Capital Structure and Firm's Financial Performance: Evidence from Listed Cement Companies of Dhaka Stock Exchange of Bangladesh

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Abstract: Bangladesh cement industry is the 40th largest market in the world. Despite the recent global economic upheavals, the Bangladesh economy continues its steady march with growth in excess of 6% over the past few years. Development of cement industry in Bangladesh dates back to the early-fifties but its growth in real sense started only about a decade. The country has been experiencing an upsurge in cement consumption for the last five years. This paper examines the effect of capital structure on firm's performance. This paper uses four performance ratios namely ROE, ROA, EPS and Net profit margin as the dependent variables and SDTA, LDTA, TDTA, LTDCE, TDTQ (five capital structure ratios), size, growth of the company, tangibility of assets, cash flows and liquidity as independent variables. This paper uses panel data procedure for a sample of 5 companies out of 7 listed cement companies of Dhaka Stock Exchange (DSE) over the period 1999 to 2011. The panel data regression Fixed Effects Model (FEM) analysis demonstrated that short-term debt and cash flows have significant positive effect on performance variables. But long-term debts, tangibility of assets and liquidity have significant negative effect on the financial performance variables except on ROE. This paper shows that Bangladeshi cement companies represent low accounting performance over the years. So this study recommends that managers of manufacturing companies should exercise caution while choosing the long-term debt to use in their capital structure as it affects their performance negatively.

Keywords: Capital Structure, Cement Companies, Accounting Measures, Financial Performance, Dhaka Stock Exchange

1. INTRODUCTION

Development of cement industry in Bangladesh dates back to the early-fifties but its growth in real sense started only about a decade. The country has been experiencing an upsurge in cement consumption for the last five years. Government gave permission for establishing cement industries in Bangladesh in FY 1995. Initially the cement industry took place without the proper analysis of demand and supply of cement in the country. Within the span of the two to three years, industry attained expanded capacity of the product with stable growth rate of consumption. Bangladesh cement industry is the 40th largest market in the world. Despite the recent global economic upheavals, the Bangladesh economy continues its steady march with growth in excess of 6% over the past few years. Currently capacity of the industry is about 20 million tones. Top 10 players are alone controlling over 70 % of the total industry capacity. The industry is growing at the rate of 20-25% in the recent years. Per

capita consumption remains poor when compared with the world average; only 65kg (FY 2009) while our neighboring countries, India and Pakistan, have per capita consumption of 135kg and 130kg respectively. This underlines tremendous scope for growth in the Bangladesh cement industry in the long term. Cement, being a bulk commodity, is a freight intensive industry and transporting it over long distances can prove to be uneconomical. For that reason, industry is regional in nature. It's also seasonal in nature, during Monsoon industry suffers from low demand (Zebun Nahar, 2011).

Cement consumption has steadily been rising. It is expected that cement companies will enjoy a good growth of margin over the next 3 years. Because, in next couple of years when large capacities are expected to come on-stream, pass through of input cost will be easier and clinker (main raw material of cement) price is expected to remain stable at $53-$58. Currently, multinational cement companies are facing intensive competition with local companies. Local manufacturers

have been pursuing more innovative and aggressive business strategy compared to multinationals. Local manufacturers seek to seize large market by reaching mass people through economies of scale while multinationals cater the needs of specific group of customers by reaching high price through superior brand value and quality. In addition, another basic trend in cement industry is smaller companies are shutting down and the bigger companies are becoming bigger. Leading cement manufacturers are now going for expansion. It is expected that if the ongoing expansion plans complete within FY 2011, the total production capacity of the industry will rise by 61%. Cement industry expects the consumption to rise by 25% (it will be much higher if Government project come on stream). Though it seems that the industry will run overcapacity but as mentioned earlier, industry is dependent on only 13 companies' production. So it reveals that the cement industry will fall short of supply if the demand increases in line with the big infrastructural projects of government as expected in future and this symbolizes the huge growth potential of our cement industry (Zebun Nahar, 2011). Salma et al., (2010) identify the occupational injury among workers in selected cement industries of Bangladesh.

