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Ownership structure and dividend payout of listed firms in Bangladesh: An application of the Tobit model

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ABSTRACT

This study investigates the impact of ownership structure on the dividend payout of firms in Bangladesh over a fourteen-year period from 2008 to 2021. It considers managerial ownership, institutional ownership, and individual ownership, along with eight control variables, to identify their effects on dividend payout. The research employs multiple techniques to analyze the collected panel data, including the Tobit pooled and Tobit random effect models. To improve the efficiency of these models, the study applies bootstrap standard error estimation. The results reveal that institutional ownership (INSOW) is positively associated with dividend payout, indicating the influential role of institutional investors in dividend decisions. These findings are significant for investors, researchers, policymakers, and company management regarding dividend payout strategies. The study provides empirical validation for agency theory by demonstrating that institutional investors reduce monitoring costs, offering a clear policy impetus for regulators to encourage greater institutional ownership as a mechanism to protect minority shareholders. Additionally, it offers valuable insights into how various ownership structures influence dividend decisions in emerging countries, specifically within the context of Bangladesh. This research fills a notable gap in the existing literature on corporate payouts. The findings have important implications for investors, providing a framework for both individual and institutional investors to identify stable investment opportunities.

Contribution/ Originality: This study contributes to the existing literature by exploring the influence of ownership structure on dividend payouts in Bangladesh's listed companies. It offers new insights into resolving theoretical debates in a specific emerging market context and enhances understanding by employing the Tobit model, which is suited for censored dividend data, yielding practical insights for stakeholders.

1. INTRODUCTION

The ownership structure has occupied a central and indispensable position in the extensive body of corporate finance literature. A small group of dominant shareholders exerts control and imposes regulation over the ownership of companies in Bangladesh (Reza & Faysal, 2021). The ownership structure of a limited number of companies is separated. The ownership structure represents the equity contribution with regard to votes and capital. Sound corporate practice is an instrument for protecting the equity holders' interests by directing the management of an

enterprise in such a manner that it provides value to them. This decision-making process is influenced by how a company allocates its capital.

Corporate boards in Bangladesh typically follow a one-tier structure, which is similar to the boards of directors in several continental European countries. However, this structure is not common in countries such as Britain, France, and Spain. At one level, all executive and non-executive directors simultaneously carry out their duties (Lima & Hossain, 2018; Rashid, 2011; Rashid, De Zoysa, Lodh, & Rudkin, 2010). In developed countries, firms nominate professional managers who do not have a share of equity in the companies. However, in most companies in Bangladesh, managers are family members who are dominant shareholders. Moreover, as in many Anglo-American nations, external shareholders are powerless to challenge the administration of the companies because of their limited voting powers. Obaidat (2018) argues that in emerging countries, a large part of the company is typically held by its board of directors.

Sponsor shareholders retain a large portion of the equity. They hold around 43% of the total stock ownership. As usual, these sponsor shareholders come from the founder's family and often have managerial positions in the company. Individual shareholders possess around 38% of the equity. Institutional shareholders, who hold 10% of the equity ownership, sometimes appoint their representatives as directors. The foreign investors hold a mere 1% of the company's stock (World Bank, 2009).

The dispute between controlling and minority owners of shares is the main agency conflict within listed enterprises in Bangladesh. The majority of controlling owners, such as managers, directors, and/or sponsors, are board members and hold decision-making positions (Chakraborty, 2023; Rahman & Khan, 2022; Tayachi, Hunjra, Jones, Mehmood, & Al-Faryan, 2023). They tend to use inside information to maximize their own interests. The general public ownership has almost no monitoring or control over corporate management.

Managerial shareholders, who hold both managerial positions and ownership stakes in a company, are key in aligning their interests with the performance and success of the company. Their dual responsibilities enable them to influence corporate management by actively engaging in strategic decision-making and closely monitoring managerial actions. Khan (2020) argues that greater levels of executive ownership are likely to enhance dividend disbursement. Institutional ownership is believed to be associated with superior information-gathering and monitoring capabilities (Allen, Bernardo, & Welch, 2000). Individual investors can receive more dividends if institutional investors are more informed and/or if institutional investors are better able to limit the costs of agency through their active monitoring. Companies with large institutional shareholders tend to pay higher dividends to shareholders due to their dominant influence on the board.

The ownership structure of Bangladeshi listed companies varies from one to another. Some companies may have more managerial ownership, while others may have more institutional and individual ownership. The different compositions of ownership may influence dividend payments. Decisions regarding dividend disbursement and earnings retention are often challenging. They reflect the firm's strategic and financial position, indicating its future prospects, financial stability, and management's confidence (Moin, Guney, & El Kalak, 2020; Setiawan, Aryani, Yuniarti, & Brahmana, 2019). The owners of a company are shareholders. However, not all shareholders are concerned about whether to express their views on the policies adopted at the Annual General Meeting, particularly regarding the decision on dividend payouts.

This research contributes significantly to the corporate finance domain. Most of the company's ownership structure is highly concentrated, and firms are frequently controlled by a few related investors. For a developing country like Bangladesh, the ownership structure can be noteworthy in shaping and understanding a firm's dividend decision. Although few studies Baker, Dam, and De Ridder (2021); Le and Le (2017); Miller and Modigliani (1961); Nguyen and Li (2020), and Obaidat (2018) have been conducted in this area based on developed capital markets and have yielded contradictory results. This area remains relatively unexplored in emerging markets, particularly in

Bangladesh. The research gap persists from both theoretical and empirical perspectives. Therefore, this study aims to address these gaps by evaluating how ownership structure influences dividend disbursement.

