“Leverage-induced profitability in Bangladeshi firms: An empirical analysis”

AUTHORS	Ummay Mahima Ima Maliha Rabeta Nurun Nahar Mst. Sharmin Sultana Sumi

ARTICLE INFO	Ummay Mahima Ima, Maliha Rabeta, Nurun Nahar and Mst. Sharmin Sultana Sumi (2024). Leverage-induced profitability in Bangladeshi firms: An empirical analysis. *Investment Management and Financial Innovations*, *21*(1), 356-372. doi:10.21511/imfi.21(1).2024.27
DOI	http://dx.doi.org/10.21511/imfi.21(1).2024.27
RELEASED ON	Monday, 18 March 2024
RECEIVED ON	Tuesday, 09 January 2024
ACCEPTED ON	Thursday, 15 February 2024

JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
38	1	22

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Ummay Mahima Ima (Bangladesh), **Maliha Rabeta** (Bangladesh), **Nurun Nahar** (Bangladesh), **Mst. Sharmin Sultana Sumi** (Bangladesh)

LEVERAGE-INDUCED PROFITABILITY IN BANGLADESHI FIRMS: AN EMPIRICAL ANALYSIS

Abstract

The intent of the inquiry is to extensively examine the impact of leveraged financing on firm performance in Bangladesh, revealing the subtle dynamics of leverage-induced profitability and emphasizing the importance of a balanced debt and equity structure for financial sustainability in emerging markets. To explore how financial leverage in an entity's capital structure affects a business's financial sustainability and analyze how it may be used to improve company performance, the study has employed a 22-year data set (2000–2021) from the Dhaka Stock Exchange. To perform Fixed Effect Regression based on the Hausman test, 'Firm performance' is used as the regressand, which was further proxied by Earnings per Share, Return on Assets, Return on Equity, and Basic Earning Power respectively. Alternatively, proxy variables for the regressor 'Financial leverage' include Debt-to-Equity, Debt-to-Asset, Current Liability-to-Equity, and Current Liability-to-Asset. The test has shown that leverage in the capital structure could lead to both favorable and unfavorable effects in emerging countries like Bangladesh. Age, along with Debt-to-Asset, has shown a substantial negative impact on Earnings per Share. Also, the Debt-to-Asset and Current Liability-to-Asset negatively affect the Return on Assets. However, Debt-to-Equity, Current Liability-to-Equity and Size have a substantial positive impact, however Age has a negative effect on Return on Equity. Lastly, Debt-to-Asset has shown a positive impact on Basic Earning Power. The findings suggest that balancing debt and equity is crucial to benefit from leverage-induced profitability, and the models can be extended or amended across industries to expand the study on this persistent leverage-induced profitability argument.

Keywords financial leverage, firm performance, capital structure, Dhaka Stock Exchange, firm age, firm size, basic earning power, Bangladesh

JEL Classification G32, C33, D53, N25

Received on: 9th of January, 2024
Accepted on: 15th of February, 2024
Published on: 18th of March, 2024

Ummay Mahima Ima, Assistant Professor, Department of Finance and Banking, Faculty of Business Studies, Bangladesh University of Professionals, Bangladesh.

Maliha Rabeta, Lecturer, Department of Finance and Banking, Faculty of Business Studies, Bangladesh University of Professionals, Bangladesh. (Corresponding author)

Nurun Nahar, Lecturer, Department of Business Administration, Bangladesh University, Bangladesh.

Mst. Sharmin Sultana Sumi, Lecturer, Department of Finance and Banking, Faculty of Business Studies, Bangladesh University of Professionals, Bangladesh.

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

The term 'Financial Leverage' can be denoted by way of the use of liability to fund a firm's assets where there is an implied anticipation that the capital gain from a newly acquired asset will surpass the expenses associated with borrowing. Conventionally, a firm can choose to finance its assets through debt and equity or a mix of both aiming for an optimum capital structure. This in general helps to facilitate the achievement of an optimum equilibrium that effectively mitigates the expenses and maximizes the value for shareholders. If firms use more debt in the financial architecture, then a greater amount of borrowed funds from creditors results in a greater interest payment that heads towards a lesser amount of net earnings for an enterprise implying inferior productivity. During an economic surge, higher financial leverage proves to be beneficial for a firm. Still, on the contrary, during an economic slump, this fiscal leverage has an adverse outcome on a firm's consolidated turnover.

The seminal work on capital structure by esteemed Nobel laureates Modigliani and Miller (1958) attested that financial architecture does

http://dx.doi.org/10.21511/imfi.21(1).2024.27

not exert any influence on a firm's value. However, a sizable amount of research has revealed that leveraged financing exerts a big impact on any concern's valuation. The supporters of including leverage in the financial architecture (Jermias, 2008; and others) hold the viewpoint that by reason of the inclusion of debt financing in the firm's financial architecture, which is believed to enhance efficiency and provide a tax shelter; there occurs a positive affiliation between the inclusion of liability and the enterprise value. For the divergence, some scholars (Phillips & Sipahioglu, 2004; Qureshi, 2007; and others) hold a different belief of an adverse connotation between the induction of leverage and an enterprise's economic viability.

As far as the published evidence allows us to apprehend, we could reach inconclusive conclusions and data about the link between a concern's value and its economic leverage, therefore lacking a definitive outlook on this correlation. Hence, a thorough and methodical enquiry is obligatory on capital structure and to be more precise, on leverage-induced profitability for firms belonging to different industries. Given the probable causes for these varying results, for instance, diverse sample time frames, sample countries, prototypical stipulations, and hypothesized relations among countless research, this study can help improve the existing theories by exploring the dynamics of leverage-induced profitability in a burgeoning economy as Bangladesh.

1. LITERATURE REVIEW AND HYPOTHESES

The pecuniary literature has conventionally investigated the affiliation between debt obligations and a venture's productivity from the standpoint that the incorporation of debt in an organization's financial edifice induces profitability. Most studies have revealed an undesirable connection in the cases of profitability induced by incorporating leverage.

However, the ideal degree of debt in a funding mix is still not evident to financial administrators, and the extent of incorporation of leverage depends on the discretion of the management. Various researchers used distinct research models in the past to designate the ideal degree of debt in capital construction. The forerunner exertion of Modigliani and Miller (1958) concerning the funding mix facilitated a tangible substance in the advancement of the notional background, which arranged a track for the arrival of concepts in the upcoming times. The theory, popularly known as 'Capital Structure Irrelevance', was grounded on selective assumptions about the atomistic market in the non-appearance of taxes, insolvency costs, and unequal information. It was argued that the allocation of securities held by a firm has no impact on its overall value. Since this pivotal concept was fixated on some impractical conventions, in 1963, the authors revised their 1958 deduction and asserted that in the occurrence of competitive financial markets and taxation of both shareholders and the business, the worth of the leveraged firm would be equivalent to the worth of the unlevered companies.

