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Effect of capital structure on economic success of the DSE-listed firms in Bangladesh: A moderating role of COVID-19 pandemic

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ABSTRACT

A firm's prudent use of debt and equity is an essential indicator of robust financial management. The study empirically evaluated the impact of capital structure (CS) on the economic performance of Bangladeshi companies from 2010 to 2022. It uses data from 1300 observations collected from 100 DSE-listed firms from 10 leading sectors of the economy. The outcome variables included ROE, ROA, EPS, and Q ratios. The explanatory variables were the capital structure proportions of short-term liabilities (STL), long-term liabilities (LTL), and the firm growth rate. The firm size was regarded as the control variable. The regression results revealed that STL negatively impacted ROA, ROE, and, most remarkably, EPS, while STL failed to impact Tobin's Q. LTL, on the other hand, had a positive impact on EPS and a negative impact on Tobin's Q, indicating that Bangladeshi firms do not exhibit overvaluation. STL and LTL positively impacted corporate financial performance during the pandemic compared to the pre-pandemic period. The implications of these findings are crucial for policymakers and corporate leaders. Organizations must demonstrate caution when employing short-term liabilities, especially during stable periods. This study underscores the imperative for industry-specific strategies concerning capital structure, as sectoral differences affect leverage outcomes.

Contribution/ Originality: This study empirically examines the consequences of short—and long-term liabilities on business performance across ten Bangladeshi industries over a decade, including pandemic effects. In contrast to earlier research, this one focuses on the impact of leverage in certain industries and how different types of debt affect different financial metrics. This can help you make more effective capital strategies.

1. INTRODUCTION

The combination of external debts and owners' capital employed to finance an enterprise's assets and operations, commonly known as Capital Structure (CS), is a crucial aspect of financial decision-making. In a firm's CS, debts represent the short-term and long-term funds collected from banks and financial institutions, which issue bonds, debentures, or working finance. On the other hand, equity denotes owners' investment and accumulated earnings. Appropriate CS (debt-equity ratio) decisions vary from firm to firm. Some firms keep a higher debt ratio, while others keep a more significant equity ratio. However, firms with high debt levels grow to be excessively leveraged, more speculatory, and riskier (Dey, Hossain, & Rezaee, 2018). Firms make such decisions to maximize shareholders' value

and minimize the weighted average cost of capital (WACC). For an enterprise, owner's equity is a costly but safer and permanent source of capital.

Thus, firms obtain financing from debt sources for a fixed term, which is more cost-effective than equity financing. There is still debate among academic and business circles about whether leveraging higher debt enhances the risk for investors and the company, thus leading to financial distress or default in the worst cases. On the other hand, the debate primarily hinges on factors such as governance status, business growth, capacity, technological superiority, product marketability, and the economic environment. Therefore, choosing a desirable CS mix that can maximize stockholders' worth and, at the same time, minimize the WACC is essential. However, no difficult and fast formula is available to fix the optimal debt-equity ratio in the corporation's CS. This led us to investigate the relationship between CS and corporate economic performance, specifically focusing on companies listed on the DSE in Bangladesh.

Finance has historically placed significant emphasis on the corporate social responsibility (CS) of DSE-listed firms, particularly in relation to its impact on economic performance. Many studies have examined the correlation between capital structure and corporate success (Habimana, 2014; Muhammad & Shah, 2014; Nguyen & Nguyen, 2020; Omar & Naim, 2023; Suh & Lee, 2023) yet substantial gaps persist, particularly in emerging economies such as Bangladesh. The current literature frequently neglects the distinct problems encountered by companies listed on the DSE, especially during extraordinary occurrences like the COVID-19 epidemic (Al-Tamimi & Al-Awadhi, 2021; Nguyen, Lee, Vu, & Tran, 2023; Zhang, Hu, & Ji, 2020). The prior studies neglect to include the moderating influences of external shocks on capital structure decisions, resulting in conclusions that may be inapplicable in a dynamic economic context. This study seeks to rectify these deficiencies by examining the combined impact of capital structure and the COVID-19 pandemic on the economic performance of enterprises listed on the Dhaka Stock Exchange Limited (DSE). This paper contends that a comprehensive analysis of the pandemic's impact on capital structure dynamics is crucial for scholars and practitioners in the fields of finance and economics, particularly those interested in capital structure, economic performance, and the impact of external shocks on financial decisions in emerging markets. This research, with its unique focus on the DSE-listed companies and the COVID-19 pandemic, is directly relevant to the fields of finance and economics and contributes to the literature by offering empirical evidence demonstrating the pandemic's moderating effect and implications for capital structure optimization in emerging markets.

2. LITERATURE REVIEW

According to the neoclassical theory of factor demand, a company's target is to make the best use of its stockholders' equity. It poses numerous intriguing questions about the role of company regulators. Specifically, the assumption is that the stockholders are risk averse, leading to the disregard of any potential risk regarding the enterprise's required rate of return. The corporation lacks a well-thought-out financial policy, as it does not issue debt securities or pay taxes. The corporation also works in a highly uncertain marketplace with symmetrical data, emphasizing ideal capital markets. The theorem of Modigliani and Miller (1958) which established that a firm's market value is independent of its CS and dividend policy in a perfect capital market, forms the foundation of much fiscal decision-making. As a result, the firm's accurate decisions have no bearing on financial decisions. Therefore, the markets decide the firm's capital cost. As we can see, outside backing, such as borrowing and issuing additional ordinary shares, is an excellent replacement for inside funding, represented by reserved earnings and cash flows, in a Modigliani-Miller setting.

Credit rationing is the equilibrium that arises from the complex imbalance between investors and borrowers (Stiglitz & Weiss, 1981). Subsequent research revealed that the company's balance sheet profile reflects its creditworthiness without fully collateralized credits, rendering the ideal substitutability of internally and externally generated funds ineffective. Consequently, a cost disparity exists between internal and external finances, termed the

"external finance premium," with the former being significantly more costly. This leads to the "pecking order," or the financial hierarchy.

The Pecking Order Theory elucidates the lower leverage levels of profitable firms. A profitable corporation utilizes retained earnings more extensively, thereby reducing the need for external financing. Businesses struggling to achieve profitability tend to incur debt and seek external investment to sustain their operations. A negative correlation between indebtedness and profitability is anticipated. Mayer (1990) provides evidence for this hierarchy, demonstrating that retained earnings are the primary funding source for firms in the top eight industrialized nations, followed by borrowing and equity financing (issuing additional shares). Vermeulen (2002) substantiates the hierarchy by illustrating that firms in France, Italy, Germany, and Spain with deficient financial statements, and consequently more difficulty securing external finance, depend more significantly on internal liquidity.

