

Institutional ownership and dividend decisions in Bangladeshi enterprises: A moderating role of profitability



 **Md. Zakir Hosain**¹⁺

^{1,2}Bangladesh University of Business and Technology (BUBT), Rupnagr, Mirpur-02, Dhaka-1216, Bangladesh.

¹Email: zakirbubtu@gmail.com

 **Md. Parvez Uddin**²

²Email: parvezmduddin@gmail.com



(+ Corresponding author)

ABSTRACT

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This study explores the relationship between institutional ownership and dividend decisions in Bangladeshi enterprises, as well as the moderating impact of profitability on this association. The study uses a sample of 85 Bangladeshi companies, encompassing 1,176 firm-year observations from 2008 to 2023. Panel data are analyzed using descriptive statistics, pairwise correlation, diagnostic tests, and the Tobit model. The Bootstrap standard error estimation technique is applied to enhance model efficiency. The results suggest that profitability significantly strengthens the impact of institutional ownership on dividend payments. Specifically, firms with higher profitability tend to increase dividends when they have substantial institutional shareholding, as institutional investors favor firms that provide stable returns, particularly when the firms demonstrate strong financial health. The findings provide financial managers, portfolio managers, and investors with valuable insights into the association between institutional shareholding and dividend distribution, as well as the effect of profitability on this relationship. Managers can formulate dividend policies aligned with institutional investors' preferences. The findings also enable investors to purchase shares of companies whose dividend policies match their personal preferences. Portfolio managers can use these insights to select the best securities for their clients.

Contribution/ Originality: This study contributes to corporate finance by revealing the impact of profitability on the relationship between institutional shareholding and dividend payout in an emerging market context. Focusing on Bangladesh, it represents the first empirical investigation to examine this relationship using the Tobit model, while also assessing profitability's moderating role.

1. INTRODUCTION

Institutional ownership has a significant influence on financial decisions because institutional investors typically own large stakes in companies and possess considerable expertise and power to influence the company's financial decisions (Brickley, Lease, & Smith Jr, 1988; Chakkravarthy et al., 2023; Setyabudi, 2021). Institutional shareholding thus can influence a firm's decision regarding dividend disbursement (Bataineh, 2021; Gugler & Yurtoglu, 2003). The dividend decision of an enterprise indicates the portion of earnings disbursed to investors (Al-Qahtani & Ajina, 2017; Obaidat, 2018).

In Bangladesh, institutional investors have risen considerably over the last decade (Mollah, Kim, & Basher, 2022; Uddin & Choudhury, 2008), causing institutional shareholding to be a key factor that impacts dividend decisions. Moreover, profitability, leverage, growth opportunity, liquidity, taxation, and firm size also influence dividend distribution (Farooq & Shamsi, 2015; Jensen, 1986; Rashid & Pervin, 2019; Rozeff, 1982). However, the

impact of increasing institutional shareholding on corporate dividend decisions and how profitability influences this relationship have not been examined.

Profitability is a significant variable that impacts the dividend disbursement of enterprises. Profitable enterprises are in a better position to distribute dividends (Mollah et al., 2022; Yousuf, Rahman, & Faruq, 2021). The profitability of the firm significantly impacts the relationship between institutional shareholding and dividend distribution (Farooq & Shamsi, 2015).

This study aims to investigate whether institutional shareholding is a significant driver of dividend payout in Bangladeshi enterprises. Moreover, it focuses on how the relationship between institutional ownership and profitability is moderated by profitability.

By exploring these relationships, this study has contributed significantly to the finance domain. The study has enriched the finance literature by providing new insights into how the relationship between dividend payments and institutional shareholding is moderated by profitability in the context of Bangladesh. Moreover, the study applies the Tobit model, as dividends are either zero or positive, making OLS an inappropriate technique for examining dividend distribution. The appropriate model for a limited dependent variable like dividends is Tobit estimation (Verbeek, 2022). Furthermore, the results of the research provide significant implications for different stakeholders, including company executives, institutional investors, and policy formulators. Investors can select the best securities that suit their preferences for dividends.

The remaining sections are organized as follows: The subsequent part reviews relevant literature, provides a theoretical framework, and discusses research related to institutional ownership, dividend policy, and profitability. The methodology section describes the study design, data collection approach, variables, and analytical techniques. The results and discussion sections interpret the findings and compare them with existing literature. Finally, the conclusion summarizes the main findings, offers policy recommendations, discusses limitations, and suggests directions for future research.

2. LITERATURE REVIEW

Comprehensive research on the association between institutional shareholding and dividend policy, both in developed and developing markets, has been reviewed. These markets do not present the same picture due to varying economic, regulatory, and cultural contexts. Emerging markets often exhibit different corporate governance structures, market inefficiencies, and investor behaviors in comparison with developed markets.

2.1. Empirical Evidence from Foreign Contexts

In the United Kingdom, Faccio, Lang, and Young (2001) find a positive impact of institutional shareholdings on dividend payment, as institutional shareholders can create pressure on firms to distribute excess cash to alleviate the principal-agent problem and lessen the potential for managerial overconfidence. The study in the United States (Short, Zhang, & Keasey, 2002) has demonstrated that institutional shareholders often prefer firms with higher dividend payouts because they perceive high dividend payouts as signals of financial stability and strong governance.

Jain (2007) investigates the dividend preferences of individual and institutional investors by controlling for firm size, leverage, and firm risk using univariate and bivariate tests in the context of the USA. The study indicates that general shareholders prefer to invest in high dividend-paying firms, while institutional shareholders, who benefit from lower tax rates, exhibit a preference for companies that pay lower dividends. Moreover, the study finds that most individual investors prefer cash dividends, whereas institutional investors tend to favor non-dividend-paying stocks.