Baxter (1967) presented a different view that the widespread usage of debt upsurges the likelihood of liquidation as firms are obliged to meet continual interest payments and the principal borrowed. These obligations enhance the firms' probabilities of insolvency and financial distress; therefore, the stockholders claim additional premiums due to this increased risk.

Later in the time, it was suggested that undoubtedly bankruptcy cost coexists with debt financing, but it is fairly insignificant equated to tax benefits (Miller, 1977). In keeping with the 'Trade-off Theory', solvent firms should borrow further with the intention of taking more tax advantages as there exists a presumed positive correlation between leverage and profitability. Many researchers have delivered practical indications to back up this connection (Bonaccorsi di Patti, 2006; Kyereboah-Coleman, 2007).

The 'Pecking Order Theory' was formulated and presented by Myers and Majluf (1984) who stated that due to the presence of information disparity between executives of enterprises and savers, it is conceivable that savers may underestimate the val-

ue of freshly issued stock. Consequently, to mitigate this issue, it was advisable for the company that, if the internal source is not adequate, then debt instruments should be issued and once it is not any more beneficial to continue taking out debt, then equity should be issued. This implies that there is an adverse relationship between debt obligations and firms' profitability, and the firms with low retained earnings will rely more on debt financing. There is plenty of research, which supports the negative correlation between leverage and profitability (Titman & Wessels, 1988; Rajan & Zingales, 1995; Wald, 1999; Booth et al., 2001; Fama & French, 2002; Hung et al., 2002; Abor, 2005).

As for identifying the variables that could interpret the dynamics of leverage-induced profitability, 'Firm performance' is used as the regressand, which was further proxied by Earnings per Share, Return on Assets, Return on Equity, and Basic Earning Power, respectively. Alternatively, proxy variables for the regressor 'Financial leverage' include Debt-to-Equity, Debt-to-Asset, Current Liability-to-Equity, and Current Liability-to-Asset. Plenty of literature could be cited behind the reasoning for such variable selection.

Shen and Lin (2009) conducted a study where fiscal performance was proxied by profitability ratios comprising ROA, EPS and ROE accompanied by NPM; implying that financial performance can be estimated based on a variety of financial ratio analyses. It also emphasizes that analyzing ratios can be used to scrutinize and compare financial data from existing financial statements and pro forma financial statements for determining the strengths and weaknesses of a company's financial outlook.

In another study conducted by Schulz (2017), the capital structure's effect on the efficiency of firms in the Netherlands was examined where the association between ROA and several independent factors, including total leverage and short-term debt, were studied through the application of regression techniques that lead to a finding of a negative relationship between ROA and indicators of leverage.

Correspondingly, in a study by Hossain (2016) on 81 manufacturing businesses registered on the Dhaka Stock Exchange (DSE) through the years 2002 to 2004, a negative association between the ROA and the capital structure variables was determined. However, in the case of the ROE, a positive relationship was observed. Bangladeshi enterprises exhibit a notable tendency towards high leverage, resulting in elevated stages of financial risk and bankruptcy costs that overshadow the potential paybacks of interest tax deductions associated with debt financing. The positive correlation between return on equity and debt financing can be attributed to the fact that when a corporation grows its reliance on debt financing, shareholders' needed rate of return also increases.

In a recent study by Rahman et al. (2020), a robust adverse correlation was discovered amid profitability and leverage by employing the pooled ordinary least squares method to analyze data from 22 publicly traded businesses operating within the textile industry of the DSE. The study utilized ROA and ROE as indicators of profitability. Leverage was approached by using short-term and long-term debt as substitute measures.

Short et al. (2007) examined preceding research and concluded that ROA and ROE are often used as pivotal measures to gauge the extent of the firm's performance. Chinaemerem and Anthony (2012) and Salim and Yadav (2012) investigated a reverse connotation between ROA, ROE and financial leverage.

Mangesti Rahayu et al. (2019) conducted a study on the interplay among capital structure, profitability, and corporate values, which indicated that corporate productivity, gauged by ROI, ROE and NPM, had a noteworthy adverse impression on short and long-term debt-to-total assets, accompanied by the debt-to-equity ratio.

To examine the determinants of the Profitability, i.e. ROA for manufacturing companies in Bangladesh, Islam et al. (2023) implemented secondary data obtained from the verified yearly financials of 15 pivotal manufacturers in Bangladesh. Nevertheless, the study could not discover any noteworthy link between the leverage ratio and ROA, which was very unexpected, necessitating additional investigation to acquire a more thorough comprehension of the connection between leverage and ROA in various circumstances.

http://dx.doi.org/10.21511/imfi.21(1).2024.27

Rabeta (2020) employed the Basic Earning Power (BEP) ratio as a performance metric to evaluate the fundamental profitability or earning capacity of an organization, excluding the impacts of income taxes and financial debt from the perspective of managing working capital in the pharmaceutical industry. However, the effectiveness of this metric in measuring leverage-induced profitability is yet to be explored further and this paper has attempted to incorporate that during analysis.

A fresh study by Santosa et al., (2022) investigated the interconnectedness of leverage, firm value, and corporate governance in a selected sample of major Indonesian companies from 2014 to 2019. It employed panel regression analysis to examine secondary data obtained from the LQ45 index representing the major enterprises itemized on the Indonesia Stock Exchange and identified that institutional ownership enhances firm value, whereas firm age and leverage lessen it. It was advisable to strike a balance between the growth in company age and high levels of leverage, and the promotion of innovation and productivity within large enterprises.

Das et al. (2021) conducted an investigation of the diverse influence of debt on the financial sustainability of public limited nonfinancial enterprises in Bangladesh based on a comprehensive sample of 165 listed enterprises across various industries using different generalized methods of moments (GMM) along with the quantile regression approach to evaluate the asymmetric affiliation between leverage and performance. The findings showed that leverage indicators harm business profitability, particularly pertaining to ROA and ROE. The findings also pitched that leverage damages performance more in high-profit organizations than in low-profit ones.

Karim et al. (2023) inspected the association between leverage and the financial viability of pharmaceutical businesses listed on DSE in Bangladesh. The empirical data indicated that long-term debt exerts a substantial adverse effect on two key measures of the firm's profitability, namely ROCE and ROE.

To achieve the objective of identifying the primary factors of profitability of the ceramic companies in Bangladesh, Sharma (2022) conducted a study on all the listed ceramic companies in DSE from 2016–2021 while employing ROA and ROE as proxy measures of profitability. As for the regressor, Management efficiency, Capital intensity, Firm size, Sales growth, Liquidity, working capital, Leverage, Yearly inflation, and GDP annual growth were considered, although the study could not demonstrate any significant evidence of leverage-induced profitability in the ceramic sector.