This study aims to investigate the association of dividend payments by listed companies in Bangladesh with different ownership groups, including managerial, institutional, and individual ownership. Institutional and managerial ownership are hypothesized to positively affect dividend payout, while individual ownership is expected to have a negative effect on payout. This paper uses the Tobit model as a statistical technique to explain how ownership structure affects dividend payments. The Tobit model is appropriate for this study due to its ability to handle the censored nature of dividend payout data (Verbeek, 2021; Wooldridge, 2010).

This paper contributes to the literature by examining whether different characteristics of ownership structure can explain differences in dividend payout. It has theoretical significance by providing comprehensive insights into how ownership structure affects dividend payments, particularly in the context of emerging markets. It also offers empirical evidence to assess the relevance of various theories, such as agency, free cash flow, and life cycle theory, in an emerging country like Bangladesh. Additionally, this paper provides knowledge to company executives, policymakers, investors, and practitioners, supporting evidence-based strategic decisions.

The remainder of the paper is organized as follows: Section 2 reviews relevant literature on dividend disbursement and ownership structure. Section 3 presents the theoretical background and hypotheses. The research methodology is presented in detail in Section 4. Results and discussion of the study are presented in Section 5. The results are discussed in Section 6, where explanations based on current theories and prior research are provided. The last section offers findings, implications, and limitations of this paper.

2. LITERATURE REVIEW

The nexus between ownership composition and dividend payment is extensively studied in different economies. The findings differ because of variations in the economic environment, legal regime, time horizon, and cultural differences.

2.1. Empirical Evidence from Foreign Context

In the United States, Jain (2007) investigates individual and institutional investors' preferences for dividends by controlling for firm size, leverage, and firm risk using univariate and bivariate tests. The results of the study show that individual stockholders prefer to invest in large dividend-yielding equities compared to wealthy institutional investors, but the opposite is true for institutional investors who pay lower taxes. Moreover, most individual investors choose cash dividends, whereas institutional investors favor non-dividend-paying enterprises.

Studying Korean enterprises from 1998 to 2003, Chai (2010) finds that a rise in foreign ownership results in higher dividend payments. In the case of large and export-oriented firms, the author argues that foreign investors favor companies with a strong M/B ratio and a low debt-to-total assets ratio. Lam, Sami, and Zhou (2012) show in their study that both cross-listing and foreign shareholding significantly and negatively influence dividend payments, which aligns with the signaling theory. The authors also argue that firms with more state ownership disburse more cash dividends, whereas firms with large individual ownership disburse more stock dividends.

Roy (2015) shows that board size, outside directors, and non-executive members of the board significantly and positively affect the payout of Indian firms. Investigating the influence that various shareholders have in shaping 100 Saudi non-manufacturing firms' dividend payout decisions from 2012 to 2015, Al-Qahtani and Ajina (2017) show a negative relationship between family stockholders and dividends.

Obaidat (2018) demonstrates a positive relationship between DPS and ownership composition. This study also finds a strong influence of institutional and management-controlling interests on Jordanian firms. Setiawan et al. (2019) analyze the situation in Indonesia using data from 2000 to 2015. This paper shows the influence of corporate

ownership on dividend payout policy. It also reveals that family ownership is positively related to dividend disbursement, while government and foreign shareholders are negatively associated with dividend disbursement.

Moin et al. (2020) analyze the dividend policy of enterprises in Indonesia based on their decisions to retain more cash or engage in excess investment across different sectors, incorporating data from 1995 to 2014. The findings provide evidence that holding too much cash exerts a positive effect on dividend distribution, while overinvestment reduces the probability of dividends. In addition, family, foreign, government, and institutional owners present significant inverse relationships with dividend payments.

Nguyen and Li (2020) examine the nexus between dividend payout and institutional ownership in the ASE. The authors review 1,140 measures of entities belonging to firms over three separate sub-periods during the period between 2001 and 2015. The findings of the univariate test indicate that institutional investors prefer dividend-paying enterprises to non-dividend-paying enterprises. However, multivariate tests indicate that institutional ownership is not significantly related to dividends.

Tayachi et al. (2023) report that managerial and concentrated shareholding have a positive impact on debt financing, but a negative effect on dividend payments. In contrast, the proportion of institutional ownership has a positive influence on financing and dividend policies. Baker et al. (2021) explore the stockholding and payout policies of Swedish firms and report that corporate maturity is positively associated with dividends, a result consistent with the lifecycle hypothesis.

In China, Bian, Kuo, Pan, and Zhang (2023) reveal that higher executive shareholding is associated with dividend tunneling, especially when the protection of minority shareholders is low. The state ownership further aggravates the situation. This study contributes to understanding agency problems in emerging markets, focusing on how cash dividends can be used as a tunneling device through certain ownership structures.

Pinto, Rastogi, and Kanoujiya (2022) show that none of these ownership structures has a severe impact on dividend policy in Indian enterprises, as indicated by static and dynamic models. Boshnak (2023) states that board meeting frequency, institutional shareholding, and profitability positively influence the payment of dividends, while CEO duality and managerial shareholding negatively affect dividend payments in Saudi Arabian firms. Kaur and Kaur (2025) reveal that board size significantly and positively impacts dividend distribution. Moreover, they disclose that managerial shareholding has no effect on dividend distribution, whereas institutional shareholding does.