Afza and Mirza (2011) explore how institutional shareholding impacts dividend decisions among Pakistani listed enterprises. Employing empirical methods to assess whether higher institutional ownership correlates with

changes in dividend policies, the authors show that enterprises with substantial institutional shareholding generally pay higher dividends.

Amin, Dutta, Saadi, and Vora (2015) investigate how unexpected changes in dividend announcements impact stock prices, emphasizing the influence of institutional shareholders in interpreting these signals. They show that institutional shareholders are better at processing and acting on the information conveyed by dividend surprises than individual investors. This enhanced ability to interpret dividend signals leads to more significant stock price adjustments in firms with higher institutional ownership.

Nguyen and Li (2017) find that higher dividend yields do not necessarily attract more institutional investors, and firms do not seem to design their dividend policy to meet the demand of institutional shareholders among Australian-listed firms. In contrast, Jacob and Lukose (2018) found that institutional ownership positively influences dividend payouts in Indian firms. This preference may be due to the monitoring role institutional shareholders play, ensuring that firms pay out excess cash to shareholders instead of retaining it. Furthermore, the study reveals that the existence of institutional shareholders can alleviate the agency problem.

Kilincarslan and Ozdemir (2018) find that UK enterprises with institutional investors having investment for the long term tend to disburse stable and higher dividends than those with short-term shareholders, suggesting that institutional investors have a preference for a stable dividend payout that matches their investment policies and risk preferences. Moreover, the study indicates that this type of institutional shareholder can lessen the principal-agent problem, encouraging management to design investor-friendly dividend policies. Basri (2019) finds that financial leverage and institutional ownership have a negative effect on dividend distributions. In contrast, profitability positively influences them.

Bataineh (2021) examines the effects of various categories of owners on dividend decisions in Jordan. They combine data from 66 industrial and service sector organizations over the 2014–2017 period. Using the Tobit method, the researcher finds a positive relationship between institutional investors and dividend disbursement, while foreign shareholders have a negative connection with dividend disbursement. The study further shows the positive effect of an increase in the number of institutional shareholders, as a form of external control, on the company's dividend payouts. Using path analysis, Setyabudi (2021) finds that profitability, leverage, and institutional ownership positively influence dividend payments.

Chakkravarthy et al. (2023) investigate how promoters and institutional shareholders influence dividend payments and Company value, including age and size of the company as moderating factors. The study uses 253 data points from 23 Indian companies and reveals that both types of holdings positively impact dividend distribution and value of the enterprise. The authors further find that firm age has a moderating effect on promoters' influence on dividend disbursement and firm value, while institutional shareholders' impact on these metrics is moderated by the size of the company. Nurokhmah, Sudarto, and Laksana (2023) find that dividend distribution positively influences the value of the enterprise and that institutional investors enhance this influence. By providing additional monitoring and support, institutional shareholders strengthen the positive impact of dividends on the company's value. The research highlights the significance of institutional shareholding in maximizing the benefits of dividend decisions. These findings offer insights into how firms can leverage institutional investors to improve their market valuation through effective dividend strategies.

2.2. Empirical Evidence from Bangladeshi Contexts

Several researchers have conducted studies in Bangladesh to examine the effect of ownership structure on the performance of firms listed on the Dhaka Stock Exchange Limited (DSE). Ownership and company performance are endogenously determined, and there are two-way causal relationships between ownership structure and company performance, including both linear and nonlinear relationships between ownership structure and company performance (Farooque, Van Zijl, Dunstan, & Karim, 2007). Imam and Malik (2007) explore the relationship among

listed non-financing companies from the DSE from 2000 to 2003. The authors consider Holding Period Return (HPR) as a profitability indicator and the percentage of shares held by different categories of investors as measures of ownership. The outcomes of the research show that foreign investors positively impact company performance, which is credited to the effective implementation of governance practices.

Subsequently, Farooque, Van Zijl, Dunstan, and Karim (2010) examine concentrated ownership's association with firm performance and observe a positive co-deterministic correlation. Rashid (2010) used a linear regression model to analyze non-financial firms listed on the DSE. The study indicates that outside board members are unlikely to add value to the firm's performance.

Meah and Chaudhory (2019) conducted a study using the POLS method on companies listed on the DSE between 2013 and 2017. The study reveals that the participation of women on the board and the size of the board are positively correlated with company performance. In contrast, the study finds that director shareholders and family board members are adversely related to profitability and, as a consequence, negatively impact the company's performance.

Rashid and Pervin (2019) find that board independence and female director participation positively affect Tobin's Q ratio, a measurement of market-based performance, of publicly traded companies. However, the size of the board of directors in Bangladeshi publicly traded banking institutions does not significantly influence the market performance of the banking companies. Furthermore, return on assets (ROA) is not affected by board size, independence, or female participation on the board. Rashid (2010) finds that both foreign and director shareholding positively impact financial performance. Additionally, board size and independence have a partial mediating effect on the relationship between ownership structure and performance.

Rahman and Hossain (2023) investigate the impact of ownership structure and board size on Bangladeshi companies' performance and show that concentrated ownership has an impact on company performance, as major shareholders are more motivated to oversee management. Conversely, they demonstrate that expansion of board sizes causes a reduction in firm performance due to coordination issues and less effective decision-making. Moreover, the study finds that ownership patterns, leverage, and female board members have a positive effect on corporate performance, while institutional shareholding shows no significant effect.