Mayer (1990) and Vermeulen (2002) offer significant insights into the Pecking Order Theory, yet their research reveals multiple deficiencies. Primarily, they concentrate on developed markets, which may need to adequately represent the capital structure dynamics in emerging nations such as Bangladesh, where access to finance and market conditions vary considerably. Furthermore, these studies neglect the influence of exogenous shocks, such as economic crises or pandemics, which can significantly modify organizations' financing patterns. This restricted scope constrains the applicability of their findings in many circumstances. Furthermore, dependence on historical data may fail to reflect the evolving financial practices, especially in dynamic markets. In the end, both studies focus too much on profitability and not enough on other factors that affect capital structure decisions, such as firm size, industry characteristics, and regulatory environments. Looking at these other factors could help us understand how capital structure changes in different situations.

Trade-off theory is another widely recognized theory of capital structure. Modigliani and Miller (1958) initiated the modification of the irrelevance theorem to incorporate taxes, in line with previous research. According to trade-off theory, firms ascertain the optimal capital structure to equilibrate the tax benefits of debt financing, commonly referred to as tax shields. Despite its significance, the trade-off idea requires improvement. It primarily presumes that companies can effortlessly reconcile tax advantages with bankruptcy expenses, disregarding the intricacies and disparities in organizations' risk profiles. Furthermore, the theory frequently neglects the fluid characteristics of capital markets, where access to funding can fluctuate swiftly. Research such as Fama and French (2002) emphasizes profitability as a principal determinant of debt utilization. However, it may overlook other essential aspects, including market conditions, industry traits, and managerial inclinations, which can profoundly affect capital structure choices. This limited scope restricts the theory's usefulness in various circumstances.

Most empirical studies that strive to uncover the relationships between CS ratios and the monetary accomplishment of firms can be categorized into two main groups (Vuong, Vu, & Mitra, 2017). The first group employed long-term and short-term funds as response variables and provided an explanation using firm performance indicators. The second group strived to define firm performance factors, using long-term and short-term funds as their explanations. The present study belongs to the second group; thus, it assumes that long-term and short-term funds impact maximizing corporate monetary achievement. Prior researchers such as Akintoye (2008) and Jensen and Meckling (1976) found that long-term and short-term funds impact a firm's monetary performance positively. In contrast, researchers such as Abeywardhana and Krishanthi (2016); Nguyen and Nguyen (2015); Chakraborty (2010); Wald (1999); Rajan and Zingales (1995); Friend and Lang (1988) and Kester (1986) among others, discovered an opposing affinity between both long-term and short-term funds and profitability of a firm. In contrast, Hadlock and James (2002); Gill, Biger, and Mathur (2011); Abor (2005); Vătavu (2015) and Hossain and Nguyen (2016) financing of working capital: A case study of Bangladesh textile mills corporation, Hossain and Akan (1997) and Saeedi and Mahmoodi (2011) found mixed results. They suggested that short-term funds positively influence but long-term funds negatively affect firm performance. Considering the global financial crisis, researchers such as Hossain and Nguyen (2016) and Samour and Hassan (2016) contend that the CS choice of a corporation negatively impacts

financial performance. As the world has overcome the COVID-19 pandemic, the present study holds that COVID-19 does matter for a firm's profitability performance.

From the above arguments, it is clear that some scholars discover an approving link between Financial Leverage (FL) and a firm's performance; some see a negative correlation, while the remaining others find a mixed affinity. Different country perspectives, such as developed and developing perspectives, should be taken into account in the aforementioned divergences. Therefore, the present study is imperative in this matter. The current study aims to clarify the correlation between the amount of long-term and short-term funds in the CS and their influence on the financial performance of DSE-listed companies in Bangladesh. Moreover, it examined whether the relationship between firms in different industry sectors is significant. Finally, it examined how the COVID-19 pandemic moderated the monetary performance of Bangladeshi corporations both before and during the pandemic period.

3. METHODOLOGY

The study aims to evaluate the relationship between leverage in the capital structure and the economic performance of companies listed on the Dhaka Stock Exchange in Bangladesh, an emerging market. The specific objectives are to examine the impact of long-term and short-term indebtedness on enterprises' economic success as measured by ROA, ROE, EPS, and Q ratios and evaluate the effect of the COVID-19 epidemic on the relationship between firms' CS ratios and financial performance.

3.1. Data

The data of 1300 observations were collected from 100 DSE-listed companies from 2010 to 2022. Bangladesh, a developing economy, selected these companies from its 10 main industrial sectors. There are 653 companies enlisted with the DSE, consisting of 18 sectors. For the purpose of the study, we have excluded banks, non-bank financial institutions, corporate bonds, debentures, mutual funds, and insurance companies due to their specific business nature. However, some companies belonging to the jute, telecommunication, paper and printing, and service and real estate industries were also not considered because the total number of companies is below five. Out of the selected ten (10) main industrial sectors, 221 companies (as of June 2022) were omitted due to their listing in the DSE after 2010. Of the remaining 117 companies, 17 did not disclose information for the latest periods. Thus, 100 companies from the ten (10) leading industrial sectors remain the final sample. The data of the selected companies are collected mainly from their audited annual reports ranging between 2010 and 2022. However, we purchased the market capitalization data from the DSE library for the period of 2010-2022. The subsequent table displays the number of firms by industry sector:

Table 1 presents sample companies for 10 main industry sectors.

Table 1. Sample companies by 10 main industry sectors.

Serial no.	Sector	Number of companies	Percentage (%)
1.	Cement	05	05
2.	Ceramics	04	04
3.	Engineering	17	17
4.	Food & allied	12	12
5.	Fuel & power	11	11
6.	Information technology	04	04
7.	Miscellaneous	08	08
8.	Pharmaceuticals & chemicals	16	16
9.	Tannery	03	03
10.	Textile	20	20
Total		100	100

Note: The above table depicts the no. of sample firms involved in the present investigation.