2.2. Empirical Evidence from the Bangladeshi Context

In Bangladesh, many studies have investigated the nexus between ownership composition and the performance of Bangladeshi enterprises. However, research on ownership structure and payout decisions of enterprises in Bangladesh remains limited.

Al Farooque, Van Zijl, Dunstan, and Waresul Karim (2010) assess the linkage between concentrated shareholders and enterprise performance, revealing a positive and co-deterministic nexus between concentrated shareholders and the performance of the enterprises. However, Rashid et al. (2010) reveal that the presence of external directors does not significantly contribute to enhancing an enterprise's performance.

Lima and Hossain (2018) examine the linkage between ownership composition and enterprise performance in Bangladesh and indicate that higher concentration of managerial ownership may mitigate agency problems and enhance corporate performance. Yet, when members of top management are family-based, managerial ownership may facilitate fund expropriation via perquisites at the expense of market performance in these firms.

Reza and Faysal (2021) note that institutional shareholders have an insignificant but negative effect on return on assets (ROA), while managerial and foreign ownership are found to significantly and positively influence ROA. The control variables indicate that enterprise size positively impacts ROA, but leverage has a negative effect. In the related paper, Chakraborty (2023) conducts several analyses to examine the impact of seven central corporate governance

attributes. This paper reports that board size and meeting frequency have an insignificant negative influence on performance, while board independence as well as institutional shareholding exert significant positive influence.

Though there are numerous studies on ownership structure and its relation to firm performance, few studies have been found to investigate the nexus between ownership composition and dividend disbursement. Therefore, the study explores this linkage using extensive data from 2008 to 2021. Furthermore, the application of the Tobit model in the context of dividend payout in emerging markets is limited. Therefore, an opportunity exists to make a significant contribution to understanding how ownership influences dividend decisions. In this regard, the Tobit model is very appropriate for this research because of its ability to cope with the censored nature of dividend payout data. This backdrop provides an opportunity for researchers to further explore this topic. Therefore, this research adds to the existing knowledge by making an investigation into the relationship between ownership structure and dividend payout of listed firms in Bangladesh by using the Tobit model.

3. THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT

Agency theory by Jensen and Meckling (1976) provides an explanation for the connection between dividend disbursement and different ownership structures, namely managerial, institutional, and individual. Under this hypothesis, managerial shareholders would withhold earnings from cash dividend payments in order to use these retained earnings for growth consistent with long-term value creation. However, institutional investors prefer more dividends in order to lower agency costs by encouraging external monitoring and financing, allowing boards to allocate more profits to investors. This confirms the Jensen (1986) free cash flow theory, which theorizes that effective monitoring by institutional investors results in enhanced demand for dividend payouts.

According to Mueller (1972), new firms initially allocate all their available capital to investment in growth and innovation. Subsequently, they experience rapid growth. When they reach maturity, their capacity for further expansion diminishes, and they begin to generate more cash than they can effectively reinvest. At this mature stage, companies may start paying dividends as the need for growth-driven reinvestment declines. The transaction cost theory of dividends, developed by Fama (1974), illustrates the impact of transaction costs on dividend decisions. Unlike Miller and Modigliani (1961), who assumed no transaction costs, this theory considers costs incurred by both firms and shareholders. Firms face costs when paying dividends, while shareholders encounter costs when receiving and reinvesting them. Consequently, companies tend to finance dividends from retained earnings rather than external sources. Many shareholders prefer cash dividends over stock dividends due to transaction costs. However, the theory does not directly advocate high cash dividends as a means to maximize firm value. Therefore, various theoretical frameworks and empirical data are employed to formulate hypotheses that can be tested under specific economic conditions, such as those in Bangladesh.

3.1. Managerial Ownership

Managerial ownership is represented by directors, sponsors, and managers' shareholding. The relationship between managerial shareholding and dividend payout is inconsistent, which may have a positive or negative effect due to agency problems, asymmetric information, and management attitude. According to Mirza and Azfa (2010); Reza and Faysal (2021), and Short, Zhang, and Keasey (2002), if a limited number of shareholders own the majority of the company's shares, these majority shareholders are less likely to disburse dividend payments, retaining cash inside the company and having personal interests. Tayachi et al. (2023) claim the negative effect of executive shareholding on payout. Lace, Bistrova, and Kozlovskis (2013) argue that increasing managerial ownership might result in minor conflicts between employees and external partners, reducing agency costs and the desire for large dividend payments. Conversely, companies where managerial shareholders hold a significant portion of equity might face pressure to pay higher dividends, as this can be perceived as opportunistic behavior by the managers (Al-Qahtani & Ajina, 2017). Therefore, this study posits the following hypothesis.

H_1: There is a relationship between managerial ownership and dividend payout in Bangladeshi firms.

