Research Paper **Open** a **Access**

The Result Shows That Capital Structures Relationship

Khush Bakht Hina, Dr Muhammad Ajmal

[2] *Lecturer Department of Distance, Non Formal and Continuing Education.*
[2] *Lecturer Department of Distance, Non Formal and Continuing Education.*

ABSTRACT: This paper investigates the relationship of capital structure and corporate performance of firm before and during crisis (2007). This study focuses on construction companies which are listed in Main Board of Bursa Malaysia from 2005 to 2008. All the 49 construction companies are divided into big, medium and small sizes, based on the paid-up capital. The result shows that there is relationship between capital structure and corporate performance and there is also evidence shows that no relationship between the variables investigated. For big companies, ROC with DEMV and EPS with LDC have a positive relationship whereas EPS with DC is negatively related. In the interim, only OM with LDCE has positive relationship in medium companies and EPS with DC has a negative relationship in small companies. In sum, the outcome reveals that the relationship exists between capital structure and corporate performance in selected proxies.

I. AN OVERVIEW OF CAPITAL STRUCTURE AND CORPORATE PERFORMANCE

Capital structure refers to the firm's financial framework which consists of the debt and equity used to finance the firm. Capital structure is one of the popular topics among the scholars in finance field. The ability of companies to carry out their stakeholders' needs is tightly related to capital structure. Therefore, this derivation is an important fact that we cannot omit.Capital structure in financial term means the way a firm finances their assets through the combination of equity, debt, or hybrid securities (Saad, 2010). In short, capital structure is a mixture of a company's debts (long-term and short-term), common equity and preferred equity. Capital structure is essential on how a firm finances its overall operations and growth by using different sources of funds. Modigliani-Miller (MM) theorem is the broadly accepted capital structure theory because is it the origin theory of capital structure theory which had been used by many researchers. According to MM Theorem, these capital structure theories operate under perfect market. Various assumptions of perfect market such as no taxes, rational investors, perfect competition, absence of bankruptcy costs and efficient market. MM Theorem states that capital structure or finances of a firm is not related to its value in perfect market. In reality, capital structure of a firm is difficult to determine. Financial managers are difficult to exactly determine the optimal capital structure. A firm has to issue various securities in a countless mixture to come across particular combinations that can maximum its overall value which means optimal capital structure. Optimal capital structure means with a minimum weighted-average cost of capital and thereby maximize the value of firms. Although optimal capital structure is a topic that had widely done in many researches, we cannot find any formula or theory that decisively provides optimal capital structure for a firm. If irrelevant of capital structure to firm value in perfect market, then imperfections that exist in reality may cause of its relevancy. Capital structure is closed link with corporate performance (Tian and Zeitun, 2007). Corporate performance can be measured by variables which involve productivity, profitability, growth or, even, customers' satisfaction. These measures are related among each other. Financial measurement is one of the tools which indicate the financial strengths, weaknesses, opportunities and threats. Those measurements are return on investment (ROI), residual income (RI), earning per share (EPS), dividend yield, price earnings ratio, growth in sales, market capitalization etc (Barbosa & Louri, 2005).

II. PROBLEM STATEMENT

Based on Ebaid (2009) research, capital structure has weak-to-no influence on the financial performance of listed firms in Egypt. By using three accounting-based measurement of financial performance which is Return On Asset (ROA),

Return On Equity (ROE), and Gross Margin (GM), the empirical tests come put with the result that capital structure (particularly short-term debt and total debt) which is measure by ROA have a negative impact

on an organization's performance. Apart from that, capital structure (including short-term debt, long-term debt and total debt) which is measure by ROE and GM have no significant impact on an organization's performance. Zeitun and Tian (2007) find out that firm's capital structure have a significant and negative impact on the firm's performance measures in both the accounting and market measures. Apart from that, the short-term debt per total asset (STDTA) has a significant relationship with the market performance measure (Tobin's Q). The results also recommended that the Gulf Crisis on year 1990 to year1991 have effect on the Jordanian firms' performance in a positive way. Furthermore, the performance and leverage of Jordanian companies had increased throughout the Gulf Crisis. Zeitun and Tian (2007) also come out with the result that firm size has a positive impact on a firm's performance, as large firms have low bankruptcy costs. In other words, bankruptcy costs increases when firm size decreases, therefore, bankruptcy costs have negative effect on firm's performance. A research done by Deesomsak, Paudyal, and Pescetto (2004) had found out that the crisis will affect the process of capital structure decision which indicates that main changes of the economic environment will lead to the changes for the determinants of firm's decisions. The standard of increasing capital in Malaysia will became higher hard achieve due to the higher risk premier. Although capital structure and the impact of the value and performance had been study for many years, researchers still cannot agree on the extent of the impact. In Malaysia, investor and stakeholder do not look in detail the effect of capital structure in measuring their firms' performance as they may assume that attributions of capital structure will are no related to their firms' value. Indeed, a well attribution of capital structure will lead to the success of firms. As a result, the issues of capital structure which may influence the corporate performance have to be solved. A deeper research on this field will be an advantage for future wellbeing.