3.2. Empirical Model

The study identified monetary performance as the response variable. Thus, it has used four different financial ratios, such as return on assets (ROA), return on equity (ROE), earnings per share (EPS), and Q ratio, as the indicators of financial performance. The study has used both accounting and market-based methods. Accounting-based measures measure the financial success indicators, such as ROA, ROE, and EPS. However, we estimate another financial performance indicator, the Q ratio, based on the market capitalization of the selected companies. More specifically, we find the ROE ratio by dividing net profit by equity, calculate the ROA by dividing net profit by total assets, and estimate EPS by dividing net profit by the number of outstanding shares. Prior research studies Arhinful and Radmehr (2023) have demonstrated the term EPS as monetary performance. We measure the Q ratio by dividing a company's market capitalization by its overall assets.

The study has considered four independent variables, namely: (i) Debt/Equity, i.e., the D/E ratio to short-range liabilities (STL), (ii) capital structure to long-term liabilities (LTL), (iii) company growth rate, and (iv) company size. The ratio of STL is the ratio of short-term liabilities to entire assets, and the ratio of LTL is found by dividing long-term obligations by the TA and the company's growth rate, which is measured as a percentage alteration of the Total Assets (TA). The study assumed a massive difference in financial operations and performance between large and small companies (Jahid, Rashid, Hossain, Haryono, & Jatmiko, 2020). This study regards the company size as the control variable. The natural logarithm of the overall assets calculates the company size. The regression model below confirms the association between CS and firm performance based on the variables above:

$$ROA_{I,t} = \beta_0 + \beta_1 STD_{I,t} + \beta_2 LTD_{I,t} + \beta_3 Size_{I,t} + \beta_4 Growth_{I,t} + \epsilon_{I,t} \quad (1)$$

$$ROE_{I,t} = \beta_0 + \beta_1 STD_{I,t} + \beta_2 LTD_{I,t} + \beta_3 Size_{I,t} + \beta_4 Growth_{I,t} + \epsilon_{I,t} \quad (2)$$

$$EPS_{I,t} = \beta_0 + \beta_1 STD_{I,t} + \beta_2 LTD_{I,t} + \beta_3 Size_{I,t} + \beta_4 Growth_{I,t} + \epsilon_{I,t} \quad (3)$$

$$Tobin'sQ_{I,t} = \beta_0 + \beta_1 STD_{I,t} + \beta_2 LTD_{I,t} + \beta_3 Size_{I,t} + \beta_4 Growth_{I,t} + \epsilon_{I,t} \quad (4)$$

Where,

$STD_{I,t}$: STL to TA for company I in the year t.

$LTD_{I,t}$: LTL to TA for company I in the year t.

$Size_{I,t}$: Natural logarithm of TA for company I in the year t.

$Growth_{I,t}$: The change in the TA for company I in the year t.

$\epsilon_{I,t}$: Error terms.

The estimation model uses panel data. Therefore, the study primarily performed correlation analysis to determine whether there is an affinity between a company's unnoticed diversity and the model's other control variables. To find out if the fixed-effect or random-effect model is best, panel diagnostics were used. These included the Breusch and Pagan Lagrangian Multiplier LM Test, Pesaran's assessment of cross-sectional independence, the Hausman test, and more. We run the model first for the entire company and then for different industry sectors. Additionally, the study examined the impact of the COVID-19 pandemic on the corporate social responsibility (CS) and financial performance of Bangladeshi firms. The research compared the associations between a company's leverage and its monetary performance in two sub-periods: 2018-19 to 2019-20 (before the pandemic) and 2020-21 to 2021-22 (during the pandemic) to analyze the consequence of the COVID-19 epidemic.

This study particularly warrants the selection of a panel data model due to its unique ability to capture the dynamic changes in the capital structure and financial performance of Bangladeshi enterprises during the COVID-19 epidemic. This model offers several advantages, especially in the context of a global crisis, making it a powerful tool for this research. First, panel data facilitates the analysis of cross-sectional and time-series variations, thereby capturing dynamic changes within businesses over time while accounting for individual heterogeneity. This is essential when evaluating how external shocks, such as the pandemic, affect financial performance variably among firms (Beck, 2001). Second, using diagnostic tests like the Breusch and Pagan Lagrangian Multiplier LM Test and the Hausman test is very important to make sure that the model chosen correctly takes into account any possible

relationships between unobserved company characteristics and the independent variables. This rigorous statistical approach significantly enhances the dependability of the results (Baltagi, 2005; Greene, 2012). Third, the panel data model's capacity to assess sector-specific effects provides powerful insights into the diverse responses of industries to the pandemic. This enables the generation of customized advice for companies across various sectors, empowering them to make informed decisions (Hsiao, 2014; Wooldridge, 2010). Finally, the comparative analysis of pre-pandemic and pandemic periods elucidates temporal variations in leverage-performance correlations, providing a thorough understanding of the impacts of COVID-19. The panel data model's versatility and durability make it an optimal selection for this intricate and multidimensional research context, where a flexible and robust approach is essential.

4. EXPERIENTIAL OUTCOMES

As stated in Table 2, ROE has the lowest mean among the four response variables that estimate a firm's financial performance. The ROE has become negative (-0.29%), and the ROA has become insignificantly positive (0.02%). In contrast, EPS has the highest value (9.37%). Following this, Tobin's Q (1.80%) indicates that Bangladeshi firms do not exhibit overestimation. Contrary to the average value, EPS exhibits the highest level of instability, measuring 38.48% after the ROE, while the unpredictability of ROA is the least significant, at 0.23%, following Tobin's Q of 2.26%. ROE and ROA both have a negative skewness of -35.21 and -9.42, respectively. By contrast, EPS and Tobin's Q have positive skewness. The excess kurtosis of ROE, EPS, and ROA is significantly higher than that of Tobin's Q. Among the four independent variables (STL, LTL, company growth, and size), company growth has the highest mean, followed by size.

On the other hand, the means of STL and LTL do not significantly differ (52% and 20%, respectively). However, among the four independent variables, the standard deviation of company growth is the highest. All four of these variables exhibit a rightward skew. We observe that the growth variable has the highest kurtosis among the four independent variables. Once again, Table 2 shows that the size variable has the lowest kurtosis among all the dependent and independent variables.

Table 2. Descriptive statistics of the regression variables.

