Article

Impact of Capital Structure on Firms' Performance of Dhaka Stock Exchange Companies in Bangladesh

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Abstract*: This study aims to highlight the disparities between Dhaka Stock Exchange (DSE) listed companies' financial performance and capital structure, the relationship between the two, and the impact of capital structure on financial performance overall. The study used a quantitative approach and convenience sampling for this study. Data was acquired from 20 companies in four industries from their annual reports from 2019 to 2023 using secondary sources and quantitative methods. Companies were selected based on a convenience sampling method. This research investigates five indicators of capital structure: debt-to-asset ratio, equity-to-assets ratio, debt-to-equity ratio, short-term debt-to-total asset ratio, and long-term debt-to-asset ratio as independent variables. The analysis uses two performance indicators, namely return on asset and return on equity, as dependent variables. Moreover, the study integrates the Modigliani & Miller theory, agency cost theory, trade-off theory, and pecking order theory to utilize the capital structure in Bangladesh. The findings suggest a significant relationship between capital structure and financial performance, which is identified by ROA & ROE in this context. This study employs descriptive analysis to determine the mean, a measure of which variable capital structure most significantly influences. In this study, Pearson correlation analysis is used to identify the correlations between the variables, and also regression analysis is used to evaluate the intensity of these relationships.*

Keywords: Capital Structure, Firm Performance, Debt, Equity, Assets.

1. Introduction

Businesses are enhancing long-term strategies to improve environmental, social, and performance metrics, driven by the global emphasis on sustainable development. This study identifies how capital structure affects the business performance of DSE-listed companies. Additionally, the study investigates the relationship between the capital structures of DSE-listed businesses and these two criteria. One of the topics that has the largest impact on corporate finance literature is capital structure (Amosh et al., 2024).

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The relationship between capital structure and financial performance significantly influences the overall profile of organizations. The statement of affairs of an enterprise presents a comprehensive overview of its financial position, encompassing all categories of assets and liabilities (Ma & Chen, 2024).

1.1 Background of the Study

Gwatidzo and Ojah (2009) analyzed the capital structure of enterprises in five African markets—Ghana, Kenya, Nigeria, South Africa, and Zimbabwe—revealing a modified pecking order influenced by factors like materiality, tax, profit, size, and business age. In contrast, Brazilian corporations issue securities to leverage short-term opportunities, as highlighted by Rossi and Marotta (2010), who explored market temporal dynamics. The research on this phenomenon, however, is conflicting or ambiguous. Maximizing a company's wealth or worth is one of its ultimate objectives (Miller, 1977). Siddik et al. (2017) investigated the effects of capital structure on the performance of Bangladeshi banks, which were evaluated by return on equity, return on assets using panel data from 22 banks for the period of 2005–2014. Over the past decade, the irrelevance hypothesis has improved our relationship between capital structure and profitability. According to Modigliani and Miller (1958), capital structure has little impact on firm value, while their 1963 study linked corporate taxes and debt to increased market value and lower capital costs. Research highlights the significance of capital structure in firm performance, offering insights for optimizing profitability. This study statistically examines whether a link exists between capital structure and profitability among DSE-listed companies, aiming to inform optimal capital structure decisions for maximum profit. Market temporal arrangement theory states that attempts to occasionally issue securities (stocks or bonds) judged suitable for provision may have an impact on a firm's capital structure. According to this idea, businesses favor debt when the market overvalued their stock prices. Global evidence indicates that this type of conduct significantly influences financial decisions and a company’s capital structure (Ritter, 1991; Alti, 2006; Huang, Uchida & Zha, 2016). The valuation of the company or its stock price is independent of the company’s capital structure (Modigliani & Miller, 1958). This theory by Painter and Miller is predicated on several oversimplifications. These presumptions include the absence of all taxes, transaction fees, and knowledge asymmetry. Some scholars found a positive relationship between capital structure and firm performance, while others found a negative correlation, and yet others found no correlation at all. The relationship between capital structure and company performance has been the subject of much empirical research despite Bangladesh's relatively small contribution to this field of research. Moreover, this research analyzed the influence of capital structure on the performance of firms listed on Bangladesh’s DSE, examining financial structure, variations across industries, and firm performance. Using annual reports from 20 companies (2019–2023), it investigated the relationship between capital structure metrics and corporate performance.

The objectives of the study are:

- To determine how capital structure affects ROA.
- To find how ROE could be influenced by capital structure.

2. Literature Review

The trade-off theory and pecking order theory highlight key aspects of capital structure (Kraus & Litzenberger, 1973). The trade-off theory suggests that while debt financing offers tax advantages, excessive reliance on debt increases bankruptcy risks. Capital structure balances these tax benefits against associated financial risks (Lindset et al., 2024; Kim-Duc & Nam, 2024). According to the pecking order theory, firms prefer to finance their investments using internal money, such as related earnings or original equity (Tawfik et al., 2024). When internal financing is unavailable, a corporation typically prioritizes issuing debt before considering equity as a last resort (Savio et al., 2024).

