Size Effect and Insolvency Profiles among the SMEs: An Empirical Investigation

Maran Marimuthu[1], Lawrence Arokiasamy[2], Lai Fong Woon[3], Indraah
Kolandaisamy[4]
[1,3]Department of Management & Humanities.University of Teknologi PETRONAS,
Malaysia. [2]Faculty of Business & Information Sciences, UCSI University,
Malaysia.[4]College of Business, Universiti Utara Malaysia
*Corresponding author Email: maran.marimuthum@petronas.com.my

Abstract

Purpose: This purpose of this study is to examine the effect of size on insolvency of small medium enterprises (SMEs) in Malaysia. The conceptual framework is designed using the recommended measures, variables, concepts and models.

Design/ methodology/ approach: A total sample of 229 businesses which consisted of small (57), medium (111) and large (61) SMEs. The data were obtained from the Registrar of Companies (ROC). Percentile method (25, 50, 75) was adopted to categorize the size of SMEs using their total assets values. Testing of signification of size effect incorporated the Z-scores Altman's Model and the non-parametric statistical techniques (Kruskal-Wallis Test and Mann-Whitney U test) for empirical testing based on the cross-sectional data.

Findings: The results indicate that size effect was significant only on profitability measures. There were no significant differences among the small, medium and large SMEs with regard to insolvency scores. In general, about 55 per cent of the large SMEs fell under the bankruptcy category, as compared to 39 per cent of the small SMEs and about 47 per cent of the medium SMEs. Large SMEs faced greater financial risk and thus, faced greater risk for insolvency.

Research Implications: Most of the large firms tend to register a higher score on insolvency as compared to that of small and medium firms. Admittedly, large firms, though look more stable financially, however, they seem to be the first to *'collapse' (financially distressed)* as supported by the Altman's Z-scores. On the contrary, despite the liquidity problem faced by the small firms in the short run, they do not show any symptoms to default. Meanwhile, the medium firms manage to sustain at average performance with regard to insolvency. This signifies that comparatively, large SMEs are bound to face greater financial risk as compared to small and medium SMEs.

Practical Implications: Low gearing ratios registered by the large firms may be offering misleading information as the ratios could denote large amounts of borrowing (thus, higher financing costs) without the support of sufficient profit margin. Small SMEs are generally constrained by the short-term liquidity as result of relatively lower profit margin, however, they are well prepared to adjust themselves to the business environment even with higher gearing.

Originality/value: There is no much work capturing the size effect among the SMEs particularly in Malaysia. Generally, studies suggest that smaller firms use more of debt financing (especially current debt), rely more on internal funds and loans from stockholders to finance their operations, do not use much external equity relative to larger firms and thus they differ on returns and smaller firms seem to face higher cost of equity capital. Consistent with these arguments, firm size does have impact on financial risk and cause insolvency. Lack of equity and long-term debt could be the main detrimental factors to insolvency and future growth and becomes a major cause of failure. In this regard, SMEs are always treated as small firms and hence, the general characteristics of small firms are applied on SMEs. Literature on SMEs' financial sustainability is limited to the characteristics of small firms where most of them are listed firms. These findings may not be applicable for SMEs. Hence, there is a need to relook at the size of SMEs at micro level as the size effect among the SMEs remains

significant and continues to be a magnifier for long term sustainability. Hence, it is worth to explore the impact of firm size on insolvency profile of SMEs.

Keywords: SMEs, size, insolvency

Paper Type: Research Paper

1. Introduction

Small and medium enterprises (SMEs) in Malaysia are segregated according to size, turnover and activity. Basically, SMEs fall under two broad categories (Saleh & Ndubisi, 2006), which are manufacturing, manufacturing-related services and agro-based industries and services, primary agriculture and information and communication technology (ICT). Textiles, food, metal and wood account for more than 60 per cent of the total firms in the manufacturing sector. Whereas, wholesale and retail trade account for almost 90 per cent of the firms in the service sector[1]. SMEs account for 93.8 percent of the companies in the manufacturing sector (Saleh and Ndubisi, 2006)[2]. Due to the increasing demand for external-financing among the SMEs, the need for empirical findings on the significance of financial risk factors in predicting their default rates has become increasingly important. In order to derive a better prediction on SMEs' financial risk and insolvency, more robust credit scoring models are needed by the Malaysian financial institutions. Credit scoring models are the backbone of the most advanced value at risk models (Altman, 2002). Some major shortfalls among the SMEs must not be overlooked, for instance, as of 2008, SMEs accounted for 99.2 percent of total business establishments but they only contributed 32 percent of real gross domestic product and 19 percent of total export (SMI Business Directory [SMIBD], 2008)[3].