Khatoon and Hossain (2017) studied how capital structure affects Bangladesh's cement industry's financial performance by using data from 5 listed cement companies. The performance indicators utilized in this study encompassed ROE, ROA, EPS, and NPM. The exogenous variables in this study included five capital structure ratios, SDTA, LDTA, TDTA, LTDCE, TDTQ, as well as the size, growth of the company, tangibility of assets, cash flows, and liquidity. Except for ROE, long-term debt, tangibility, and liquidity happened to have a negative impact on other financial performance indicators.

Puri (2023) examined the influence of leverage on the financial performance of both small and large publicly traded companies in the context of New Zealand. A combination of univariate and multivariate techniques was employed, including correlation analysis and panel data regression. The findings indicated that the use of leverage has a notable positive effect on the performance of small enterprises, while concurrently exerting a negative influence on their market value. In the context of large enterprises, a contrasting pattern emerges whereby firms exhibit an elevated market value when their capital structure incorporates a greater proportion of debt, and it stresses that an ideal debt structure and debt use can boost an organization's performance.

An investigation surrounding 200 firms registered on the Istanbul Stock Exchange by Kalash (2023) discovered that the influence of leveraged funds on a firm's economic performance is undesirable, and this negative effect becomes bigger for firms with greater financial distress risk.

Another study by Tao et al. (2020) advised that businesses should ponder both operational and financial leverage to capitalize on their performance since the predilection of one over the other

upsurges insolvency risk. It further suggested that preference towards using operating leverage tends to result in a negative relationship between its profitability and financial leverage.

To summarize, it is conceivable to conclude that the empirical data offers a variety of contradictory theories about how financial leverage affects an advanced economy's firm's performance. Furthermore, there is an inadequate number of studies that empirically test such relationships in developing countries like Bangladesh particularly in the prominent manufacturing sectors like cement and ceramic industries combined together. This study intends to enhance the current understanding of this topic by addressing this deficiency and looking at how financial leverage affects a firm's performance within all the listed companies across the Bangladeshi Cement and Ceramic sectors for 22 years, i.e. 2000 to 2021, which happen to occupy a significant portion of the market, and thus empirically investigate the viability of the findings on leverage-induced profitability from the milieu of Bangladesh.

Building upon the scope of research discussed earlier, the below-mentioned sixteen (16) hypotheses have been developed in this study to find the subtleties of leverage-induced profitability in Bangladesh:

H_{01}: *There is a significant impact of Debt-to-Equity Ratio on EPS.*

H_{02}: *There is a significant impact of Debt Ratio on EPS.*

H_{03}: *There is a significant impact of Current Liability-to-Equity Ratio on EPS.*

H_{04}: *There is a significant impact of Current Liability-to-Asset Ratio on EPS.*

H_{05}: *There is a significant impact of Debt-to-Equity Ratio on ROA.*

H_{06}: *There is a significant impact of Debt Ratio on ROA.*

H_{07}: *There is a significant impact of Current Liability-to-Equity Ratio on ROA.*

H_{08}: *There is a significant impact of Current Liability-to-Asset Ratio on ROA.*

H_{09}: *There is a significant impact of Debt-to-Equity Ratio on ROE.*

H_{10}: *There is a significant impact of Debt Ratio on ROE.*

H_{11}: *There is a significant impact of Current Liability-to-Equity Ratio on ROE.*

H_{12}: *There is a significant impact of Current Liability-to-Asset Ratio on ROE.*

H_{13}: *There is a significant impact of Debt-to-Equity Ratio on BEP.*

H_{14}: *There is a significant impact of Debt Ratio on BEP.*

H_{15}: *There is a significant impact of Current Liability-to-Equity Ratio on BEP.*

H_{16}: *There is a significant impact of Current Liability-to-Asset Ratio on BEP.*

2. METHODOLOGY

For the study, secondary data have been taken for the time span of 2000 to 2021 from the yearly audited financial statements of all the corporations registered in the Cement and Ceramic subdivisions. In this study, 'Financial Performance', or 'Profitability', has been considered as the dependent variable. According to Leontief (2011), it is regarded as a broad indicator of the long-term financial stability of a company. 'Financial leverage' has been considered as an independent variable appertaining to the presence of debt in a company's capital structure, as asserted by Pandey (2008).

Four variables have been chosen as proxies for 'Profitability', and all of them have been widely used in various literature, namely: Earnings per share, Return on Assets, Return on Equity, and Basic Earning Power. Also, in choosing financial leverage affecting a firm's performance, empirical research considers several variables such as Short-term debt, Long-term debt, and total Debt to Asset

http://dx.doi.org/10.21511/imfi.21(1).2024.27

Table 1. Identification of the variables employed in the study

Variable Name	Definition	Interpretation	Reference
Earnings per Share (EPS)	Shows how much profit an organization makes from each share of its stock.	Net profit/Common share outstanding	Chanda and Shen (2009)
Return on Asset (ROA)	Assesses the degree to which the management of any company makes a profit from all the assets listed on its balance sheet.	Net profit/Total Asset	Chanda and Shen (2009), Chinaemerem and Anthony (2012), Salim and Yadav (2012), Hossain (2016), Schulz (2017), Rahman et al. (2020)
Return on Equity (ROE)	Illustrates the concern's capability to produce returns from investments in equity.	Net profit/Equity	Short et al. (2007), Chanda and Shen (2009), Moses Ochieng Gweyi and John Karanja (2014), Hossain (2016), Rahman et al. (2020)
Basic Earning Power (BEP)	Analyzes how effectively a business makes profits from its operation using assets	EBIT/Total Asset	Rabeta (2020)
Debt-to-Equity (D/E)	Shows a business concern's debt-to-equity ratio.	Total liabilities/Equity	Abor (2005, 2007), Ebaid (2009), Schulz (2017), Rahman et al. (2020)
Debt-to-Asset (D/A)	Illustrates the fraction of a concern's assets possessed by its creditors (individuals or entities from whom the company has borrowed money) versus its shareholders.	Total liabilities/Total asset	
Current Liability-to-Equity (CL/E)	Demonstrates the ratio of a company's current debt to its equity	Current Liability/Equity	
Current Liability-to-Asset (CL/A)	Assesses a concern's capability to pay off its immediate financial obligations.	Current Liability/Total Asset	
Firm Age	Displays if the firm's efficiency increases with age.	Year of marketable operations - Separate Year of analysis	Majumdar and S. K. (1997), Guest and P. M. (2009), Aduralere Opeyemi and Oyelade (2019), Rabeta (2020).
Firm Size	Indicates the magnitude of a company	Normal log of total asset	

and Equity ratios. This study takes the Age and Firm Size as control variables as there is a high possibility that many other factors besides financial leverage also affect the firm's performance. All of the variable's measurement tools are given in Table 1.

The theoretical structure of this investigation is given Figure 1.