3.2. Institutional Ownership

Institutional investors in Bangladesh include merchant bankers, leasing businesses, mutual funds, and other organizations. Such investors are considered wealthy investors. The existing literature on dividend policy emphasizes the monitoring role of institutional shareholders. Agency theory postulates that the reduction in monitoring costs enables the board of directors to distribute more dividends to its investors. Boshnak (2023) finds a positive effect of institutional shareholders on dividend payout. Nguyen and Li (2020) suggest that institutional investors are more common in dividend-paying companies than in non-dividend-paying companies. Moin et al. (2020) highlight two-way connections between institutional ownership and dividend disbursement, suggesting that large shareholders may attempt to expropriate wealth from their companies. Obaidat (2018) shows that companies with large institutional shareholders tend to provide higher dividends. This influence exists in many emerging countries, including Bangladesh, where institutional investors directly impact corporate decision-making, leading to the following hypothesis.

H_2: There is a relationship between institutional ownership and dividend payout in Bangladeshi firms.

3.3. Individual Ownership

Individual ownership represents the proportion of shares of the enterprise held by individual shareholders. The majority of individual investors do not have access to monitor or oversee corporate management. As a result, they do not have the capacity to influence the decision to pay dividends. In the UK, Khan (2006) finds an inverse correlation between dividend payments and individual shareholding.

Similarly, Renneboog and Trojanowski (2011) state a clear negative relationship between dividends and individual investors. Mirza and Azfa (2010) indicate that Pakistan's tax strategy, which exempts capital gains from taxes but taxes the source of funds, causes individual investors to favor investments with available funds. Meanwhile, Pinto et al. (2022) show an insignificant influence of individual shareholding on dividend payments. Based on these findings, the following hypothesis is suggested.

H_3: There is a relationship between individual ownership and dividend payout in Bangladeshi firms.

4. RESEARCH METHODOLOGY

The target population of this study includes firms listed on the Dhaka Stock Exchange (DSE) in Bangladesh as of December 31, 2021. As of this date, 376 firms are listed on the DSE, excluding government bonds, and these companies are categorized into 22 sectors. However, this study focuses on eight major sectors shown in Table 1.

A purposive sampling technique was employed to select a specific company. This method is appropriate as it relies on well-defined criteria to ensure the comprehensiveness and consistency of the data collected, including the availability of annual reports and all financial information, such as ownership details and dividend payouts. Additionally, companies with negative equity or those that have undergone mergers, demergers, or delisting were excluded to eliminate potential outliers that could distort the results.

The requirement of at least ten years of observations further ensures a consistent and sufficient timeline for analysis. These criteria have been used by Le (2015), Mirza and Azfa (2010), and Rashid et al. (2010). Based on these criteria, the researchers collected 943 firm-year observations from 71 enterprises listed on the DSE from 2008 to 2021.

Table 1. Sector and observed firm year-wise classification of the sample.

Sector	Number of firms	Observed firm year
Bank	18	250
Financial institutions	11	141
Food and allied	5	64
Engineering	8	103
Fuel and power	6	83
Ceramics	3	35
Pharmaceuticals & chemicals	11	148
Textile	9	119
Total	**71**	**943**

The study primarily uses secondary data collected from the audited annual reports of selected listed enterprises, obtained from the DSE Library. These reports include both digitalized soft copies and hard copies, supplemented by additional sources such as monthly reviews published by the DSE. For in-depth statistical analysis, Stata 14 has been utilized.

4.1. Measurement of the Variables and Expected Sign

This study employs dependent, independent, and control variables, following the research of Al-Najjar and Kilincarslan (2016); Al-Qahtani and Ajina (2017); DeAngelo, DeAngelo, and Stulz (2006); Obaidat (2018); Pinto et al. (2022); Rashid et al. (2010), and Reza and Faysal (2021). Measures of all the variables and their individual expected effects on the dividend payout policy are presented in Table 2.

Table 2. Summary of the measurement and expected influence of ownership structure, along with control variables, on dividend payout policy.

Variables	Symbol	Measurement	Expected sign.
Dependent variable			
Dividend Payout	DP	Cash dividend / Net income	
Independent variables			
Managerial ownership	MAOW	Ordinary shares held by directors and/or sponsors, managers, and total ordinary shares outstanding.	−
Institutional ownership	INSOW	Ordinary shares held by the institution / Total ordinary shares outstanding	+
Individual Ownership	INDOW	Ordinary shares held by the individual / Total ordinary shares outstanding	−
Control variables			
Cash flow	CASHF	(Earnings after tax + depreciation) / Total assets	+
Growth opportunity	GROW	(Total asset $_t$ − Total asset $_{t-1}$) / Total asset $_{t-1}$	−
Earning volatility	EVOL	Standard deviation over the previous three years of the earnings ratio (Operating profit/Total assets).	−
Financial leverage	FLEV	Total liability/Total assets	+/−
Liquidity	LIQ	Cash and cash equivalents / Total assets	+
Taxation	TAX	Total taxes paid / pre-tax income	+/−
Earned capital	REE	(Net income-cash dividend) / Equity	−
Firm's size	FSIZE	Natural logarithm of total assets	+/−

4.2. Model Specifications

In the initial stage, researchers identify and address any errors or inconsistencies within the dataset. The second stage involves summarizing descriptive statistics of the variables. During the third stage, various diagnostic tests are conducted to ensure the reliability of the data. Finally, the study employs the Tobit pooled and Tobit random effects models to examine the impact of ownership composition on dividend distribution. Additionally, the research calculates the bootstrap standard error estimator to enhance the efficiency of the models. The most suitable model is selected based on the results of multiple tests, such as the log-likelihood value and the Rho value.

