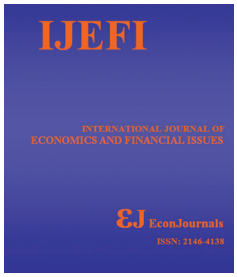

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Capital Structure and Firm Performance During Global Financial Crisis

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ABSTRACT

The relationship between capital structure and firm performance has been extensively investigated in the recent decades. However, only few studies investigate this relationship during financial crisis. Recent global financial crisis provides an opportunity to examine the effect of the crisis on the relationship between capital structure and firm performance. Therefore, this paper aims to investigate this relationship based on 45 listed companies involved in trading and services sector of the Bursa Malaysia, over three specific periods of recent financial crises; the pre-crisis (2004-2006), crisis (2007-2009), and post-crisis recovery (2010-2013). The study results indicate that financial leverage has a strong negative impact on firms' performance. These results are stronger during the global financial crisis began in 2007 and ended in 2009. These results observed in both simple regression and cross-sectional analyses even after controlling for firm specific measures.

Keywords: Capital Structure, Firm Performance, Financial Crises, Bursa Malaysia
JEL Classifications: G01, G31, L25

1. INTRODUCTION

The relationship between capital structure and firm performance has been the subject of research for more than 50 years. This relationship has attracted the attention of many researchers such as Brounen and Eichholtz (2001), Berger and Di Patti (2006), San and Heng (2011), Salim and Yadav (2012), and recently Hossain and Nguyen (2016). In general, capital structure can be defined as the combination of equity and debt (San and Heng, 2011). For the firm, decision on capital structure is one of the most difficult and challenging management decisions decisions (Pouraghajan et al., 2012). This is because the decision could affect the cost of capital, hence the company's value. In other words, capital structure could directly affect company's profitability and productivity.

The original theory of the capital structure known as the M and M propositions have been introduced in 1958 by Modigliani and Miller. In this theory, assumptions such as being in a perfect market, implied that company's value is independent of its capital structure choices and dividend policies. Later, the theory was reinforced by other researches by incorporating market imperfections variables such as taxes, transaction costs, bankruptcy, and agency costs (Luigi and Sorin, 2009).

Empirically, several studies have examined the impact of capital structure on firm financial performance in sectors such as construction, plantation, or both financial and non-financial (for example, San and Heng, 2011; Tan and Hamid, 2016; and Gabrijelcic et al., 2013). These studies, however, mainly focus on the impact of capital structure on firm performance during financial crisis period (for instance, a study by Gabrijelcic et al., 2013) or in general (San and Heng, 2011; Tan and Hamid, 2016).

Although several researches have investigated the impact of capital structure on firm performance, only few studies focused on developing countries like Malaysia. Moreover, less consideration has been given to study this impact during global financial crisis. Like many other countries, the Malaysia economy is also not been spared from the 2007 crisis. According to Khoon and Lim (2010), the crisis has negatively affects Malaysian economy through

declining in export demand, which subsequently impacted other components of consumption and investment. The trading and services sector, which is one of the most important sectors to Malaysia economy, has experienced the most worrying decline.

In the 2007 global financial crisis, Malaysia was hit hard in the trade and investment sectors (Lim and Goh, 2012). Malaysia exports have decreased by 45%, from RM64 billion in 2008 to RM38 billion in 2009. During crisis period, firms did not perform as they could in the normal economic conditions. These situations may force firms to reduce their leverage, which would result in higher cost of capital. However, Malaysia interest rates were relatively low before the 2007 crisis, and increases slightly at the initial stage of crisis, then followed by a significant drop in 2008 before continue to rise gradually from 2009 onwards (Figure 1). This decreased the default risks of companies successively for the period after crisis.