In this study, the 'Fixed Effect Regression' model has been employed after conducting the 'Hausman test' using Stata software, which examines the connection between a company's economic viability and financial liability. The primary model for analysis takes the below-mentioned form:

$$Y_{it} = \alpha + \beta X_{it} + \varepsilon_{it}, \quad (1)$$

where Y_{it} – Indicator of the outcome variable, i.e. 'Financial Performance' (EPS, ROA, ROE, BEP), β – Coefficient of the explanatory variables. X_{it} – Indicator of the predictor variable, i.e. 'Financial Leverage' (D/E, D/A, CL/A, CL/E), ε_{it} – Random error term, i – the number of firms employed in the analysis, and t – the number of periods used in the analysis.

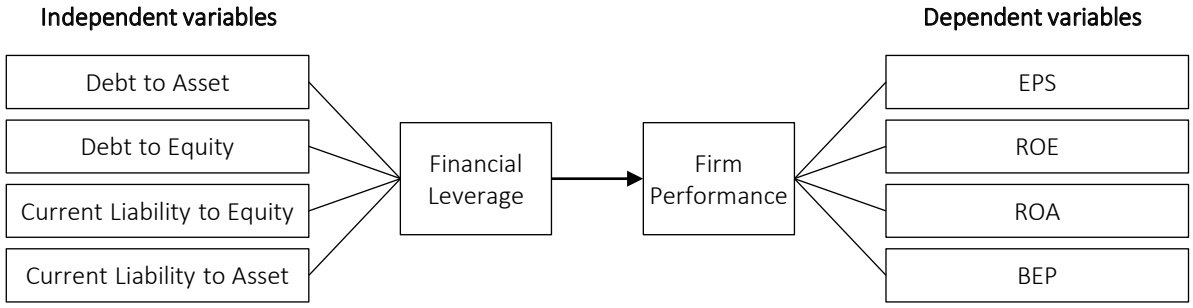

Figure 1. Theoretical structure

3. RESULTS

The affiliation between leveraged finance and a firm's economic performance has been investigated using correlation analysis. The multicollinearity test has been used in this study to determine whether there is any multicollinearity issue. The tests have been conducted taking each independent variable separately with all the dependent and control variables. The test results show that there is no value higher than 0.80. As the threshold value to detect multicollinearity is more than 0.80, there's no multicollinearity in this analysis.

To analyze the aspects of leverage-induced profitability, Regression Analysis has been used in this study. To identify the regression model that properly fits the analysis, the Hausman test has been used, and based on the result of the Hausman test, the fixed effects model has been employed.

Table 2 displays the conclusions of fixed effect regression model analysis where the dependent variable is Earnings Per Share (EPS), and the predictor variable is Debt-to-Equity (D/E). The R squared is 69.97%, implying that the independent variable of the model can predict a 69.97% variation in the dependent variable. The analysis exhibits that Age has a significant impact on EPS at a 1% significance level.

Table 3 shows the outcomes of fixed effect regression model analysis where the outcome variable is Earning Per Share (EPS), and the independent variable is Debt-to-Asset (D/A). The R squared is 72.43%, implying that the independent variable of the model can predict a 72.43% variation in the dependent variable. The analysis exhibits that the Debt-to-Asset Ratio and Age of the firm have a significant impact on EPS at a 1% significance level.

Table 4 shows the outcomes of fixed effect regression model analysis where the outcome variable is Earning Per Share (EPS), and the regressor variable is Current Liability-to-Equity (CL/E). The R squared is 70.12%, implying that the independent variable of the model can predict a 70.12% variation in the dependent variable. The analysis exhibits that Age has a significant impact on EPS at a 1% significance level.

Table 5 shows the results of fixed effect regression model analysis where the dependent variable is Earning Per Share (EPS), and the regressor variable is Current Liability-to-Asset (CL/A). The R squared is 70.66%, implying that the independent

Table 2. Model 1 of fixed effect analysis (dependent variable: EPS, and independent variable: Debt-to-Equity)

Model 1	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
D/E	0.6997	0.0018	–.0664477	0.567	1.00	0.995732
Age			–1.095001	0.009 ***	1.05	0.954753
Size			5.293277	0.561	1.04	0.958515
Constant			24.88828	0.269		
F	5.19					Mean VIF: 1.03
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 3. Model 2 of fixed effect analysis (dependent variable: EPS, and independent variable: Debt-to-Asset)

Model 2	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
D/A	0.7243	0.0000	–34.17178	0.002 ***	1.02	0.982241
Age			–1.111175	0.006 ***	1.06	0.942419
Size			6.63922	0.452	1.04	0.958522
Constant			38.6401	0.081		
F	8.58					Mean VIF: 1.04
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

http://dx.doi.org/10.21511/imfi.21(1).2024.27

Table 4. Model 3 of fixed effect analysis (dependent variable: EPS, and independent variable: Current Liability-to-Equity)

Model 3	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
CL/E	0.7012	0.0021	–.0141347	0.919	1.00	0.997030
Age			–1.079233	0.010***	1.05	0.956637
Size			4.628995	0.609	1.04	0.958082
Constant			26.52338	0.237		
F	5.08					Mean VIF: 1.03
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 5. Model 4 of fixed effect analysis (dependent variable: EPS, and independent variable: Current Liability-to-Asset)

Model 4	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
CL/A	0.7066	0.0011	–13.89901	0.253	1.05	0.949986
Age			–.9656389	0.023**	1.05	0.953481
Size			3.147308	0.729	1.08	0.922305
Constant			33.84671	0.143		
F	5.55					Mean VIF: 1.06
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

variable of the model can predict a 70.66% variation in the dependent variable. The analysis exhibits that Age has a significant impact on EPS at a 5% significance level.

Table 6 shows the findings of fixed effect regression model analysis where the outcome variable is Return of Asset (ROA), and the regressor variable is Debt-to-Equity (D/E). The R squared is 11.73%, implying that the independent variable of the model can predict an 11.73% variation in the dependent variable. The analysis exhibits that the control variable, Size, is highly associated with ROA at a 10% significance level.

Table 6. Model 5 of fixed effect analysis (dependent variable: ROA, and independent variable: Debt-to-Equity)

Model 5	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
D/E	0.1173	0.3318	–.0002251	0.399	1.05	0.995732
Age			–.0012892	0.176	1.05	0.954753
Size			.0366127	0.081*	1.04	0.958515
Constant			–.0509769	0.325		
F	1.15					Mean VIF: 1.03
No. of Obs.	219					

Note: The symbols***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 7. Model 6 of fixed effect analysis (dependent variable: ROA, and independent variable: Debt-to-Asset)

Model 6	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
D/A	0.1560	0.3318	–.1399561	0.000***	1.02	0.982241
Age			–.0013669	0.121	1.06	0.942419
Size			.0426504	0.028**	1.04	0.958522
Constant			.0040312	0.933		
F	12.57					Mean VIF: 1.04
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 7 shows the findings of fixed effect regression model analysis where the outcome variable is Return on Assets (ROA), and the explanatory variable is Debt-to-Asset (D/A). The R squared is 15.60%, implying that the independent variable of the model can predict a 15.60% variation in the dependent variable. The analysis exhibits that the Debt-to-Asset ratio notably affects ROA at a 1% significance level, whereas Size has a significant impact on ROA at a 5% significance level.