III.   RESEARCH OBJECTIVES

1) To examine the stability of the companies' capital structure in the construction sectors before and during the crisis (2005-2008).

2) To identify the interdependence between capital structure and corporate performance of firm in construction sector before and during crisis (2005-2008).

3) To examine the nature of relationship between capital structure and corporate performance of firm in construction sector before and during crisis (2005-2008).

IV.   LITERATURE REVIEW

Capital Structure and Corporate Performance

There are many variables in a capital structure choice and structure of debt maturity which will affect a company's performance. Debt maturity will influence a company's option in investing. Furthermore, tax rate will also affect company's performance. In the case of this, examine the impact of capital structure's variables base on company's performance will present prove for a company's performance due to the effect of capital structure (Tian & Zeitun, 2007). A study had been done by Abor (2005) on the influence of capital structure on profitability of listed companies on the Ghana Stock Exchange during a five-year period. He found out that there is significant positively interrelated between SDA and ROE and shows that firms which earn a lot use more short-term debt to finance their business. In other words, short-term debt is an essential source of financing in favor of Ghanaian companies, by representing 85 percent of total debt financing. Yet, the results showed the adverse relation between LDA and ROE. The regression output showed that there is positive relationship between DA and ROE which measure the relationship between total debt and profitability,. This indicates that firms which earn a lot are depending on debt as their key financing option. A study done by Gleason, Mathur and Mathur (2000) on relationship between culture, capital structure and performance, using data from retailers in 14 European countries, shows that capital structures differ by the cultural classification of retailers which are strengthen to the inclusion of control variables that will influence capital structure. Furthermore, result also shows that retailer performance is not depending on the cultural influence. Where else, capital structure will influences performance. In the early study on relationship between capital structure and a firm's reaction to short term financial distress had shown the result that high-leverage firms are more possible than their less-leverages counterparts to react operationally to short-term distress. The highleverage firms are also more possible to take personal actions such as restructuring assets and laying off employees when performance deteriorates. Apart from that, a firm with high leverage will react quickly in financial through cutting down dividend, restructuring debt and bankruptcy (Ofek, 1993).

A study (Akintoye, 2008) had been done on sensitivity of performance to capital structure on selected food and beverage company in Nigeria. The result shows that performance indicators to turnover (Earnings Before Interest and Taxes, Earninig Per Share and Dividend Per Share) and the measures of leverage (Degree of Operating Leverage, Degree of Financial Leverage and Dividend Per Share) are significantly sensitive. There are many approaches in examining firm performance. Berger and Bonaccorsi (2006) had used profit efficiency as the performance measure. Manager's performance were evaluate by using profit efficiency because profit

efficiency counter for the effectiveness of manager to raise revenue and control cost and is close to the concept of value maximization. By measuring the profit efficiency, shareholder losses from agency costs are relatively close to the losses of potential accounting profits. The result shows that neither higher leverage nor lower equity capital ratio are connected with higher profit efficiency for all range of data. A research (King & Santor, 2008) had been done to examine the linkage between family ownership, firm performance and capital structure on Canadian firms. Based on Tobin's q ratios, the result shows that self-supporting family owned firms with a single share class have similar market performance compared to other firms, superior accounting performance based on ROA, and higher financial leverage based on debt-to-total assets. Comparatively, family owned firms which use dual-class shares have valuations that are lower by 17% on average relative to broadly held firms, even though having similar ROA and financial leverage.