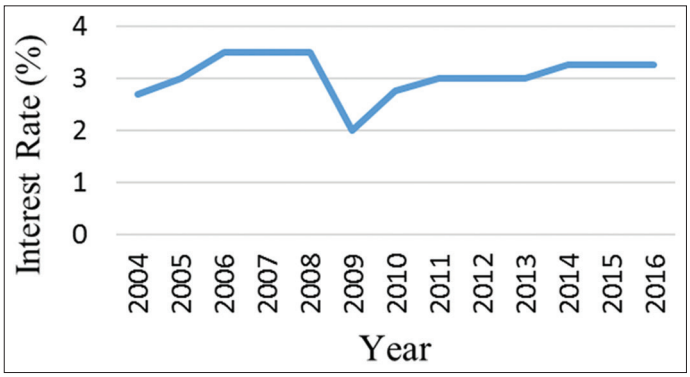
This study aims to examine the relationship between capital structure and firm's performance by using a set of panel data of public listed companies with a particular focus on trading and services sector in Malaysia. Unlike previous studies, this study is conducted in three crisis-period; before the crisis period, during the crisis period, and after the crisis period. This study will add some values for a developing country like Malaysia. The results can contribute to the body of knowledge by identifying how the performance of Malaysian companies effected by their choice of capital structure and could provide a guide how to select the capital structure especially in the event of crisis in order to perform better.

The rest of the paper is organized as follows: The next section reviews the related literature with regard to the relationship between capital structure and firm performance. This followed by two sections that define the data, methodology and the empirical analysis of findings; and the last section that describes the final conclusions and implications of the study.

2. LITERATURE REVIEW

The relationship between capital structure and firm performance is a significant subject in finance which has been studied extensively both theoretically and empirically. There are several theories to clarify the relationship between firms' capital structure and performance. Jensen and Meckling (1976) elaborated the agency cost theory as a basic for financial concept. They argued that if the firm's managers are different from business owners, their goals are not aligned. This conflict increases if the managers are key decision-makers. In the situation of financial distress or when there is a risk of default, there is also conflict of interest between debt owners and equity shareholder (Jensen and Meckling, 1976).

Figure 1: Malaysia interest rate



Source: Bank Negara Malaysia

Agency cost theory suggests two contradictory effects of capital structure on firm's performance. The first effect is positive, as a result of conflicts of interest between shareholders and managers. Agency costs theory posits that the leverage firms are more favourable to shareholders, as the debt level may be used as a control for monitoring managers (Boodhoo, 2009). Hence, it is expected that higher leverage in the context of low agency costs may raise the level of efficiency and thereby lead to enhance firm's performance (Akintoye, 2009). The second effect is negative; as a result from the agency costs of financial debts between shareholders and lenders. The rise of debt may decline the managers' willing to invest and encourage them to reject the risky projects and raise the cost of outside financing. If the proportion of debt in capital structure increases above a certain level, the adding cost of debt includes a higher bankruptcy cost, higher financial distress problem and more conflict between shareholders and lenders, hence destroying the performance of firms.

Soumadi and Hayajneh (2012) expressed that the conflict between lenders and shareholders rises because equity holders possibly agreed on the riskier projects at the expense of debt owners which leads to a negative relationship between higher leverage and firm performance. On the other hand, when firms increase their debt equity ratio by borrowing more debts, the risk of bankruptcy will increase and consequently the business owners need to perform better to avoid bankruptcy and related costs, which in turns increases firms' performance.

Meanwhile, according to trade-off theory, companies make the decision based on a trade-off between the benefits and costs of debt. During financial crises, the risk of bankruptcy rises with an increase in the debt load. Subsequently, the probability that costs of debt exceed the debt benefits rises. The costs of debt reflect the costs of potential financial distress and the probability of financial distress increased during the crisis. Hence, companies will reduce the level of their debt during financial crisis period. Nevertheless, the trade-off theory supports the advantages of debt financing by assuming the trade-off between the debt costs and debt benefits. Optimal level of leverage is achieved by balancing the benefits from interest payments and costs of issuing debt. From financial point of view, debt is considered beneficial because debt-tax-shields help to minimize expected tax bills and maximize the after-tax cash flows (Modigliani and Miller, 1958). Therefore, the trade-off theory predicts a positive relationship between capital structure and firm performance.