The Tobit model is an econometric technique that is used to analyze data with censored or limited dependent variables (Verbeek, 2021; Wooldridge, 2010). When the dependent variable is fully observed, the zeros in the data

represent the true zeros, indicating that no dividend was paid by the firm. The dependent variable is assumed to have a mixed distribution, with a mass at zero and a continuous distribution for positive values. The Tobit model is appropriate when the dependent variable contains both zero and positive continuous values, a situation known as a "corner solution." In Bangladesh, firms either pay out dividends in cash or do not pay dividends at all. A positive dividend payout indicates cash dividend distribution, while a zero payout signifies no cash dividend disbursement. The concept of 'negative dividends' cannot be issued (Bataineh, 2021). Due to the unique nature of dividends, ordinary least squares (OLS) regression may not be appropriate for examining dividend payments, as it can lead to biased results. The Tobit model is employed in this study to explore the relationship between ownership structure and dividend payments. To ensure reliable results, the dependent variable, dividend payout, is subject to censorship at zero (Al-Najjar & Kilincarslan, 2016). The Tobit model assumes the existence of a latent variable that represents the underlying propensity y_i to attain values higher than zero (Bataineh, 2021).

The standard model, in panel notation, is given by.

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

The relationship between the observed and latent variables can be written simply as.

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

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

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

$$y_{it} = \alpha_1 + \beta_1 x_{1it} + \cdots + \beta_n x_{nit} + \varepsilon_{it} \ if \ y_{it} > 0$$
$$= 0 \ otherwise$$

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.

This study employs bootstrapping to verify the robustness of the results. Bootstrapping is highly useful because it does not rely on strict distributional assumptions, such as homoscedasticity, which are often violated in financial data. By repeatedly resampling the data to create numerous simulated samples, bootstrapping yields more reliable standard errors and confidence intervals for the Tobit coefficients. Consequently, Bootstrap Standard Errors (BRSE) provide unbiased estimates of standard errors for the Tobit model, whether pooled or with random effects. This approach effectively addresses issues of heteroscedasticity and autocorrelation within the models, enhancing the reliability of the statistical inferences (Gonçalves & White, 2005).

The log-likelihood ratio test and rho value are used to determine the best-fitting model between the Tobit pooled model and the Tobit random effects model. The log-likelihood ratio test compares the goodness of fit between two nested models, while the rho value provides insights into the presence of random effects. Moreover, in the Tobit random effects model, the estimated rho value represents the correlation between the latent variable and the error term, capturing unobserved heterogeneity. A statistically significant LLR statistic, along with a large rho value, indicates that the Tobit random effects model is preferable to the Tobit pooled model. Conversely, if the LLR statistic is not significant or if the rho value is close to zero, the Tobit pooled model may be more appropriate (Bataineh, 2021).

4.3. Empirical Models

The estimated econometric models are employed to test the hypotheses.

4.3.1. The Impact of Ownership Structure on Dividend Payout

The following models are employed to analyze the impact of ownership structure on dividend payments in Bangladeshi enterprises.

4.3.2. Tobit Pooled Method

$$DP_{it} = a + \beta_1 MAOW_{it} + \beta_2 INSOW_{it} + \beta_3 INDOW_{it} + \beta_4 CASHF_{it} + \beta_5 GROW_{it} + \beta_6 FLEV_{it} + \beta_7 EVOL_{it} + \beta_8 LIQ_{it} + \beta_9 TAX_{it} + \beta_{10} REE_{it} + \beta_{11} FSIZE_{it} + e_{it} \quad (1)$$

Here, e_{it} denotes the error term or disturbance term; i = 1,2,3,....., 71; t = 1,2,3,....., 14, a denotes the intercept, and $\beta_1, \beta_2 \ldots\ldots \beta_{11}$ are the coefficients of independent and control variables.

DP represents dividend payout, MAOW denotes managerial ownership, INSOW stands for institutional ownership, INDOW represents individual ownership, CASHF denotes cash flow, GROW indicates growth opportunity, FLEV represents financial leverage, EVOL denotes earnings volatility, LIQ stands for liquidity, TAX signifies taxation, REE denotes earned capital, and FSIZE represents firm size.

4.3.3. Tobit Random Effect Method

$$DP_{it} = a + \beta_1 MAOW_{it} + \beta_2 INSOW_{it} + \beta_3 INDOW_{it} + \beta_4 CASHF_{it} + \beta_5 GROW_{it} + \beta_6 FLEV_{it} + \beta_7 EVOL_{it} + \beta_8 LIQ_{it} + \beta_9 TAX_{it} + \beta_{10} REE_{it} + \beta_{11} FSIZE_{it} + (u_i + e_{it}) \quad (2)$$

Here, u_i represents the individual error component of the specific entities, 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 results, models 3 and 4 have been used with an alternative dividend payment measure, namely the dividend yield.

$$DY_{it} = a + \beta_1 MAOW_{it} + \beta_2 INSOW_{it} + \beta_3 INDOW_{it} + \beta_4 CASHF_{it} + \beta_5 GROW_{it} + \beta_6 FLEV_{it} + \beta_7 EVOL_{it} + \beta_8 LIQ_{it} + \beta_9 TAX_{it} + \beta_{10} REE_{it} + \beta_{11} FSIZE_{it} + e_{it} \quad (3)$$

$$DY_{it} = a + \beta_1 MAOW_{it} + \beta_2 INSOW_{it} + \beta_3 INDOW_{it} + \beta_4 CASHF_{it} + \beta_5 GROW_{it} + \beta_6 FLEV_{it} + \beta_7 EVOL_{it} + \beta_8 LIQ_{it} + \beta_9 TAX_{it} + \beta_{10} REE_{it} + \beta_{11} FSIZE_{it} + (u_i + e_{it}) \quad (4)$$