Table 8 exhibits the results of fixed effect regression model analysis where the predicted variable is Return on Assets (ROA), and the independent variable is Current Liability to Equity (CL/E). The R squared is 12.49%, implying that the independent variable of the model can predict a 12.49% variation in the dependent variable. The analysis exhibits that the control variable, Size, significantly affects ROA at a 10% significance level.

Table 9 explains the results of fixed effect regression model analysis where the predicted variable is Return on Assets (ROA), and the regressor variable is Current Liability-to-Asset (CL/A). The R squared is 4.79%, implying that the independent variable of the model can predict a 4.79% variation in the dependent variable. The analysis exhibits that the Current Liability-to-Asset (CL/A) has a remarkable effect on ROA at a 1% significance level.

Table 10 depicts the results of fixed effect regression model analysis where the outcome variable is Return on Equity (ROE), and the independent variable is Debt-to-Equity. The R squared is

Table 8. Model 7 of fixed effect analysis (dependent variable: ROA, and independent variable: Current Liability-to-Equity)

Model 7	R Squared	Prob > F:	Coefficient	P>t	VIF	1/VIF
CL/E	0.1249	0.4268	–.0000888	0.781	1.00	0.956637
Age			–.0012369	0.194	1.05	0.956637
Size			.0345854	0.098*	1.04	0.958082
Constant			–.0460766	0.372		
F	0.93					Mean VIF: 1.04
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 9. Model 8 of fixed effect analysis (dependent variable: ROA, and independent variable: Current Liability-to-Asset)

Model 8	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
CL/A	0.0479	0.0182	–.0751426	0.007***	1.05	0.949986
Age			–.0006224	0.517	1.05	0.953481
Size			.0265075	0.199	1.08	0.922305
Constant			–.0062912	0.904		
F	3.42					Mean VIF: 1.06
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 10. Model 9 of fixed effect analysis (dependent variable: ROE, and independent variable: Debt-to-Equity)

Model 9	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
D/E	0.2110	0.0000	.0188315	0.000***	1.00	0.954753
Age			–.0108343	0.309	1.05	0.954753
Size			.5313874	0.024**	1.04	0.958515
Constant			–1.499009	0.010		
F	18.18					Mean VIF: 1.03
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

http://dx.doi.org/10.21511/imfi.21(1).2024.27

21.10%, implying that the independent variable of the model can predict a 21.10% variation in the dependent variable. The analysis exhibits that Debt-to-Equity and Size have a noteworthy impact on ROE at a 1% and 05% significance level, respectively.

Table 11 depicts the results of fixed effect regression model analysis where the predicted variable is Return on Equity (ROE), and the independent variable is Debt-to-Asset (D/A). The R squared is 5.89%, implying that the independent variable of the model can predict a 5.89% variation in the dependent variable. The analysis exhibits that size has a significant impact on ROE at 1% significance level.

Table 12 shows the results of fixed effect regression model analysis where the dependent variable is Return on Equity (ROE), and the independent variable is Current Liability-to-Equity (CL/E). The R squared is 31.20%, implying that the independent variable of the model can predict a 31.20% variation in the dependent variable. The analysis exhibits that Current Liability-to-Equity (CL/E) and size have a significant impact on ROE at a 1% significance level.

Table 13 depicts the results of fixed effect regression model analysis where the dependent variable is Return on Equity (ROE), and the independent variable is Current Liability-to-Asset (CL/A). The R squared is 6.79%, implying that the independent variable of the model can predict a 6.79% variation in the dependent variable. The analysis exhibits that Age and Size have a significant impact on ROE at a 10% and 1% significance level, respectively.

Table 11. Model 10 of fixed effect analysis (dependent variable: ROE, and independent variable: Debt-to-Asset)

Model 10	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
D/A	0.0589	0.0061	–.2341663	0.456	1.02	0.982241
Age			–.015637	0.178	1.06	0.942419
Size			.7557443	0.003***	1.04	0.958522
Constant			–1.943306	0.002		
F	4.26					Mean VIF: 1.04
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 12. Model 11 of fixed effect analysis (dependent variable: ROE, and independent variable: Current Liability-to-Equity)

Model 11	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
CL/E	0.3120	0.0000	.0289089	0.000***	1.00	0.956637
Age			–.0146053	0.141	1.05	0.956637
Size			.5841556	0.008***	1.04	0.958082
Constant			–1.574317	0.004		
F	30.83					Mean VIF: 1.03
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 13. Model 12 of fixed effect analysis (dependent variable: ROE, and independent variable: Current Liability-to-Asset)

Model 12	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
CL/A	0.0679	0.0024	.5398606	0.114	1.05	0.949986
Age			–.0198122	0.096*	1.05	0.953481
Size			.7960061	0.002***	1.08	0.922305
Constant			–2.300723	0.000		
F	4.95					Mean VIF: 1.06
No. of Obs.	219					

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 14 demonstrates the results of the fixed effect regression model analysis where the dependent variable is Basic Earning Power (BEP), and the explanatory variable is Debt-to-Equity. The R squared is 10.08%, implying that the independent variable of the model can predict a 10.08% variation in the outcome variable. The analysis shows that no variable has a significant impact on BEP.

Table 15 demonstrates the results of the fixed effect regression model analysis where the dependent variable is Basic Earning Power (BEP), and the regressor variable is Debt-to-Asset (D/A). The R squared is 7.63%, implying that the independent variable of the model can predict a 7.63% variation in the dependent variable. The analysis exhibits that the Debt-to-Asset ratio has a substantial impact on BEP at a 1% significance level.

Table 16 demonstrates the results of the fixed effect regression model analysis where the dependent variable is Basic Earning Power (BEP), and the independent variable is Current Liability-to-Equity (CL/E). The R squared is 6.56%, implying that the independent variable of the model can predict a 6.56% variation in the dependent variable. The analysis exhibits that no variable has a noteworthy impact on BEP.

Table 17 shows the results of the fixed effect regression model analysis where the dependent variable is Basic Earning Power (BEP), and the independent variable is Current Liability-to-Asset (CL/A). The R squared is 13.80%, implying that the independent variable of the model can predict 13.80% variation in the dependent variable. The analysis exhibits that no variable has a significant impact on BEP.