In contrast to trade-off theory, pecking order theory proposes a negative relationship between leverage and firm performance. This theory suggests that firms prefer the internal funds more than the external funds and debt over equity financing (Myers, 1984; Myers and Majluf, 1984). Consistent with the pecking order

theory, Cetorelli and Goldberg (2011) showed that firms are less profitable during financial crisis and try to replace the liquidity due to a higher level of debt by external financing.

The market timing theory developed by Baker and Wurgler (2002) challenges both previous theories by stating that companies finance their funding shortfalls through the issuance of shares during favourable periods. Crotty (2009) stated that companies prefer to raise capital by debt during financial crises. Hence, the market timing suggests for an increased level of leverage during the financial crisis.

Empirical studies conducted to explore the relationship between capital structure and firm's performance found a mixed result. For example, Goddard et al. (2005) analysed the determinants of companies' profitability in five European countries (France, Belgium, Italy, Spain and the United Kingdom) for the period 1993-2001 by applying the GMM method to a panel of 12,508 firms in the manufacturing and services sector. They noted a negative impact of the debt ratio, as measured by long-term debt to equity, on profitability in all the countries studied. Moreover, enterprise size was negatively correlated with profitability. By contrast, companies with more liquidity and market power tended to be more profitable.

Berger and Di Patti (2006) investigated the causality relationship between the capital structure and firm's profitability. They applied the double least squares and ordinary least squares on a sample of 7,548 U.S. commercial banks over the period 1990-1995. They found a positive impact of debt on profitability while there was no inverse effect of profitability on capital structure. In addition, they found a negative impact of size and risk on profitability.

Based on agency cost theory, the negative relationship between company's capital structure and its financial performance has been identified in several researches (e.g., Bistrova et al., 2011; Jiraporn et al., 2012; and Gabrijelcic et al., 2013). A study by Skopljak and Luo (2012) found a significant relationship between capital structure and firm performance of Australian Authorised Deposit-taking Institutions. The impacts of variation in debt at different levels of leverage on firm performance were found relatively different. Agnihotri (2014) showed that firms' decision on a suitable capital structure whether high or low leverage will reduce the cost of debts depending on their competitive strategies and market condition, and consequently increasing their performance. Tan and Hamid (2016) found a significant positive relationship between capital structure and return on equity (ROE) and significant negative relationships between capital structure and gross profit margin (GPM) as well as with return on assets (ROA). Saeedi and Mahmoodi (2011) found a negative relationship between capital structure and ROA, but no significant relationship between capital structure and ROE.

Based on the above discussion, three main research hypotheses of this study are as follow:

H_1: There is a negative relationship between capital structure and performance of companies during the pre-crisis period.

H_2: There is a stronger negative relationship between capital structure and performance companies during the financial crisis compared to the pre-crisis period.

H_3: There is a negative relationship between capital structure and performance of companies with weaker impact during the post-crisis period compared to the financial crisis.

3. METHODOLOGY

3.1. Data and Sample

In this paper, the relationship between capital structure and performance of listed companies in the trading and services sector of Bursa Malaysia will be examined using panel data. There are three sub-periods studied - pre-crisis (2004-2006), crisis (2007-2009), and post-crisis recovery (2010-2013). A total of 45 companies are selected based on the following conditions: (1) Companies' financial statements should be available during the study period; (2) the financial year of the companies should not be changed during the studied period. The required financial data are gathered form Thomson Reuters (datastream) while the missing data are hand-collected from the financial reports of the companies from the Bursa Malaysia's website.

3.2. Descriptive Statistics

Table 1 presents the descriptive statistics for variables studied. In the Panel A of Table 1, the data are divided into three sub-periods: Pre-crisis, crisis and post-crisis. In the Panel B, the sample has been categorized into three groups based on their leverage ratio; highly leveraged, low leveraged and overall performance groups. Firms with higher amounts of debt to their owner's equity are classified as high leverage firms, while low leverage firms are those which have lower amounts of debt when compared to their owner's equity. The year 2008 when the crisis hit developed and emerging-market economies has been set as a benchmark for firms' classification to high and low leverage.