Variables	Min.	Max.	Mean	Std. dev.	Skewness	Kurtosis
ROA	-4.05	0.53	0.02	0.23	-9.42	126.22
ROE	-411.73	6.59	-0.29	11.52	-35.21	1257.28
Tobin's Q	-0.50	22.34	1.80	2.26	3.58	19.45
EPS	-141.47	879.63	9.37	38.48	11.10	221.83
STL	0.00	16.35	0.52	1.06	9.79	112.27
LTL	-0.03	9.69	0.20	0.59	9.82	117.67
Growth (%)	-98.99	15182.70	27.02	428.41	34.26	1208.92
Company size	7.54	11.64	9.39	0.78	0.26	-0.40
Valid N (List-wise) 1300						

According to Table 3, ROA has a positive association with ROE, EPS, Q ratio, growth, and size variables, whereas ROA has a negative relationship with STL and LTL variables. Nevertheless, the correlation coefficients among these variables are minor. Similarly, ROE exhibits a negative relationship with STL and LTL variables, while it forms an optimistic alliance with EPS, Q ratio, growth, and size, all of which have low correlation coefficients. Overall, we do not find any high correlation between the response and criterion variables revealed in Table 3. Accordingly, the multi-collinearity issue does not exist in the regression models used in the present research.

Table 3. Results of correlations analysis.

Variables	ROA	ROE	Tobin's Q	EPS	STL	LTL	Growth %	Size
ROA	1							
ROE	0.723***	1						
Tobin's Q	0.446***	0.326***	1					
EPS	0.481***	0.511***	0.176***	1				
STL	-0.217***	-0.002	-0.033	0.096***	1			
LTL	-0.124***	-0.067**	-0.037	-0.090***	0.064**	1		
Growth %	0.285***	0.248***	0.064**	0.194***	0.048*	0.017	1	
Size	0.207***	0.169***	-0.193***	0.284***	-0.173***	-0.269***	0.193***	1

Note: ***. **. *. Correlation is significant at the 0.01, 0.05, and 0.10 levels simultaneously. (2-tailed).

5. RESULTS AND DISCUSSIONS

Table 4 shows that among the four dependent variables, STL slightly negatively affects ROE, ROA, and EPS but has no effect on Tobin's Q. These results are contrary to Vuong et al. (2017); El-Sayed Ebaid (2009) and Chadha and Sharma (2015). Hence, those outcomes suggest that when Bangladeshi corporations use 1% additional short-span liabilities, their EPS falls by -3.63%, and ROE and ROA go down by 0.10% and 0.05%, respectively. In contrast, LTL has a slightly favorable effect on EPS and an adverse effect on the Q ratio. That means an increase in long-term liabilities results in a dramatic increase in EPS but a decrease in the Q ratio with coefficients of 1.02% and -0.20%. These percentages reveal that if Bangladeshi corporations employ 1% more of longer-term liabilities, their EPS boosts by 1.02%, but at the same time, when they use 1% more of short-term liabilities, their EPS goes down by 3.63%. It supports the Modigliani Miller (MM) theory that using more short-term liability enhances the interest and processing costs, thus reducing net income. In Bangladesh, long-term debt is safer because of the political decision to reduce interest rates from 16-18% to 9%. The same pattern is proved for ROA and ROE, but the influence of short-term debts on these ratios is relatively tiny. However, the ROA and ROE variables have no affinity with the company's leverage.

Concerning the growth variable, all constants are statistically significant, indicating that alterations in total assets adversely affect ROE, ROA, EPS, and the Q ratio. Consequently, it may be inferred that the company's advancement is contingent upon its profitability. The size of the company appears to confer business advantages for Bangladeshi firms since all coefficients of ROA, ROE, EPS, and Q ratio have positive correlations with size. The impact of size on financial performance is rather weak, approximately 0.03%, although the findings align with Penrose (1959) theory, which posits that larger organizations gain advantages from economies of scale that positively affect performance.

Table 4. Effect of capital structure on financial performance between 2010 and 2022.

Variables		ROE	ROA	EPS	Tobin's Q
STL	Coefficient	-0.101	-0.049	-3.631	0.001
	t-statistics	-4.550	-5.710	-3.370	0.010
	P-value	0.000***	0.000***	0.001***	0.995
LTL	Coefficient	0.005	-0.001	1.025	-0.200
	t-statistics	0.530	-0.220	2.070	-2.450
	P-value	0.597	0.827	0.038**	0.015**
Growth%	Coefficient	-0.108	-0.034	-3.525	-1.046
	t-statistics	-6.640	-5.440	-4.460	-8.010
	P-value	0.000***	0.000***	0.000***	0.000***
Size	Coefficient	0.001	0.001	0.029	0.004
	t-statistics	6.690	8.850	2.750	2.210
	P-value	0.000***	0.000***	0.006***	0.027**
Prob> F		0.000	0.000	0.000	0.000
Adjusted R^2		0.084	0.102	0.037	0.055
Sample size (n)		1300	1300	1300	1300

Note: ***. **. The result is significant at 0.05, and 0.10 levels simultaneously.

Ultimately, the low adjusted R (ranging from 3.7% to 10.2%) suggests the need to incorporate additional independent variables into the regression models to improve explanatory power. Nonetheless, the current study is not much impacted by the low adjusted R^2, as its objective is not to identify a perfect model for these response variables (see (Vuong et al., 2017)). Rather, the research aims to determine whether a correlation exists between leverage and the financial performance of organizations (see (Vuong et al., 2017)).

The regression outcomes in Table 5 reveal that if we measure the financial success of all businesses in ten main segments by ROA, we find a negative association between ROA and STL. The coefficient is statistically significant in all industry sectors except engineering, information technology, miscellaneous, and textile. The result indicates that companies in those industry sectors experience lower ROA because they require additional short-term liabilities. All these industry sectors are negatively impacted by short-term liabilities, but their significant coefficients are less intense, typically around or less than 1%. Similarly, long-term liabilities have a negative impact on the Return on Assets (ROA) of firms in the Cement, Information Technology (IT), Pharmaceutical, and Chemical sectors, with the exception of the Fuel and Power sectors, which have experienced a positive effect. LTL has negatively impacted other sectors; however, the results are insignificant. LTL and STL most negatively impacted the ROA of the cement sector, followed by the tanning sector. There are two alternative explanations for the negative impact of long-term and short-term liabilities on the ROA. The "pecking order theory" provides the first explanation, suggesting that more profitable firms should not heavily rely on financial leverage. The second explanation shows that a negative sign means that "the farm is over-leveraged and is hurting the company's profitability" (Vuong et al., 2017).

