. The finding is consistent with that of Keasey and Watson (1987) who tested the Argenti's (1976) model of business failure on SMEs where they found that the number of directors on the SME's board is negatively related to failure.

Gender of managing director is also found to be significant and positively related to corporate failure. The results show that men MD are more likely associated to failure among SMEs than the female counterpart. Foreign ownership is considered to be relatively low for both distressed and non-distressed SMEs as shown in the descriptive statistics. The variable is found to be insignificant in Model 3 indicating that foreign ownership could not predict failure among SMEs. However, if the model only focused on governance variables, FRGN is found to be significant to predict failure.

Table 4 provides a summary of the accuracy rate of the models for the estimated and holdout sample. Model 1 can correctly predict 80.2% and 88.4% of the distressed and non-distressed SMEs in the estimated sample with an overall accuracy rate of 84.3% and the holdout sample is having an overall accuracy rate of 85.3%. The result of the estimated sample is close to the accuracy rate reported by Abdullah et al. (2014), Altman and Sabato (2007), Behr and Guttler (2007) and Luppi, Marzo and Scorcu (2007) with 81.2%, 87.2%, 85% and 85% respectively. Abdullah et al. (2014) also reported an overall holdout sample accuracy rate of 87.5% for two year prior to distress which is closed to Model 2 in this study. Model 2 indicates that governance variables are also strong predictors of failure among SMEs. Running only the governance variables, the model can correctly predict 87.2% and 89.5% of the distressed and non-distressed SMEs respectively in the estimated sample with an overall accuracy rate of 88.4%. The holdout sample is having an overall accuracy of 88.2%. Furthermore, when all categories of variables (financial, non-financial and governance) are included in Model 3, it significantly improves the accuracy rate of the model for both estimated sample and the holdout sample with an overall predictive accuracy rate of 93.6% and 91.2%.

Table 4
Classification accuracy

	Estimated (172 SMEs)			Holdout (34 SMEs)		
	Distressed	Non-distressed	Overall	Distressed	Non-distressed	Overall
Model 1	80.2%	88.4%	84.3%	88.2%	82.4%	85.3%
Model 2	87.2%	89.5%	88.4%	94.1%	82.4%	88.2%
Model 3	93.0%	94.2%	93.6%	94.1%	88.2%	91.2%

CONCLUSION

The study improves upon the existing models from the literature of SME distressed prediction in various ways among others are: the study presented new empirical findings on predicting financially distressed SMEs in the manufacturing sector for the period between 2000 to 2012. The study builds on the previous work of Abdullah et al. (2014) that utilised financial and non-financial variables in predicting failure among SMEs in the Malaysian manufacturing sector. In this study, governance variables are included to see whether or not by having financial, non-financial and governance variables, it is possible to achieve a higher prediction accuracy rate of SMEs failure.

The study explores the value added of governance variables to the prediction model where the prediction accuracy rate improves significantly to 93.6% against 81.2% of the logit model in Abdullah et al. (2014) which utilised only financial and non-financial information. The governance variables examined in this study evidently capture important SME's characteristics in predicting SMEs failure.

The findings clearly confirm for what has been found in other studies for large corporations, that using governance variables as predictors of company failure significantly improves the prediction model's accuracy rate (Lackshan & Wijekoon, 2012; Md-Rus et al., 2013; Polsiri & Sookhanaphibarn, 2009). The results showed that most of the distressed SMEs are having a large number of controlling shareholders. Non-distressed SMEs are having more directors in their board which may help to increase oversight, monitoring and expertise in the company's operations. In contrast, distressed SMEs are having less number of directors which increase the likelihood of failure among SMEs. Male managing director is also positively related to failure. However, foreign ownership appears to be unrelated with the failure status. Young SMEs seems to be more likely to fail as compared to longer existence SMEs due to experience and growth development. In addition, debt ratio is positively related to failure among SMEs.

The findings affirm that small and medium-sized enterprises in Malaysia finance most of their business operation using bank loan as they have limited access to capital market. The result also shows that EBIT is negatively related to failure and distressed SMEs are less profitable as compared to non-distressed SMEs as a result of huge amount of liabilities that trim their profit.

The findings will serve as an early warning signal for management to take proactive measures to overcome the financial threat. Financial institutions such as banks will benefit from this study as it will help them to incorporate the significant variables into their evaluation process so as to manage credit risk better. As in other research, this study has its limitation. Users of the model developed in this study would need to take caution as the cut off point used to define financial distress is at 50%. If a different cut off point is used, the financial distress prediction model might be different. Thus, future research might look into this. In addition, looking at the limited number of research incorporating governance variables among SMEs in predicting financial distressed, more investigation can be carried out of SMEs in other sectors of the Malaysian economy to check whether the model of this study could be applied in other sectors. Furthermore, a comparative study can be carried out among SMEs in different countries to identify country specific variables that contribute to financial distress of SMEs.

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