Statistics in Panel A of Table 1 show that all accounting parameters are changed during the pre-crisis, crisis and post-crisis periods. With regards to the financial ratios, fixed asset ratio was found highest during pre-crisis period (0.38), but slightly lower during and after the crisis (0.34 and 0.33, respectively). Similar pattern can be observed in the case of cash ratio, which declined from 0.16 before the crisis to 0.15 during the crisis and 0.13 after the crisis. The descriptive statistics also show that current asset ratio performs best during the crisis (2.90) but dramatically drops after crisis (2.20) to a level even lower than before crisis (2.58). With regards to comparison by the level of leverage, all accounting parameters and financial ratios were found higher for low leveraged firms except for the size.

The mean values of leverage are reported separately in the Table 2 for high and low leverage firms in addition to overall samples by each sub-period. Statistics in Table 2 clearly show that the leverage is highest during the pre-crisis period with overall leverage ratio of 81.67. It drops to 52.52 during the crisis and rises to 68.70 in the recovery post-crisis period. Nevertheless, the leverage changes more during pre-crisis period than post-crisis period.

Table 1: Descriptive statistics

Panel A-breakdown by period			
Variables	**Pre-crisis 2004-2006**	**Crisis 2007-2009**	**Post-crisis 2010-2013**
Cash (RM'000)	396,373.27	445,259.92	648,450.56
Fixed assets (RM'000)	939,843.61	889,884.59	1,105,933.62
Current assets (RM'000)	647,442.88	771,490.90	1,000,574.72
Total assets (RM'000)	1,981,723.46	2,118,709.84	2,629,032.38
Total debts (RM'000)	569,146.91	576,511.25	719,791.81
Current liabilities (RM'000)	409,928.70	392,310.33	469,717.43
Shareholders' equity (RM'000)	931,739.96	919,932.13	1,052,420.81
Cash ratio	0.16	0.15	0.13
Current asset ratio	2.58	2.90	2.20
Fixed asset ratio	0.38	0.34	0.33
Size	12.83	13.00	13.13
Growth (RM'000)	150,376.05	−8,463.58	182,901.51
Number of observations	135	135	180
Number of firms	45	45	45
Panel B-breakdown by capital structure			
Variables	**High leverage**	**Low leverage**	**Overall**
Cash (RM'000)	195,790.65	626,808.19	511,870.18
Fixed assets (RM'000)	260,418.80	1,257,063.95	991,291.91
Current assets (RM'000)	453,519.87	961,324.62	825,910.02
Total assets (RM'000)	1151,123.93	2,692,877.13	2,281,742.94
Total debts (RM'000)	440,776.07	701,009.85	631,614.17
Current liabilities (RM'000)	329,949.92	464,416.42	428,558.68
Shareholders' equity (RM'000)	419,838.84	1,178,881.26	976,469.95
Cash ratio	0.14	0.15	0.15
Current asset ratio	1.73	2.92	2.60
Fixed asset ratio	0.32	0.36	0.35
Size	13.39	12.86	13.00
Growth (RM'000)	1,504.29	157,272.55	115,734.34
Number of observations	120	330	450
Number of firms	12	33	45

Table 2: Descriptive statistics for leverage by period studied

Period	High leverage	Low leverage	Overall	Differences (high-low)
Pre-crisis (2004-2006)	191.81	41.62	81.67	150.19
Crisis (2007-2009)	103.24	30.08	52.52	73.16
Post-crisis (2010-2013)	152.15	33.81	68.70	118.34
Number of firms	12	33	45	

In general, both high-leveraged and low-leveraged firms tend to be more conservative after crisis period in funding with debts, as their ratio slightly drops. During the crisis period, both firms decrease their leverage, but low-leveraged firms only decrease their leverage ratio by 11.54 point while high-leveraged firms decrease their leverage ratio by 88.57 point.

Moreover, the mean values of the respective performance indicators for the three categories of company; high leverage, low leverage, and for the overall for each period being studied are presented in Table 3.