Furthermore, growth in total assets (a predictor of financial performance) positively impacts the ROA of the Engineering, Food and allied, Pharmaceuticals and chemicals, Miscellaneous, Tannery, and Textile sectors. In this case, company size did not positively impact the ROA except for the Ceramic industry. The positive correlation between company size and performance suggests that more prominent firms are likely to perform better. However, the expectations could be more authentic in the Engineering, Food and Allied, Fuel and Power, and Information Technology sectors.

Table 5. Financial performance of 10 industry sectors measured by ROA.

Industries		CEM	CER	ENG	FOA	FUP	IT	MIS	PHC	TAN	TEX
STL	Coefficient	-0.306	-0.150	-0.024	-0.034	-0.191	0.020	0.035	-0.059	-0.138	-0.014
	t-statistics	-6.450	-2.320	-1.520	-1.640	-4.430	0.520	0.620	-2.400	-2.650	-0.810
	P-value	0.000***	0.025**	0.130	0.103*	0.000***	0.604	0.536	0.018**	0.012**	0.419
LTL	Coefficient	-0.542	-0.002	-0.004	0.014	0.060	-0.023	0.019	-0.041	0.019	0.013
	t-statistics	-6.910	-0.120	-0.380	1.310	3.790	-2.480	1.480	-4.230	0.430	1.460
	P-value	0.000***	0.904	0.702	0.193	0.000***	0.017**	0.143	0.000***	0.673	0.147
Growth%	Coefficient	0.043	-0.003	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001
	t-statistics	1.500	-0.050	5.090	2.460	0.820	0.440	2.230	6.220	2.110	3.330
	P-value	0.139	0.957	0.000***	0.015**	0.411	0.659	0.028**	0.000***	0.043**	0.001**
Size	Coefficient	0.001	0.001	-0.069	-0.050	-0.052	-0.099	-0.022	-0.011	-0.052	0.008
	t-statistics	1.620	3.680	-4.930	-2.580	-2.850	-3.920	-0.940	-0.720	-0.950	0.580
	P-value	0.111	0.001**	0.000***	0.011**	0.005**	0.000***	0.351	0.470	0.348	0.561
Prob> F		0.000	0.000	0.000	0.000	0.000	0.007	0.033	0.000	0.002	0.006
Adjusted R^2		0.582	0.329	0.191	0.134	0.277	0.268	0.107	0.281	0.401	0.060
Sample size (n)		65	52	221	156	143	52	104	208	39	260

Note: 10 sectors: Cement (CEM); Ceramic (CER); Engineering (ENG); Food and allied (FOA); Fuel and power (FUP); Information technology (IT); Miscellaneous (MIS); Pharmaceuticals and chemical (PHC); Tannery (TAN); and Textile (TEX).
***. **. *. The result is significant at 0.01, 0.05, and 0.10 levels simultaneously.

The regression outcomes in Table 6 depict the economic performance of the corporations in ten main industry sectors by ROE. Like the regression results of ROA presented in Table 5, the regression upshots of ROE also express a negative association with STL. The coefficient is statistically significant in the Cement, Ceramics, Food and Allied, Fuel and power, and Textile sectors. The most robust negative coefficient is evident in the Cement sector, followed

by the Ceramics sector. That means every 1 % increase in the STL would decrease the ROE by 0.54% in the Cement sector, followed by 0.43% in the Ceramics sector. The regression results, however, show positive and negative coefficients while measuring the effect of LTL on ROE. It shows a negative coefficient in the Cement, Pharmaceuticals & Chemicals sectors. The results show that every 1 % increase in the LTL would decrease the ROE by 1.23% in the Cement sector, followed by 0.06% in the Pharmaceuticals and chemicals sector. Once again, the results demonstrate a significant positive impact of LTL on ROE in the fuel and power, tannery, and miscellaneous sectors. Furthermore, Table 6 regression results suggest a positive influence on growth and performance, as well as size and performance as measured by ROE, across all ten sectors. The influence of size and growth on the ROE is low, as most of the coefficients revolve around less than 1 percent.

Table 6. Financial performance of 10 industry sectors measured by ROE.

Industries		CEM	CER	ENG	FOA	FUP	IT	MIS	PHC	TAN	TEX
STL	Coefficient	-0.537	-0.430	-0.004	-0.169	-0.167	0.002	-0.156	0.116	-0.138	-0.080
	t-statistics	-3.390	-1.850	-0.090	-3.110	-1.640	0.020	-1.390	1.550	0.012	-1.840
	P-value	0.001**	0.071*	0.928	0.002**	0.103*	0.985	0.167	0.124	-0.243	0.067*
LTL	Coefficient	-1.228	0.024	-0.016	0.017	0.068	0.000	0.076	-0.057	0.019	0.015
	t-statistics	-4.680	0.380	-0.560	0.610	1.840	-0.010	3.020	-1.930	0.673	0.630
	P-value	0.000***	0.705	0.575	0.540	0.068*	0.995	0.003**	0.055*	-0.072*	0.526
Growth%	Coefficient	-0.058	0.130	0.002	0.002	0.000	-0.001	0.002	0.001	0.001	0.001
	t-statistics	-0.610	0.760	4.610	2.120	0.690	-0.980	3.020	1.040	0.043	2.660
	P-value	0.547	0.454	0.000***	0.035**	0.489	0.331	0.003**	0.298	0.000***	0.008**
Size	Coefficient	0.003	0.003	-0.124	-0.224	-0.155	-0.044	-0.071	-0.117	-0.052	0.026
	t-statistics	1.950	2.550	-3.070	-4.390	-3.600	-0.690	-1.550	-2.600	0.348	0.770
	P-value	0.056*	0.014**	0.002**	0.000***	0.000***	0.496	0.124	0.010**	-0.164	0.441
Prob> F		0.000	0.070	0.000	0.000	0.000	0.699	0.000	0.016	0.002	0.017
Adjusted R^2		0.427	0.175	0.125	0.244	0.159	0.048	0.249	0.062	0.463	0.050
Sample size (n)		65	52	221	156	143	52	104	208	39	260

Note: 10 sectors: Cement (CEM); Ceramic (CER); Engineering (ENG); Food and allied (FOA); Fuel and power (FUP); Information technology (IT); Miscellaneous (MIS); Pharmaceuticals and chemical (PHC); Tannery (TAN); and Textile (TEX).
***. **. *. The result is significant at 0.01, 0.05, and 0.10 levels simultaneously.