The term capital structure shows how a firm finances its overall operations and growth by using different sources of funds. It represents the proportionate relationship between debt, preference and equity shares on a firm's balance sheet. Capital Structure is the mix of long term debt and equity maintained by the firm. Company's capital structure reveals the comparison between long-term debt and equity capital used by the company. It concentrates on two types of capital; one is debt capital and other is equity capital (Gitman, (2010)). Financial measurement is one of the tools which indicate the financial condition of any corporation. 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, N. and Louri, H. (2005)). However, the fallouts of inspecting the relationship between financing choices and performance varied and the question of capital structure's impact on performance still holds. Moreover, empirical studies in this regard are mostly conducted in the mature capital markets and there are a few researches in the emerging market, especially in Bangladesh. Therefore, it is important to explore the relationship between capital structure and firm performance in a developing capital market, namely Dhaka Stock Exchange (DSE). Thus the objective of this paper is to observe the nature of relationship between capital structure and corporate

financial performance of selected cement companies in Bangladesh.

2. LITERATURE REVIEW

The 1958 Modigliani-Miller Theorem (Modigliani, F. and Miller, M. H., 1958) was initially designed to show that the corporation's capital structure decisions do not increase or decrease firm's value in perfect market. So this irrelevant capital structure theory of Modigliani and Miller suggested that financing strategies do not affect the value of the firm if: (i) there are no taxes, (ii) bankruptcy does not entail any real liquidation costs for the company nor any reputation costs for its directors and (iii) financial markets are perfect, that is, are competitive, frictionless and free of any informational asymmetry. Later on they (Modigliani, F. and Miller, M. H., 1963) continue that tax can enhance the value of the firm. Financial managers need to have close attention to develop a combination of debt and equity, the optimal capital structure; that will result a minimum cost to attain the goal of wealth maximization. According to the static trade-off theory, an optimal capital structure exists for firm that can be reached by conducting a balance between benefits (interest tax shields) and the cost of financial distress (bankruptcy and agency costs) of debts (Myers, S., 1984; Rajan, R. and Zingales, L., 1995; Wald, J., 1999; Shyam et al., 1999; Booth et al., 2001; Fama, E. and French, R. K., 2002; Huang, S. and Song, F., 2006; Tang, C. H., and Jang, S. S., 2007; Karadeniz et al., 2009 and Chakraborty, I., 2010). Using this optimal capital structure, the value of the firm could be increased due to its lowest cost of capital (Tang, C. H. and Jang, S. S., 2007; Karadeniz, et al., 2009). Pecking order theory does not imply a target amount of leverage or optimal capital structure (Myers, S. C. and Majluf, N. S., 1984). It specifies that each firm choose its leverage ratio based on financing need. Pecking order theory also reveals two rules: (i) use internal financing, and (ii) issue safe securities first (Ross et al., 2011-12). If a firm's capital structure influence a firm's performance, it is reasonable to expect that the firm's capital structure would affect the firm's health and its likelihood of default. So it's an important issue to have clear idea about capital structure and firm performance for both academics and practitioners. Corporate performance can be measured by variables which involve productivity, profitability, growth etc.

Many researchers have conducted their studies on capital structure and firm performance but they revealed mixed outcomes. Rub, N. A., (2012) found the impact of capital structure on financial performance of 28 listed companies of the Palestinian Stock Exchange (PSE) over the period of 2006-2010 by using panel data

procedure. He has used fifth performance measures (including return on equity, return on assets, earning per share, market value of equity to the book value of equity and Tobin's Q) as dependent variable and four capital structure measures (including short-term debt, long-term debt and total debt to total assets, and total debt to total equity) as independent variable. The results showed that firm's capital structure had a positive impact on the firm's performance measures, in both the accounting and market's measures, and statistically significant with TDTA (Total Debt to Total Asset) except MBV (Market value of equity to the Book Value of equity) was significant with TDTA (Total Debt to Total Asset) and with SDTA (Short-term Debt to Total Asset).