V.   CAPITAL STRUCTURE AND CORPORATE PERFORMANCE BEFORE AND DURING CRISIS

Financial crisis 2007, is an important incident which causes by a shortfall in United States banking system and consequently leads to the collapse of huge financial institutions and downturn of stock markets worldwide. Financial crisis is likely to be strongly related with corporate poor performance. A study done by Claessens, Djankov and Xu, (2000) had compared the growth and financing patterns of East Asian corporations for the year before crisis with corporation in other countries. The sample was from 850 public listed firms in the four countries which were also influence by crisis, there are Indonesia, Malaysia, the Republic of Korea, and Thailand and two comparators, Hong Kong (China) as well as Singapore. The result show that firm-specific weaknesses which already in exist before the crisis were essential factors in the failing performance of the corporate sector.Base on Suto (2003) study on capital structure for 1997 crisis, the key factor which accelerated economic distress is due to increase dependency on debt financing. The dependency had lead to excess investment before the crisis and also instability in the Malaysia economy. The banks' capabilities to get information of monitoring borrowers were overestimated before crisis. Furthermore, it also cannot be correctly estimated due to the protection by government for domestic banking sectors. This occasion had weakened the corporate governance function on lenders.A study conducted by Gunay (2002) on the impact of economic crisis on the capital structure. The main finding of the study is that by having a low leverage, Turkey's firms immunize themselves against economic crisis. The development of capital markets is essential for high leverage firms because they are near to financial distress. This condition had lead to high cost of debt for high leverage firms in the post-crisis period compare to the cost of debt in the pre-crisis period. Apart from that, the result had indicated that profits significant of high leverage firms can be increase by either issue equity or decrease the debt. However, debt for high leverage firms cannot be decrease due to unable to generate profit through the ordinary operations in the post-crisis period. For a research on Jordanian firm, outburst of Intifadah in the West Bank on September 2000 had affect Jordanian corporate performance in a negative way because most of the Jordanian companies did exporting to the West Bank. A fall of 20.5% in the market capitalisation of the ASE in 2000 had shown the adverse impact of Intifadah. This had also indicated that the regional environment had deeply influenced a Jordanian firm's performance (Tian & Zeitun, 2007).Financial crisis is the occasion that will affect mostly all the industries and macro, indirectly will affect a firm's performance. A study had been done on whether corporate spending plans differ conditional on this survey-based measure of financial constraint. The result shows that constrained firms planned deeper cuts in tech spending, employment, and capital spending. Besides that, constrained firms also burned through more cash, drew more heavily on lines of credit because they afraid that banks would limit access in the future, therefore they sold more assets to fund their operations (Campello, Graham, & Harvey, 2010)

VI.   METHODOLOGY

Sample

The study focus on the 49 (all) listed construction companies in Main Board of Bursa Malaysia. As of August 2010, there are 49 construction companies in Bursa Malaysia Main Board. Construction industry and construction activities are one of the major sources of economic growth, development and economic activities in Malaysia.

Other than that, construction and engineering services industry have an important position in the economic growth and development of the country (Khan, 2008). Hence, the construction industry could be described as a substantial economic driver for Malaysia. After financial crisis in Year 1997, the whole world suffered another global crisis in the middle of Year 2007 and into Year 2008. Financial crisis 2008 initiated from United States and spread to all over the world. This incident had lead to the deceleration of economic activities to because international trades and the financial systems were interrelated. Safe investment and combinations of capital structure is effect after the 2008 crisis as investors do not have the guts to bail in risky investment. Due the sour experience of Asian crisis, Bank Negara Malaysia (BNM) had been motivated to

regulate the financial sector by reduce the effect to stock market. As for construction sector, curve of value of finished project steadily follows an upward slope within the timeframe of year 2003 until beginning 2009, the growth graph of projects start faces a tremendous and sudden drop from RM 81.4 billion to RM 69.0 billion between June 2007 and June 2008. In the interim, GDP for construction sector remain steadily albeit with the crisis (Construction Industry Development Board Malaysia, CIDB). All the 49 companies are divided into three categories, which are based on the paid-up capital as shown in Table 1.