The descriptive statistics of ROA show that during the period before crisis the low leverage firms outperformed high leverage firms by 4%. However, the performance gap narrowed to just 1% during the post-crisis recovery period (2010-2013). One factor that might contribute to this fact is the higher interest rates in Malaysia during initial years of crisis which have led to higher costs of capital and thus impacting firms' profitability. Another factor is based on World Bank's report and International Monetary Fund (2013) which mentioned that Malaysia's financial system has weathered the recent global financial crisis well, helped by depending less on cross-border funding with a strong supervisory and regulatory government as well as a well-capitalized system of banking.

ROE and GPM as other alterative variables for accounting based performance are tested for the entire samples in this study to check the robustness of study results. The mean values of ROE clearly show that high leverage firms are struggling to recover during the post-crisis period, and hence, the differences between high and low leverage firms' performance have not reached their level in pre-crisis period yet.

The GPM's findings are also similar to that of the ROA. Consistent with ROA results, the low leverage firms outperform their high leverage matching parts. The gap increased during the crisis and then decreased during the post-crisis period. The differences between high and low leverage firms' performance are reported 11.68% (pre-crisis), 6.54% (crisis), and 19.97% (post-crisis). While the results for price earnings (PE) as a market-based

Table 3: Descriptive statistics for performance indicators: Period by period

Period	High leverage (%)	Low leverage (%)	Overall (%)	Differences (high-low) (%)
Mean (ROA)				
A	0.03	0.07	0.06	−0.04
B	0.03	0.03	0.03	0.00
C	0.01	0.02	0.02	−0.01
Mean (ROE)				
A	−0.61	8.34	5.95	−8.95
B	−15.84	5.63	−0.09	−21.47
C	7.53	3.80	4.80	3.73
Mean (GPM)				
A	22.44	34.12	31.00	−11.68
B	26.08	32.62	30.88	−6.54
C	14.82	34.79	29.46	−19.97
Mean (PE)				
A	0.07	0.08	0.08	−0.01
B	0.10	0.08	0.08	0.02
C	0.12	0.12	0.12	0.00
Mean (EPS)				
A	13.77	19.66	18.09	−5.89
B	14.45	7.48	12.27	6.97
C	7.66	2.37	3.78	5.29

A: Pre-crisis (2004-2006), B: Crisis (2007-2009), C: Post-crisis (2010-2013). ROA: Return on assets, ROE: Return on equity, GPM: Gross profit margin, PE: Price earnings, EPS: Earning per share

parameter for firms' performance show that the biggest magnitude of out performance is found during the crisis.

Furthermore, the earning per share (EPS) is analysed over the 10 years' period for robustness. The EPS results are also more volatile than ROA results reported in Table 3. However, the pattern is consistent with the PE results. For instance, the highest gap is still observed during the financial crisis period. In addition, the differences during pre-crisis period is negative and the performance gap is decreasing in the post-crisis period and similar to the results of operating performance high D/E firms are struggling to return back their performance level to the pre-crisis period.

3.3. Capital Structure and Performance Indicators

Further analysis was carried out to investigate the relationship between company's capital structure and financial performance of companies studied. For this purpose, a regression analysis with capital structure as independent variable and firm performance measures as dependent variable has been performed. In this study, financial leverage is measured by total debt to total equity is used as an indicator for capital structure. The same indicator was used in a study by Hossain and Nguyen (2016). Meanwhile, with regard to performance indicator, this study adopted both accounting and market based performance measures. Specifically, in this study, a total of five proxies for company's performance will be used; ROE, ROA, GPM, PE ratio, and EPS. The usage of these performance indicators can be found in the study by Saeedi and Mahmoodi (2011), Salim and Yadav (2012), and Tan and Hamid (2016). The formula to calculate the respective performance measures are as below:

$$\text{Return on equity}\left(\text{ROE}\right)=\frac{\text{Net income}}{\text{Total equity}}$$

$$\text{Return on assets}\left(\text{ROA}\right)=\frac{\text{Net income}}{\text{Total assets}}$$

$$\text{Gross profit margin}\left(\text{GPM}\right)=\frac{\text{Gross profit}}{\text{Total sales}}$$

$$\text{Price earnings ratio}\left(\text{PE}\right)=\frac{\text{Net income}}{\text{Outstanding shares}}$$

$$\text{Earnings per share (EPS)}=\frac{\text{Price per share}}{\text{Earnings per share}}$$