2. Issues

Admittedly, there is no much work capturing the size effect among the SMEs particularly in Malaysia. However, the relevance of understanding the size effect remains intact among the academics and practitioners. Studies suggest that smaller firms use more of debt financing (especially current debt), rely more on internal funds and loans from stockholders to finance operation, do not use much external equity relative to larger firms and thus they differ on dividend payment (Pettit & Singer, 1985). Even from those days, smaller firms seem to face higher cost of equity capital (Archer & Faerber, 1966; Brigham & Smith, 1967). Consistent with these arguments, it seems that firm size does have impact financial risk and cause insolvency. Lack of equity and long-term debt could be the main detrimental factors to insolvency (Finley, 1984). Meantime, capitalization problem[4] is seen as a major cause of failure (Stoll and Curleys, 1970). Basically, much of the work in this area of SMEs is skewed to macro-economic factors (Pettit & Singer, 1985). In this regard, SMEs are always treated as small firms and hence, the general characteristics of small firms are applied on SMEs. Literature on SMEs' financial sustainability is limited to the characteristics of small firms where most of them are listed firms. These findings may not be applicable for SMEs. Hence, there is a need to relook at the size of SMEs at micro level as the size effect among the SMEs remains significant and continues to be a magnifier for long term sustainability. Hence, it is worth to explore the impact of firm size on insolvency profile of SMEs.

---

[1] Source: SMIDEC (2006)

[2] Saleh, A.S. & Ndubisi, N.O (2006), SME Development. *Domestic and Global Challenges*. Retrieved January 6, 2010, from http://www.uow.edu.au/commerce/econ/wpapers.html

[3] *Overview of SMIs/SMEs*. (2008). Retrieved by February 10, 2009, from http://www.smeinfo.com.my/pdf/sme2008.pdf

[4] The undercapitalization problems have two parts. The first part is the reliance of small business on debt rather than on equity. The second part of the problem is the inability of small business to borrow on a long-term basis and instead rely on short-term debt.

3. Objective of the Study

This study examines the extent to which sizes of SMEs have impact on financial characteristics and insolvency in the context of Malaysia.

4. Size Effect and Risk Factor

Firm size may partially determine the overall financial health of a company, dictating as well as company's basic financial risk (Davidson & Dutia, 1991). Ferri and Jones (1979) and Marsh (1982) argue that ratios vary across different firm sizes and thus, there could be a difference between large and small firms (Osteryoung *et al.,* 1992). Meantime, size has impact on productivity, profitability and financial risk (Demirguc Kunt and Maksimovic, 2005). Failure rate especially among the small firms is mainly due to the difficulties in raising capital (Auken and Carter, 1989). The lack of adequate financing usually leads to a bigger problem for smaller firms in periods of growth (Boardman, Bartley, & Ratliff, 1984). Brigham and Smith (1967) argue that small firms use more debt to lower their overall cost of capital while others argue that the reason is the inaccessibility of the equity markets to small firms (Walker & Petty, 1978). As a result, smaller size company tends to experience insolvency as compared to larger size company. As proxies for small firms' performance, ROA and ROE are widely used (Castelli, *et al.,* 2006). In fact, financial revenue and cost and financial capital are also considered as performance measures (Dalrymple, 2004). Neely *et al.,* (1995), Neely *et al.,* (1997), White (1996) and Hudson *et al.,* (2001) described about the barriers to strategic performance management systems in SMEs. In order to deal with the complexity of SMEs' performance, several approaches could be adopted, such as the balanced scorecard (Kaplan & Norton, 1992).