Table 14. Model 13 of fixed effect analysis (dependent variable: BEP, and independent variable: Debt-to-Equity)

Model 13	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
D/E	0.1008	0.2176	–.000408	0.182	1.00	0.995732
Age			.0002816	0.796	1.05	0.954753
Size			–.023855	0.320	1.04	0.958515
Constant			.1469861	0.014		
F			1.49			Mean VIF: 1.03
No. of Obs.			219			

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 15. Model 14 of fixed effect analysis (dependent variable: BEP, and independent variable: Debt-to-Asset)

Model 14	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
D/A	0.0763	0.0010	–.1069699	0.000***	1.02	0.982241
Age			.0002796	0.791	1.06	0.942419
Size			–.0218727	0.344	1.04	0.958522
Constant			.195619	0.001		
F			5.62			Mean VIF: 1.04
No. of Obs.			219			

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

Table 16. Model 15 of fixed effect analysis (dependent variable: BEP, and independent variable: Current Liability-to-Equity)

Model 15	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
CL/E	0.0656	0.3425	–.0003019	0.409	1.00	0.997030
Age			.0003724	0.732	1.05	0.956637
Size			–.0267635	0.263	1.04	0.958082
Constant			.1536738	0.010		
F			1.12			Mean VIF: 1.03
No. of Obs.			219			

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

http://dx.doi.org/10.21511/imfi.21(1).2024.27

Table 17. Model 16 of fixed effect analysis (dependent variable: BEP, and independent variable: Current Liability-to-Asset)

Model 16	R Squared	Prob > F	Coefficient	P>t	VIF	1/VIF
CL/A	0.1380	0.4340	.0093328	0.772	1.05	0.949986
Age			.0003048	0.786	1.05	0.953481
Size			–.0274629	0.254	1.08	0.922305
Constant			.1536093	0.013		
F			.92			Mean VIF: 1.06
No. of Obs.			219			

Note: The symbols ***, **, and * correspond to respective significance levels of 1%, 5%, and 10%.

It should be noted for all the aforementioned models that, there is no multicollinearity since no VIF value in these models is higher than threshold 10. The tolerance threshold is quantified using the inverse of the variance inflation factor (1/VIF), indicating the absenteeism of multicollinearity when the values exceed 0.10.

4. DISCUSSION

The findings in the previous section exhibit that Age and D/A have a significant negative impact on EPS, which implies that, as the firms age and as the ratio of debt in financing the assets increases, the firm's profitability reduces. The study further exhibits that the control variable Firm Size is highly associated with ROA in most cases, implying that as firms grow bigger, they tend to enjoy more profitability owing to economies of scale. It is further seen that the D/A negatively affects ROA, implying that the incorporation of debt reduces profitability for these firms. The test results also exhibit that the CL/A has a remarkable negative effect on ROA, implying that the return on assets of a firm gets reduced when more current liability is sought to finance assets. However, it is further investigated that D/E and Size have a significant positive impact on ROE, implying that the increase of debt in the capital structure increases profitability as firms grow bigger. The results also verify that CL/E have a significant positive impact on ROE, implying that the return on equity increases as more current liability is employed to fund the assets in a firm. However, the impact of Age remains negative yet significant on ROE, implying that firms fail to generate more return on equity as they grow old. The results of regression analysis reveal that D/A has a significant impact on BEP, indicating that the incorporation of debt increases a firm's core profitability.

These mixed impacts of leverage on profitability identified in this study can be supported by previously published literature. Myers and Majluf (1984) advocated that there is an adverse affiliation between debt obligations and firms' profitability, and the businesses with truncated retained earnings will rely more on debt financing. There is plenty of research, which delivers evidence to prove this negative affiliation between profitability and leverage (Titman & Wessels, 1988; Rajan & Zingales, 1995; Wald, 1999; Booth et al., 2001; Fama & French, 2002; Hung et al., 2002; Abor, 2005; Chinaemerem & Anthony, 2012; Salim & Yadav, 2012; Hossain, 2016; Schulz, 2017).

Also, Hossain (2016) identified a positive correlation between ROE and debt financing, which can be attributed to the fact that when a corporation grows its reliance on debt financing, the shareholders' needed rate of return also increases. This indication is consistent with the verdicts of leveraged-induced profitability in terms of ROE in the study.

Das et al. (2021) conducted an investigation and found that leverage damages performance more in high-profit organizations than in low-profit ones. Puri (2023) stressed that an ideal debt structure and debt use can boost an organization's performance. A study by Tao et al. (2020) advised that businesses should ponder both operating and financial leverage to capitalize on their profitability. Kalash (2023) discovered that the effect of financial leverage on a firm's financial performance is negative, and this negative effect becomes bigger for firms with a greater

financial distress risk. Based on the background of emergent countries like Bangladesh, it can be seen that the incorporation of leverage in the capital structure can bring about both adverse and advantageous results. However, the findings can be further elaborated across multiple industries, or the models could be modified further to create more scopes of research on this never-ending argument of leverage-induced profitability.

CONCLUSION

As prudent investors must be cognizant of the financial performance of any company, the discussion over the topic of leverage and financial performance is a very crucial concern all over the world of investment. As a result, the managers of a company always endeavor to manage the leverage in a way that enhances the company's financial performance. To benefit them, the paper aimed to find the correlation of financial performance with the leverage of a firm and found that the measures of leverage used in this study have an impact on a company's financial performance.

According to findings, the key financial performance indicator Earning Per Share (EPS) has a dependency on leverage measured by the Debt-to-Asset ratio. Return on Assets (ROA) has a dependency on the Debt-to-Asset ratio and the Current Liability-to-Asset ratio. Whereas Return on Equity is dependent on the Debt-to-Equity ratio and Current Liability-to-Equity Ratio. Lastly, the indicator of Basic Earning Power (BEP) can be explained by the Debt-to-Asset ratio.

The paper put forward the facts related to leverage-induced profitability across various firms. The verdicts of this study will help financial managers and policymakers to make decisions regarding the incorporation of debt into their funding mix. Although the inquiry has demonstrated mixed verdicts for leverage-induced profitability like the previous literature, the findings have put forward the importance of balancing the ratio of leveraged finance in the capital structure to enjoy profitability in an emerging economy like Bangladesh. Future endeavors of upcoming researchers are encouraged through this study as it has set a parameter for expanding analysis on leverage-induced profitability across industries in other developing economies.