San, O. T. and Heng, T. B. (2011) find the relation of capital structure on profitability focusing on the construction companies which are listed in Main Board of Bursa Malaysia from 2005 to 2008 by dividing into big, medium and small sizes, based on the paid-up capital. They show that for big companies, ROC (Return On Capital) with DEMV (Debt to Equity Market Value) and EPS (Earnings Per Share) with LDC (Long-term Debt to Capital) have a positive relationship. In the interim, only OM (Operating Margin) with LDCE (Long-term Debt to Common Equity) 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. Zeitun, R. and Tian, G. G. (2007) conducted a study to see the effect of capital structure on corporate performance by using a panel data sample representing of 167 Jordanian companies during 1989-2003. They have shown that a firm's capital structure had a significantly negative impact on the firm's performance measures, in both the accounting and market's measures. Abor, J. (2005) has identified the influence of capital structure on profitability of listed companies on the Ghana Stock Exchange during a five-year period. He found that there is a significant positive interrelation between SDTA (Short-term Debt to Total Assets) and ROE (Return On Equity) which indicates the profitable companies use more short-term debt to finance their business. The results also showed adverse relation between LDTA (Long-term Debt to Total Assets) and ROE. The regression output showed that there is positive relationship between DTA (Debt to Total Assets) and ROE. This indicates that firms which earn a lot are depending on long-term debt as their key financing option. However, several empirical studies indicate a negative relationship between capital structure and

performance (Rajan, R. and Zingales, L., 1995; Booth et al., 2001; Deesomsak et al., 2004; Huang, S. and Song, F., 2006; Karadeniz et al., 2009; Chakraborty, I., 2010). On the other hand, several scholars report a positive relationship between financing choices and firm performance (Rodan, D. and Lewellen, W., 1995; Gosh et al., 2000; Hadlock, C. and James, C., 2002; Franck, M. and Goyal, V., 2003; Berger, A. and Bonaccors, di. Patti. E., 2006). Moreover, a number of studies find either poor or no significant relation between debt level and performance (Ebaid, E. I., 2009; Tang, C. H. and Jang, S. S., 2007).

Puwanenthiren, P. (2011) found the relation between capital structure and financial performance capacity in Sri Lanka. From correlation analysis he explained that there is a weak positive relationship between gross profit and capital structure and there is a negative relationship between net profit and capital structure. He also found that ROI (Return On Investment) and ROA (Return On Asset) have negative relationship with capital structure. Ebaid, E. I. (2009); Tang, C. H. and Jang, S. S. (2007) have reviewed on the impact of capital structure choice on performance based on a sample of non-financial Egyptian listed firms from 1997 to 2005, using three of accounting-based measures of financial performance i.e. ROE (Return On Equity), ROA (Return On Assets), and GPM (Gross Profit Margin). They have shown that capital structure choice decision, in general terms, has a weak-to-no impact on firm's performance. King, M. R. and Santor, E., (2008) had been done a research to examine the linkage between family ownership, firm performance and capital structure on Canadian firms. They conclude that self- supporting family who 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 (based on Tobin's ratios). In contrast, family-owned firms with dual-class shares have market valuations that are 17 percent lower, on average, than those of other firms, despite having similar ROA and financial leverage.

Saeedi, A. and Mahmoodi, I., (2011) have examined the relationship between capital structure and firm performance using a sample of 320 firms listed on Tehran Stock exchange over the period 2002- 2009. They used four performance measures namely ROA, ROE, EPS and Tobin's Q as the dependent variable and three capital structures namely long-term debt short-term debt and total debt ratio as the independent variables. They shown that the firm performances, which is measured by EPS and Tobin's Q, is significantly and positively associated with capital

structure, while reported a negative relation between capital structure and ROA, and no significant relationship between ROE and Capital structure.

Siddiquee and Khan (2009) analyzed the working capital performances of 83 listed companies from seven different sectors of Dhaka Stock Exchange Ltd. over the period 2003-2007 and have been observed that, firms which are better at managing working capital are found to be able to make counter cyclical moves to build competitive advantage. They are also better at generating fund internally and also face lesser trouble while seeking external sources of financing. Quayyum, S. T. (2011) found that there is a negative relationship between cash conversion and profitability of the firm. She also found that firms in the cement industry in Bangladesh have enough scope to enhance their profitability by handling their working capital in more efficient ways. Especially, the inventory turnover if handled efficiently can produce a significant positive impact on profitability of the firm. Sayeed, M. A. (2011) revealed that agency costs and non debt tax shields such as depreciations are negatively impacting on total debt ratio of Bangladeshi companies. Bankruptcy costs and profitability are irrelevant in determining leverage ratios and number of years in operation doesn't have very significant impacts on the capital structure determination. Tax rate is having positive impact only for long term debt and firm size has positive impact in determining both total and long term debt ratios. Chowdhury and Chowdhury (2010) observed that capital structure has impact on the market value of a firm. Furthermore, they also observed that firms may enhance the market value by changing current ratios, operating leverage, EPS, dividend payout ratios or share capital. Results also specifies that the share price is not only dependent on the fundamental financial information of the company but also on the qualitative decision of management, level of good governance, investor psychology, market reputation, business cycle, etc. Hossain and Ali (2012) attempted to explore the impact of firm specific factors on capital structure decision for a sample of 39-firm listed on Dhaka Stock Exchange (DSE) during 2003-2007. They found that profitability, tangibility, liquidity, and managerial ownership have significant-negative impact on leverage. On the other hand growth opportunity and non-debt tax shield result positive and significant impact on leverage. Size of the firm, earnings volatility, and dividend payment are not found to be significant explanatory variables of leverage.

