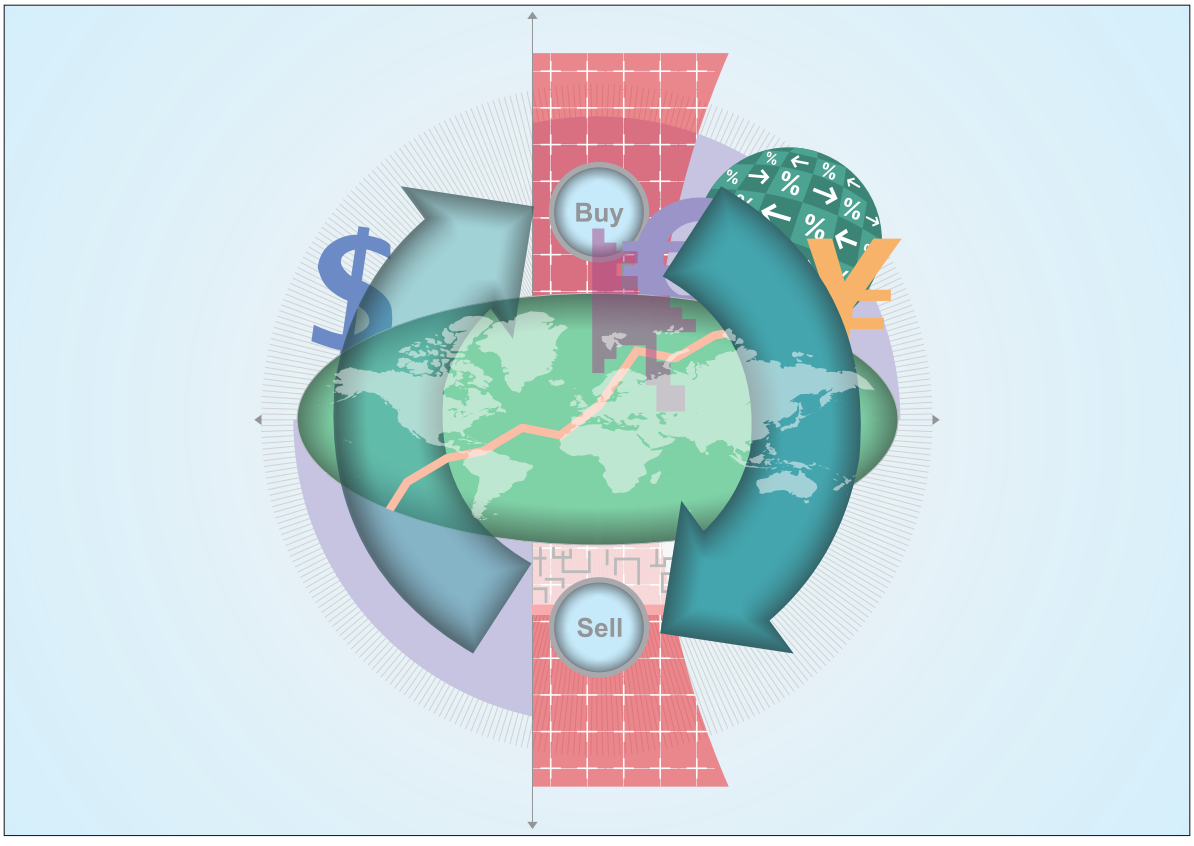

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Capital Structure and Firm Performance of Listed Non-Financial Companies in Bangladesh

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ABSTRACT

This study investigates the firm performance on capital structure for the listed non-financial companies in Dhaka Stock Exchange (DSE) for the period of 2008-2011 under judgment sampling method. Specific objective of this research is to examine the relationship between the attribute of capital structure and the performance as measured by Return On Assets (ROA) and Return On Sales (ROS). Multiple regression models were used to estimate the influence of capital structure on firm performance and capital structure was measured by the debt ratio, debt to equity ratio, current debt ratio, proprietary of equity ratio and current assets proprietors' funds Ratio. The results obtained from regression models show that Debt Ratio, Debt Equity Ratio and Proprietary of Equity Ratio are negatively and significant relationship with Return On Asset (ROA) and Return On Sales (ROS). Beside the control variable total asset is positively and significant relationship with Return On Asset (ROA) and Return On Sales (ROS).

Key words: Capital structure, firm performance, DSE, non-financial companies

INTRODUCTION

Capital structure refers to the mix of long-term sources of funds, such as debentures, long-term debt, preference share capital and equity share capital including retained earnings. Capital structure is one of the most complex areas of financial decision making because of its interrelationship with other financial decision variables. Poor capital structure decisions can result in a high cost of capital, thereby, lowering the net present value of projects and making more of them unacceptable. Effective capital structure decisions can lower the cost of capital, resulting in higher net present value and more projects that are acceptable and thereby, increasing the value of the firm.