Despite the growing importance of institutional shareholders in Bangladesh, there is a dearth of studies exploring their influence on dividend decisions. This study addresses this gap by investigating the effect of institutional shareholding on dividend decisions in Bangladeshi enterprises and the moderating impact of profitability on this relationship. By providing evidence from Bangladesh, this research contributes to the corporate finance domain within the developing markets context and offers practical insights for stakeholders in the Bangladeshi financial market.

3. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Institutional ownership and dividend policy dynamics can be viewed from different theoretical perspectives, including agency theory, signaling theory, and the pecking order theory. The signaling theory of Ross and Ezra (1977) posits that dividend payouts are an indication of a company's financial strength and future prospects, which institutional investors may prefer. The pecking order theory of Myers and Majluf (1984) indicates that enterprises emphasize internal funding over external funding, influencing their dividend decisions. Agency theory of Jensen and Meckling (1976) suggests that institutional investors, owing to their substantial equity, can reduce the principal-agent problem by influencing management and ensuring that dividend decisions align with shareholder dividend preferences.

Figure 1 presents a theoretical framework of this study that depicts the relationship between institutional ownership (explanatory variable) and dividend payment (dependent variable), as well as control variables and moderating variables used.

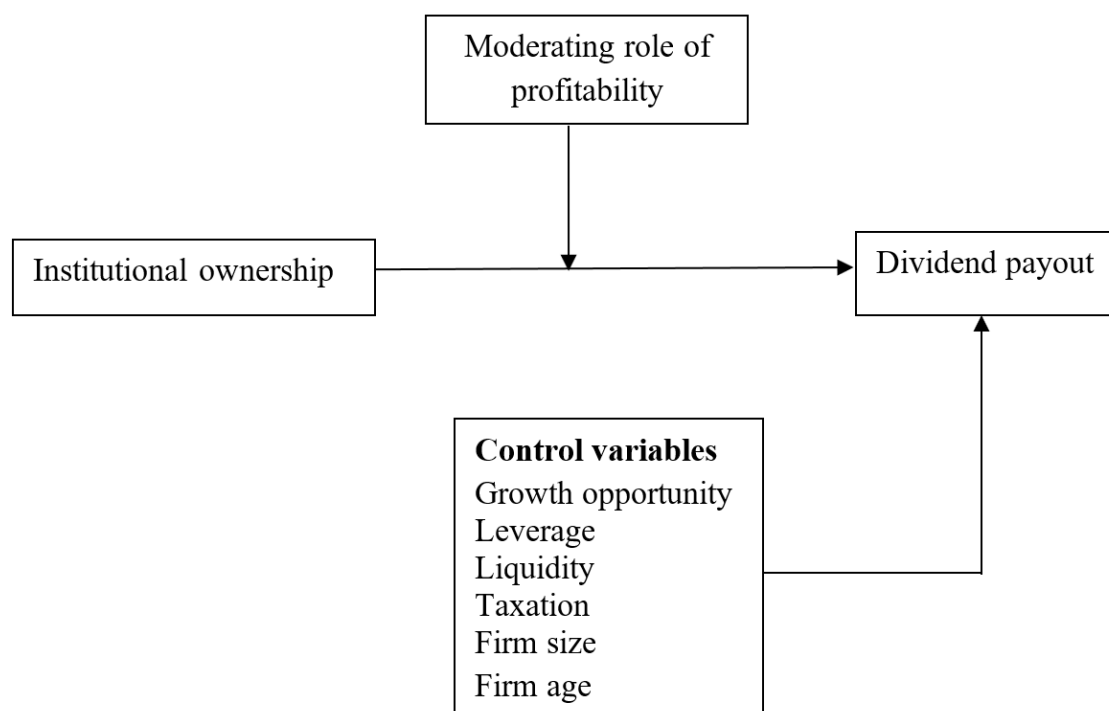


Figure 1. Theoretical framework.

Dividend payout is used as a dependent variable, and institutional ownership is used as the explanatory variable in this research. Growth opportunity, leverage, liquidity, taxation, firm size, and firm age are incorporated as control variables in the framework. To gain insight into how the relationship between institutional shareholding and dividend distribution is moderated by profitability, the study includes profitability as a moderating variable in the framework.

3.1. Institutional Ownership and Dividend Payout

Institutional ownership denotes shareholding by institutions. Institutional investors, who typically seek stable and predictable returns, often advocate for substantial dividend distributions (Fama & French, 2001; Hosain & Islam, 2021; Ratnawati, Wahyunir, & Abduh, 2019). They posit that an increase in institutional shareholding results in increased dividend distribution because these investors prefer cash returns over reinvestment. In contrast, Huang and Zhang (2013) state that institutional investors may sometimes own non-dividend-paying enterprises that reinvest earnings rather than dividend-paying enterprises. This is particularly true for growth-oriented institutions that seek capital gains rather than income. A study by Brav, Graham, Harvey, and Michael (2005) also shows that firms with substantial institutional holdings are more likely to adjust their dividend distribution based on shifting economic conditions, reflecting the pressure from institutional investors for consistent and predictable cash flows. Denis and Osobov (2008) further show that institutional shareholders in developed markets exert influence on firms to maintain or boost dividend distribution. However, in emerging markets like Bangladesh, how institutional shareholders affect payout choices is less pronounced due to different market conditions and regulatory environments. This regional difference highlights the diverse impact of institutional shareholders on dividend strategies across different economic contexts. The studies find that institutional shareholding has a positive effect on payout strategies (Bataineh, 2021; Huang & Paul, 2017; Nurokhmah et al., 2023). Conversely, a negative association between institutional shareholding and payout choices is also shown in different studies (Arora & Srivastava, 2021; Basri, 2019; Gusni, 2017). Thus, the study develops the following hypothesis.

H₁: There is a positive relationship between institutional ownership and dividend payout.