3. METHODOLOGY

A. Data Source

This study uses secondary data which are collected from the annual reports of listed cement companies of the Dhaka stock Exchange (DSE) for the period of 1999-2011. The sample contains 5 companies out of 7 listed cement companies of Dhaka stock exchange. We can't consider MI Cement Factory Limited and Premier Cement Mills Limited as because these two companies were listed in DSE in the year 2011 and 2013 respectively i.e. these two cement companies do not cover the research duration.

B. Dependend Variable

This study considers firm performance as dependent variable. This study used accounting measures for evaluating the financial performance. More than one proxy has been used for accounting performance of a firm they are ROA (Return On Assets), ROE (Return On Equity), EPS (Earnings Per Share), and NPM (Net Profit Margin).

C. Independend Variables

The independents variables that are used to identify the firm-level leverage in this study are as follows: SDTA (Short-term Debt to Total Assets), LDTA (Long-term Debt to Total Assets), TDTA (Total Debt to Total Assets), LTDCE (Long-term Debt to Common Equity) and TDTQ (Total Debt to Total Equity). There are some other factors, besides capital structure, that may influence firm performance such as firm size, tangibility of assets, cash flow, liquidity etc. This paper also considers the following variables: GRO (% change in total Assets i.e., Growth), Size (Natural log of Total Assets), TAN (Tangibility of Assets), CF (Cash flow i.e., Operating cash flows to Total Assets), and LIQ (Liquidity).

D. Conceptual Framework

For this study the following conceptual model may be constructed. This conceptualization model will attempt to find the relationship between capital structure and financial performance of listed cement companies in DSE (Dhaka Stock Exchange).
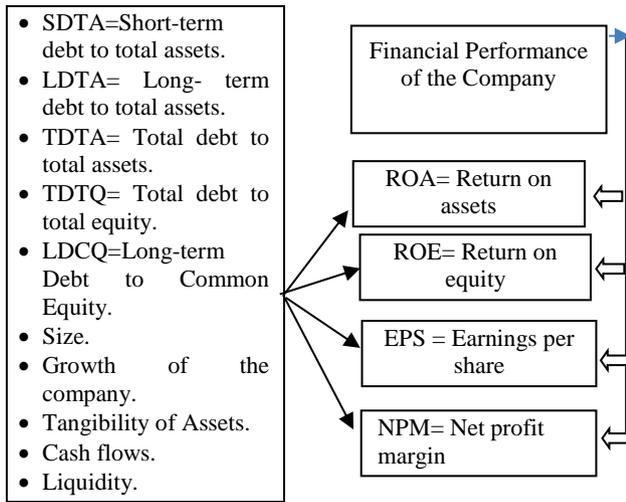
- SDTA=Short-term debt to total assets.
- LDTA= Long- term debt to total assets.
- TDTA= Total debt to total assets.
- TDTQ= Total debt to total equity.
- LDCQ=Long-term Debt to Common Equity.
- Size.
- Growth of the company.
- Tangibility of Assets.
- Cash flows.
- Liquidity.

Financial Performance of the Company

ROA= Return on assets

ROE= Return on equity

EPS = Earnings per share

NPM= Net profit margin

Figure 1. Research Framework

E. Analysis and Reporting

The Statistical Package for the Social Science (IBM SPSS20) was used to analyze the data to produce the results.