2.1. Capital Structure of Non-Financial Companies

Empirical analyses of the pecking order and trade-off theories reveal key factors influencing leverage. Hovakimian et al. (2001) identified that prior profitability and stock prices significantly guide firms' choices between debt and equity issuance. Jandik and Makhija (2001) explored leverage determinants in utility industries, emphasizing factors such as bankruptcy costs, growth, tax shields, collateral, profitability, size, and risk, challenging the theories' assumptions. Fama and French (2002) noted agreement between the theories on investment, size, and tax shields but highlighted differing views on the role of performance in leverage decisions (Ronoowah & Seetanah, 2024). Numerous studies integrate macroeconomic and industry-level factors into capital structure models. Korajcsyk and Levy (2003) analyze capital structure in relation to macro-economic circumstances and firm-specific factors within samples of constrained and unconstrained enterprises. Their findings reveal that leverage tends to be countercyclical for relatively unconstrained firms but procyclical for those that are more constrained. MacKay and Gordon (2005) investigate the influence of industry on capital structure, demonstrating that industry characteristics contribute to around 13% of the variance in capital structure. A firm's industrial position also affects its capital structure. Leary and Michael (2014) explore the correlation between industry and capital structure, highlighting that the financing tactics and attributes of industry counterparts frequently influence corporate financing decisions.

2.2 Capital Structure of Financial Companies

Banks primarily operate by lending funds to customers in need, sourced from customers with surplus funds. They act as intermediaries between businesses and investors, facilitating loans and accepting deposits. This intermediate function enables banks to function with substantial debt and comparatively less equity. A significant portion of bank liabilities comprises deposits, leading to high leverage ratios (total liabilities to total assets). Between 1934 and 2014, American banks had leverage ratios ranging from 87% to 95%, with deposits making up 65% to 93% of total liabilities. Similarly, European banks exhibit high leverage, such as in Germany, where the total liabilities-to-assets ratio was between 94% and 96% from 1979 to 2014. The central banking activity of attracting deposits and issuing loans underpins this high leverage. However, deposit financing carries risks, as depositors may face a collective action problem, resulting in a bank run, where a significant number of consumers simultaneously remove their deposits. Research on bank capital structure attempts to explain the high levels of leverage observed in banks, but findings remain inconclusive. Bank capital structure variations can be explained by the chain of command and trade-off theories, but often neglect key factors like deposits, insurance, and government

guarantees. Research suggests these guarantees positively influence bank leverage, though Gropp and Heider (2010) found minimal impact from mispriced deposit insurance and capital regulation on capital structure formation. Instead, they found that fixed effects specific to individual banks are the primary determinants, with leverage converging toward time-invariant, bank-specific targets. Their findings indicate no significant influence of regulation or deposit insurance on bank capital structure, highlighting the need for further theoretical and empirical research to understand this complex issue better.

2.3 Agency Cost Theory

The agency cost theory posits that a principal (owner) may hire an agent (manager) to carry out tasks on their behalf, including delegating responsibilities and authority. However, when ownership is separated from management, agency conflicts can arise. These conflicts often stem from the manager (agent) not exerting sufficient effort or prioritizing their own preferences over the principal's goals when making decisions about inputs and outputs. This theory emphasizes resolving conflicts to align the interests of principals and agents, ensuring better wealth and utility optimization for the firm in Bangladesh. (Ferdaous & Rahman, 2019). Berle and Means (1932), the principal proponent of the theory, assert that the goal is to restrain the talented manager's proclivity for expedient behavior for private advantage. Consequently, finance can mitigate surplus free cash flow inside the organization by necessitating fixed disbursements, such as interest on debt. These obligatory payments necessitate managers to eschew wasteful investments and act in the optimal interests of shareholders. Thus, sustaining an appropriate debt level within the capital structure aids in reducing agency costs stemming from the divergent objectives of managers, owners, and debt holders. In Bangladesh, nonfinancial firms basically face different types of problems based on different agency costs (Hasan et al., 2023).

2.4 Modigliani & Miller Theory

According to Modigliani and Miller’s (1958) theory, a company’s capital structure has no effect on its value in a perfect market free of taxes, transaction costs and agency difficulties. Chadha and Sharma (2015) characterize an ideal market as one in which both insiders and outsiders possess unlimited access to information, devoid of transaction fees or taxes, and where bankruptcy incurs no penalties. MM theory (1958) asserts that a firm's valuation does not depend on its mix of debt and equity, making the choice between these financing options irrelevant. Both internal and external capital are equally viable. Despite the ambiguity surrounding the relationship between capital structure and the MM theory, it has attracted significant attention due to the strength of its assumptions, even though they differ from the complexities of real-world markets, such as taxes and bankruptcy costs. According to Muritala (2012), several forms of finance possess distinct characteristics. Siddiquee and Saker (2020) pointed out MM theory to identify the determinants of the firm’s capital structure from the Dhaka stock exchange. As a result, the nature of finances would prefer that these organizations conduct their business operations over the short, medium, and long terms, as well as whether they are internal or external.