Apart from the capital structure, there are several other factors that could influence the company's performance such as the size of company and growth potential (e.g., Salim and Yadav, 2012; Muathe et al., 2014; Ma, 2015; and Hossain and Nguyen, 2016). Meanwhile, Ahmad and Aris (2015), in their study on Malaysian trading and service companies, found that the determinants of capital structure perform as control variables in the variance of performance indicators. The determinants are cash ratio, current asset ratio and fixed asset ratio. In addition, the lagged dependent variable is also used to rid the data of unwanted biases and even auto-correlational effects which could weaken the results from regression. It will also control for the prior period's performance. Equation (1) presents the regression model used in this study for testing the relationship between leverage and the company's performance.

$$Y_i=\beta_0+\beta_1X_{1t}+\beta_2X_{2t}+\beta_3X_{3t}+\beta_4X_{4t}+\ldots\beta_5X_{5t}+\beta_6X_{6t}+\beta_7X_{7t}+\varepsilon_i \quad (1)$$

Where:
Y_i=Dependent variable (ROE, ROA, GPM, PE or EPS),
X_{1t}=Leverage ratio (total debt to total equity) at time t,
X_{2t}=Cash ratio (total cash and cash equivalent to total assets) at time t,
X_{3t}=Current asset ratio (current assets to current liabilities) at time t,
X_{4t}=Fixed asset ratio (tangible fixed assets to total assets) at time t,
X_{5t}=Size (logarithm of total assets) at time t,
X_{6t}=Growth (changes in total assets) at time t,
X_{7t-1}=One-period lagged of ROA, ROE, GPM, PE or EPS at time t, and
ε_i=The error term.

Out of five performance measures, ROA as accounting based performance measure and PE as market based performance measure are two primary performance measures in this study. The other performance variables (ROE, GPM and EPS) are used for robustness check. In the estimation process, all performance indicators are estimated individually.

The panel data regression model could take the form of random effect and fixed effect models. This study uses fixed effect regression

model for both simple and multiple regression models to estimate five regression equations of the study. The choice of the model was supported by Hausman test results which indicated a $P < 0.05$ hence supported the use of fixed regression model as against random effect model. Furthermore, the Breusch and Pagan test is conducted in order to check the random effect for each model and the test's results support the fact that the random effect model is not an appropriate model.

4. RESULTS AND DISCUSSION

4.1. Simple Regression Analysis

The regression analysis starts by conduction a fixed effect simple regression between capital structure and firm's performance as dependent variable. Specifically, the relationship between each five different performance variables and capital structure will be investigated independently using a fixed effect simple regression model. The fixed effect simple regressions are carried-out for the three periods being studied; pre-crisis, during crisis, and post-crisis.

The results of fixed effect simple regression are presented in Table 4. The negative association between financial leverage and firms' performance indicators is observed for all studied periods (pre-crisis, crisis, and post-crisis). The strongest negative impact shows during the financial crisis period breakdown. Moreover, the results for all performance indicators during the crisis period are statistically significant.

The results show that total debt to total equity is significantly influenced the ROA in each period being studied. The ROE and GPM findings are not as strong as the ROA results even though they are similar. Their strongest negative relationship is captured during the financial crisis period similar to ROA results.

Table 4: Simple regression's results on the relationship between performance indicators and leverage