Table 1: Composition of Samples by Size in Bursa Malaysia

Size of the company based on paid–up capital	Number of samples
Big companies (> RM5,000,000,000)	4
Medium companies (RM1,000,000,000-RM5,000,000,000)	27
Small company (<RM1,000,000,000)	18
Total	49

Data are analyzed based on time series-cross section and these study measure variables within 4 years from year 2005 to year 2008 on few ratios. Four years time series are used because the financial crisis started from middle of year 2007. Therefore, values for 2005 and 2006 are use to measure variable before crisis and values for 2007 and 2008 are use to measure variables during crisis. The relationship before and during the financial crisis can be investigate by measuring the variables form 2005 to 2008. Then, the cross section and time series are merged and pooled for analysis

Determinants of Variables

Variables are an identified piece of data that have different values. This project consists of two main variables which are capital structure as independent variables and corporate performance as dependent variables. These two variables are represented by proxies as in Table 2.

Table 2: Variables and Proxies

Variable	Proxies	
Capital Structure (independent variables)	Long-term Debt to Capital	LDC
	Debt to Capital	DC
	Debt to Asset	DA
	Debt to Equity Market Value	DEMV
	Debt to Common Equity	DCE
	Long-term Debt to Common Equity	LDCE
Corporate Performance (dependent variables)	Return on Capital	ROC
	Return on Equity	ROE
	Return on Asset	ROA
	Earnings Per Share	EPS
	Operating Margin	OM
	Net Margin	NM

Source: Table for Variables and Proxies is Adopted from Foo & Ramakrishnan (2002)

VII. THE POOLING REGRESSION MODEL

This study used pooling regression model to test the influences of capital structure on the companies' performance. Method of Ordinary Least Square (OLS) is used to estimate the regression line. OLS is used because it minimizes the error between the estimated points on the line and the actual observed points of the estimated regression line by giving the best fit. All the dependent and independent variables are pooled cross section time series for estimation. There are 49 cross section and 4 time periods.

Matrix is formed on each of the 196 observations for the pooling regression. The relationship measurement between each of the dependent variables on all the independent variables is solved using the Ordinary Least Square (OLS).

VIII.   THE HYPOTHESES

In testing the pooling regression model, hypothesis of the investigation are developed for construction sector. Furthermore, construction sectors will utilize the hypotheses, which as follows:

H1a: There are relationship between ROC and the independent variables
H2a: There are relationship between ROE and the independent variables
H3a: There are relationship between ROA and the independent variables
H4a: There are relationship between EPS and the independent variables
H5a: There are relationship between OPM and the independent variables
H6a: There are relationship between NM and the independent variables

Statistically the test hypothesis is: Ha: $\beta \neq 0$, i = 1,2,3,4,5,6.

There is positive orβThere is a relationship between capital structure and corporate performance of a company if negative and statistically significant at the confidence level of 95%.

IX.   DISCUSSIONS

A trend analysis was performed for the period from year 2005 to year 2008. The average level of each proxies of corporate performance is pooled again the time. The movements of these proxies are explained and the outputs of the results of the statistical analysis are presented. The pooling regression was done separately base on size of the firm which is small, medium and large company.

Trend Analysis for the Performance of Construction Companies

The occurrence of global crisis on 2007/2008 had lead to slowdown of economic globally. The crisis had lead to down turns of stock market worldwide, bailout of banks by US government as well as collapse of big financial institutions. In the interim, the housing markets are also affected by the crisis which had lead to many evictions. This crisis is also affected Malaysia's economy which had resulted in unsatisfied performance of most of the company in Malaysia.Graph 1 shows the trend of ROC for big, medium and small construction companies from 2005 to 2008. From the graph, big construction company was having a down trend slope when then crisis started from 2006 to 2007 and became stable at 3% from year 2007 to year 2008. However, middle and small company were having an upward trend from 2007 and 2008.
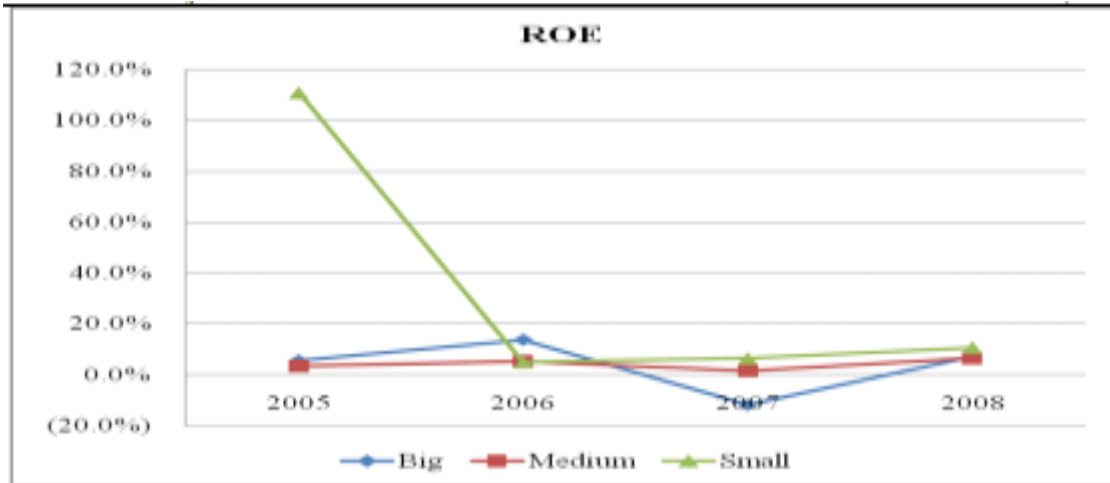