Table 7 summarizes the regression results that depict the influence of leverage, progress, and size on the financial performance of 10 industry sectors measured in terms of EPS. The remarkable observation is that most of the coefficients are too high and statistically significant, except for the growth and size variables. The effect of STL is more pronounced in the Cement sector, followed by the Tannery, Ceramics, and Fuel & Power, Textile, and Engineering sectors. The coefficients are as high as -38.17% in the Cement sector and as low as -3.37% in the Engineering sector. Remarkably, every 1% upsurge in the short-term debt declines EPS by 38.17% in the Cement sector. All other sectors also experience a relatively high impact of STL on EPS, with a decrease ranging from 3% to 13% for every 1% increase in STL. The LTL and financial performance, as measured by EPS, exhibit a similar trend. The coefficient again is the highest in the Cement sector, followed by the Pharmaceuticals & Chemicals sectors. The regression results show that for every 1% increase in LTL decreases, the EPS of the Cement sector is as high as 63.36%, followed by as low as 2.25% in the Pharmaceuticals and chemicals sectors. However, using LTL has positively influenced the financial performance of all other sectors, as measured by EPS. For every 1% increase in LTL, the EPS is the highest at 5.6% in the Ceramics sector, followed by 4.55% in the Food & Allied, 4.45% in the Fuel & Power, and 3.45% in the miscellaneous sectors. These results support the prior research (e.g., (Saeedi & Mahmoodi, 2011; Salim & Yadav, 2012)) that also finds a significant association between long-term liabilities and EPS.

Most of the coefficients are very low, around zero, and not statistically significant when it comes to the impact of growth and size on financial achievement as measured by EPS (Table 7). Exceptions are found in the Engineering and miscellaneous sectors. The coefficient of the growth variable of the two sectors is statistically significant, which

means financial performance (EPS) has been positively influenced by the company growth variable. The growth rate has more positively impacted the EPS in the Cement sector; however, the coefficient is not statistically significant. Again, the size variable has negatively impacted EPS in the Engineering, Miscellaneous, and Textile sectors. The coefficient in these sectors is as high as -8.69% in the miscellaneous sector, followed by -6.36% in the Engineering sector and -4.84% in the Textile sector.

Table 7. Financial performance of 10 industry sectors measured by EPS.

Industries		CEM	CER	ENG	FOA	FUP	IT	MIS	PHC	TAN	TEX
STL	Coefficient	-38.166	-10.780	-3.373	0.640	-10.636	-4.575	5.826	-4.963	-13.929	-3.571
	t-statistics	-5.500	-2.460	-1.830	0.190	-2.270	-2.400	0.830	-1.420	-2.160	-1.930
	P-value	0.000***	0.018**	0.069*	0.852	0.025**	0.021**	0.409	0.158	0.038**	0.055*
LTL	Coefficient	-63.355	5.631	-0.267	4.546	4.448	0.181	3.445	-2.254	-3.135	0.684
	t-statistics	-5.520	4.810	-0.230	2.560	2.600	0.400	2.190	-1.630	-0.570	0.700
	P-value	0.000***	0.000***	0.816	0.012**	0.010**	0.690	0.031**	0.105*	0.576	0.485
Growth%	Coefficient	5.130	0.794	0.077	-0.048	0.014	-0.004	0.062	0.041	0.075	0.015
	t-statistics	1.220	0.240	4.040	-0.990	0.460	-0.190	1.680	1.370	1.440	0.820
	P-value	0.228	0.808	0.000***	0.325	0.645	0.852	0.096*	0.172	0.160	0.411
Size	Coefficient	0.087	0.028	-6.361	0.126	-0.139	1.570	-8.690	0.868	-9.191	-4.835
	t-statistics	1.420	1.110	-3.890	0.040	-0.070	1.280	-3.030	0.410	-1.350	-3.380
	P-value	0.160	0.272	0.000***	0.969	0.944	0.208	0.003**	0.680	0.186	0.001**
Prob> F		0.000	0.000	0.000	0.045	0.016	0.076	0.000	0.068	0.017	0.006
Adjusted R^2		0.487	0.570	0.135	0.067	0.091	0.172	0.224	0.045	0.306	0.059
Sample size (n)		65	52	221	156	143	52	104	208	39	260

Note: 10 sectors: Cement (CEM); Ceramic (CER); Engineering (ENG); Food and allied (FOA); Fuel and power (FUP); Information technology (IT); Miscellaneous (MIS); Pharmaceuticals and chemical (PHC); Tannery (TAN); and Textile (TEX).
***. **. *. The result is significant at 0.01, 0.05, and 0.10 levels simultaneously.

In Table 8 you can see the regression results that show how leverage, growth, and size affect the economic performance of 10 different industry sectors when measured by Tobin's Q. The values in Table 8 demonstrate an adverse effect of STL on Q ratio, which suggests that the more STL of the companies, the lesser is the market value. The impact is most evident in the Cement sector (-2.44%), followed by Tannery (2.27%) and Fuel and power (1.45%). Interestingly, the IT sector shows a positive impact of STL on Tobin's Q. The significant coefficient is 4.92%, which implies that for every 1% increase in STL, this sector's market value has increased by 4.92%. Two other sectors have a positive impact, but their coefficient is not statistically significant. Additionally, there is a negative impact of LTL on Tobin's Q, which implies that the more LTL of the companies, the lesser the market value. The significant coefficient results reveal that, once again, the Cement sector's market value goes down by 3.49% for a 1% increase of LTL, followed by the Tannery sector (2.75%). The significant other coefficients are less than 1%. Remarkably, the Ceramics, IT, Miscellaneous, and Pharmaceutical and chemical sectors show a positive impact, but their coefficient values are not statistically significant except for the IT sector. More interestingly, the IT sector positively impacts both STL and LTL on Tobin's Q.

As for the impact of growth on the market capitalization of companies as measured by Tobin's Q, the Fuel and power, Pharmaceuticals and chemicals, and Tannery sectors show a significant positive impact on Tobin's Q except for the Food and allied sector, which shows a negative impact. However, Tobin's Q and company size are negatively related to some sectors, including the Engineering, Fuel & Power, Information Technology Miscellaneous, and Tannery sectors.