Period	Coefficient	Number of observation	R^2	Adj-R^2	F-stat	Breusch and Pagan test	Hausman test
Simple regression (ROA as dependent variable)							
A	−0.004	135	0.042	0.035	3.79	0.00	0.06
	−1.95**				0.055	1.000	0.012**
B	−0.005	135	0.003	−0.004	1.13	0.70	0.62
	−1.06**				0.291	0.201	0.031**
C	−0.002	180	0.011	0.006	2.02	0.00	0.15
	−1.42**				0.158	1.000	0.032**
Simple regression (ROE as dependent variable)							
A	−0.001	135	0.003	−0.004	0.05	0.00	0.18
	−0.23				0.819	1.000	0.006**
B	−0.027	135	0.201	0.195	32.72	0.30	1.91
	−5.75**				0.000**	0.291	0.016**
C	−0.008	180	0.298	0.294	58.53	0.00	0.11
	−0.16**				0.000**	1.000	0.044**
Simple regression (GPM as dependent variable)							
A	−0.004	135	0.002	−0.005	0.19	0.82	0.01
	−0.43**				0.665	0.183	0.035**
B	−0.005	135	0.001	−0.007	0.00	0.13	0.11
	0.04**				0.967	0.357	0.044**
C	−0.001	180	0.001	−0.005	0.02	0.00	0.41
	−0.13				0.895	1.000	0.020**
Simple regression (PE as dependent variable)							
A	−0.001	135	0.024	0.017	15.12	0.00	18.99
	−3.89**				0.000**	1.000	0.000**
B	−0.011	135	0.017	0.010	6.17	0.00	4.36
	−2.48**				0.015**	1.000	0.037**
C	−0.002	180	0.008	0.003	2.89	0.00	1.64
	−1.70**				0.091	1.000	0.001**
Simple regression (EPS as dependent variable)							
A	−0.003	135	0.003	−0.004	0.02	0.52	1.18
	−0.13				0.894	0.234	0.027**
B	−0.019	135	0.001	−0.007	3.61	0.27	9.97
	−1.90**				0.061	0.303	0.002**
C	−0.004	180	0.001	−0.005	0.13	0.00	1.39
	−0.36				0.722	1.000	0.024**

**Significant at 0.05 levels. A: Pre-crisis (2004-2006); B: Crisis (2007-2009); C-post-crisis (2010-2013). ROA: Return on assets, ROE: Return on equity, GPM: Gross profit margin, PE: Price earnings, EPS: Earning per share

The results also indicate that total debt to total equity is significantly influenced PE as a market based performance measure during the periods studied. Meanwhile, total debt to total equity is not significantly influenced EPS in each period of study except during the crisis. Thus, the results imply that for market based performance the firms must monitor their leverage ratio in terms of financing especially during crisis in order to ensure investors will highly value the firms' stocks.

In conclusion, the simple regression analyses have supported all three hypotheses of this study. The findings generally indicate that low leverage firms outperform the high leverage counterparts before the financial crisis which is in support of first hypotheses. Moreover, all five performance parameters strongly support hypotheses 2 and 3. Consistent to these hypotheses, the biggest difference is captured during the financial crisis period, and this difference continues to stand in the post-crisis recovery period but in smaller influence compared to the financial crisis period.

4.2. Regression Analysis

The multiple regression analysis is conducted to ensure that the simple regression analysis results are not affected by other accounting variables. The results of multiple regression analysis of panel data (Equation 1) for each of dependant variables studied are reported in Table 5. The estimation results show there is a statistically significant negative relationship between leverage and ROA. Negative and significant relationships between these two variables are consistent with the result from simple regression in Table 4. The results indicate that firms with high cash reserves and better previous profitability performance perform better. This finding is consistent with the pecking order theory which demonstrates leverage is negatively related with firm's profitability as high level of debt reduces the firms' financial performance. The results from this study support the previous findings of researches (Saeedi and Mahmoodi, 2011; Niresh and Velnampy, 2012; and Enekwe et al., 2014).

For robustness, similar analysis is conducted for ROE and GPM as the dependant variables for accounting based performance measure, respectively. As shown in Table 5, similar negative relationship is reported between leverage ratio and firms' performance. In summary, the fixed effect panel regression analyses results have supported the simple regression analyses findings in Table 3. These results are also in line with the findings by Rehman (2013) that examines the correlation between financial leverage and financial performance of listed sugar companies in Pakistan.