2.5 Trade-off theory

The trade-off theory, as discussed by Graham and Harvey (2001), highlights a firm's decision-making process regarding leverage by balancing the benefits and drawbacks of debt. It considers the trade-off between the costs and advantages of borrowing, using the firm's assets as a key factor in determining the optimal debt ratio. To get the optimal capital structure, the trade-off will be seen as a summarized balance of numerous edges and prices touching on debt. Additionally, a company adjusted to the best debt magnitude relation, value, and lags, which are known as adjustment pricing. Based on Myers (1984), it is known as the company's best capital structure. Siddiquee and Saker (2020) pointed out the tradeoff theory in identifying the firm’s capital structure in Bangladesh.

2.6 Pecking Order Theory

Myers (1984) presented a theory to elucidate how company structure choices affect financial behavior. In other words, company managers prioritize maintaining consistent dividends for shareholders over time, even with variations in revenue, investment prospects, and stock valuations. Managers often prefer internal finance to external sources, yet external financing may become essential if required; they are advised to select the least risky option before considering higher-risk alternatives (Chadha & Sharma, 1915). Financial securities are categorized according to their perceived risk, with debt instruments positioned at the lower end and common equity at the upper end. Nevertheless, investors often lack comprehensive information about the internal value of a corporation's projects. For instance, during financial difficulties, a company might inadvertently allow investors to capture a significant portion of a project's net value, leading to potential inefficiencies. Siddiqueeand Saker (2020) pointed out the pecking order theory in identifying the firm’s capital structure in Bangladesh. In recent decades, a range of novel ideas contrasted with metric linear unit propositions has developed from historical financial discourse to explain the enterprises' choice of capital structure.

2.7 Debt Ratio

When all other factors are equal, a rise in leverage will result in a decline in the agency value of outside equity and firm performance. The agency theory, according to Muritala (2012), assumes that as leverage increases, agency prices will decrease, reducing inefficiency and improving company performance. The debt ratio is a measure that quantifies a company's total debt as a proportion of its total assets. An elevated debt ratio signifies that a firm is significantly indebted. Thus, a negative correlation between debt levels and business performance is typically anticipated. The allowable debt ratio is contingent upon the nature of the company and the industry in which it functions. Typically, debt-to-equity or debt-to-asset ratios of 1.0 are considered relatively safe, while ratios exceeding 2.0 are viewed as riskier. Some businesses, including banking, typically have significantly greater debt-to-equity ratios than others. Conversely, a negative debt ratio suggests negative shareholder equity, meaning the organization has more liabilities than assets. This is often seen as a serious red flag, indicating potential bankruptcy risks (Byrd & Mizruchi, 2005). Generally, an acceptable debt ratio falls between one and five. However, the ideal ratio varies across industries, as some sectors, such as finance and manufacturing, rely heavily on debt financing and often have ratios above 2 due to their capital-intensive nature. From a risk perspective, a debt ratio below 0.4 is preferable, as it indicates lower financial risk, a ratio higher

than 0.6 might make it more difficult for a corporation to acquire further finance (Nuryani & Sunarsi, 2020). Although a lower debt ratio signals greater creditworthiness, excessively low debt levels can also pose risks, potentially limiting growth opportunities.

2.8 Risk

Business risk is linked to high-risk companies that are more likely to experience financial hardship before declaring bankruptcy. Business risk refers to the possibility of a company experiencing reduced earnings or even failure. It encompasses any factor that threatens the organization's ability to achieve its financial goals. In the context of debt, business risk includes the obligation to meet legal requirements for regular payments of principal and interest. On the other hand, financial risk specifically pertains to threats that could impact a company's financial growth and profitability, potentially hindering its overall success. Additionally, a highly leveraged company may experience a liquidity shortage and be unable to secure loan financing. In comparison to companies with consistent income, the fluctuating cash flow company is anticipated to utilize less debt to support its capital structure (Mwangi et al., 2014). The danger is that internal and external causes may combine to create a situation in which a firm is no longer viable in business. Business risks can affect a company's expansion and success, as well as its standing with clients and customers. A risk management plan must be included in any business strategy one develops for their employer or one's own brand in order to reduce the risks involved. Understanding business risks can help one better plan their ideas and guard against the dangers of actually occurring to one's goals. In this post, the study defines business risk, describes basic business risk kinds, and demonstrates risk identification.

2.9 Sale Growth

Sales growth refers to the change in revenue over a given time period. Revenue from two fiscal seasons can be compared to establish a company's growth rate, whether it reflects an increase or a decline. The sales growth rate evaluates the company's ability to boost revenue within a defined timeframe. According to Chadha & Sharma (2015), companies with fast growth rates tend to finance their businesses with more short-term debt than long-term debt, and their capital structures are designed to cut down on agency expenses. Due to the necessity of flexibility in any investment, agency value difficulties in developing businesses will become much more serious. However, expansion prospects serve as essential predictors of company performance (Muritala, 2012). Sales growth is a key metric that assesses the effectiveness of a sales team in driving revenue increases over a specified period. Without consistent revenue growth, businesses risk falling behind competitors and facing stagnation. Sales growth serves as a strategic indicator often reviewed by executives and board members to inform decision-making. It significantly influences the development and execution of business strategies.