3.2. Profitability and Dividend Payout

Profitability is considered a significant driver of dividend distribution. Lintner (1956) argues that directors of the firms use both current and projected future earnings to determine dividend payments. Furthermore, firms often strive to smooth out dividends, primarily aligning them with earnings trends. Yousuf et al. (2021) and Mollah et al. (2022) show that more profitable companies are prone to distribute dividends, reflecting their ability to support regular payments. Similarly, DeAngelo, DeAngelo, and Skinner (2009) identify a positive association between earnings and dividend distribution, which in turn implies that firms generating more earnings tend to pay higher dividends. Moreover, research by Brockman and Unlu (2011) confirms that net profitability is a significant driver of payout decisions. The following hypothesis is, therefore, developed.

H₂: There is a positive relationship between profitability and dividend payout.

3.3. Moderating Effect of Profitability on the Relationship between Institutional Ownership and Dividend Payout

Profitability signifies a firm's capacity to generate earnings, which can influence the relationship between institutional shareholding and dividend distribution. Profitable enterprises have more resources available for distribution. Even if institutional investors push for higher dividends, the impact is more evident in firms with substantial earnings (Fama & French, 2001; Farooq & Shamsi, 2015). As an investment opportunity, higher profitability might indicate better internal investment opportunities. However, if institutional investors prioritize dividends, they might pressure for payouts despite the availability of profitable reinvestment options (Jensen, 1986). Profitability provides a buffer against financial distress, making managers more comfortable with higher dividend payouts since the financial stability of the companies is at less risk (Lintner, 1956). Therefore, the hypothesis below has been developed.

H₃: Profitability will strengthen the increase in dividend payout associated with institutional ownership.

3.4. Control Variables

Control variables are included in the study to isolate the effect of the explanatory variable on the dependent variable, ensuring that the observed relationship is not influenced by the control variables. If the study does not control for confounding variables by excluding the control variables from the model, the observed relationship between the explanatory variable and the dependent variable may not reflect their true association, potentially leading to misleading or inaccurate results. Growth opportunity, leverage, liquidity, taxation, company size, and company age are included as control variables in the study to ensure that the observed changes in dividend payout are directly attributable to institutional ownership.

4. METHODOLOGY OF THE STUDY

4.1. Research Design

This study employs a quantitative research design utilizing published data from enterprises listed on the Dhaka Stock Exchange. It uses unbalanced panel data to examine the relationship between institutional shareholding and payout policy, as well as how profitability moderates this relationship. At the epistemological level, the study adopts a positivist approach, enabling a comprehensive investigation of the issue. The study incorporates a deductive methodology, beginning with specific hypotheses based on existing theories, prior studies, and established principles.

4.2. Data Collection and Sample Selection

The study first collects the audited annual reports of selected listed firms from the DSE Library. The relevant data are extracted from the annual reports of the companies, the annual reports of BSEC and DSE, and the DSE's monthly review. Sample firms are chosen from eight major sectors, including banking, financial institutions,

engineering, food and allied industries, power and fuel, pharmaceuticals and chemicals, ceramics, and textiles. Sample firms are then selected using a purposive sampling technique, which is appropriate for this study since the technique employs clearly defined criteria to ensure that the data collected are comprehensive and consistent.

The criteria mandate the availability of annual reports and all financial information, including institutional shareholding and dividend payouts. Moreover, companies with negative equity and those that have undergone mergers, demergers, or delisting are excluded to remove potential outliers that could distort the results. Sample firms should have a minimum of ten years of observations, a requirement that further ensures a consistent and ample timeline for analysis. Hashemijoo, Mahdavi Ardekani, and Younesi (2012); Le (2015); Rashid (2010), and Afza and Mirza (2011) utilized the aforementioned criteria for selecting companies. Following these criteria, the researchers have collected 1176 firm-year observations from 85 listed companies on the DSE for a 16-year period between 2008 and 2023. Stata14 has been used for detailed statistical analysis. The selected sectors and firm-year observations are presented in Table 1.

Table 1. Sector, number of firms, and firm-wise observations.

Sector	Number of firms in the sample	Firm-year observations
Bank	18	266
Financial institutions	11	152
Food and allied	8	92
Engineering	10	135
Fuel and power	9	130
Ceramics	6	80
Pharmaceuticals and chemicals	14	196
Textile	9	125
Total	85	1176

Source: Sector-wise classification.

4.3. Variables and Measurement

The key variables in this study are institutional ownership, dividend payouts, and profitability. Furthermore, the study considers six control variables: growth opportunity, leverage, liquidity, taxation, firm size, and firm age. The measurement of the variables follows the methodologies of Al-Qahtani and Ajina (2017); DeAngelo et al. (2009); Obaidat (2018); Rashid (2010), and Tahir, Aslam, and Akhtar (2014). Measures of all the variables are presented in Table 2.

Table 2. Summary of the measurement of the variables.

Variables	Symbol	Measurement
Dividend payout	DP	Cash dividend / Net income
Institutional ownership	INSOW	Number of ordinary shares held by the institution / Total number of ordinary shares
Growth opportunity	GROW	$(\text{Total asset} - \text{Total asset } t-1) / \text{Total asset } t-1$
Leverage	LEV	Total liability/Total assets
Profitability	PROF	Earnings after tax / Total asset
Liquidity	LIQ	Cash and cash equivalents / Total assets
Taxation	TAX	Total taxes paid / Pre-tax income
Firm size	FSIZE	Natural logarithm of total assets
Firm age	FAGE	Natural logarithm of years since listing in DSE

Source: Derived from various literature, e.g., Rashid (2010) and Tahir et al. (2014), etc.