Table 5 also presents the fixed effect panel regression analysis results for the PE as dependant market-based performance variable. Consistent with a study by Tan and Hamid (2016), total debt to total equity is significantly correlated to PE. For robustness, a similar cross-sectional analysis was performed for EPS and reported in Table 5. The results confirm the simple regression analyses in Table 4. This negative relationship between debt equity ratio and

Table 5: Results of panel data model

Independent variables	Dependent variable				
	ROA	ROE	GPM	PE	EPS
Leverage ratio					
Coefficient	−0.001	−0.031	−0.057	−0.079	−0.001
t-stat	−0.09**	−5.84**	−0.13**	−0.05**	−0.18**
Cash ratio					
Coefficient	0.188	13.893	52.445	0.086	28.12
t-stat	3.63**	0.85	3.71**	1.77**	1.31**
Current asset ratio					
Coefficient	−0.013	1.629	0.390	0.002	−1.942
t-stat	−0.05	1.80	0.51**	0.89	−1.64**
Fixed asset ratio					
Coefficient	−0.005	3.338	30.026	−0.043	−0.475
t-stat	−0.20	0.40	4.04**	−1.77**	−0.04
Size					
Coefficient	0.009	−0.406	0.930	0.018	−0.065
t-stat	2.03**	−0.30	0.80	4.11**	−0.04
Growth					
Coefficient	−0.012	0.001	0.003	0.011	−0.001
t-stat	−0.31	0.93**	0.36	3.00**	−0.43
One-period lagged of dependent variable					
Coefficient	0.220	0.154	0.181	0.680	0.091
t-stat	4.46**	3.20**	3.66**	16.77**	1.86**
Number of observations	450	450	450	450	450
R^2	0.108	0.104	0.117	0.591	0.014
Adj-R^2	0.094	0.090	0.103	0.585	−0.001
F-stat	8.390	7.22	8.95	89.95	1.06
Significance	0.000**	0.000**	0.000**	0.000**	0.388
Breusch and Pagan test	0.34	0.00	0.00	0.38	4.67
	0.279	1.000	1.000	0.269	0.053
Hausman test	13.44	69.55	14.33	13.06	28.64
	0.036**	0.000**	0.026**	0.042**	0.029**

**Significant at 0.05 levels. ROA: Return on assets, ROE: Return on equity, GPM: Gross profit margin, PE: Price earnings, EPS: Earning per share

EPS supports the fact when the level of debt rises, the interest payment will be affected and rises according. Consequently, EPS will decrease.

5. CONCLUSIONS

This study examines the impact of capital structure on Malaysian firms' performance in trading and services sector using three accounting based performance indicators (ROE, ROA, and GPM) and two market based indicators (EPS, PE). The results confirm the study's hypotheses that there is a significant negative relationship between financial leverage and performance. The relationship is observed more strongly during the global financial crisis period (2007-2009).

The results from regression analysis for ROA and ROE are consistent with the findings by other researches (for example, Saeedi and Mahmoodi, 2011; Niresh and Velnampy, 2012; Rehman, 2013; and Enekwe et al., 2014). However, this result is in contrary with a finding by Niresh and Velnampy (2012) which found a positive relationship between total debt to equity ratio and ROE. Moreover, the negative correlation between total debt to equity ratio and GPM is supported by De Jong et al. (2008) and Tan and Hamid (2016). The finding, however, in contrast with the study by Pratheepkanth (2011) that found a positive relationship between GPM and capital structure. The observed negative relationship between PE and EPS with capital structure is consistent with several previous studies (for example, Chinaemerem and Anthony, 2012; Tan and Hamid, 2016; and Rehman, 2013).

In conclusion, the financial leverage is significantly influenced firms' performance of trading and services sector in Malaysia. Since the trading and services sector is capital intensive, it may be perfectly rational and economically sound to use external resources to finance investments. However, increase in the level of debt financing may deteriorate the profitability of firms. Therefore, it is advisable for firms to consider their funding strategies and manage their total debt wisely in order to sustain the overall performance and maintain their market based performance at a sustainable level.

One of the main limitations of this study is that the samples are only extracted from Malaysian trading and services sector. Hence, the results may not be generalized to the other sectors in Malaysia. Moreover, this study only computes the financial leverage by debt to equity ratio. Therefore, the other different measures of capital structure could be captured in the study's regression model in order to obtain more comprehensive results. Thus, this study is left for future to be further explored.

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