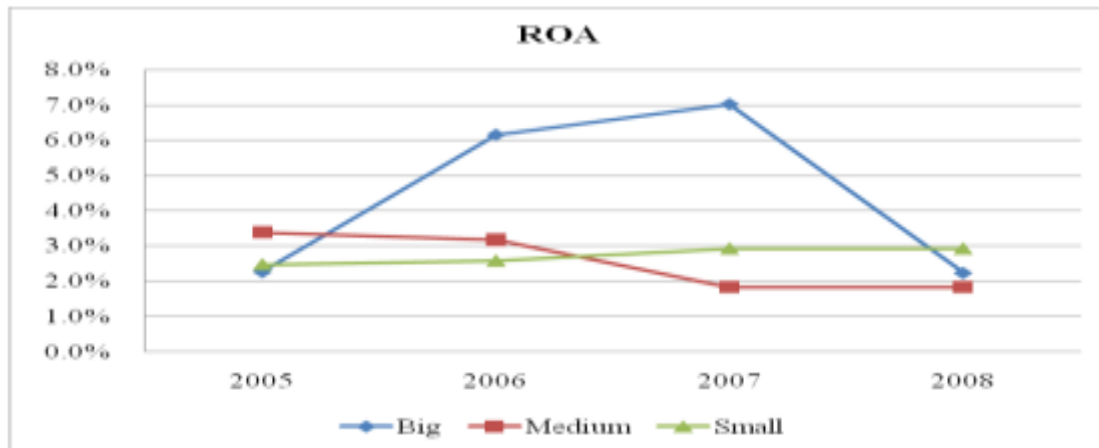Graph 1: Return on capital of construction companies (2005-2008)
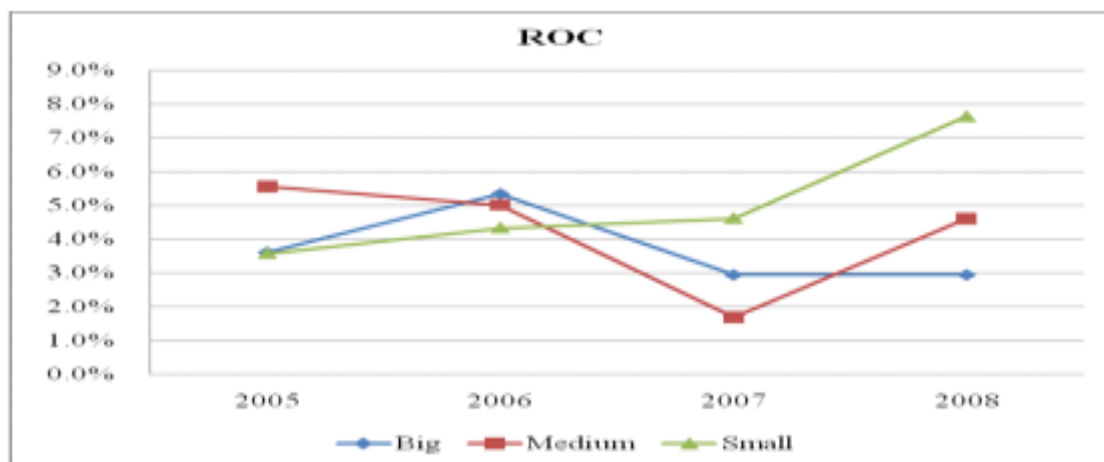
Graph 2 shows the trend of ROE for big, medium and small construction companies from 2005 to 2008. Small construction companies had an intensive drop from before the crisis from 2005 to 2006, yet it became stable during the crisis from 2006 to 2008.This indicated that crisis did not influence ROE for small construction companies. In the interim, big and middle construction companies did not have vast change either before or during the crisis.