2.10 Asset Structure

Asset structure refers to the allocation of an enterprise's total assets among fixed investments, securities investments, and liquidity investments. This concept has been the emphasis of numerous studies within academic circles. The effectiveness of the management will be evaluated based on

how the company uses its resources to generate profits. The firm's asset turnover quantitative relationship, according to Muritala (2012), is a crucial financial quantitative relationship that would be desired to achieve the measure of potency. Quick assets enhance a company's ability to secure debt financing as they can be sold with minimal loss of value, making them more attractive as collateral for lenders. Research indicates that companies with more assets tend to have higher debt ratios, reflecting greater borrowing to fund operations. Higher liquidity allows a firm to meet short-term obligations better, enabling it to retain a relatively higher debt-to-equity ratio. This structure aims to help the organization achieve its goals by aligning team members and clearly defining their roles. Additionally, it promotes efficient and smooth operations within the organization.

2.11 Debt Ratio

The leverage of a company is quantified by the debt ratio, which compares the total debt to the total assets. Higher ratios indicate greater leverage, with values above 2.0 considered riskier, while ratios around 1.0 are generally safer. Industries like banking often exhibit higher debt-to-equity ratios due to their financial structures. It shows the share of debt-funded firm assets. From a risk perspective, a debt ratio below 0.4 is generally preferable, as it indicates lower financial risk, while a ratio above 0.6 can make obtaining additional financing more difficult. Although a lower debt ratio implies greater creditworthiness, an excessively low level of debt can also pose risks, potentially limiting growth and operational flexibility.

2.12 Equity Ratio

A financial indicator of a company's degree of leverage is the equity ratio. By looking at assets in relation to equity, it assesses a company's debt management and funding of its assets. Since it implies that the business mostly depends on borrowed money to buy its assets, a low equity ratio is sometimes seen as an indication of more financial risk. On the other hand, a greater equity ratio shows that the business has minimal or no debt, therefore efficiently funding its assets. Companies having equity ratios of 0.50 or less are said to be leveraged, while higher valuations reflect lower leverage. On the other hand, businesses with equity ratios above 0.50 are deemed conservative, as they depend more on shareholder equity for financing rather than debt (Lam, 2002).

2.13 Debt to Equity Ratio

The D/E ratio quantifies a company's dependence on debt by contrasting its total liabilities with shareholder equity. The calculation involves dividing total liabilities by shareholders' equity, utilizing both data from the company's balance sheet. This ratio is a key measure of financial leverage in corporate finance (Myers, 1977). The debt-to-equity ratio is especially advantageous for comparing firms within the same sector or monitoring fluctuations in a company's dependence on debt over time, as it varies by industry (Nurfadillah, 2016). A higher D/E ratio within similarly sized companies indicates greater financial risk, while a very low ratio might suggest limited use of debt for business expansion. Since long-term liabilities generally carry more risk than short-term ones, investors frequently modify the D/E ratio to concentrate just on long-term liabilities for a more refined analysis (Nuryani & Sunarsi, 2020).

2.14 Short-Term Debt

Short-term debt represents the financial obligations a company must settle within one year. Common examples include accounts payable, employee wages, lease payments, short-term bank loans, and income taxes owed. The quick ratio is the predominant metric for assessing short-term liquidity and is essential in evaluating a company's creditworthiness (Diamond et al., 2001). Short-term bank loans are the initial and frequently most prevalent sort of short-term debt for businesses. These loans are documented on a company's balance sheet when quick financing is required to satisfy working capital demands. A short-term loan is often utilized to bridge the interval between longer financial alternatives and is also referred to as a "bank plug" (Benmelech & Dvir, 2013). Typically used to finance inventories, accounts receivable, and short-term obligations like payroll, corporations issued unsecured, short financial instruments known as commercial paper. Rarely do maturities on commercial paper exceed 270 days. Commercial paper is advantageous since these obligations do not need to be registered with the SEC, and typically, they reflect current market interest rates by issuing them at a discount from their face value (Gul & Goodwin, 2010).

2.15 Long-Term Debt

Long-term debt denotes financial liabilities with a maturity exceeding one year and is typically managed differently from short-term debt. For the issuer, it represents a liability to be repaid, while for debt holders, such as bondholders, it is considered an asset. Long-term debt plays a key role in business solvency ratios, which stakeholders and rating agencies use to assess solvency risks (Alfaro & Kanczuk, 2009). When issuing long-term debt, organizations evaluate factors such as the repayment schedule and interest rates. Investors purchase long-term debt to benefit from interest payments, although they often view the maturity date as a liquidity risk (Cochrane, 2001). Additionally, fluctuations in market interest rates and the terms of the debt, whether fixed or floating, can significantly influence the valuation and total obligations associated with long-term debt over its lifespan.

2.16 Shareholders' Funds

The term "shareholders' funds" denotes the segment of a company's equity that belongs to its shareholders (Kong et al., 2024). Regarding the liquidation of a company, shareholders' funds represent the amount available to stakeholders after all debts have been settled. This capital sum is the rightful claim of the shareholders. Assessing shareholders' funds is a useful way to evaluate a company's financial stability, providing an estimate of the potential amount shareholders might receive in the event of liquidation. To compute shareholders' funds, we remove total liabilities from total assets as represented on the company's balance sheet. Furthermore, if the financial data of subsidiaries is included in the balance sheet, the value of minority interests must also be excluded from the calculation. Investor funds are a form of outside capital (Nwobu, 2016). By employing this equity, businesses can make significant purchases without spending operational resources. Operational capital is most frequently used for ongoing business expenses and is derived from regular business operations. Businesses will also keep a part of operational capital to increase short-term liquidity. The amount of equity a firm uses to purchase the assets required to run its operations will be revealed by an investor's study of the balance sheet of the company. Leverage is created, and as a result, the business must pay investors back for the assets they purchased

(Fasina et al., 2012). The shareholder-equity ratio is a frequently used formula to calculate this leverage.