4.4. Analytical Techniques

The study employs various statistical techniques to investigate the data, including descriptive statistics, pairwise correlation analysis, and different diagnostic tests such as heteroscedasticity, multicollinearity, and autocorrelation. It also utilizes two censored regression models, namely the Tobit pooled and random effects models. Additionally, the study calculates the bootstrap standard error estimator to enhance the efficiency of the

models. The best-fitting model is selected based on the outcomes of multiple tests, including the log-likelihood value, Rho value, Akaike Information Criterion (AIC), and Bayesian Information Criterion (BIC). The study also assesses the robustness of the model to ensure the consistency of the results.

The Tobit model is an econometric technique used to analyze data with censored or limited dependent variables (Verbeek, 2022; Wooldridge, 2010). When the dependent variable is fully observed, zeros in the data reflect true values made by the firm being studied. In this instance, the dependent variable exhibits a mixed distribution, characterized by a probability mass concentrated at zero and a continuous distribution for values exceeding zero. The Tobit model is particularly appropriate if the dependent variable includes both zero and non-zero values arising from the same data-generating process, known as a "corner solution." Therefore, Tobit models provide a valid estimation approach, especially when zeros represent actual values rather than imputed or missing data.

In the listed companies of Bangladesh, regarding cash dividend payments, Bangladeshi enterprises have only two choices: they either pay dividends or do not. As negative dividends are not possible, the dependent variable, dividend payout ratio, can only take on two values: positive values indicating cash dividend distribution and zero implying no cash dividend distribution (Bataineh, 2021). Due to this distinctive characteristic of the dependent variable, POLS regression is not appropriate for evaluating dividend payments, as it can lead to biased outcomes. This research applies the Tobit model to examine the linkage between institutional shareholding and dividend payments. To ensure the reliability of the results, the dependent variable, dividend payout, is censored at zero (Al-Najjar & Kilincarslan, 2016). The Tobit model presumes the presence of a latent variable y_i^* that represents the underlying tendency or propensity of y_i to attain values higher than zero (Bataineh, 2021).

The Tobit model can be expressed with the following equation.

$$y_{it}^* = \alpha_1 + \beta_1 x_{1it} + \dots + \beta_n x_{nit} + \varepsilon_{it}$$

The relationship between the observed and latent variables can be represented more simply as follows.

$$y_{it} = y_{it}^* \quad \text{if } y_{it}^* > 0,$$

$$y_{it} = 0 \quad \text{if } y_{it}^* = 0$$

If the i -th company pays a dividend in t -th year, then its propensity y_{it}^* is positive. If the i -th company does not pay a dividend in t -th year, then its propensity y_{it}^* is zero.

The model can be expressed in terms of the observed variable as follows:

$$y_{it} = \alpha_1 + \beta_1 x_{1it} + \dots + \beta_n x_{nit} + \varepsilon_{it} \quad \text{if } y_{it} > 0$$

$$= 0 \quad \text{otherwise}$$

Thus, a Tobit model can estimate the probability of observing a zero outcome and the distribution of the variable y_{it} , under the condition that it is positive.

Empirical models: The following regression models are utilized to test the hypotheses of the research.

4.4.1. Tobit Pooled Method

$$DP_{it} = \alpha + \beta_1 INSOW_{it} + \beta_2 PROF_{it} + \beta_3 INSOW_{it} * \beta_3 PROF_{it} + \beta_4 GROW_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \beta_7 TAX_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + e_{it} \quad (1)$$

Here, e_{it} denotes the error term; $i = 1, 2, 3, \dots, 85$; $t = 1, 2, 3, \dots, 16$, α denotes the intercept, and $\beta_1, \beta_2, \dots, \beta_7$ are the coefficients of independent and control variables. DP represents dividend payout, INSOW stands for institutional ownership, GROW stands for growth opportunity, LEV represents leverage, PROF denotes profitability, LIQ stands for liquidity, and FSIZE symbolizes firm size, $INSOW * PROF$ represents a moderating variable.

4.4.2. Tobit Random Effect Method

$$DP_{it} = \alpha + \beta_1 INSOW_{it} + \beta_2 PROF_{it} + \beta_3 INSOW_{it} * \beta_3 PROF_{it} + \beta_4 GROW_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \beta_7 TAX_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + (u_i + e_{it}) \quad (2)$$

Here, u_i indicates the individual error component, and e_{it} is a common error term that consists of the composite error term $\omega_{it} = (u_i + e_{it})$.

To verify the robustness of the study's results, Models 3 and 4 have been applied using an alternative measure of dividend payment, namely dividend yield.

$$DY_{it} = \alpha + \beta_1 INSOW_{it} + \beta_2 PROF_{it} + \beta_3 INSOW_{it} * \beta_3 PROF_{it} + \beta_4 GROW_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \beta_7 TAX_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + e_{it} \quad (3)$$

$$DY_{it} = \alpha + \beta_1 INSOW_{it} + \beta_2 PROF_{it} + \beta_3 INSOW_{it} * \beta_3 PROF_{it} + \beta_4 GROW_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \beta_7 TAX_{it} + \beta_8 FSIZE_{it} + \beta_9 FAGE_{it} + (u_i + e_{it}) \quad (4)$$

5. RESULTS AND DISCUSSION

Table 3 provides a summary of descriptive statistics for each variable in the sample of 71 DSE-listed companies in Bangladesh from 2008 to 2023.

Table 3. Descriptive analysis.