Graph 2: Return on equity of construction companies (2005-2008)
ROA for Malaysia construction companies from 2005 to 2008 shown in Graph 3. Big construction companies show an increase on ROA from 2005 to 2007, yet it declined start from 2007.Where else for middle and small companies did not have vast changes before and during the crisis which is within the range of 1.5%

**Graph 3: Return on asset of construction companies (2005-2008)**

Graph 4 shows EPS of construction companies from 2005 to 2008.From the graph, EPS for big construction companies had been increase from 2005 to 2007 before the crisis, yet it decline dramatically after 2007 from 5.4% to -12%. Inversely for small construction companies, EPS are slightly declining from 2005 to 2006 but increase from 2006 to 2007 and flat after 2007. Whereas, small companies for construction sector were having a slight decline curve

Graph 4: Earning per share of construction companies (2005-2008)
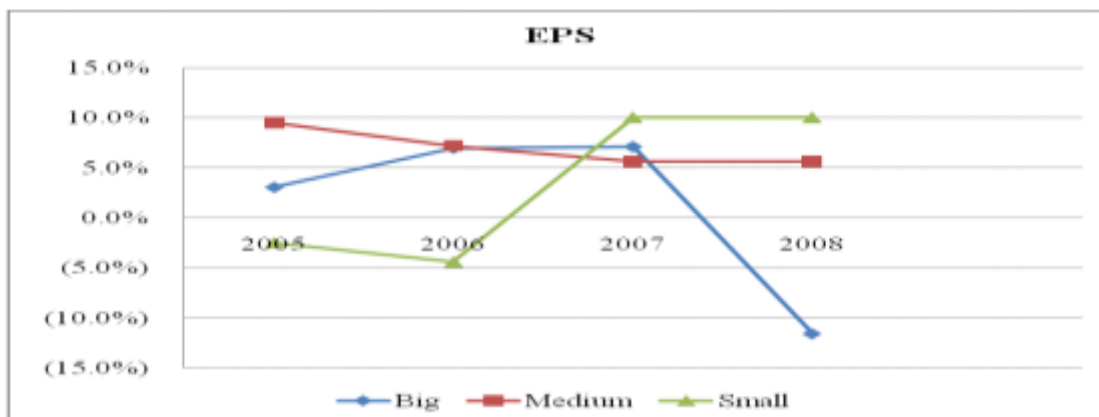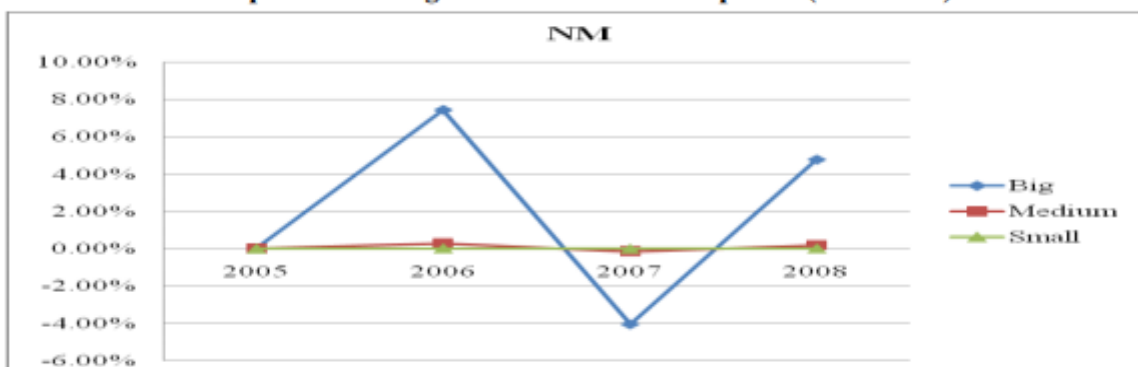

Graph 5 shows the OM for construction companies which had similar trend for all the big, medium and small companies. The up and downward trend showed that the 2007 crisis did not affect much on OM. There were increases as well as decline slope before and during the crisis.