2.17 Return on Assets

ROA is a critical performance statistic that compares a company's profitability to its total assets. Simply put, ROA is a financial statistic that measures how effectively a firm makes profit from its assets. To compute net income, divide it by the company's total assets. It provides a manager with knowledge of how effectively a company manages its resources to produce profits (Al-Taani, 2013). Generally, people consider a ROA above 5% to be good, and those exceeding 20% to be excellent. However, ROA comparisons are most meaningful within the same industry. For example, a software company typically has fewer assets than an automobile manufacturer. This discrepancy can lead to an inflated ROA for the software company, potentially creating misleading comparisons across industries (Petersen & Schoeman, 2008).

2.18 Return on Equity

ROE is a financial ratio that evaluates a company's net profit as a percentage of its shareholders' equity. It evaluates both the profitability of the company and its efficiency in generating revenue from equity financing. A higher ROE suggests that the company is more efficient in transforming equity into earnings (Arditti, 1967). In essence, ROE compares a company's profitability to the book value of its shareholders' equity. Net income is divided by equity's book value, which yields ROE, or return on equity. This ratio is computed using net income after taxes. You can calculate the company's total equity by subtracting liabilities from net assets. It demonstrates how effectively a corporation can leverage its investment to achieve earnings growth (De Wet et al., 2007). ROE is particularly useful for evaluating the performance of businesses operating in the same sector. When valuing stocks, ROE is utilized in conjunction with other financial statistics (Amidu, 2007). Depending on the industry, ROE ratios might range from relatively high to relatively low.

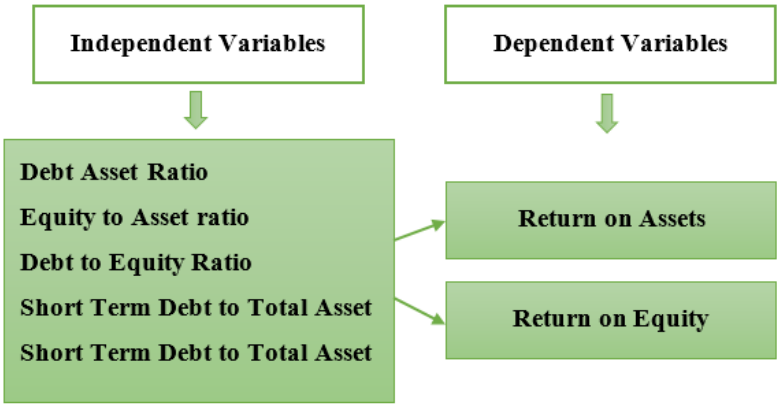
3. Methodology

This research aims to evaluate the effect of capital structure on the performance of DSE-listed companies, employing quantitative methods to achieve this objective. The total number of businesses in every industry in Bangladesh makes up the study's population. However, the enterprises listed on the DSE are the target population. DSE now has 348 listed stocks in total. The financial performance and capital structure of 20 companies, which are excluded from the complete list, are to be assessed from 2019 to 2023. A convenience sampling method was used to choose these companies. Dhaka Stock Exchange is the target population (DSE) that has 348 listed stocks in real. From that, 20 firms are selected. Secondary data of 20 firms' performance from the year 2019 to 2023 (5 Pharmaceuticals and Chemicals Industries, 5 Cement Industries, 5 Engineering Industries, and 5 Ceramic Industries) has been used. Sample size is calculated by multiplying 20 by 5, which equals 100. In general, this analysis concentrates on two key areas: company performance and capital structure. Measures of capital structure include the debt ratio, equity ratio, debt-to-equity ratio, short-term debt, long-term debt, and shareholders' money. In contrast, company performance is judged using indices such as ROE and ROA. First, descriptive analysis is used to find out the higher mean to know which variable is most influenced by capital

structure. These analyses fulfill the primary objectives of the study. After that, correlation analysis is used to find out how variables correlate with each other. Whether they are at a significant level or not. Then, regressions are used to find out the secondary objectives of this study. Additionally, researchers can statistically quantify the association between a company's capital structure—its mix of debt and equity—and its financial performance metrics—like return on equity or profitability—by using regression and correlation analysis. This allows them to identify potential patterns and determine the direction and strength of this relationship over a sample of firms, making these methods suitable for studying the relationship between capital structure and firm performance (Essel, 2024).

3.1 Conceptual Framework of the Study

Figure 1: Conceptual Framework of the Study



Source: Authors' Compilation.

The research employed the subsequent hypotheses to assess the impact of capital structure on a company's performance (Figure 1):

H_1: The capital structure significantly influences ROA.
H_2: The capital structure significantly influences ROE.