The study examines, what is the effect of capital structure on firms performance and in particular debt? To answer of this question, it will discuss some scenarios, which relate with the nature of the impact of capital structure on firms performance. First situation involves positive relation between capital structure and firm performance, which indicates when the firms depend on debt as much as firms needs, it will lead to enhance their performance. It can explain that when the financial manager depends on debt as financing source more than owner equity (Sayeed, 2011). Financial manager prefers debt source more than equity refers to two reasons: the cost of debt is less than equity cost and the tax advantage of debt, which would therefore, maximize the firm performance (Soumadi and Hayajneh, 2013; Arbabiyan and Safari, 2009).

Second situation designate, that there is an inverse correlation between capital structure and firm performance (Alom, 2013). Whenever, the firm depends on debt without employing it into profitable investments. Thus, the cost of debt will exceed the return that firm will obtain it. Consequently, it will lead to increase the bankruptcy risks which effect inversely on firm performance.

Finally, third situation is that, there is no relationship between capital structure and firm performance (Ebaid, 2009; Singapurwoko and El-Wahid, 2011). Since, this scenario supposes that cost of debt is relatively stable and the cost of equity is not constant. When the debt reaches to certain level, any additional borrowing will lead to inability of firm to meet its financial obligations. Therefore, owners equity will be exposed to operating risks and they will require additional compensation. This might proof that capital structure is not linked to the performance of the firm.

As a developing country, Bangladesh has become a rising market with a lot of possible of investment that gets awareness for investors and managers to reorganize about the influencing factors of using debt and their extent of influence over firms. Although, there have been little numbers of research in Bangladesh focusing on the primary determinants of capital structure such as Chowdhury (2004) and Sayeed (2011), there is still disagreement regarding which factors have significant impact in determining a firm's capital structure. Nevertheless, an important factors affecting capital structure determination of a firm in developed country may not be equally important to a firm in developing country like Bangladesh. Additionally, all possible factors affecting capital structure decision have not been considered in a research at a time and that is why some factors are still important to further use in measuring their impact on capital structure determination and there is a need to bridge between current study and capital structure theory.

The research objectives of this study were:

- To identify the capital structure that affects the performance of listed companies in Bangladesh
- To examine the relationship between the attribute of capital structure and the performance of listed companies in Bangladesh

Rub (2012) investigated the impact of capital structure on firm performance using panel data procedure for a sample of 28 listed companies the Palestinian Stock Exchange (PSE) over the period of 2006-2010. The study 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, 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. Sayeed (2011) find out determinants of capital structures of Bangladeshi 46 listed companies for seven years (1999-2005). The determinants were selected based on two prominent theories of capital structure, static trade-off theory and pecking order theory. Total debt to market value of the company was used as the leverage ratio in one equation and long term debt to market value was used in another equation. The results show that agency costs are negatively affecting the total debt ratios of Bangladeshi companies, profitability are irrelevant in determining leverage ratios, while firm size has positive impact in determining both total and long term debt ratios. San and Heng (2011) focused on construction companies, which are listed in Main Board of Bursa Malaysia from 2005-2008, the result shows that there is a relationship between capital structure and corporate performance and there is also evidence that shows there is no relationship between the variables have been investigated Singapurwoko and El-Wahid (2011). The result indicates that in uncategorized (not categorized into different industries) data, debt, firm size, operational decision effect positively significant and macroeconomics effect insignificantly towards profitability. In addition, industry factor is found to affect companies' profitability. Saeedi and Mahmoodi (2011) examined the relationship between capital structure and firm performance the study used sample of 320 firms listed on Tehran Stock exchange over the period 2002-2009. Expect all of the financial

companies and banks, the study used four performance measures (including ROA, ROE, EPS and Tobin's Q) as dependent variable and three capital structures (including long- term debt, short-term debt and total debt ration) as independent variable. The study indicated that 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, ROA and no significant relationship between ROE and Capital structure. Pratheepkanth (2011) analyzed the capital structure and its impact on financial performance capacity during 2005-2009 of business companies in Sri Lanka. The results shown the relationship between the capital structure and financial performance is negative. Ebaid (2009) investigated the impact of capital structure choice on performance of 64 firms from 1997-2005 in the Egyptian capital market. He employed three accounting-based measures including ROA, ROE and gross profit margin and concludes capital structure choices, generally, has a weak to no impact on firm performance. Arbabiyan and Safari (2009) investigated the effects of capital structure on profitability using 100 Iranian listed firms from 2001-2007. The found short-term and total debts are positively related to profitability (ROE) which indicate a negative relation between long-term debts and ROE. Zeitun and Tian (2007) investigated the effect, which capital structure has had on corporate performance using a panel data sample representing of 167 Jordanian companies during 1989-2003. The study showed that a firm's capital structure had significantly negative impact on the firm's performance measures, in both the accounting and market's measures. Huang and Song (2006), found a negative correlation between leverage and performance (earning before interest and tax to total assets is China firms. From the previous research, we have developed the following hypotheses:

- **H_1:** There is a positive relationship with statistical significance between debt ratio and performance of the firm
- **H_2:** There is a positive relationship with statistical significance between debt equity ratio and performance of the firm
- **H_3:** There is a positive relationship with statistical significance between current debt ratio and performance of the firm
- **H_4:** There is a positive relationship with statistical significance between proprietary of equity ratio and performance of the firm
- **H_5:** There is a positive relationship with statistical significance between current proprietors fund ratio and performance of the firm
- **H_6:** There is a positive relationship with statistical significance between total assets and performance of the firm
- **H_7:** There is a positive relationship with statistical significance between total sales and performance of the firm
- **H_8:** There is a positive relationship with statistical significance between liquidity and performance of the firm
- **H_9:** There is a positive relationship with statistical significance between age and performance of the firm

MATERIALS AND METHODS

Sample design: The sample data have been collected from the Dhaka stock exchanges seminar library for the period 2008-2011. A 106 listed manufacturing companies from Dhaka stock exchange have been selected on an available basis covering all sectors under judgment sampling method. The data in the current study about capital structure and firm performance consists of dependent variables and independent variables. The independent variables are debt ratio, debt to equity ratio,

current debt ratio, proprietary of equity ratio and current assets proprietors' funds ratio. Dependent variable of performance of the firm is measure as ROA and ROE. The method of analysis is that of multiple regressions and the method of estimation is Ordinary Least Squares (OLS).

Analysis of data: In order to obtain the objectives of the research study, statistical tools like average, standard deviation, co-efficient of variance, correlation, regressions, T tests and F tests have been used to analyze and interpretation of the data through the Statistical Packages for Social Science (SPSS)16.0 for windows and Tables have been used for data presentation.

Model specification: The economic model used in the study (which was in line with what is mostly found in the literature, Rouf, 2011) is given as:

$$Y = \beta 0 + \beta Fit + eit \quad (1)$$

where, Y is the dependent variable. β0 is constant, β is the coefficient of the explanatory variable (corporate Characteristics), Fit is the explanatory variable and eit is the error term (assumed to have zero mean and independent across time period). It is important to state that this study employs debt ratios to measure the leverage of the firm. By adopting the economic model as in Eq. 1 specifically to this study, Eq. 2 evolves:

$$PA = \beta 0 + \beta 1DR + \beta 2DER + \beta 3DER + \beta 4DER + \beta 5CPER + \beta 6TA + \beta 7Ts + \beta 8LIQ + \beta 9AGE + eit \quad (2)$$

The variables that will be used in the analysis are as follows:

- **Dependent variables:**
  - Return on Assets (ROA) = (Net profit after tax divided by total Assets)×100
  - Return on Sales (ROS) = (Net profit after tax divided by total Sales)×100
- **Independent variables:**

Debt Ratio (DR) = Ratio of total Liabilities to total Assets
Debt to Equity Ratio (DER) = Ratio of Total debt/outsider funds to Total Assets
Current Debt Ratio (CDR) = Ratio of Total current liabilities to shareholder Equity
Proprietary of Equity Ratio (PER) = Ratio of shareholder funds to Total Assets
Current Assets Proprietors' Funds Ratio (CAPFR) = Ratio of Total current Assets to shareholder Equity
Total Assets (TA) = Total assets of the firm
Total Sales (TS) = Total sales of the firm
Liquidity (LIQ) = Current assets divided by current liabilities
Age (AGE) = Difference between observation year and establishment year

RESULT AND DISCUSSION

Descriptive statistics: Table 1 reports the descriptive statistics of our sample of non-financial companies in terms of the dependent and independent variables for the period of 2008-2011. The