5. Bankruptcy Prediction Models

Financially-distressed firms can be separated from the non-failed firms in the year before the declaration of bankruptcy at an accuracy rate of better than 90%[5] by examining financial ratios (Chen & Shimerda, 1981). More elaborative ratio analysis among the small firms is also put forward by Bernstein (1988) and Gibson & Cassar (2005). Failure prediction is enhanced by Altman (1968) and Ohlson (1980). Analysis on SMEs' financial risk and insolvency is very important due to the increased in the probability of SMEs' default rate. Using an appropriate model is important to determine the firm's financial condition. Bankruptcy prediction models assists decision makers in evaluating firm's problem of credit analysis, investment analysis, and going-concern evaluation. On the other hand, by using financial ratios, the accuracy of predicting bankruptcy of a firm is greater than 90% (Chen & Shimerda, 1981). Obviously, Altman's model that uses ratios for bankruptcy prediction is used till today (Eidlemen, 2009; Lui, 2002; and Eidlemen, 1995 and Tirapat & Nittayagasetwat, 1999) and to determine future performances (Samuels, 1995).

6. Methodology

This paper used financial data of the SMEs in Malaysia over the period 1998-2003 (consistent with the post crisis period) and these data were (in the form of financial statements) provided by the Registrar of Companies (ROC)[6]. A total sample of 229 SMEs in the manufacturing sector was finally adopted after a few rounds of screening processes that first started with 282 SMEs. Then, three groups of SMEs were formed; small (57), medium (111) and large (61) based on the percentiles computation (25, 50, 75) and total asset was the proxy of size (Tauringana & Clarke, 2000). In this regard, total assets there were below RM 2,563,504 (below 25 percent) were categorized as small firms, between RM 2,563,504 and RM 10,000,000 (25 percent to 75 percent) were categorized as medium firms, and above RM 10,000,000 (above 75 percent) were categorized as large firms. This was based on the average total asset (total asset$_{1998}$ + Total Asset$_{1999}$ +...+ Total Asset$_{2003}$/6). For testing the signification of size effect on all the ratios including the Z-scores (Altman's Models), the Kruskal-Wallis test (size effect comprised of small, medium

---

[5] Edward I. Altman, "Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy," *Journal of Finance* (September, 1968), 589-609.

[6] The Companies Act 1965 is the principal legislation governing companies in Malaysia. Under the Act , every company intending to carry on business in Malaysia must register with the Registrar of Companies (ROC) before conducting any business activity

and large SMEs) and Mann-Whitney U test (size effect comprised of small and large SMEs) were adopted as the data collected were based on relatively small sample sizes. Thus, normality could not be assumed on all the cross-sectional series over the 6-year period. Therefore, the use of non-parametric testing would be more appropriate. As for *presenting insolvency profiles among the SMEs,*, the conventional model (Altman's Z-score) was adopted for greater accuracy (Eidleman, 1995). The Altman's model is as follows (equation 1);

$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$ ---------------------------------- (1)

X_1 = Working Capital/Total Assets, X_2 = Retained Earnings/Total Assets, X_3 = Earnings before Interest and Taxes/Total Assets, X_4 = Market Value of Equity/Book Value of Debt and X_5 = Sales/Total Assets.
Bankrupt <1.81, Zone of ignorance 1.81-2.99 and Non-bankrupt >2.99

7. Analyses and Results

Table 1 below presents the results of both Kruskal-Wallis and Mann-Whitney U tests over the period 1998 – 2003 involving liquidity, leverage and profitability measures. The size categories of the SMEs did not differ on liquidity and leverage measures but however, there was a significant difference among the three categories of SMEs with regard to operating profit margin and net profit margin. However, on average, medium SMEs seemed to be more stable in terms of profitability and liquidity. Size effect that involved only small and large SMEs in relation to the financial characteristics were also quite consistent with the size effects obtained through Kruskal-wallis test.

In the meantime, there were no significant differences among the small, medium and large with regard to insolvency over the period 1998 – 2003 (Table 2). In fact, there was no significant effect between between small and large SMEs on Altman's scores (MWU). It was noted that quite a number of times large SMEs fell into the bankruptcy zone (scores below 1.81) over the 6-year period (1998, 2001, 2002 and 2003). Table 3 presents the median scores of each group of SMEs in relation to the components/measures of the Altman's Z-scores. It was noted that the three different sizes of the SMEs registered significant results on asset turnover consistently from 1998 to 2003. It seemed that small firms registered the highest scores and the large firms scored the lowest (less than 1.0). Overall, it was evident that there were no significant differences among the small, medium and large SMEs on liquidity, profitability and gearing measures and thus, there were no significant results obtained on the Z-scores (Table 2). The MWU test reiterated the fact that size effect was very much contributed by the small and large SMEs. In deed, small and large SMEs tended to register different behaviours in terms of meeting the criteria or requirements as outlined by the Altman's model.