Having a look at the regression results of Panel A presented in Table 9, in the pre-COVID-19 period between the fiscal years 2018-19 and 2019-20, STL has a positive influence on ROA but has an inverse upshot on ROE, EPS, and Tobin's Q of the selected companies. The relationship is significant at a 90% confidence level in ROA but is insignificant in ROE, EPS, and Q ratios. Alternatively, LTL has a positive effect on the performance of Bangladeshi

companies, except for Tobin's Q. However, only the ROA indicator has a significant coefficient. Generally, before the COVID-19 pandemic, short-term liabilities did not contribute much to the performance enhancement of Bangladeshi companies. Alternatively, long-term liabilities contributed much to the performance improvement of Bangladeshi companies before the COVID-19 pandemic.

Table 8. Financial performance of 10 industry sectors measured by Tobin's Q.

Industries		CEM	CER	ENG	FOA	FUP	IT	MIS	PHC	TAN	TEX
STL	Coefficient	-2.441	-1.334	0.155	-0.463	-1.453	4.923	2.170	-0.710	-2.276	-0.006
	t-statistics	-3.070	-0.520	0.390	-1.120	-2.020	3.560	2.200	-1.180	-5.490	-0.020
	P-value	0.003**	0.603	0.699	0.264	0.046**	0.001**	0.030**	0.239	0.000***	0.985
LTL	Coefficient	-3.486	0.379	-0.027	-0.756	-0.898	0.525	0.381	0.088	-2.749	-0.393
	t-statistics	-2.650	0.560	-0.110	-3.510	-3.410	1.610	1.720	0.370	-7.700	-2.260
	P-value	0.010**	0.580	0.914	0.001**	0.001**	0.114	0.089*	0.710	0.000***	0.025**
Growth%	Coefficient	-0.584	-0.193	-0.001	-0.010	0.010	-0.016	0.000	0.015	0.008	0.003
	t-statistics	-1.210	-0.100	-0.250	-1.650	2.240	-1.160	-0.090	2.860	2.460	0.810
	P-value	0.231	0.919	0.801	0.101*	0.027**	0.254	0.929	0.005**	0.019**	0.421
Size	Coefficient	0.004	0.036	-1.800	0.045	-0.676	-3.513	-0.688	-0.429	0.313	-1.388
	t-statistics	0.510	2.480	-5.070	0.120	-2.210	-3.940	-1.710	-1.190	0.720	-5.460
	P-value	0.612	0.017**	0.000***	0.907	0.029**	0.000***	0.091*	0.236	0.480	0.000***
Prob> F		0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.023	0.000	0.000
Adjusted R^2		0.283	0.170	0.119	0.100	0.149	0.500	0.154	0.058	0.687	0.123
Sample size (n)		65	52	221	156	143	52	104	208	39	260

Note: 10 sectors: Cement (CEM); Ceramic (CER); Engineering (ENG); Food and allied (FOA); Fuel and power (FUP); Information technology (IT); Miscellaneous (MIS); Pharmaceuticals and chemical (PHC); Tannery (TAN); and Textile (TEX).
***. **. *. The result is significant at 0.01, 0.05, and 0.10 levels simultaneously.

Additionally, growth has a substantial positive coefficient on all the dependent variables except for EPS, which has an insignificant negative coefficient.

However, the size variable has an insignificant negative association with firms' performance in this period, although it has a significant association only with EPS. The result of the study contradicts the generally accepted notion that "firms with higher growth rates and larger in size will have better performance than smaller and lower growth rate firms" (Baker & Anderson, 2010; Bharadwaj, Varadarajan, & Fahy, 1993; Drew & Tso, 2008; O'Sullivan, 2000).

Table 9 presents the regression results of Panel B, which show the impact of leverage, growth, and size on the economic performance of Bangladeshi companies in the COVID-19 period spanning from 2020-21 to 2021-22. Comparing the results to the pre-pandemic period reveals some deviations. For instance, in the pre-pandemic period, short-term obligations had an adverse coefficient with ROE, EPS, and Q ratio; however, the results dramatically changed during the pandemic.

ROA, EPS, and Q ratios all have positive coefficients. That means that during the pandemic, short-term liabilities positively influenced the monetary performance of Bangladeshi corporations. The same thing is true regarding long-term liabilities, except the ROA. In all the cases, however, the outcomes are not statistically significant. The growth and size show inverse relations with the dependent variables.

During the pandemic, the growth variable had a substantial favorable effect on the ROE, but the size variable significantly and negatively influenced the ROE. Compared to the pre-pandemic period, the size variable positively influences ROA and EPS. The consistency of the results stems from the fact that during the pandemic years, larger companies, due to their diversification, superior management, risk tolerance capabilities, and technological superiority, were more likely to survive and grow than smaller firms.

Table 9. Effect of capital structure on financial performance pre-COVID-19 Epidemic (2018-19 to 2019-20) and during the COVID-19 disease (2020-21 to 2021-22).

Panel A: Pre-pandemic period (2018-19 to 2019-20)					
Variables		**ROE**	**ROA**	**EPS**	**Tobin's Q**
STL	Coefficient	-0.0797	0.0420	-8.7485	-0.9469
	t-statistics	-1.5700	0.3400	-1.7000	-1.1400
	P-value	0.1190	0.7360	0.0930*	0.2590
LTL	Coefficient	0.0249	0.1589	4.6025	-0.9785
	t-statistics	0.8200	2.1300	1.4900	-1.9500
	P-value	0.4160	0.0350**	0.1410	0.0540*
Growth%	Coefficient	0.0008	0.0020	-0.0291	0.0078
	t-statistics	2.7800	2.8200	-1.0000	1.6500
	P-value	0.0070**	0.0060**	0.3220	0.1020*
Size	Coefficient	-0.0110	-0.0591	-8.5352	-0.3891
	t-statistics	-0.2400	-0.5400	-1.8600	-0.5200
	P-value	0.8080	0.5930	0.0660*	0.6020
Adjusted R^2		0.0918	0.1221	0.0837	0.0972
Panel B: During the pandemic period (2020-21 to 2021-22)					
Variables		ROE	ROA	EPS	Tobin's Q
STL	Coefficient	-0.010	0.144	1.932	0.177
	t-statistics	-0.330	1.420	0.570	0.260
	P-value	0.743	0.159	0.570	0.793
LTL	Coefficient	0.004	-0.031	0.080	0.023
	t-statistics	0.250	-0.660	0.050	0.070
	P-value	0.800	0.510	0.960	0.941
Growth%	Coefficient	0.000	0.001	-0.002	-0.003
	t-statistics	1.650	0.700	-0.060	-0.490
	P-value	0.103*	0.485	0.954	0.627
Size	Coefficient	-0.103	0.056	2.550	-1.400
	t-statistics	-2.640	0.420	0.570	-1.590
	P-value	0.010*	0.675	0.569	0.116
Adjusted R^2		0.076	0.034	0.006	0.037

Note: **. *. The result is significant at 0.05, and 0.10 levels simultaneously.