Table 1: Descriptive statistics

Variable	Mean	Median	Standard deviation	Minimum	Maximum
ROA	6.65	3.84	7.40	0.10	40.39
ROS	11.50	5.07	19.37	0.09	107.25
DR	56.56	54.29	24.54	14.39	169.91
DER	222.76	119.91	286.90	16.80	1588.32
CDR	189.26	107.33	276.01	6.60	1588.32
PER	48.89	46.58	41.08	4.10	347.61
CAPFR	118.59	108.74	63.97	27.58	444.99
TA	5311319.34	1485154	10584934	1596	59748912
TS	35320.61	8814.94	116309.74	45.02	753573.15
LIQ	161.62	127.90	155.65	22.24	1323.91
AGE	27.12	28	9.68	6	50

ROA: Return on assets, DR: Debt ratio, DER: Debt to equality ratio, CDR: Current debt ratio, PER: Proprietary of equality ratio, CAPER: Current assets proprietors ratio, TS: Total sale, TA: Total assets

Table 2: Correlations (Person) return on assets as a firm performance (N = 106)

Variables	ROA	DR	DER	CDR	PER	CAPFR	TA	TS	LIQ	AGE
ROA	1									
DR	-0.420**	1								
DER	-0.398**	0.573**	1							
CDR	-0.056	0.505**	0.968**	1						
PER	-0.343**	-0.237*	-0.450**	-0.371**	1					
CAPFR	0.022	-0.519**	-0.215	-0.153	0.210	1				
TA	0.406**	0.090	0.318**	0.329**	-0.132	-0.008	1			
TS	0.240*	-0.084	-0.065	-0.059	-0.039	-0.003	0.549**	1		
LIQ	-0.101	-0.261*	-0.147	-0.190	0.017	0.417**	0.021	-0.010	1	
AGE	0.161	0.082	0.232*	0.269*	-0.145	-0.143	0.128	0.164	-0.065	1

*Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed), ROA: Return on assets, DR: Debt ratio, DER: Debt to equality ratio, CDR: Current debt ratio, PER: Proprietary of equality ratio, CAPER: Current assets proprietors ratio, TS: Total sale, TA: Total assets

Table 3: Correlations (Person) return on equity as a firm performance (N = 106)

Variables	ROS	DR	DER	CDR	PER	CAPFR	TA	TS	LIQ	AGE
ROS	1									
DR	-0.368**	1								
DER	-0.445**	0.573**	1							
CDR	0.273*	0.505**	0.368**	1						
PER	-0.347**	-0.237*	-0.450**	-0.371**	1					
CAPFR	0.044	-0.519**	-0.215	-0.153	0.210	1				
TA	0.320**	0.000	0.318**	0.329**	-0.132	-0.008	1			
TS	-0.022	-0.084	-0.065	-0.059	-0.039	-0.003	0.549**	1		
LIQ	-0.046	-0.261*	-0.147	-0.190	0.017	0.417**	0.021	-0.010	1	
AGE	0.012	0.082	0.232*	0.269*	-0.145	-0.143	0.128	0.164	-0.065	1

*Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed), ROS: Return on sales, DR: Debt ratio, DER: Debt to equality ratio, CDR: Current debt ratio, PER: Proprietary of equality ratio, CAPER: Current assets proprietors ratio, TS: Total sale, TA: Total assets

results from the firm performance, that the level of average firm performance in terms of Return On Assets (ROA) and Return On Sales (ROS) in the sample companies is 6.65 and 11.50% the highest profitability achieved by a firm is 40.39 and 107.25% and the lowest is 0.10 and 0.09% with a standard deviation of 7.40 and 19.37% respectively. The average debt ratio is 56.56% with minimum of 14.39% and maximum of 169.91%. The mean of the debt equity ratio is 119.91% with standard deviation of 286.90%. The average current debt ratio is 107.33% with minimum and maximum CDR of 6.60 and 1588.32% respectively. The mean of Proprietary of Equity Ratio (PER) is 46.58% with standard deviation of 41.08%. The average current assets proprietors' funds Ratio is 108.74% with minimum and maximum CAPFR of 27.58 and 444.99% respectively.

Pearson correlation analysis: Table 2 and 3 present the correlations among the variables. Table 2 indicates that ROA is negatively correlated with Debt Ratio (DR), debt equity ratios (DER)

Table 4: Multiple regression results (N = 106)