3.2 Variables

Table 1: Dependent and Independent Variables

Nature of variables		Explanation	Calculation
Independent	Capital Structure	Debt ratio	Total debt/Total assets
		Equity ratio	Total equity/Total assets
		Debt to equity ratio	Total debt/ Total assets
		Short term debt	Current assets / Current liabilities
		Long Term Debt	Long term debt / Total assets

Dependent	Return on assets	Net income/ Total assets
	Return on equity	Net income / Equity

Source: Authors' Compilation.

4. Analysis and Interpretation

4.1 Descriptive Statistics

Descriptive statistics were utilized to examine the capital structure and firm performance of companies listed on the DSE in Bangladesh.

Table 2: Descriptive Analysis

	Mean	Std. Deviation
Debt to asset ratio	.53237	.20722
Equity to asset ratio	.46763	.20722
Debt to equity ratio	1.81339	1.85316
Short term debt to Total asset	.38379	.166244
Long-term debt	.14858	.121805
Return on Equity	.07924	.142666
Return on Assets	.04468	.057945

Source: Estimated.

The selected firms' debt-to asset ratio mean is .53, and the standard deviation is .21. Mean of equity to asset ratio is .46, and the standard deviation is .21. Debt to equity ratio of selected firms mean is 1.81, and standard deviation is 1.85. Short-term debt to total assets of selected firms mean is .38, and the standard deviation is .17. Long-term debt to total assets of selected firms mean is .15, and the standard deviation is .12. Return in equity mean is .08, and the standard deviation is .14. Return on Asset of selected firms mean are .04 and the standard deviation is .06 (Table 1 and 2).

4.2 Correlation Analysis

A linear correlation analysis assessed the relationship between capital structure and corporate performance for firms listed on the DSE in Bangladesh.

4.2.1 Return on Equity

In this study, Pearson correlation analysis indicated a positive relationship between the debt ratio and ROE; nevertheless, the correlation lacked statistical significance at the 0.05 level, suggesting an absence of meaningful association between the two variables. The debt-to-equity ratio demonstrated an inverse relationship with ROE at a value of -0.026, but this

correlation was also insignificant. Additionally, the equity-to-asset ratio exhibited a strong negative correlation with ROE at -0.914, while the debt-to-equity ratio displayed a significant correlation with ROE at a value of 0.000. The short-term debt-to-total-asset ratio was negatively correlated with ROE at -0.202 and was statistically significant at a level of 0.04. On the other hand, the long-term debt-to-total-asset ratio was negatively correlated with ROE at -0.052, but this correlation was not statistically significant (Table 3).

Table 3: Correlations-1

		Equity to Asset ratio	Debt-to-equity ratio	Short-term Debt to Asset ratio	Long term Debt to Asset ratio	Return on Equity
Equity to Asset ratio	Pearson Correlation	1				
	Sig. (2-tailed)					
Debt to Equity ratio	Pearson Correlation	-.052	1			
	Sig. (2-tailed)	.604				
Short term Debt to Asset ratio	Pearson Correlation	.092	.676**	1		
	Sig. (2-tailed)	.364	.000			
Long term Debt to Asset ratio	Pearson Correlation	.045	.491**	.012	1	
	Sig. (2-tailed)	.659	.000	.906		
Return on Equity	Pearson Correlation	-.914**	-.026	-.202*	-.052	1
	Sig. (2-tailed)	.000	.801	.044	.604	

Source: Estimated. **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

4.2.2 Return on Asset

The research employs ROA as a performance indicator. The research indicates a positive association between the debt ratio and ROA at the 0.05 significance level. The debt-to-equity ratio exhibits a negative correlation of -0.060, which lacks statistical significance. The equity-to-asset ratio exhibits a substantial negative correlation of -0.841. The short-term debt-to-total-asset ratio exhibits a negative connection with ROA of -0.137, and the long-term debt-to-total-asset ratio shows a negative correlation of -0.166; both correlations are statistically insignificant (Table 4).

Table 4: Correlations-2

		Equity to Asset ratio	Debt to Equity ratio	Short-term Debt to Asset ratio	Long term Debt to Asset ratio	Return on Asset
Equity to Asset Ratio	Pearson Correlation	1				
	Sig. (2-tailed)					
Debt to Equity ratio	Pearson Correlation	-.052	1			
	Sig. (2-tailed)	.604				
Short term Debt to Asset ratio	Pearson Correlation	.092	.676**	1		
	Sig. (2-tailed)	.364	.000			
Long term Debt to Asset ratio	Pearson Correlation	.045	.491**	.012	1	
	Sig. (2-tailed)	.659	.000	.906		
Return on Asset	Pearson Correlation	-.841**	-.060	-.137	-.166	1
	Sig. (2-tailed)	.000	.550	.175	.099	

Source: Estimated. **. Correlation is significant at the 0.001 level (2-tailed)

4.3 Impact of Capital Structure on Firm's Performance

Multiple regression analysis was used to determine the impact of capital structure on company performance.

4.3.1 Impact of Capital Structure on Return on Equity

With a multiple correlation coefficient (R) of 0.922, Table 5 illustrates a substantial positive correlation between Return on equity (ROE) and capital structure. The capital structure variables account for 85% of the variance in ROE, according to the regression analysis's R Square value of 0.850.