6. CONCLUSION

The study investigates the effect of CS on the monetary performance of DSE-listed firms in Bangladesh from 2010 to 2022. Moreover, it reviews whether the association is significant between companies in diverse industrial segments in addition to the effect of the COVID-19 pandemic on it.

The study is based on 1300 observations collected from 100 DSE-listed companies belonging to 10 main industrial sectors of Bangladesh. The research uses four performance indicators, ROA, ROE, EPS, and Q ratio, as response variables. The independent variables are the two CS ratios of short-term and long-term debts and the company growth rate. The study supposed that large companies perform better than small companies and thus regarded company size as a control variable.

The empirical outcomes indicate that short-term debts harm the improvement of company profitability in Bangladesh. The outcomes reveal that STL has a slightly negative effect on ROA, ROE, and EPS while there is no impact on Tobin's Q. Remarkably, when Bangladeshi companies use 1% more of short-term liabilities, their EPS falls by 3.63%, and ROA and ROE go down by 0.05% and 0.10%, respectively. In contrast, LTL has a slightly optimistic influence on EPS but adversely impacts the Q ratio. The results indicate that when Bangladeshi firms use 1% more long-term liabilities, the firm's EPS increases by 1.02%. However, when Bangladeshi firms increase their short-term liabilities by 1%, their EPS decreases by 3.63%. The ROA and ROE exhibit the same design, yet the impact of short-term obligations on these ratios is negligible. ROA and ROE variables, however, have no relationship with the firm's leverage. There are, however, differences between industry sectors. Some sectors have improved their financial performance using leverage, either STL or LTL, or both. Regarding the growth variable, the results imply that

changes in total assets hurt ROA, ROE, and EPS. The company size also seems to bring business benefits for Bangladeshi companies, as all the coefficients of ROA, ROE, EPS, and Q ratio have optimistic relationships with size.

Regarding the immediate upshot of the COVID-19 pandemic, the empirical results suggest that in the pre-COVID-19 period, STL had an optimistic impact on ROA but had an inverse effect on ROE, EPS, and Q ratio. Alternatively, LTL positively affects the performance of Bangladeshi companies, except for Tobin's Q. However, only the ROA indicator has a significant coefficient. Generally, before the COVID-19 pandemic, short-term liabilities appeared harmful to the performance improvement of Bangladeshi companies, but long-term liabilities contributed much to the performance improvement. The regression results imply that in the pre-pandemic period, short-term liabilities had a negative coefficient with ROE, EPS, and Tobin's Q; however, the results dramatically changed during the pandemic. ROA, EPS, and Tobin's Q all have positive coefficients. That means that during the pandemic, short-term liabilities positively influenced the monetary performance of Bangladeshi corporations. A similar thing is true regarding long-term liabilities, except for ROA. However, the overall results are not statistically significant. The growth and size show inverse relations with the dependent variables. During the pandemic, the growth variable had a significant positive impact on the ROE, but the size variable significantly and negatively influenced it. Compared to the pre-pandemic period, the size variable positively influences ROA and EPS. The results are consistent because during the pandemic years, larger companies, due to their diversification, better management, risk tolerance capabilities, and technological superiority, had a significantly higher likelihood of surviving and growing compared to smaller ones. Moreover, government subsidies and lower interest rates had a positive impact.

6.1. Policy Implications

This research makes a substantial contribution to the literature about the influence of capital structure on financial performance, especially within emerging markets such as Bangladesh. Prior research frequently indicates inconsistent results concerning the impact of debt on profitability (Habimana, 2014; Muhammad & Shah, 2014; Nguyen & Nguyen, 2020; Omar & Naim, 2023; Suh & Lee, 2023). Nevertheless, this study emphasizes the distinct functions of short-term liabilities (STL) and long-term liabilities (LTL) across several economic sectors. The study's results corroborate previous research demonstrating that an over-dependence on short-term debt adversely affects profitability, as evidenced by the detrimental effects on ROA, ROE, and EPS. The study additionally offers novel insights into the moderating role of the COVID-19 pandemic. Unexpectedly, STL enhanced financial performance throughout the epidemic, indicating a transformation in the conventional risk-return dynamics attributed to government subsidies and reduced interest rates. The current literature has frequently neglected the problems encountered by companies listed on the DSE (Al-Tamimi & Al-Awadhi, 2021; Nguyen et al., 2023; Zhang et al., 2020).

The ramifications of these findings are essential for legislators and corporate executives. Companies must exercise prudence when utilizing short-term liabilities, particularly during non-crisis intervals. The favorable performance of more giant corporations throughout the epidemic underscores the significance of scale and management techniques (Baker & Anderson, 2010; Bharadwaj *et al.*, 1993; Drew & Tso, 2008; O'Sullivan, 2000). This study emphasizes the necessity for industry-specific strategies regarding capital structure, as sectoral variations influence leverage results.

6.2. Limitations of the Study and Future Directions

The study has some limitations. Firstly, the study only collected data from 10 main industrial sectors of DSE-listed companies, out of a total of 18 sectors. The study did not consider banks, non-bank financial institutions, corporate bonds, debentures, mutual funds, and insurance companies because the nature of the business and capital structure pattern differs from the selected companies. Secondly, the study did not include companies from the jute, telecommunication, paper and printing, service, and real estate industries, as the total number of companies in these sectors was less than five. Thirdly, the panel data resulted in the exclusion of 104 companies from a total of 221

companies in the ten primary industrial sectors. This was due to their listing in the DSE during various periods after 2010. Fourthly, the need to disclose information for the latest periods prevented 17 of the remaining 117 companies from inclusion. Incorporating them could potentially alter the results. We collected the data of the selected companies primarily from their audited annual reports, a fact that remains true. Future studies could overcome these limitations by conducting similar studies covering banks, non-bank financial institutions, corporate bonds, debentures, mutual funds, and insurance companies. In the present study, we considered 'company size' as the control variable. Future studies should include other control variables in the regression model, such as government policy, interest rate, exchange rate fluctuations, and other variables that might impact financial performance.

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