4. RESULTS AND DISCUSSION

From the summary statistics of the variables used in this study (Table 1), it may conclude that the average return to equity for a sample as a whole is -0.0276 and the average return to assets is 0.0193. The mean of ROE & NPM is negative and ROA is only 1.93% and EPS is TK. 25.29 which indicates the cement companies in Bangladesh have a low accounting performance during the period of the study. It also demonstrates that the ratio of the total debt to total assets in a whole is about 56% and this ratio is comparatively higher (more than 50%). Table 1 also shows the mean of capital structure's proxies i.e., the mean of TDTA, SDTA and LDTA are about 56, 37 and 20 percent respectively, which indicate Bangladeshi cement companies in general, use comparatively more debt (total debt) than equity.

From the Pearson correlation matrix (Table 2) it may be conclude that there is a strong positive correlation between ROA & EPS and ROA & ROE (81.3% & 51.8% respectively). It also indicates that short-term debt and cash-flows are positively correlated and liquidity, cash-flows and growth are negatively correlated with the dependent variables. But the table doesn't show any strong correlation among the explanatory variables, therefore, all explanatory variables can be used in panel data set at the same time.

TABLE I.   SUMMARY STATISTICS OF THE VARIABLES

Variable	Mean	Standard Deviation	Kur-tosis	Skew-ness	Mini-mum	Maxi-mum
ROA	0.02	0.07	1.98	-0.81	-0.21	0.16
ROE	-0.03	0.69	37.84	-5.68	-4.79	0.91
EPS	25.29	45.17	3.92	1.66	-45.10	211.48
NPM	-0.50	1.40	5.41	-2.52	-5.86	0.58
LTDCE	1.59	3.49	37.96	5.65	0.00	25.97
SDTA	0.37	0.16	0.87	0.05	0.01	0.80
LDTA	0.20	0.16	-0.82	0.42	0.00	0.61
TDTQ	4.32	8.25	21.48	4.21	0.03	54.16
TDTA	0.56	0.24	-0.69	-0.20	0.02	1.00
GRO	0.19	0.37	11.15	3.17	-0.19	1.85
TAN	0.60	0.26	0.29	-0.76	0.02	1.00
CF	0.06	0.09	7.43	2.61	-0.01	0.45
LIQ	1.47	1.48	11.18	3.14	0.25	8.10

TABLE II.   CORRELATION MATRIX

	ROA	ROE	EPS	NPM	LTDCE	SDTA	LDTA	TDTQ	TDTA	GRO	TAN	CF	LIQ
ROA													
ROE	.518**												
EPS	.813**	.327*											
NPM	.333**	.002	.281*										
LTDCE	-.338**	-.801**	-.250*	.119									
SDTA	.118	.054	.068	-.599**	.300*								
LDTA	-.497**	-.331**	-.356**	.162	.451**	.170							
TDTQ	.258*	.638**	-.222	.175	.246	.254	.354**						
TDTA	-.234	-.215	-.161	.289*	.493**	.224	.215	.251					
GRO	-.019	.050	.141	-.327**	-.078	-.267*	.137	-.007	-.188				
TAN	.452**	.324*	.438**	-.201	.292*	-.198	.108	.266*	-.076	.046			
CF	.433**	.136	.610**	-.061	-.217	-.353**	.373**	-.231	-.450**	-.041	-.096		
LIQ	-.058	.070	-.007	-.712**	-.217	-.257*	-.261*	-.260*	-.285	.360**	-.083	.301*	

**Correlation is significant at the 0.01 level (2-tailed) and *Correlation is significant at the 0.05 level (2-tailed).

The panel data regression is analyzed by the fixed effects model (FEM) in this study to determine the impact of the independent variables on the dependent variables.

From the results of Fixed Effect Model between ROA and independent variables given in Table 3, it may be conclude that except the variable growth all of the independent variables are statistically significant at 10 percent level of significance. It is also observed that short-term debt and cash flows have significantly

positive and growth has insignificantly positive effect on ROA. But long-term debts to equity, long-term debt, tangibility of assets and liquidity have significantly negative effect on ROA. In a study, Abor (2007) found a positive relationship between short term debt and return on assets in small and medium enterprises (SMEs) because of the nature of industry in which they are operating and low level of interest rates. These finding are not consistent with the study by Khan (2012) that financial leverage measured by short term debt to total assets (STDTA) has a significant negative relationship but has consistency with the result that total debt to total assets (TDTA) with the firm performance measured by Return on Assets (ROA) has significant negative relationship. The independent variables are moderately related with ROA since the value of Adjusted R-square is 0.603. These findings are also consistent with Zeitun, R. and Tian, G. G. (2007), that LTDTA is significantly and negatively related to ROA. This may indicate that higher level of leverage lead to lower ROA. Initially, size of the firm (natural log of the totals assets) was considered but we didn't find any statistically significant impact on firm performance which may lead to excluded in this model.