Table 1: Results of the Kruskal-Wallis Test (KWT) and Mann-Whitney U Test (MWU) on Financial Characteristics

Financial Characteristics	Financial Ratio/Test [1]	Size	Median Scores /Period						
			1998	1999	2000	2001	2002	2003	Mean
Liquidity	Current Ratio	Small (57)	0.95	1.17	1.07	1.07	0.98	1.00	1.37
		Medium	1.00	1.11	1.10	1.11	1.11	1.16	2.05
		Large	1.05	1.18	1.19	1.17	1.22	1.22	1.57
	KWT	*Sig**	*0.481*	*0.915*	*0.426*	*0.915*	*0.477*	*0.364*	*0.149*
	MWU	*Sig**	*0.403*	*0.931*	*0.198*	*0.689*	*0.228*	*0.173*	*0.120*
Leverage	Debt-equity Ratio	Small	2.39	1.72	2.31	2.25	2.09	1.80	4.76
		Medium	2.70	2.33	2.58	2.10	1.76	1.62	8.55
		Large	2.27	1.61	1.80	1.70	1.79	1.60	11.68
	KWT	*Sig**	*0.798*	*0.461*	*0.660*	*0.495*	*0.484*	*0.362*	*0.363*

293

Financial Dimension	Measurement/Test	Size							
		MWU	*Sig**	*0.969*	*0.996*	*0.395*	*0.267*	*0.248*	*0.259*	*0.231*
Profitability	Operating Profit Margin	Small	0.13%	5.11%	2.32%	1.74%	3.07%	2.00%	-1.66%
		Medium	2.45%	5.16%	4.65%	4.26%	4.01%	5.57%	13.30%
		Large	4.68%	8.90%	8.34%	9.41%	7.72%	8.44%	8.37%
	KWT	*Sig**	*0.001*	*0.125*	*0.000*	*0.000*	*0.001*	*0.004*	*0.000*
	MWU	*Sig**	*0.001*	*0.052*	*0.000*	*0.000*	*0.000*	*0.003*	*0.000*
Profitability	Net Profit Margin	Small	0.21%	6.17%	1.42%	1.05%	1.62%	0.46%	-4.46%
		Medium	1.49%	4.92%	2.07%	2.19%	2.15%	2.86%	10.70%
		Large	4.03%	8.90%	4.63%	5.04%	3.93%	4.15%	7.45%
	KWT	*Sig**	*0.000*	*0.024*	*0.002*	*0.000*	*0.105*	*0.016*	*0.000*
	MWU	*Sig**	*0.000*	*0.074*	*0.002*	*0.000*	*0.039*	*0.010*	*0.000*
Profitability	ROCE	Small	0.32%	12.46%	7.79%	9.97%	9.61%	4.66%	12.10%
		Medium	8.05%	13.93%	13.76%	12.72%	12.65%	13.31%	13.17%
		Large	9.02%	14.48%	14.74%	13.67%	10.25%	9.17%	12.08%
	KWT	*Sig**	*0.081*	*0.617*	*0.128*	*0.209*	*0.401*	*0.088*	*0.201*
	MWU	*Sig**	*0.055*	*0.790*	*0.044*	*0.078*	*0.746*	*0.296*	*0.150*

* Significance level at 0.05, Small (n = 57), Medium (n=111) and Large (n =61)
Note: 1 – KWT- Kruskal-Wallis Test and MWU- Mann-Whitney U Test