Variables	Observation	Mean	Standard deviation	Minimum	Maximum
DP	1176	0.462	0.613	0.000	7.681
INSOW	1176	0.179	0.109	0.000	0.657
PROF	1176	0.052	0.067	0.000	0.537
GROW	1176	0.146	0.253	-0.985	4.661
LEV	1176	0.693	0.217	0.051	0.969
LIQ	1176	0.096	0.107	-0.462	0.679
TAX	1176	0.314	0.222	0.000	2.568
FSIZE	1176	22.280	2.323	17.023	28.123
FAGE	1176	2.885	0.658	0.000	3.829

The data in Table 3 illustrates that the mean and standard deviation of dividend payout are 46.18% and 61.26%. During the period, the average and standard deviation of institutional ownership are 17.88% and 10.90%. This study also uses different control variables, namely growth opportunity, leverage, liquidity, corporate taxation, firm size,

and firm age. The liquidity has a mean of 9.60% and a standard deviation of 10.70%. The maximum and minimum values of liquidity are respectively 67.90% and -46.17%. These statistics for the other control variables are shown in Table 3.

Table 4 demonstrates the pair-wise correlation for all variables included in the regression. In many cases, the correlations between the variables are moderately low. Institutional shareholding has a significant positive correlation with dividend distribution. The correlation coefficient between profitability and dividend payout is 0.024. None of the correlation coefficients is 0.80, suggesting no multicollinearity among the variables (Lewis-Beck, 1980). Additionally, the VIF test has been conducted to check for multicollinearity among the variables.

Table 4. Pairwise correlation coefficients of the variables.

Particulars	DP	INSOW	PROF	GROW	LEV	LIQ	TAX	FSIZE	FAGE
DP	1.000								
INSOW	0.122*	1.000							
PROF	0.024	-0.148*	1.000						
GROW	-0.153*	-0.024	-0.003	1.000					
LEV	-0.110*	0.062	0.478*	0.002	1.000				
LIQ	-0.063	-0.005	0.153*	0.059	0.178*	1.000			
TAX	0.186*	0.011	-0.041	0.041	0.311*	0.039	1.000		
FSIZE	-0.168*	0.083*	0.255*	0.077*	-0.545*	0.218*	0.227*	1.000	
FAGE	0.088*	0.111*	0.177*	-0.057	0.343*	-0.160*	-0.028	-0.221*	1.000

Note: p-values related to the tests * represent the 5% level of significance.

The research conducts multicollinearity, autocorrelation, and heteroscedasticity tests to identify problems with residuals and model specifications. These tests are necessary to ensure that the coefficients are reliable and accurately represent the underlying variables. Table 5 presents the results of multicollinearity tests.

Table 5. Multicollinearity test.

Particulars	Variance inflation factors (VIF)	1/VIF
INSOW	1.05	0.950
PROF	1.46	0.687
GROW	1.02	0.984
LEV	1.95	0.514
LIQ	1.16	0.861
TAX	1.14	0.876
FSIZE	1.48	0.674
FAGE	1.19	0.840
Mean Value	1.31	0.80

VIF greater than 10 and the tolerance (1/VIF) value less than 0.10 indicates severe multicollinearity (Hair, Babin, Black, & Anderson, 2018). The Variance Inflation Factor (VIF) of each variable is not more than 10, and the tolerance is not less than 0.10, indicating no multicollinearity issue in the regression model. Consequently, multicollinearity is not a concern in this study. The mean values of the VIF and the tolerance of the variables are 1.31 and 0.80, respectively.

Table 6. Autocorrelation and heteroscedasticity test.

Summary of Wooldridge test and White test		
Tests groups		
Particulars	Wooldridge test	White test
Null hypothesis	No auto correlation in first order	No heteroscedasticity in the data
Test statistics	F(Prob.>F)	Chi ² (Prob.> Chi ²)
	0.230 (0.633)	140.75*** (0.000)

Note: *** represent the level of significance at 1%.

Table 6 illustrates the results of the Wooldridge test and the White test used to check for the presence of serial autocorrelation and heteroscedasticity. The Wooldridge test assesses correlation within panel data and tests the null hypothesis of no first-order autocorrelation across all years. The null hypothesis can be rejected based on the results, indicating the absence of autocorrelation in the model. To check for heteroscedasticity, the study applies the White test. The results show a significant null hypothesis, implying heteroscedasticity.

The study chooses appropriate models based on diverse goodness-of-fit methods so as to obtain reliable and accurate estimates. Table 7 shows the outcomes of various goodness-of-fit tests.

Table 7. Log likelihood ratio (LLR) test and Rho value.

Particulars	Result of the test
Null hypothesis	Ho: There is no panel-level effect
Log likelihood ratio (LLR) test	Chi2 (Prob.>Chi2) 163.76 *** (0.000)
Rho value	0.280

Note: *** represent the level of significance at 1%.

The log-likelihood ratio test and rho value are used to select the best-fitting model between the Tobit pooled and random effects models. A statistically significant LLR statistic, along with the highest rho value (greater than zero), indicates that the Tobit random effects model is the most appropriate, as it accounts for panel-level effects.

This study also employs the Akaike and Bayesian Information Criteria to select the best-fitting model between the Tobit pooled model and the Tobit random effects model. Table 8 illustrates the results of the tests.

Table 8. Akaike and Bayesian information criterion.

Test statistics	Akaike information criterion (AIC)	Bayesian information criterion (BIC)
Tobit pooled model	1803.95	1857.29
Tobit random effect model	1683.56	1741.75

To identify the superior fit model, the AIC and BIC values are computed after estimating both models on the dataset. Lower AIC and BIC values indicate a better fit, suggesting that the Tobit random effects model provides consistent and unbiased estimates.

A lower AIC suggests that the model has a better balance between goodness of fit and complexity, effectively capturing the underlying data structure. Similarly, a lower BIC value indicates more efficient use of parameters, penalizing models with excessive complexity. This is why the study selects the outcome of the Tobit random effects model.