5. RESULTS AND DISCUSSION

Descriptive statistics are presented in Table 3 for the complete sample of 71 DSE-listed enterprises in Bangladesh from 2008 to 2021. The data in Table 3 indicates that the mean values of dividend yield (DY) and dividend payout (DP) are 2.45% and 45.14%, respectively, with corresponding standard deviations of 2.76% and 60.21%. Throughout the period, the mean values of managerial, institutional, and individual ownership used as proxies for ownership structure are 48.69%, 17.18%, and 31.41%, respectively, with standard deviations of 16.98%, 10.97%, and 17.15%. A notable observation is that managerial investors hold a larger proportion of shares compared to institutional and individual investors. The mean values and associated standard deviations of all control variables are also provided in Table 3.

Table 3. Descriptive analysis.

Variables	Observation	Mean	Standard Deviation	Minimum	Maximum
Dividend payout policy					
DY	943	0.0245	0.0276	0.0000	0.2044
DP	943	0.4514	0.6021	0.0000	7.6809
Ownership structure					
MAOW	943	0.4869	0.1698	0.0000	0.9000
INSOW	943	0.1718	0.1097	0.0000	0.6569
INDOW	943	0.3141	0.1715	0.0065	0.9681
Control Variables					
CASHF	943	0.0496	0.0672	0.0007	0.5431
GROW	943	0.1479	0.2625	-0.9851	4.6609
FLEV	943	0.7005	0.2271	0.0506	0.9687
EVOL	943	0.0137	0.0177	0.0006	0.1528
LIQ	943	0.0990	0.1077	-0.4617	0.6790
TAX	943	0.3249	0.2277	0.0000	2.5675
REE	943	0.0939	0.1006	-0.9367	0.6601
FSIZE	943	23.200	2.3624	17.023	28.123

Table 4. Pairwise correlation coefficients between the measures of ownership structure and dividend payout.

Particulars	DPR	MAOW	INSOW	INDOW	CASHF	GROW	FLEV	EVOL	LIQ	TAX	REE	FSIZE
DP	1.0000											
MAOW	0.1090*	1.0000										
INSOW	0.1220*	-0.3256*	1.0000									
INDOW	-0.1463*	-0.7373*	-0.2629*	1.0000								
CASHF	0.0266	0.2917*	-0.1461*	-0.2561*	1.0000							
GROW	-0.1526*	-0.0148	-0.0245	0.0208	-0.0058	1.0000						
FLEV	-0.1099*	-0.0079	0.0621	0.0434	-0.4768*	0.0022	1.0000					
EVOL	0.0850*	0.2361*	-0.1335*	-0.1317*	0.5995*	0.0733*	-0.3687*	1.0000				
LIQ	-0.0630	0.2166*	-0.0053	-0.2098*	0.1611*	0.0588	0.1785*	0.0844*	1.0000			
TAX	0.1864*	-0.0181	0.0109	0.0382	-0.2394*	-0.0411	0.3113*	-0.1705*	0.0395	1.0000		
REE	-0.4972*	0.0283	-0.0982*	-0.0092	0.2899*	0.1710*	0.1297*	0.0733*	0.2320*	-0.1660*	1.0000	
FSIZE	-0.1684*	-0.1099*	0.0829*	0.0018	-0.2532*	0.0773*	0.5457*	-0.4082*	0.2183*	0.2267*	0.1131*	1.0000

Note: * represents the level of significance at 5%.

5.1. Pair-Wise Correlation Analysis

The pairwise correlation coefficient matrix for all variables considered in the regression analysis is provided in Table 4. In most cases, the correlations between the variables are relatively low. Managerial ownership and institutional ownership show a positive correlation with the dividend payout ratio (DPR), while individual ownership exhibits a negative correlation with dividend distribution at a significance level of 5%. The correlation coefficients of managerial, institutional, and individual ownership with dividend distribution are 0.1090, 0.1220, and -0.1463, respectively. The correlation coefficient of none of the variables exceeds 0.80.

5.2. Diagnostics Test

The study conducts three diagnostic tests: the multicollinearity test, the autocorrelation test, and the heteroscedasticity test. Table 5 presents the results of the multicollinearity test.

Table 5. Multicollinearity Test (Correlation Between Predictors)

Particulars	Variance Inflation Factors (VIF)	1/VIF (TOL)
MAOW	6.98	0.1434
INSOW	3.26	0.3064
INDOW	6.55	0.1526
CASHF	2.43	0.4118
GROW	1.07	0.9340
FLEV	2.20	0.4551
EVOL	1.85	0.5417
LIQ	1.22	0.8206
TAX	1.18	0.8507
REE	1.39	0.7197
FSIZE	1.78	0.5612
Mean Value	**2.72**	**0.5351**

The test results indicate that the model does not suffer from severe multicollinearity issues. According to established guidelines, severe multicollinearity is present if the Variance Inflation Factor (VIF) is 10 or higher and the Tolerance (TOL) level is 0.10 or lower. Variables with a VIF greater than 10 have been removed from the model in descending order. To eliminate collinearity among explanatory variables, only those with a VIF below the threshold of 10 have been included in the analysis. Consequently, multicollinearity is not a concern in this study.