Table 2: Altman's Z-scores by Firm Size

Financial Dimension	Measurement/Test	Size	Median Scores /Period						
			1998	1999	2000	2001	2002	2003	Mean
Insolvency	Altman's Z-Score	Small	1.89	2.88	2.53	2.11	2.05	2.09	2.37
		Medium	1.63	1.96	1.84	1.92	1.86	1.95	2.82
		Large	1.57	1.94	1.86	1.75	1.65	1.60	1.97
	KWT	*Sig**	*0.271*	*0.112*	*0.721*	*0.679*	*0.250*	*0.239*	*0.237*
	MWU	*Sig*	*0.125*	*0.043*	*0.366*	*0.438*	*0.098*	*0.140*	*0.155*

* Significance level at 0.05, Small (n = 57), Medium (n=111) and Large (n =61)
Note: 1 – KWT- Kruskal-Wallis Test and MWU- Mann-Whitney U Test

Table 4 below highlights the proportion of each group within the categories of 'bankrupt', 'zone of ignorance' and 'non-bankrupt'. It seemed that about 49 per cent of small firms were in the bankrupt zone in 1998 and over the years reduced to 36 per cent in 2003. It was evident that more firms becoming

marginally insolvent over the six year period as more firms started falling into the zone of ignorance (39.5 per cent (1998) declined to 27.2 per cent (2003) in the non-bankrupt zone). In the case medium firms, bankrupt cases reduced by about 10 per cent to 45.8 per cent in 2003. As a result, the number of medium firms in the zone of ignorance increased drastically to 35.6 per cent and there was a slight deterioration in the non-bankrupt zone (reduced to 18.6 per cent in 2003). As for the large firms, 66.0 per cent (1998) were in the bankrupt category and gradually reduced to 57.5 per cent in 2003. These findings were more devastating as other groups registered only 45.8 per cent (medium) and 36.3 per cent (small) in the bankrupt category.

Table 3: Results of the Kruskal-Wallis Test and Mann-Whitney U Test (MWU) on the Components of the Altman's model

Component of Altman's Model/Test	Size	Median Scores /Period						
		1998	1999	2000	2001	2002	2003	Mean
Working Capital/ Total Assets	Small	-0.0462	0.1592	0.0506	0.0444	-0.0195	0.0005	0.0157
	Medium	-0.0313	0.0570	0.0787	0.0830	0.0589	0.1038	0.0103
	Large	0.0605	0.8119	0.9592	0.8438	0.0976	0.1063	0.0800
KWT	*Sig**	0.506	0.712	0.824	0.958	0.659	0.546	0.242
MWU	*Sig*	0.423	0.384	0.558	0.853	0.397	0.287	0.155
Net Profit/ Total Assets	Small	0.0053	0.0561	0.0172	0.0210	0.0260	0.0073	0.0224
	Medium	0.0205	0.0577	0.0221	0.0277	0.0250	0.0290	0.0451
	Large	0.0398	0.0882	0.0400	0.0445	0.0304	0.0212	0.0671
KWT	*Sig**	**0.004**	0.409	0.068	**0.009**	0.835	0.200	**0.003**
MWU	*Sig*	**0.001**	0.270	0.029	**0.003**	0.551	0.106	**0.000**
PBIT/Total Assets	Small	0.0050	0.0835	0.0252	0.0340	0.0448	0.0216	0.0294
	Medium	0.0236	0.0724	0.0591	0.0504	0.0448	0.0523	0.0742
	Large	0.0344	0.0831	0.0573	0.0533	0.0467	0.0481	0.0767
KWT	*Sig**	**0.020**	0.820	**0.022**	**0.002**	0.435	0.157	**0.002**
MWU	*Sig*	**0.-013**	0.655	**0.006**	**0.000**	0.204	0.093	**0.000**
Total Equity/ Total Debt	Small	0.4107	0.5476	0.4329	0.4453	0.4807	0.5569	0.9503
	Medium	0.3694	0.4572	0.3885	0.4774	0.5536	0.6160	1.7194
	Large	0.5264	0.5987	0.5558	0.5896	0.5607	0.6299	1.1127
KWT	*Sig**	0.566	0.695	0.664	0.496	0.480	0.373	0.437