By applying the Wooldridge test and the White test, researchers have demonstrated that the data is free from first-order autocorrelation, but heteroscedasticity is present. Therefore, a bootstrap standard error estimator is used to address these issues and optimize the model's efficacy, particularly for the random effects model.

The research employs Tobit pooled and random effects methods to assess the impact of institutional shareholding on dividend decisions in Bangladeshi enterprises. Additionally, the study examines how profitability functions as a moderating factor in this relationship, after controlling for other variables such as growth opportunity, financial leverage, liquidity, corporate taxation, firm size, and firm age. The standard error values for each coefficient are provided in parentheses. Table 9 shows the results of the Tobit pooled and random effect model with the bootstrap standard estimation technique. The research chooses the random effect outcomes as superior based on different model selection criteria.

Table 9. Results of Tobit model: Pooled and random effects with bootstrap standard errors.

Variables	Tobit pooled model (Model:1)	Tobit random effect model (Model:2)
INSOW	1.889*** (0.471)	2.172*** (0.884)
PROF	3.742*** (0.753)	2.862*** (0.934)
INSOW * PROF	4.526*** (0.942)	4.259*** (0.984)
GROW	-0.352** (0.559)	-0.238 (0.153)
FLEV	-0.0447*** (0.074)	-146 (0.183)
LIQ	0.041 (0.145)	0.146*** (0.075)
TAX	0.689*** (0.191)	0.861*** (0.281)
FSIZE	-0.048*** (0.010)	-0.050** (0.026)
FAGE	0.0599* (0.031)	0.231*** (0.048)
Constant	1.1502*** (0.244)	0.431 (0.542)
Wald Chi2	82.33	39.03
Prob. > chi2	0.000	0.000
Log likelihood value	-890.973	-829.77

Note: *** represent the level of significance at 1%, ** be a symbol of 5% significance level and * denote a 10% significance level.

The significant Wald Chi2 statistic indicates that the Tobit random model is highly significant. Beta coefficients of the variables are significant, indicating their substantial relationship with dividend payouts. The results of the models reveal that a positive relationship between institutional ownership and dividend payouts is significant at a 1% significance level. Similarly, profitability has a significant positive association with dividend disbursement.

The outcomes of the Tobit random effects model align with researchers' expectations for Hypothesis 1, indicating that an increase in institutional ownership (INSOW) by one unit results in a rise in dividend distribution by 2.1717 units, with other variables held constant. This outcome aligns with prior studies carried out by [Bataineh \(2021\)](#) and [Nurokhmah et al. \(2023\)](#). It contends that companies with substantial institutional shareholding are more likely to follow a more favorable dividend disbursement. More dividend payments are due to the significant pressure that institutional shareholders can exert on managers. Therefore, a larger number of institutional shareholders can ensure better monitoring of external management, leading to a decline in agency costs and an increase in company value.

The Agency theory of [Jensen and Meckling \(1976\)](#) can be used to give an explanation of the findings. This theory suggests that a reduction in monitoring expenses allows management to allocate more profits to shareholders. The Institutional shareholders can capitalize on this opportunity by holding a substantial stake in equity and applying pressure to boost dividends. [Jensen \(1986\)](#) contends that enterprises tend to distribute free cash flow effectively when strong monitoring systems are implemented. The author notes that institutional shareholders ensure effective monitoring, implying that considerable institutional shareholding boosts dividend payouts.

Companies tend to increase dividends when they earn more profit. A significant positive coefficient of profitability indicates a positive association between profitability and dividend disbursement, suggesting that profitable companies in Bangladeshi enterprises enhance dividend disbursement when they are profitable. This positive association is due to the increased financial ability of the enterprises to disburse dividends as a result of higher profits. The findings coincide with the findings of research conducted by [Al-Najjar and Hussainey \(2009\)](#) and [Obaidat \(2018\)](#). [Miller and Modigliani \(1961\)](#) suggest that a more profitable company is more likely to distribute dividends, as the company has adequate funds to make dividend distributions while also allocating resources for growth initiatives.

The result of the Tobit random effect indicates a significant positive moderating effect of profitability, implying that profitability strengthens the impact of institutional shareholding on the dividend distribution of Bangladeshi firms. This finding suggests that in highly profitable firms, institutional investors tend to exert pressure on management for higher dividends since the firms have ample funds to disburse dividends without compromising financial stability. This finding aligns with studies indicating that institutional shareholding typically leads to

higher dividend distribution, especially when enterprises are profitable, as it signals financial soundness and reduces agency problems (Obaidat, 2018; Short et al., 2002). Profitable companies with large institutional shareholdings tend to disburse more dividends, indicating a preference for dividend distribution during periods of strong financial health.

The taxation on the income of the Bangladeshi enterprise has a positive relation with dividend disbursement. The study carried out by Ince and Owers (2012) shows the same association. Higher tax rates on dividend income may encourage enterprises to disburse more dividends to avoid additional tax burdens for investors and to increase investors' value. Moreover, high corporate tax rates may prompt firms to pay profits as dividends to reduce the tax liability associated with retained earnings.

The positive association between liquidity and dividend disbursement implies that Bangladeshi firms prefer to distribute more dividends when they have higher liquidity. The results indicate that companies with greater access to liquidity have increased financial freedom to disburse dividends to owners while ensuring operational needs or financial stability. Higher liquidity enables firms to meet obligations and utilize excess cash for dividends. A similar finding is reported by Gill and Obradovich (2012). The study explains that firms with adequate liquidity are able to fulfill their financial needs while disbursing higher dividends, as they can meet liquidity requirements. This pattern is common in emerging markets like Bangladesh, where companies with strong liquidity positions use dividend distribution to signal financial stability and maintain shareholder confidence.