AUTHOR CONTRIBUTIONS

Conceptualization: Ummay Mahima Ima, Maliha Rabeta.
Data curation: Ummay Mahima Ima, Maliha Rabeta.
Formal analysis: Ummay Mahima Ima, Maliha Rabeta, Nurun Nahar.
Investigation: Ummay Mahima Ima, Maliha Rabeta.
Methodology: Nurun Nahar.
Project administration: Ummay Mahima Ima.
Resources: Ummay Mahima Ima, Maliha Rabeta, Nurun Nahar, Mst. Sharmin Sultana Sumi.
Software: Ummay Mahima Ima, Nurun Nahar.
Supervision: Ummay Mahima Ima, Mst. Sharmin Sultana Sumi.
Writing – original draft: Ummay Mahima Ima, Maliha Rabeta, Nurun Nahar.
Writing – review & editing: Maliha Rabeta, Mst. Sharmin Sultana Sumi.
Validation: Ummay Mahima Ima, Mst. Sharmin Sultana Sumi.
Visualization: Maliha Rabeta, Nurun Nahar, Mst. Sharmin Sultana Sumi.

http://dx.doi.org/10.21511/imfi.21(1).2024.27

REFERENCES

1. Abor, J. (2005). The effect of capital structure on profitability: an empirical analysis of listed firms in Ghana. *The Journal of Risk Finance, 6*(5), 438-445. https://doi.org/10.1108/15265940510633505
2. Ahmed, F., Awais, I., & Kashif, M. (2018). Financial leverage and firms' performance: Empirical evidence from KSE-100 Index. *Etikonomi, 17*(1), 45-56. http://dx.doi.org/10.15408/etk.v17i1.6102
3. Akbarian, S. (2013). The investigation effect of financial leverage and environment risk on performance firms of listed companies in the Tehran Stock Exchange. *Journal of Applied Science and Agriculture, 8*(3), 249-255. Retrieved from https://www.aensiweb.com/old/jasa/rjfh/2013/249-255.pdf
4. Baxter, N. D. (1967). Leverage, risk of ruin and the cost of capital. *The Journal of Finance, 22*(3), 395-403. https://doi.org/10.2307/2978892
5. Berger, A. N., & Di Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance, 30*(4), 1065-1102. https://doi.org/10.1016/j.jbankfin.2005.05.015
6. Booth, L., Aivazian, V., Demirguc-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance, 56*(1), 87-130. https://doi.org/10.1111/0022-1082.00320
7. Chen, H. (2020, December). The Impact of Financial Leverage on Firm Performance–Based on the Moderating Role of Operating Leverage. In *Fifth International Conference on Economic and Business Management (FEBM 2020)* (pp. 464-473). Atlantis Press. http://dx.doi.org/10.2991/aebmr.k.201211.079
8. Das, N.C., Chowdhury, M.A. and Islam, Md. N. (2021). The heterogeneous impact of leverage on firm performance: Empirical evidence from Bangladesh. *South Asian Journal of Business Studies, 11*(2), 235-252. https://doi.org/10.1108/SAJBS-04-2020-0100
9. El-Sayed Ebaid, I. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *The journal of risk Finance, 10*(5), 477-487. https://doi.org/10.1108/15265940911001385
10. Fama, E. F., & French, K. R. (2002). Testing trade-offs and pecking order predictions about dividends and debt. *Review of Financial Studies,* 1-33. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=199431
11. Guest, P. M. (2009). The impact of board size on firm performance: evidence from the UK. *The European Journal of Finance, 15*(4), 385-404. https://doi.org/10.1080/13518470802466121
12. Gweyi, M. O., & Karanja, J. (2014). Effect of Financial Leverage on Financial Performance of Deposit Taking Savings and Credit Co-operative in Kenya. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 4*(2), 176-184. Retrieved from https://ideas.repec.org/a/hur/ijaraf/v4y2014i2p176-184.html
13. Hossain, M. I. (2016). Effects of capital structure and managerial ownership on profitability: Experience from Bangladesh. *International Journal of Business and Management, 11*(9), 218. http://dx.doi.org/10.5539/ijbm.v11n9p218
14. Islam, H., Rahman, J., Tanchangya, T., & Islam, M. A. (2023). Impact of firms' size, leverage, and net profit margin on firms' profitability in the manufacturing sector of Bangladesh: An empirical analysis using GMM estimation. *Journal of Ekonomi, 5*(1), 1-9. https://doi.org/10.58251/ekonomi.1275742
15. Kalash, I. (2023). The financial leverage–financial performance relationship in the emerging market of Turkey: the role of financial distress risk and currency crisis. *EuroMed Journal of Business, 18*(1), 1-20. https://doi.org/10.1108/EMJB-04-2021-0056
16. Karim, R., Bhadra, H. K., & Chakrobortty, T. (2023). Impact of firm's leverage on Financial Performance: Evidence from the pharmaceuticals industry of Bangladesh. *Khulna University Business Review* [Preprint]. https://doi.org/10.35649/kubr.2022.17.1.2
17. Khatoon, T., & Hossain, Md. M. (2017). Capital structure and firm's financial performance: Evidence from listed cement companies of Dhaka Stock Exchange of Bangladesh. *International Journal of Business and Statistical Analysis, 4*(1), 29-37. http://dx.doi.org/10.12785/ijbsa/040102
18. Kyereboah-Coleman, A. (2007). The impact of capital structure on the performance of microfinance institutions. *The Journal of Risk Finance, 8*(1), 56-71. https://doi.org/10.1108/15265940710721082
19. Majumdar, S. K. (1997). The impact of size and age on firm-level performance: some evidence from India. *Review of industrial organization, 12,* 231-241. http://dx.doi.org/10.1023/A:1007766324749
20. Mangesti Rahayu, S., Suhadak, Saifi, M. (2019). The reciprocal relationship between profitability and capital structure and its impacts on the corporate values of manufacturing companies in Indonesia. *International Journal of Productivity and Performance Management*, 69(2), 236-251. https://doi.org/10.1108/ijppm-05-2018-0196
21. Miller, E. M. (1977). Risk, uncertainty, and divergence of opinion. *The Journal of Finance, 32*(4), 1151-1168. https://doi.org/10.2307/2326520
22. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review, 48*(3), 261-297. Retrieved from https://www.jstor.org/stable/1809766

23. Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*(2), 187-221. https://doi.org/10.1016/0304-405X(84)90023-0

24. Oyelade, A. O. (2019). The impact of Firm Size on firm performance in Nigeria: A comparative study of selected firms in the Building Industry in Nigeria. *Asian Development Policy Review, 7*(1), 1-11. Retrieved from https://archive.aessweb.com/index.php/5008/article/view/225

25. Puri, S. (2023). Interactions of leverage and firm performance: The moderating effects of agency costs. *Rere Āwhio – Journal of Applied Research and Practice, 3,* 86-94. https://doi.org/10.34074/rere.00310

26. Rabeta, M. (2020). Working Capital Management and Firm Performance of Companies in Pharmaceuticals & Chemicals Industry of Bangladesh. *International Journal of Science and Business, 4*(8), 40-75. Retrieved from https://ideas.repec.org/a/aif/journl/v4y2020i8p40-75.html

27. Rahman, M., Saima, F., & Jahan, K. (2020). The Impact of Financial Leverage on Firm's Profitability: An Empirical Evidence from Listed Textile Firms of Bangladesh. *Asian Journal of Business Environment, 10*(2), 23-31. http://dx.doi.org/10.13106/jbees.2020.vol10.no2.23

28. Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance, 50*(5), 1421-1460. https://doi.org/10.1111/j.1540-6261.1995.tb05184.x

29. Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences, 65,* 156-166. https://doi.org/10.1016/j.sbspro.2012.11.105

30. Santosa, P. W., Setianingrum, A., & Yusuf, C. (2022). Corporate governance and leverage on firm value: Evidence of Indonesian large firms. *Jurnal Keuangan Dan Perbankan, 26*(4), 862-873. Retrieved from https://jurnal.unmer.ac.id/index.php/jkdp/article/view/7664/pdf

31. Schulz, T. (2017). *The impact of capital structure on firm performance: An investigation of Dutch Unlisted SMEs* (Bachelor's thesis). University of Twente.