TABLE III.   RESULTS OF FIXED EFFECT MODEL OF ROA AND INDEPENDENT VARIABLES

Parameter	Estimate	Std. Error	t-statistic	P Value	Model Summary
Intercept	0.107	0.052	2.064	0.043	
LTDCE	-0.037	0.015	-2.540	0.014	
SDTA	0.073	0.011	6.486	0.000	$R = 0.748$, $R^2 = 0.559$, Adjusted $R^2 = 0.603$, Std. Error of the Estimate = 0.04893871
LDTA	-0.102	0.013	-7.907	0.000	
TDTQ	0.012	0.003	4.604	0.000	
TDTA	-0.055	0.017	-3.240	0.002	
GRO	0.015	0.010	1.515	0.135	
TAN	-0.103	0.041	-2.484	0.016	
CF	0.280	0.074	3.795	0.000	
LIQ	-0.014	0.005	-2.991	0.004	

According to the results given in Table 3, the estimated model is:

$$Y_{ROA} = 0.106912 - 0.037443LTDCE + 0.072869SDTA$$
$$- 0.102197LDTA + 0.012402TDTQ$$
$$- 0.055382TDTA + 0.01499GRO - 0.102544TAN$$
$$+ 0.280253CF - 0.013807LIQ$$

The results of Fixed Effect Model between ROE and independent variables given in Table 4, shows that except the variable growth all of the independent variables are statistically significant at 10 percent level of significance. We also observed that short-term and long-term debt, total debt to equity, cash flows and liquidity have some positive effect on ROE while others independent variables such as total debt and cash-flows have negative effect on ROE. The independent variables are extremely related with ROE since the value of Adjusted R-square is 0.804. The results are consistent with Rub (2012), who found that capital structure has a significant relationship with firm performance when measured by ROE. Abor (2005) found a positive and significant relationship between STDTA and ROE. As short term debt was less expensive and employing more short term debt with low level of interest rates have resulted in an increase in profits. Finally, we barred size of the firm to run the model as it represents statically insignificant relationship.

TABLE IV.   RESULTS OF FIXED EFFECT MODEL BETWEEN ROE AND INDEPENDENT VARIABLES

Parameter	Estimate	Std. Error	t-statistic	P Value	Model Summary
Intercept	-0.091	0.023	-3.913	0.000	
LTDCE	-0.393	0.043	-9.106	0.000	
SDTA	1.589	0.723	2.197	0.032	$R = 0.912$, $R^2 = 0.832$, Adjusted $R^2 = 0.804$, Std. Error of the Estimate = 0.30402502
LDTA	1.683	0.391	4.302	0.000	
TDTQ	0.100	0.023	4.312	0.000	
TDTA	-1.142	0.206	-5.546	0.000	
GRO	-0.061	0.045	-1.370	0.176	
TAN	-0.141	0.074	-1.914	0.060	
CF	0.458	0.064	7.178	0.000	
LIQ	0.022	0.006	3.452	0.001	

On the basis of the results given in Table 4, the estimated model is as follows:

$$Y_{ROE} = -0.090708 - 0.393177LTDCE + 1.588795SDTA$$
$$+ 1.682511LDTA + 0.100421TDTQ$$
$$- 1.141609TDTA - 0.061271GRO - 0.141381TAN$$
$$+ 0.458475CF + 0.022096LIQ$$

Results presented shown in Table 5, reveals that except growth all of the independent variables are statistically significant for EPS at 10 percent level of significance. It is observed that short-term debt and cash flows have some significantly positive effect on EPS. But long-term debts, total debt to equity, tangibility of assets and liquidity have significantly negative effect on EPS. These findings are consistent with the study of Saeedi and Mahmoodi (2011), which shows that EPS is significantly associated with capital structure but our results are not consistent with the analysis of Salteh and Ghanavati (2011). The independent variables are moderately related with EPS since the value of Adjusted R-square is 0.537. The variable named size of the firm has statically insignificant impact on EPS, it is excluded from the model.