MWU	*Sig*	0.572	0.795	0.392	0.267	0.248	0.272	0.334
Sales/ Total Assets	Small	1.3329	1.6432	1.4423	1.3648	1.3004	1.3961	1.6925
	Medium	1.1889	1.2180	1.1978	1.2334	1.0886	1.0541	1.4559
	Large	0.7831	0.8859	0.8938	0.8457	0.8173	0.7536	0.9623
KWT	*Sig**	**0.001**	**0.007**	**0.001**	**0.000**	**0.000**	**0.001**	**0.000**
MWU	*Sig*	**0.001**	**0.007**	**0.001**	**0.000**	**0.000**	**0.002**	**0.000**

* Significance level at 0.05, Small (n = 57), Medium (n=111) and Large (n =61)

Note:Test – KWT- Kruskal-Wallis Test and MWU- Mann-Whitney U Test

Table 4: Insolvency Profiles of SMEs from 1998 to 2003 (Altman's Model)

Size	Status	Status of Small, Medium and Large SMEs						
		1998	1999	2000	2001	2002	2003	Mean
Small	Bankrupt	48.84%	27.78%	33.33%	39.47%	45.65%	36.36%	38.57%
	Zone of Ignorance	11.63%	25.00%	38.89%	36.84%	23.91%	36.36%	28.77%
	Non-bankrupt	39.53%	47.22%	27.78%	23.68%	32.61%	27.27%	33.02%
Medium	Bankrupt	56.52%	41.98%	48.24%	42.68%	49.46%	45.76%	47.44%
	Zone of Ignorance	22.83%	30.86%	27.06%	29.27%	24.73%	35.59%	28.39%
	Nonbankrupt	20.65%	27.16%	24.71%	28.05%	25.81%	18.64%	24.17%
Large	Bankrupt	66.00%	45.10%	47.06%	54.00%	61.22%	57.50%	55.15%
	Zone of Ignorance	20.00%	33.33%	33.33%	26.00%	20.41%	22.50%	25.93%
	Nonbankrupt	14.00%	21.57%	19.61%	20.00%	18.37%	20.00%	18.92%

Small (n = 57), Medium (n=111) and Large (n =61)

8. Discussions and Implications

Throughout the analysis, the current ratios were *below* 2.0 in all the size categories which signify that liquidity problem is indeed a fundamental issue among the SMEs. Moreover, it is evident that large SMEs tend to have lower debt dependency as compared to small SMEs and medium SMEs. Nonetheless, large SMEs are more capable enhancing their net profit margin and operating profit margin as compared to small SMEs and medium SMEs. However, this raises a major concern, especially relating to the small firms as this phenomenon could lead to a serious short-term liquidity problem as they are not able to generate sufficient internal funds. Undoubtedly, all groups could sustain on the ROCE but however, the performance

of the small SMEs deteriorated significantly especially from 1999 (12.5 per cent) to 2003 (4.7 per cent). Hence, it should be pointed out that small firms tend to get engaged in higher gearing even with the decreasing internal funds (resulting from decreasing profit margin).

Looking at the results of the Altman's model, it seems the large firms suffer the most in terms of insolvency as compared to the small and medium firms. In fact, large firms, though look more stable, however, they seem to be the first to *'collapse'* based on the empirical work performed in this paper. On the contrary, despite the liquidity problem faced by the small firms in the short run, they do not show any symptoms to default and on the other hand, the medium firms manage to sustain at average performance where insolvency is concerned. Further analysis (Table 3) proves that the main cause of default among the large firms is due to their inability to generate sufficient sales via the use of their assets. Their asset turnover was below 1.0 throughout the period and this indicates that either the assets are under-utilized or the large firms possessed excessive assets (particularly fixed assets). This indeed requires some major revamp in their asset management not only to improve on their default rates but also for their long term survival. This argument is also applicable to the medium firms as their ability in managing their assets is not really *'satisfactory'*.

Some symptoms of difficulty of handling financial leverage among the large firms could also be highlighted here. This signifies that relatively large firms are bound to face greater financial risk as compared to small and medium firms. This obviously challenges the findings of the researchers as in most cases, small companies tend to face a high probability to default (Davidson & Dutia, 1991; Demirguc Kunt and Maksimovic, 2005; Auken and Carter, 1989 and Walker and Petty, 1978).