32. Sharma, L. (2022). Determinants of profitability: a study on ceramic industry in Bangladesh. *Journal of Business and Entrepreneurship, 10*(2), 161. https://doi.org/10.46273/jobe.v10i2.319

33. Shen, W., & Lin, C. (2009). Firm profitability, state ownership, and top management turnover at the listed firms in China: A behavioural perspective. *Corporate Governance: An International Review, 17*(4), 443-456. https://doi.org/10.1111/j.1467-8683.2009.00725.x

34. Short, J. C., Ketchen Jr, D. J., Palmer, T. B., & Hult, G. T. M. (2007). Firm, strategic group, and industry influences on performance. *Strategic Management Journal, 28*(2), 147-167. http://dx.doi.org/10.1002/smj.574

35. Tao, Q., Zahid, Z., Mughal, A., & Shahzad, F. (2022). Does operating leverage increase a firm's profitability and bankruptcy risk? Evidence from China's entry into WTO. *International Journal of Finance & Economics, 27*(4), 4705-4721. https://doi.org/10.1002/ijfe.2395

36. Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance, 43*(1), 1-19. https://doi.org/10.2307/2328319

37. Wald, J. K. (1999). How firm characteristics affect capital structure: an international comparison. *Journal of Financial Research, 22*(2), 161-187. https://doi.org/10.1111/j.1475-6803.1999.tb00721.x

38. Yat Hung, C., Ping Chuen Albert, C., & Chi Man Eddie, H. (2002). Capital structure and profitability of the property and construction sectors in Hong Kong. *Journal of Property Investment & Finance, 20*(6), 434-453. https://doi.org/10.1108/14635780210446469

http://dx.doi.org/10.21511/imfi.21(1).2024.27

APPENDIX A

Table A1. Specification of the models employed in the study

Model	Description	Equation
01	Impact of Debt-to-Equity Ratio on EPS	$EPS_{it} = \alpha + \beta_1 DER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
02	Impact of Debt Ratio on EPS	$EPS_{it} = \alpha + \beta_1 DR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
03	Impact of Current Liability-to-Equity Ratio on EPS	$EPS_{it} = \alpha + \beta_1 CLER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
04	Impact of Current Liability-to-Asset Ratio on EPS	$EPS_{it} = \alpha + \beta_1 CLAR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
05	Impact of Debt-to-Equity Ratio on ROA	$ROA_{it} = \alpha + \beta_1 DER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
06	Impact of Debt Ratio on ROA	$ROA_{it} = \alpha + \beta_1 DR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
07	Impact of Current Liability-to-Equity Ratio on ROA	$ROA_{it} = \alpha + \beta_1 CLER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
08	Impact of Current Liability-to-Asset Ratio on ROA	$ROA_{it} = \alpha + \beta_1 CLAR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
09	Impact of Debt-to-Equity Ratio on ROE	$ROE_{it} = \alpha + \beta_1 DER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
10	Impact of Debt Ratio on ROE	$ROE_{it} = \alpha + \beta_1 DR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
11	Impact of Current Liability-to-Equity Ratio on ROE	$ROE_{it} = \alpha + \beta_1 CLER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
12	Impact of Current Liability-to-Asset Ratio on ROE	$ROE_{it} = \alpha + \beta_1 CLAR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
13	Impact of Debt-to-Equity Ratio on BEP	$BEP_{it} = \alpha + \beta_1 DER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
14	Impact of Debt Ratio on BEP	$BEP_{it} = \alpha + \beta_1 DR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
15	Impact of Current Liability-to-Equity Ratio on BEP	$BEP_{it} = \alpha + \beta_1 CLER_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$
16	Impact of Current Liability-to-Asset Ratio on BEP	$BEP_{it} = \alpha + \beta_1 CLAR_{it} + \beta_2 Age_{it} + \beta_3 Size_{it} + \varepsilon_{it}$

Table A2. Multicollinearity test keeping the Debt-to-Equity ratio as the independent variable

	EPS	ROA	ROE	BEP	DE	AGE	SIZE
EPS	1.0000						
ROA	0.6550	1.0000					
ROE	0.2117	0.3240	1.0000				
BEP	0.5594	0.7921	0.2497	1.0000			
DE	–0.0694	–0.1162	0.4132	–0.1105	1.0000		
AGE	0.3746	0.3200	0.0535	0.2421	–0.0652	1.0000	
SIZE	0.0462	0.2533	0.1164	0.2775	–0.0179	0.2036	1.0000

Table A3. Multicollinearity test keeping the Debt-to-Asset ratio as the independent variable

	EPS	ROA	ROE	BEP	DA	AGE	SIZE
EPS	1.0000						
ROA	0.6550	1.0000					
ROE	0.2117	0.3240	1.0000				
BEP	0.5594	0.7921	0.2497	1.0000			
DA	–0.1043	–0.3559	0.0299	–0.1929	1.0000		
AGE	0.3746	0.3200	0.0535	0.2421	–0.1332	1.0000	
SIZE	0.0462	0.2533	0.1164	0.2775	–0.0310	0.2036	1.0000

Table A4. Multicollinearity test keeping the Current Debt to Equity ratio as the independent variable

	EPS	ROA	ROE	BEP	CL/E	AGE	SIZE
EPS	1.0000						
ROA	0.6550	1.0000					
ROE	0.2117	0.3240	1.0000				
BEP	0.5594	0.7921	0.2497	1.0000			
CL/E	–0.0563	–0.0818	0.5119	–0.0801	1.0000		
AGE	0.3746	0.3200	0.0535	0.2421	–0.0500	1.0000	
SIZE	0.0462	0.2533	0.1164	0.2775	–0.0315	0.2036	1.0000

Table A5. Multicollinearity test keeping the Current Debt to Asset ratio as the independent variable

	EPS	ROA	ROE	BEP	CL/A	AGE	SIZE
EPS	1.0000						
ROA	0.6550	1.0000					
ROE	0.2117	0.3240	1.0000				
BEP	0.5594	0.7921	0.2497	1.0000			
CL/A	–0.1300	–0.2729	0.1116	–0.1014	1.0000		
AGE	0.3746	0.3200	0.0535	0.2421	–0.1127	1.0000	
SIZE	0.0462	0.2533	0.1164	0.2775	–0.2121	0.2036	1.0000

http://dx.doi.org/10.21511/imfi.21(1).2024.27