TABLE V. RESULTS OF FIXED EFFECT MODEL BETWEEN EPS AND INDEPENDENT VARIABLES

Parameter	Estimate	Std. Error	t-statistic	P Value	Model Summary
Intercept	30.288	23.530	1.287	0.203	
LTDCE	3.156	1.078	2.929	0.005	
SDTA	42.111	20.021	2.103	0.039	$R = 0.776$,
LDTA	-70.300	13.871	-5.068	0.000	$R^2 = 0.602$,
TDTQ	-1.750	0.229	-7.629	0.000	Adjusted
TDTA	28.676	6.377	4.497	0.000	$R^2 = 0.537$,
GRO	-0.701	0.604	-1.162	0.250	Std. Error of the
TAN	-53.943	6.792	-7.942	0.000	Estimate =
CF	318.663	15.342	20.771	0.000	30.730044
LIQ	-4.000	0.676	-5.913	0.000	

The estimated model is:

$$Y_{EPS} = 30.288114 + 3.15611 LTDCE + 42.1105785 SDTA$$
$$- 70.300158 LDTA - 1.750008 TDTQ$$
$$+ 28.676013 TDTA - 0.701355 GRO - 53.9434 TAN$$
$$+ 318.663371 CF - 3.999639 LIQ$$

Results of the FEM analysis given in Table 6, depicts that all of the independent variables are statistically significant at 10 percent level of significance. It is noticed that short-term debt, total debt and cash flows have significantly positive association with NPM but long-term debts, total debt to equity, tangibility of asset, growth and liquidity have significantly negative effect on NPM. These outcomes are not complied with Iorpev, L. and Kwanum, I. (2012). The independent variables are moderately related with NPM since the value of Adjusted R-square is 0.699. Like the previous model, size doesn't indicate any significant association with firm's performance and for this reason the variable size of the firm were expelled to run this model. According to the results given in Table 6, the estimated model is given below:

$$Y_{NPM} = 1.358032 + 0.203822 LTDCE + 1.369561 SDTA$$
$$- 3.94693 LDTA - 0.057216 TDTQ$$
$$+ 0.138905 TDTA - 0.137013 GRO - 1.257137 TAN$$
$$+ 0.88188 CF - 0.679916 LIQ$$

TABLE VI. RESULTS OF FIXED EFFECT MODEL BETWEEN NPM AND INDEPENDENT VARIABLES

Parameter	Estimate	Std. Error	t-statistic	P Value	Model Summary
Intercept	1.358	0.813	1.670	0.100	
LTDCE	0.204	0.049	4.200	0.000	
SDTA	1.370	0.546	2.510	0.015	$R = 0.861$,
LDTA	-3.947	1.379	-2.861	0.006	$R^2 = 0.741$,
TDTQ	-0.057	0.019	-3.033	0.003	Adjusted
TDTA	0.139	0.013	10.641	0.000	$R^2 = 0.699$,
GRO	-0.137	0.031	-4.387	0.000	Std. Error of the
TAN	-1.257	0.470	-2.678	0.009	Estimate =
CF	0.882	0.196	4.496	0.000	0.7683188
LIQ	-0.680	0.101	-6.750	0.000	

5. CONCLUSION AND RECOMMENDATION

Fixed Effect Model (FEM) has been used to estimate the effect of variation in capital structure to the variation in the corporate performance and the results revealed that short-term debt, and cash flows have significantly positive influence; while long-term debt, long-term debt to equity, tangibility and liquidity have significantly negative effect on most of the proxy variables of firm performance. The outcome may suggest that short-term debt is less expensive; therefore rising short-term debt with a moderately low cost will direct to boost in financial performance of firms. Lastly, it can be said that short-term debt is more preferable source of financing for gainful firms. Results also indicate that long term debt has a major negative impact on the firms' performance; because it may be relatively costly than the short-term debt.

In the light of the findings of this study it may concludes that employing high proportion of long-term debt in firms' capital structure will invariably result in a low financial performance of a firm. Tangibility of assets and cash flows of cement companies considered in this study shows negative and as well as positive effect on financial performance measures respectively. Finally, according to the presented performance measures, Bangladeshi Cement Companies represent low accounting performance over the years. So, this study recommends that managers of manufacturing companies should exercise caution while choosing the long-term debt to use in their capital structure as it affects their performance negatively. The issue of capital structure and corporate performance is a burning question that need to resolute hastily. A deeper research on this field will be an advantage for future wellbeing.

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