Table 5: Model Summary

Model	R	R Square	Adjust R Square	Std, Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.922[a]	.850	.843	.056457	.850	134.296	4	95	.000

a. Predictors: (Constant), Long-term debt to asset ratio, Short-term debt to asset ratio, Equity to asset ratio, Debt to equity ratio

Source: Estimated.

The ANOVA table (Table 6) reveals an F-ratio of 134.296, which is significantly greater than 1.00. This signifies that the enhancement obtained from the regression model is considerably more than the model's inaccuracies. The outcome is statistically significant, indicating a p-value of 0.00, confirming that the data strongly supports the model. In other words, the capital structure model significantly enhances the ability to predict the outcome variable, Return on Equity (ROE). This result demonstrates a significant impact of capital structure on ROE. Therefore, the null hypothesis ($H1_0$) is rejected, while the alternative hypothesis ($H1_1$) is accepted.

Table 6: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.712	4	.428	134.296	.000[a]
	Residual	.303	95	.003		
	Total	2.015	99			

Source: Estimated. a. Predictors: (Constant), Long Term Debt to Asset Ratio, Short Term Debt to Asset Ratio, Equity to Asset Ratio, Debt to Equity Ratio.

b. Dependent Variable: Return on Equity

From Table 7, the independent variables Collinearity Statistics test is not <0.01 and VIF >10. So, it can be said that the proposed model is free from Collinearity issues. The regression equation for predicting Return on Equity with Capital Structure indicators can be developed as:

Return on Equity,

$= \alpha 0 + \beta 1\ EA + \beta 2\ DE + \beta 3\ STD + \beta 4\ LTD$ …….. (1)

= (.416) + (-.617*EA) + (.003*DE)+ (-.127*STD)+ (-.037*LTD) …….(2)

The Table 7 and the Equation 2 indicate that debt to equity, debt to funds, and interest coverage ratio have a negative influence on earnings per share. In other ways, it reveals the significant relationship between the variables.

Table 7: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.416	.022		19.308	.000		
	Equity to Asset Ratio	-.617	.028	-.897	-21.746	.000	.931	1.075
	Debt to Equity Ratio	.003	.006	.043	.584	.561	.292	3.425
	Short term debt to Asset ratio	-.127	.055	-.148	-2.307	.023	.384	2.603
	Long term debt to asset ratio	-.037	.063	-.032	-.592	.555	.549	1.820

Source: Estimated. a. Dependent Variable: Return on Equity

4.3.2 Impact of Capital structure on Return on Asset

With a multiple correlation coefficient (R) of 0.853, Table 8 shows that capital structure and ROA are positively correlated. With a R Square value of 0.727 from the regression study, capital structure is responsible for almost 72% of the variance in ROA.

Table 8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.853[a]	.727	.716	.030894	.727	63.316	4	95	.000

Source: Estimated. a. Predictors: (Constant), Long term Debt to Asset Ratio, Short term Debt to Asset Ratio, Equity to Asset Ratio, Debt to Equity Ratio

The ANOVA table (Table 9) reports an F-ratio of 63.316, significantly exceeding 1.00, with a p-value of 0.000, confirming the model's statistical significance. These results indicate that the capital structure model effectively predicts Return on Assets (ROA), validating a significant impact. Consequently, the null hypothesis ($H1_0$) is rejected, and the alternative hypothesis ($H1_1$) is accepted.

Table 9: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.242	4	.060	63.316	.000[a]
	Residual	.091	95	.001		
	Total	.332	99			

Source: Estimated. a. Predictors: (Constant), Long-term debt to asset ratio, Short-term debt to asset ratio, Equity to Asset ratio, Debt to equity Ratio

b. Dependent Variable: Return on Asset

From Table 10, the regression equation for predicting capital structure indicators can be developed through Return on Asset. The table and the equation indicate that capital structure has a negative influence on ROA. In other ways, it reveals the significant relationship between the variables. From Table 10, the independent variables Collinearity Statistics test is not <0.01 and VIF >10. So, it can be said that the proposed model is free from Collinearity issues. The regression equation for predicting Return on Equity with Capital Structure indicators can be developed as:

Return on Asset,

$= \alpha 0 + \beta 1\ ER + \beta 2DE + \beta 3\ STD + \beta 4\ LTD$

= (.170) + (-.232*ER) + (000*DE) + (-.020*STD) + (-.060*LTD) …….. (3)

Table 10: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.170	.012		14.407	.000		
	Equity to Asset Ratio	-.232	.016	-.830	-14.949	.000	.931	1.075
	Debt to Equity Ratio	.000	.003	-.004	-.042	.966	.292	3.425
	Short term debt to Asset ratio	-.020	.030	-.056	-.650	.518	.384	2.603
	Long term debt to Asset ratio	-.060	.034	-.126	-1.744	.084	.549	1.820

Source: Estimated. a. Dependent Variable: Return on Asset.