Admittedly, consistent with the Altman's Model, large SMEs (exceeding 50 per cent) are bound to face bankruptcy. Despite having better sustainability with the internal funds, they still tend face insolvency and this could be due to the lack efficiency and effectiveness in managing their assets and liquidity. Hence, financial risk and mismanagement of assets could the major threats to SMEs, particularly on the large firms. This empirical work also confirms that as the SMEs are becoming larger in size, their credit ratings, on the other hand, tend to deteriorate over time. It is also evident that to a certain extent, the recovery plan imposed by the government could have contributed positively towards the betterment of the SMEs since the 1997 crisis. For instance, a total of RM125 million allocated for the SMEs under the Eighth Malaysia Plan (covering period 2001-2005). In addition, the Government approved grants to SMEs worth RM40 million for the purpose of undertaking product development, process improvement, productivity and quality improvement, and product certification. This is to enhance their productivity, increase their efficiency and improve competitiveness[7].

In view of this, an important co-relational argument could be put forward here. As the large companies seem to be far better-off in terms of profit margin, they ought to handle their financial leverage effectively through the adoption of the pecking order theory (as supported by relatively lower gearing). In spite of this, they are faced with greater financial leverage. As a result, some hypothetical questions can be raised. The lower gearing ratios registered by the large firms may be offering misleading information as the ratios could denote large amounts of borrowing (thus, higher financing costs) or the firms' leverage fail to generate greater margin especially from their core operations. This again involves the efficiency level of their internal operations.

9. Limitations

The accounting period and presentation of the financial statements of the statements also varied from one and another and thus the computations of the ratios for failure prediction became more complicated. In addition, this paper incorporated only the manufacturing sector and thus, it would be quite difficult to generalize the findings for the entire population.

10. Conclusions and Recommendations

---

[7] *Launching of Malaysia International Trade and Industry Report 2003, Productivity Report 2003 and Report of the Performance of SMEs in the Manufacturing.* (2005). Retrieved by February 19, 2010, from http://www.miti.gov.my/cms/contentPrint.jsp?id=com.tms.cms.article.Article_15f01f6b-7f000010-5e095e09-1645dc70&paging=0

Admittedly, small SMEs are generally constrained by the short-term liquidity as result of relatively lower profit margin, however, they are well prepared to adjust themselves to the business environment even with higher gearing. It should be noted that small SMEs are indeed in the 'comfort zone'. Meanwhile, large SMEs are largely placed in the 'dangerous zone' and in relation to this, three important aspects must be taken into consideration; to improve their asset management for greater value creation, to enhance the effectiveness of the use of leverage and perhaps improving internal operations simultaneously.

Some recommendations can also be suggested for greater financial sustainability among the SMEs in Malaysia. Government incentives should be delivered to SMEs by emphasizing on the financial stability of the SMEs in the long run. More financial advisory councils should be established to assist the operators of SMEs especially in making their operations to be more financially sound. Government could also develop a simplified tax in order to help SMEs to reduce financing costs and thus improve their financial leverage and hence, reduce their financial risk. SMEs should be periodically assessed in line with the business infrastructure established by the government. Meanwhile, SMEs are strongly encouraged to expand their business activities at regional level as to reduce their economic exposures and thus, improving their cash flows via the economies of scale *per se*. SMEs should also consider a counter-trade strategy to overcome their capital shortages especially in their attempts to get access to overseas markets. Besides allowing transfer of technology from developed countries, the counter-trade strategy can also be used to get access to the foreign markets and thus, improve their profit margin in the long run.

References

Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The journal of finance*, *23*(4), 589-609.

Altman, E. I. (2002). Corporate distress prediction models in a turbulent economic and Basel II environment.

Archer, S. H., & Faerber, L. G. (1966). Firm size and the cost of externally secured equity capital. *The Journal of Finance*, *21*(1), 69-83.

Beck, T., Demirgüç-Kunt, A. S. L. I., & Maksimovic, V. (2005). Financial and legal constraints to growth: does firm size matter?. *The Journal of Finance*,*60*(1), 137-177.

Bernstein, L. A., & Wild, J. J. (1993). *Financial statement analysis: Theory, application, and interpretation*. Homewood, IL: Irwin.

Brigham, E. F., & Smith, K. V. (1967). Cost of capital to the small firm. *The Engineering Economist*, *13*(1), 1-26.