Graph 5: Operation margin of construction companies (2005-2008)
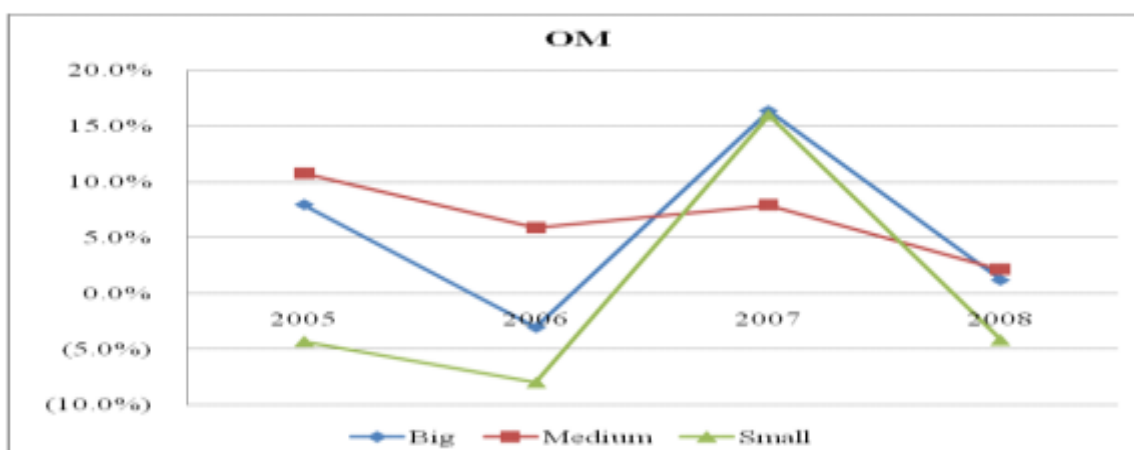
NMs for Malaysia construction companies from 2005 until 2008 are shown in Graph 6. Big companies for construction companies show a wide range of fluctuation from the range of -4% to 7% compared with middle and small companies. However, medium and small company only had slight changes from year 2005 to 2008

Graph 6: Net margin of construction companies (2005-2008)

X. ANALYSIS OF LARGE CONSTRUCTION COMPANIES

Table 3 shows the summary of the analysis for four of the big companies which tested the entire null hypothesis.

Table 3: Summarize result of pooling regression for big companies: collective output

	ROC	ROE	ROA	EPS	OM	NM
Adjusted R-squared	0.8803	0.9316	0.9049	0.9265	0.3894	0.7150
Standard Error	0.0155	0.0811	0.0086	0.0611	0.1388	0.0789
F-statistic	14.4874	25.9765	18.4472	24.0986	2.1690	5.6003
P-value	0.0050	0.0013	0.0029	0.0015	0.2066	0.0392

When LDC, DC, DA, DEMV, DE and LDCE are regressed against ROC, ROE, ROA, EPS, OM and NM for big companies by pooling regression, the relationship are:
1. ROC and DEMV (positive)
2. EPS and LDC (positive), and DC(negative)
3. No relationship in ROE, ROA, OM and NM
It is clearly shows that only ROC and EPS for large construction companies have significant relationship with capital structure. Comparatively, ROC and DEMV are the most correlated and depicting the strongest relationship among all the variables examined. Basically, we can conclude that DEMV, LDC and DC have direct impact on corporate performance of large companies. However, other independent variables do not affect the dependent variables. Large companies' performance is partly affected by the changes in capital structure.

XI.   ANALYSIS OF MEDIUM CONSTRUCTION COMPANIES

Table 4 shows the summary of the analysis for twenty seven of the medium companies which tested the entire null hypothesis.