5. Findings and Discussion

This study evaluates the impact of capital structure on the performance of companies listed on the DSE, utilizing six measures of capital structure and two indicators of performance. The mean debt-to-asset ratio is 0.53 (SD = 0.21), whereas the mean equity-to-asset ratio is 0.47 (SD = 0.21). The mean debt-to-equity ratio is 1.81 (SD = 1.81). The short-term debt-total-asset ratio has a mean of 0.39 (SD = 0.17), whereas the long-term ratio is 0.15 (SD =0.13). The performance metrics indicate a mean ROE of 0.07 (SD= 0.14) and a mean ROA of 0.04 (SD = 0.06). These variances underscore disparities in capital structure and performance among enterprises and between years, the analysis demonstrates a substantial correlation between capital structure and business performance at the 0.05 significant level, indicating that alterations in capital structure directly influence business performance, with both positive and negative correlations identified between dependent and independent variables. A multiple correlation coefficient (R) of 0.922 indicates a weakly positive relationship between capital structure and ROE, according to the regression study. About 85% of the variation in ROE may be explained by capital structure, according to the R Square value of 0.850. The ANOVA table shows an F-ratio of 134.296, which is significantly greater than 1.00, indicating that the improvement achieved by fitting the regression model far exceeds the inaccuracies within it. Additionally, the result is statistically significant, with a p-value of 0.00, demonstrating that the data strongly supports the model. This confirms that the capital structure model significantly enhances its ability to predict ROE. The results lead to the rejection of the null hypothesis ($H1_0$) and the acceptance of the alternative hypothesis ($H1_1$), demonstrating a significant influence of capital structure on ROE. According to the regression analysis, ROE may be predicted by capital structure variables. Nevertheless, the findings also indicate that capital structure has a detrimental impact on ROE. With a multiple correlation coefficient (R) of 0.853 and an R Square value of 0.727, the analysis shows a substantial positive correlation between capital structure and ROA, meaning that capital structure accounts for 72% of the variance in ROA. The capital structure model greatly increases its explanatory power and accurately predicts ROA, as evidenced by the ANOVA table's F-ratio of 63.316 and a statistically significant p-value of 0.033. The alternative hypothesis ($H1_1$) is accepted, and the null hypothesis ($H1_0$) is rejected as a consequence of the results, which demonstrate a considerable influence of capital structure on ROA. Although the regression equation indicates that capital structure has a detrimental impact on ROA, there is often little correlation between the variables. Additionally, the analysis identifies statistically significant variations in performance indicators across firms based on capital structure.

6. Conclusion

In today's corporate world, capital structure is a very important topic. Developed nations have previously made an effort to adhere to the rules of healthy capital structure. Developing and emerging economies are attempting to implement capital structure procedures in their businesses in response to the global demand. Bangladesh is a bright nation that is growing economically at a breakneck pace. In this way, the country is also trying to establish the mechanism of capital structure in the firms to reap the benefits from it. The goal is to ultimately improve the economy and have a beneficial impact on the performance of the businesses. The enterprises are expected to adhere to capital structure regulations and standards in Bangladesh. Businesses are attempting to adhere to these rules as well. The critical question addressed in

this study is whether the performance of firms improves or deteriorates by adhering to established capital structure principles. To investigate the problem, this study uses frameworks including MM's theory, agency cost theory, trade-off theory, and pecking order theory. The results support the expectations of the trade-off theory by demonstrating a positive correlation between company size, growth rate, and capital structure among Bangladeshi businesses listed on the DSE. According to the research, capital structure explains around 72% of the variation in ROA and 85% of the variation in ROE. Although the study shows that capital structure has both beneficial and detrimental effects on business performance, the findings show that capital structure metrics do not significantly affect Bangladeshi enterprises' overall performance. Instead, the effects and connections are significantly weaker. These findings imply that additional research on why the impacts and linkages are so weak should be done. Additionally, research needs to be done on how to improve the impact of capital structure on the performance of Bangladeshi listed on DSE. Due to time constraints, this study is organized quickly. To produce a more realistic scenario picture, additional research can be conducted with more industries, financial years, and variables. According to the findings, corporate managers should be cautious when choosing how much debt to use to finance their companies and should use less debt overall. By offering actual data on how capital structure affects business performance in Bangladesh's DSE listed companies, an emerging market, this study adds to the body of knowledge in corporate finance. The results of this study may help financial managers create the right capital structure for their companies, which will improve the value and performance of the company. It might also assist investors in choosing what to invest in more wisely. The capital market in Bangladesh is becoming more efficient these days, and individuals are realizing the value of information-based financing and investment, which is causing gaps to be gradually fixed. The idea is that as markets become more efficient, theories of capital structure can be put to the test. Lastly, the same theories can be evaluated in the future with even larger sample sizes of firms. No study has found out without limitations. Some limitations have been found based on the study**.** Firstly, capital structure and business performance are internal company activities, which is why most firms do not disclose their true financial information. Secondly, time constraints exist because of these reasons, and research is organized quickly, which cannot produce accurate results. Another matter is the lack of relevant information, which must be assumed. Additionally, various performance indicators are available to assess the firm's performance. This study's aspect may be insufficient. This study is based on secondary sources; the majority of the data is collected from the company's annual reports. However, some of the data is not readily available in the annual report, and in some situations, the corporation may not reflect the essential data honestly.

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