Table 6. Autocorrelation and heteroscedasticity test.

Summary of Wooldridge Test and White Test		
Tests groups		
	Wooldridge test	**White Test**
Null hypothesis	No autocorrelation in the first order	No heteroscedasticity in the data.
Test statistics	F(Prob.>F)	Chi^2 (Prob.> Chi^2)
	0.040 (0.8418)	225.62*** (0.0000)

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

The presence of serial autocorrelation and heteroscedasticity problems has been tested using the Wooldridge test and the White test, and the results are presented in Table 6. The Wooldridge test estimator assesses correlation within panel data and tests the null hypothesis of no first-order autocorrelation in the coefficients across all years. The Wooldridge test does not reject the null hypothesis, indicating that there is no autocorrelation in the model. The results of the White test indicate that heteroscedasticity in the dataset is present at a 1% significance level. The outcomes of the White test suggest that the dataset suffers from heteroscedasticity issues.

5.3. Model Selection Tests

To achieve consistent and unbiased estimates, suitable models are selected based on the results shown in Table 7 of various best-model 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) 108.54***(0.0000)
Rho value	0.2428

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

In the model selection process, the log-likelihood ratio (LLR) test and rho value are utilized to identify the most suitable model between the Tobit pooled and Tobit random effects models. A statistically significant LLR statistic, combined with the highest rho value (greater than zero), indicates that the Tobit random effects (RE) model is more appropriate than the Tobit pooled model. This suggests that the hypothesis of no panel-level effects can be rejected at a 1% significance level. The Tobit RE model effectively captures individual-specific variation by employing the LLR test and rho value. The study confirms the absence of first-order autocorrelation in the data but detects heteroscedasticity through the White test. To improve the model's performance, especially the random effects model, a bootstrap standard error estimator is used to address these issues, enhancing the robustness and reliability of the results.

5.4. Results of the Tests

The Tobit pooled and random effects methods have been employed to examine the effects of ownership composition on dividend payments after controlling for other variables, namely cash flow, growth opportunities, financial leverage, earnings volatility, liquidity, corporate taxation, earned capital, and firm size. The standard error values for all coefficients are presented in parentheses. In Table 8, Model 1 (Tobit pooled model) and Model 2 (Tobit random effects) show the regression outcomes with the bootstrap standard estimation technique. The study selects the random effects outcomes based on different model selection tests.

Table 8. Results of the Tobit model: pooled and random effects with bootstrap standard errors (dividend payout as a proxy variable for dividend payment).

Variables	Tobit (Pooled) (Model:1)	Tobit (RE) (Model:2)
MAOW	0.3706*(0.2085)	0.0440(0.4296)
INSOW	0.9348***(0.2967)	**0.9458****(0.4779)
INDOW	-0.1048 (0.1788)	-0.2044(0.3838)
CASHF	2.3944***(0.5594)	**3.0835****(1.4595)
GROW	-0.1404*(0.0743)	-0.0662 (0.0935)
FLEV	0.0987(0.1856)	**0.4906***(0.2735)
EVOL	-0.9564 (1.3100)	**-2.0733***(1.0696)
LIQ	0.2168*(0.1263)	0.0244 (0.2156)
TAX	0.4390**(0.2135)	**0.6750****(0.3278)
REE	-3.7200***(0.4543)	**-3.8958***** (0.7969)
FSIZE	-0.0386***(0.0091)	**-0.0513****(0.0224)
Constant	0.9884*** (0.2846)	1.1212 (0.7621)
Wald Chi²	258.63	83.59
Prob. > *chi²*	0.0000	0.0000
Log-likelihood score	-765.99	-711.72

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

In the case of the Tobit random effects model, the Wald Chi-square value of 83.59 with a p-value of 0.00 indicates that the overall model is highly significant. This low p-value suggests that the coefficients of the variables collectively differ from zero, indicating a significant effect on payout. The results of this study reveal that institutional shareholding significantly and positively affects dividend payout at a 5% level of significance. The results of the selected Tobit random effects model suggest that Hypothesis 2 is accepted. This means that a 1-unit increase in institutional ownership (INSOW) is expected to increase the dividend payout by 0.9458. This outcome aligns with previous research conducted by Thanatawee (2013) and Obaidat (2018). The influential role and potential pressure exerted by institutional investors on board management can be attributed to this positive payout decision. Hence, large institutional ownership can ensure better monitoring of management, leading to reduced agency costs and increased enterprise value.

This aligns with Jensen and Meckling (1976) agency theory, which suggests that lower monitoring costs enable boards of directors to transfer a large proportion of earnings to shareholders. Institutional investors can leverage this by owning a significant number of shares and exerting influence to increase dividend payments. As demonstrated by Jensen (1986), efficient monitoring enhances the likelihood of companies allocating their free cash flow. The author emphasizes that institutional investors, acting as effective monitors, contribute to higher dividend payouts, indicating that increased institutional shareholding correlates with greater dividend distribution.

Nevertheless, the findings of the Tobit random effects model indicate the rejection of Hypothesis 1, suggesting that managerial ownership has no impact on dividend policy. However, this finding aligns with the results obtained by Kaur and Kaur (2025). We can also reject Hypothesis 3, indicating no significant influence of individual shareholding on the payout. The results are consistent with the study by Balagobei and Thiruchchenthurnathan (2016).