The statistically significant negative relationship between firm size and dividend payouts among Bangladeshi enterprises implies that big enterprises are inclined to pay reduced dividends to investors. The study by Kent Baker, Chang, Dutta, and Saadi (2013) confirms these findings, revealing that as enterprises grow in size, their dividend payments tend to decline. Similarly, Michiels, Voordeckers, Lybaert, and Steijvers (2015) find that larger enterprises often prefer the reinvestment of profit to the distribution of dividends. These results indicate that larger enterprises typically prioritize reinvesting earnings into investment opportunities for long-term growth and maintaining financial stability over the immediate distribution of dividends.

The significant positive connection of firms' age to dividend distribution implies the tendency of older Bangladeshi companies to pay more dividends. A study by DeAngelo et al. (2009) also finds that mature companies with consistent profits and solid reputations tend to pay dividends consistently. Likewise, Aivazian, Booth, and Cleary (2003) suggest that long-established companies tend to disburse more dividends owing to their stable cash flows and well-established market positions. This trend reflects the stability and accumulated profits of mature companies, which may lead them to adopt a more regular dividend payout strategy.

Table 10. Results of Tobit model: pooled and random effects with bootstrap standard errors (dividend yield as a proxy variable for dividend policy).

Variables	Tobit pooled model (Model:3)	Tobit random effect model (Model:4)
INSOW	0.065*** (0.011)	0.069*** (0.022)
PROF	0.135*** (0.029)	0.094** (0.049)
INSOW * PROF	0.185*** (0.047)	0.113** (0.065)
GROW	-0.018** (0.009)	-0.015* (0.008)
FLEV	0.006 (0.005)	0.007 (0.011)
LIQ	0.034*** (0.010)	0.032** (0.017)
TAX	0.010** (0.005)	0.005 (0.005)
FSIZE	0.002*** (0.004)	0.004*** (0.008)
FAGE	0.0066*** (0.001)	0.0135*** (0.003)
Constant	-0.0725*** (0.011)	-0.1177*** (0.0120)
Wald Chi2	115.18	96.37
Prob. > chi2	0.000	0.000
Log likelihood value	1454.65	1454.65

Note: *** represent the level of significance at 1%, ** be a symbol of 5% significance level and * denote the 10% significance level.

To ensure that results are robust, the study runs the model using dividend yield instead of dividend payout as a proxy for the dividend decision. Table 10 shows the results of the Tobit model using dividend yield. These findings are consistent with the results of the earlier model. The outcomes confirm the previous findings that institutional shareholding and profitability are positively related to dividend distribution. Additionally, the findings further confirm that profitability moderates the association between institutional shareholding and dividend disbursement. The relationships concerning liquidity, firm size, and firm age are in line with earlier findings.

The analysis also reveals that, while taxation is initially found to impact dividend policy significantly, its effect becomes insignificant upon further testing, suggesting that its influence might be context-dependent or less consistent across different conditions. Overall, the robustness checks highlight that profitability and institutional shareholding play a significant role in dividend distribution strategies.

6. CONCLUSION, POLICY IMPLICATIONS AND LIMITATIONS

This study examines the relationship between institutional shareholding and dividend decisions in Bangladeshi enterprises and how this relationship is moderated by profitability. The study uses quantitative techniques to analyze data consisting of 1,176 firm-year observations from 85 Bangladeshi enterprises listed on DSE over a 16-year period from 2008 to 2023. The findings indicate that profitability significantly amplifies the impact of institutional shareholding on dividend distribution. Moreover, highly profitable enterprises tend to increase dividend distribution when institutions hold a significant stake in equity. Institutional shareholders tend to prefer companies with consistent dividend distributions. This demonstrates that profitability enhances a firm's capacity to meet the preferences of institutional shareholders for stable dividend disbursements while maintaining financial soundness.

The study's findings have significant implications for corporate executives, investors, and policymakers. Corporate managers should align dividend decisions with institutional investors' preferences, particularly in profitable firms, balancing dividend payouts with reinvestment for long-term growth. Institutional investors should advocate for consistent dividends in profitable firms, ensuring financial health while closely monitoring profitability trends. Policymakers should promote transparency in corporate governance and establish clear guidelines for dividend policies, encouraging institutional shareholders to support both short-term returns and lasting value creation. This study also provides valuable insights for general and institutional investors, helping them identify stable investment opportunities. It also informs regulatory authorities, such as the DSE and BSEC, about the importance of policies that support profitability and attract institutional investors. Moreover, the study contributes to corporate governance practices by highlighting how institutional ownership and profitability can lead to better dividend policies. For researchers and academicians, it offers a foundation for further investigation into dividend payout, while money managers can use this knowledge to redesign investment strategies for improved portfolio performance.

There are hardly any studies conducted without some limitations. Despite offering valuable insights, this study is subject to several constraints. The results of the research may not apply to other markets, as it investigates enterprises listed solely on the Dhaka Stock Exchange Limited. The study may not fully reveal the effect of foreign institutional investors, as many companies do not disclose this information separately. The study covers a specific timespan, potentially missing changes in economic conditions or governance reforms that could affect the relationship between institutional shareholding and dividend distribution.

Future research could expand this study by exploring other moderating variables such as leverage, firm size, and growth prospects, which may influence the relationship between institutional shareholding and dividend distribution. Cross-country comparisons, including other emerging markets, could offer a broader perspective on how institutional shareholding affects dividend policies in different regulatory environments. Furthermore, as

foreign institutional investment in Bangladesh continues to grow, additional studies could investigate its impact on dividend decisions.

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