	ROA				ROS			
Variables	Standard error	Beta	Beta t-value	Significant	Standard error	Beta	Beta t-value	Significant
DR	0.053	-0.031	-0.179	0.005**	0.132	0.088	-0.526	0.031**
DER	0.015	-0.685	-1.166	0.008***	0.038	-0.543	-0.965	0.003***
CDR	0.015	0.527	0.956	0.342	0.037	0.560	1.062	0.292
PER	0.025	-0.144	-1.029	0.007***	0.063	-0.145	-1.080	0.004***
CAPFR	0.018	0.031	0.198	0.844	0.045	0.105	0.707	0.482
TA	0.000	0.012	2.072	0.003***	0.000	0.435	2.814	0.006***
TS	0.000	0.189	1.246	0.217	0.000	-0.257	-1.766	0.082*
LIQ	0.007	-0.113	-0.825	0.413	0.016	-0.055	-0.416	0.679
AGE	0.098	0.124	0.976	0.333	0.246	-0.043	-0.349	0.728

R Square = 0.555, Adjusted R squire = 0.485, F value = 7.872, F significance = 0.000, R Square = 0.535, Adjusted R squire = 0.455, F value = 8.631, F significance = 0.000, *p<0.1, two-tailed, **p<0.05, two-tailed, ***p<0.01, two-tailed, ROS: Return on sales, ROA: Return on assets, DR: Debt ratio, DER: Debt to equality ratio, CDR: Current debt ratio, PER: Proprietary of equality ratio, CAPER: Current assets proprietors funds ratio, TA: Total assets, TS: Total sale

and Proprietary of Equity Ratio (PER) at the level of significant 0.01 level (2-tailed). One the other hand, ROA has positively significant relationship with total assets and total sales.

Table 3 also indicates that ROE is positively correlated with Debt Ratio (DR), debt equity ratios (DER) and Proprietary of Equity Ratio (PER) at the level of significant 0.01 level (2-tailed). Return on equity has a positively significant relationship with total assets and current debt ratio.

Multiple regression analysis: Table 4 shows the results of the multiple regression analysis in our study. Regression has been used in much previous research (Akhtaruddin and Rouf, 2012; Rouf and Al Harun, 2011; Rouf, 2012; Rouf *et al*., 2014). The table shows the association between firm performance (ROA and ROE) and experimental variables. The coefficient of coordination R-square, F ratio, beta coefficients and t-statistics for the regression model and summarized results of the dependent variable on the explanatory variables can be seen in the Table 4. The result indicates an R-square of 0.555 and an F value of 7.872, which is significant at the 0.000 levels of ROA and R-square of 0.535 and an F value of 8.631, which is significant at the 0.000 levels of ROE. Both of these values suggest that a significant percentage of the firm performance (ROA and ROE) can be explained by the variations in the whole set of independent variables.

The results of the multiple regressions and indicates that debt ratio, debt equity ratio and proprietary of equity ratio are negatively relationship with Return On Asset (ROA) at the level of significant ($p<0.01$, two-tailed) and also with the Return On Sales (ROS) at 1% level of significant ($p<0.01$, two-tailed) of debt equity ratio and proprietary of equity ratio and at 5% level of significant ($p<0.05$, two-tailed) of debt equity, this result is similar with Zeitun and Tian (2007), Huang and Song (2006). Beside, this result is dissimilar with Rub (2012), Sayeed (2011) and Singapurwoko and El-Wahid (2011).

With regard to controllable variables, this study suggests that firms Total Assets (TA) is positively and significant related with the firm performance in terms of Return On Assets (ROA) and Return On Sales (ROS) at the 1% level ($p<0.01$, two-tailed) and another variable total sales is positively significant relation with Return On Sales (ROS) at the 10% level ($p<0.10$, two-tailed).

CONCLUSION

This research is an extension of previous research, where a set of capital structure variables is considered to examine their association with the firm performance. The objective of this study

was to identify the capital structure that affects the firm performance and examine the relationship between the attribute of capital structure and the performance of listed companies in Bangladesh. These capital structure include Debt Ratio (DR), Debt Equity Ratio (DER), Current Debt Ratio (CDR), Proprietary of Equity Ratio (PER) and Current Assets Proprietors' Funds Ratio (CAPFR) of the firm. The finding of this study has contributions for the regulators and enforcement agencies such as Institute of Cost and Management Accountants of Bangladesh (ICMAB), Institute of Chartered Accountants of Bangladesh (ICAB), the Securities and Exchange Commission (SEC) and the Dhaka Stock Exchange (DSE). It provides evidence for compliance levels of listed companies and factors associated with different levels of compliance. It will enable the regulatory agencies to aim at greater compliance with the local and international standards and will also enable them to enforce penalties for non-compliance. The limitation of the study is used only non-financial companies as a sample. So, the results may not extend across all listed companies in Bangladesh. The study explores only two firm performance variables, other factors influencing the capital structure of the firm such as Return On Equity (ROE), Return On Investment (ROI) and Tobin's Q ratio could be explored in further studies.

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