Table 5: Summarize result of pooling regression for small companies: collective output

	ROC	ROE	ROA	EPS	OM	NM
Adjusted R-squared	0.0827	0.0681	0.0326	0.6893	-0.0299	-0.0345
Standard Error	0.0728	1.9786	0.0393	0.1861	0.2242	0.4186
F-statistic	1.9919	1.8036	1.3599	25.4071	0.6807	0.6448
P-value	0.0809	0.1136	0.2461	0.0000	0.6658	0.6940

In brief, when LDC, DC, DA, DEMV, DE and LDCE are regressed against ROC, ROE, ROA, EPS, OM and NM for big companies by pooling regression, the relationship is:

1. EPS and DC(negative)
 2. No relationship in ROA, OM and NM
3. ROC and ROE (Not reliable)

As a conclusion, only EPS for small construction companies have significant relationship with capital structure. Basically, we can conclude that DC has direct impact on corporate performance of small companies. However, other independent variables do not affect the dependent variables. Medium companies' performance is partly affected by the changes in capital structure. The portion is small with medium companies but lesser comparing to large companies.

XII.   CONCLUSIONS

This paper studies the relationship of capital structure and corporate performance of firm in construction sector before and during crisis. A linear model has been developed to estimate the effect of variation in capital structure to the variation in the firms' corporate performance. Various proxies are used to examine the proxies which are relevant in describing the relationship.The result shows that there is relationship between firms' capital structure and corporate performance. In the interim, the result also indicates that there are no relationships between the various variables that have been examined. Different proxies of capital structure will retort differently to the proxies of corporate performance. For big construction companies, only ROC and EPS for large construction companies have significant relationship with capital structure. Comparatively, ROC and DEMV are the most correlated and depicting the strongest relationship among all the variables examined. Basically, DEMV, LDC and DC have direct impact on corporate performance of large companies and other independent variables do not affect the dependent variables.Where else for medium construction companies, only OM has significant relationship with capital structure. Basically, LDCE have direct impact on corporate performance of medium companies. However, other independent variables do not affect the dependent variables. Besides that, only EPS for small construction companies have significant relationship with capital structure. Basically, DC has direct impact on corporate performance of small companies and yet other independent variables do not affect the dependent variables.

XIII.   LIMITATIONS AND RECOMMENDATIONS

The limitation of this study is that the samples are only focus on construction sector which are listed in the main board of Bursa Malaysia. In fact there are many other sectors in Bursa Malaysia. Therefore, the result may not represent the result on other sector in Malaysia. Apart from that, there is problem with the firms in the sample set which adopt different accounting policies. In addition, the period for annual closing account is different among the companies. Different accounting policies and period for annual closing account for comparison will influence the accuracy of the result. In order to get the more convince and precise result, the time-series data collected should covered longer period. In addition, more and new variables of capital structure and corporate performances can to be captured in the model in order to obtain more comprehensive results. In addition, it is important to conduct the study for the period within consistent economic predicament by specify the accurate time period before and during the crisis in order to avoid biases in the analysis.

REFERENCES

[1] Abor, J. (2005).1. Journal of Risk Finance, Emerald Group Publishing, 6(5),438-445.

[2] Akintoye, I. R. (2008). Sensitivity of Performance to Capital Structure. European Journal of Social Science , 7(1),. Barbosa, N., & Louri, H. (2005). Corporate Performance: Does Ownership Matter? A Comparison of Foreign- and Domestic-Owned Firms in Greece and Portugal. Review of Industrial Organization , 27(1),73-102.

[3] Berger, A.N., Bonaccorsi, P, E. (2006). Capital Structure and Firm Performance: A New Approach to Testing Agency Theory and An Application to the Banking Industry. Journal of Banking and Finance 30,1065-1102

[4] Brammer, S., & Millington, A. (2008). Does It Pay to be Different? An Analysis of The Relationship Between Corporate Social and Financial Performance. Strategic Management Journal , 29(12),1325-1343.

[5] Buferna, F., Bangassa, K. & Hodgkinson, L. (2005). Determinants of Capital Structure :Evidence from Libya.Research Paper Series.

[6] Campello, M., Graham, J. R., & Harvey, C. R. (2010). The Real Effects of Financial Constraints: Evidence from a Financial Crisis. Journal of Economic , 97(3),470-487.

[7] Claessens, S., Djankov, S. & Xu, L. C. (2000). Corporate Performance in the East Asian Financial Crisis. The World Bank Research Observe, 15(1), 23-46.

[8] Craighead, C., Hult, & Ketchen. (2009). The Effects of Innovation–Cost Strategy, Knowledge, and Action in the Supply Chain on Firm Performance. . Journal of Operations Management , 27(5),405-421.