Castelli, A., Dwyer, G. P., & Hasan, I. (2006). *Bank Relationships and Small Firms' Financial Performance* (No. 2006-05). Federal Reserve Bank of Atlanta.

Chen, K. H., & Shimerda, T. A. (1981). An empirical analysis of useful financial ratios. *Financial Management*, 51-60.

Dalrymple, J. F. (2004). Performance Measurement for SME Growth: A Business Profile Benchmarking Approach. In *Second World Conference on POM and 15th Annual POM Conference, Cancun, Mexico, April*.

Davidson, W. N., & Dutia, D. (1991). Debt, liquidity, and profitability problems in small firms. *Entrepreneurship Theory and Practice*, *16*(1), 53-64.

Dickenson, P. D., & Kawaja, M. (1987). The failure rates of business. *Pfeffer, I.(Edition), The financial of small business: A current assessment. New York: McMillan publisher*.

Eidleman, G. J. (1995). Z scores–a guide to failure prediction. *CPA journal*,*65*(2), 52-54.

Ferri, M. G., & Jones, W. H. (1979). Determinants of financial structure: A new methodological approach. *The Journal of Finance*, *34*(3), 631-644.

Finley, L., (1984). Can you small company acquires resources as favorably as the large company? *American Journal of Small Business*, 9, pp.19-25.

Gibson, B., & Cassar, G. (2005). Longitudinal analysis of relationships between planning and performance in small firms. *Small Business Economics*, *25*(3), 207-222.

Hudson, M., Smart, A., & Bourne, M. (2001). Theory and practice in SME performance measurement systems. *International Journal of Operations & Production Management*, *21*(8), 1096-1115.

Kaplan, R. S. & Norton, D. P., (1992). The balanced scorecard— measures that drive performance. *Harvard Business Review*, pp.71-79.

Lui, J. (2002). *Estimating the probability of bankruptcy: A statistical approach*(Doctoral dissertation, New York University).

Marsh, P. (1982). The choice between equity and debt: An empirical study. *The Journal of finance*, *37*(1), 121-144.

Ndubisi, N.O., (2003). Service quality: understanding customer perception and reaction, and its impact on business. *International Journal of Business*, 5(2), pp.207-219.

Neely, A., Gregory, M., & Platts, K. (1995). Performance measurement system design: a literature review and research agenda. *International journal of operations & production management*, *15*(4), 80-116.

Neely, A. (1999). The performance measurement revolution: why now and what next?. *International Journal of Operations & Production Management*, *19*(2), 205-228.

Neely, A., Richards, H., Mills, J., Platts, K., & Bourne, M. (1997). Designing performance measures: a structured approach. *International journal of operations & Production management*, *17*(11), 1131-1152.

Ohlson, J. A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of accounting research*, 109-131.

Pettit, R. R., & Singer, R. F. (1985). Small business finance: a research agenda. *Financial management*, 47-60.

Saleh, A. S., & Ndubisi, N. O. (2006). An evaluation of SME development in Malaysia. *International Review of Business Research Papers*, *2*(1), 1-14.

Saleh, A. S., & Ndubisi, N. O. (2006). SME Development in Malaysia: domestic and global challenges. *Faculty of Commerce-Economics Working Papers*, 139.

Samuels, J. M., Brayshaw, R. E., & Craner, J. M. (1995). *Financial statement analysis in Europe* (p. 64). London: Chapman & Hall.

Stoll, H. R., & Curley, A. J. (1970). Small business and the new issues market for equities. *Journal of Financial and Quantitative Analysis*, *5*(03), 309-322.

Tauringana, V., & Clarke, S. (2000). The demand for external auditing: managerial share ownership, size, gearing and liquidity influences. *Managerial Auditing Journal*, *15*(4), 160-168.

Ting, O. K. (2004). SMEs in Malaysia: Pivot points for change. *On line available at http://www. mca. org. my*.

Sunti, T., & Nittayagasetwat, A. (1999). An Investigation of Thai Listed Firms' Financial Distress Using Macro and Micro Variables [J]. *Multinatioal Finance Journal*, *3*(2).

White, G. P. (1996). A survey and taxonomy of strategy-related performance measures for manufacturing. *International Journal of Operations & Production Management*, *16*(3), 42-61.