When it comes to control variables, cash flow positively affects dividend payments. This positive relationship is consistent with the findings of Amidu and Abor (2006). Moreover, the empirical results support Jensen (1986)'s free cash flow theory. Once again, strong free cash flow enables companies to maintain or increase dividend payouts, even during challenging economic conditions.

Financial leverage also has a positive effect on dividend disbursement, a finding that confirms the results of Florackis, Kanas, and Kostakis (2015). High levels of debt increase capital market monitoring and reduce agency costs. By committing to debt, companies are compelled to distribute cash as dividends to prevent managerial misuse of personal targets. This finding aligns with the work of Aggarwal and Zhao (2009), suggesting that leverage can be used as a signaling device, especially when financing is achieved through current debt. Furthermore, this positive association is consistent with the transaction cost theory (Fama, 1974).

Conversely, the volatility of earnings has a negative and significant effect on the dividend payout ratio. This finding is consistent with the study by Apat (2014). If the volatility of earnings increases, the company makes fewer dividend payments to shareholders. One reasonable explanation is that when a company's income fluctuates from year to year, it must face uncertainty and the risk of financial performance, making it difficult for the company to pursue a steady and stable dividend policy. However, when earnings are volatile, companies might prefer to retain earnings rather than distribute them as dividends**.** These retained earnings can serve as a buffer to absorb any future financial shocks. Typically, a company increases its dividends when it is confident about a stable rise in earnings.

The taxation of listed companies on the DSE is significantly positively correlated with dividend payout during the study period. This finding aligns with the studies of Ince and Owers (2012). Higher corporate tax rates can also incentivize firms to distribute profits as dividends to reduce taxes on retained earnings. Earned capital, which serves as a substitute for the firm's life cycle, has a significant negative effect on dividend payout, a relationship consistent with the results of Fama and French (2001). Based on various stages of the corporate life cycle, enterprises design dividend policies considering available investment opportunities. Most of the companies listed on the DSE in Bangladesh are young; therefore, these companies tend to pay less dividends from retained earnings, as these funds

are required for investment opportunities. Additionally, enterprises with higher levels of retained earnings are often pressured by investors to utilize those funds for future growth opportunities rather than dividend disbursement.

There is a significant negative correlation between firm size and dividend payout for companies listed on the DSE of Bangladesh, indicating that larger firms tend to pay lower dividends to their shareholders. Similarly, Michaely, Thaler, and Womack (1995) assert that large companies tend to reinvest profits rather than disburse dividends to shareholders. The findings are consistent with the argument that larger firms have better investment opportunities, prioritize financial stability, and focus on long-term value creation.

5.5. Robustness of Results

The results obtained using dividend yield as an alternative measure for dividend decisions are presented in Table 9. These results generally support the findings from the previous analysis using the dividend payout. In particular, the dividend yield data reinforce the positive relationship between institutional shareholding and dividend distribution. Moreover, the relationships between cash flow, earnings volatility, earned capital, and firm size remain consistent with earlier findings.

Table 9. Results of the Tobit model: pooled and random effects with bootstrap standard errors (dividend yield as a proxy variable for dividend payment).

Variables	Tobit (Pooled) (Model:1)	Tobit (RE) (Model:2)
MAOW	0.0221**(0.0091)	0.0340 (0.0237)
INSOW	0.0676***(0.0110)	**0.0800*****(0.0255)
INDOW	0.0378 (0.0090)	-0.0364 (0.0058)
CASHF	0.1978***(0.0356)	**0.2163****(0.1030)
GROW	-0.0076(0.0048)	-0.0054(0.0047)
FLEV	0.0266*** (0.0071)	0.0277(0.0188)
EVOL	-0.1728*** (0.0595)	**-0.2531*****(0.0721)
LIQ	0.0490***(0.0083)	**0.0277*** (0.0167)
TAX	0.0007(0.0052)	-0.0039(0.0052)
REE	-0.1666***(0.0296)	**-0.1787***** (0.7969)
FSIZE	-0.0386***(0.0004)	**-0.0035*****(0.0007)
Constant	-0.0831*** (0.0156)	**-0.1132*****(0.0318)
Wald Chi2	283.15	164.70
Prob. > chi2	0.0000	0.0000
Log-Likelihood Score	1568.84	1614.54

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

In the robustness check, the analysis also reveals that while leverage and taxation are initially found to significantly impact dividend policy, their effects become insignificant upon further testing, suggesting that their influence might be context-dependent or less consistent across different conditions. In contrast, liquidity emerges as a significant determinant of payout. This finding reinforces the importance of an enterprise's financial flexibility in maintaining dividend distributions. Overall, the robustness checks indicate that institutional ownership is a significant determinant of dividend payout policies.

6. CONCLUSION, IMPLICATIONS, AND LIMITATIONS

This study provides a comprehensive overview of the ownership structure and dividend decisions in listed enterprises on the Dhaka Stock Exchange (DSE) in Bangladesh, utilizing the Tobit Model as a statistical tool. By thoroughly examining this subject, the research not only addresses significant knowledge gaps but also offers relevant and practical insights. The findings indicate that institutional ownership has a positive influence on dividend payouts. Companies with substantial institutional shareholders tend to distribute higher dividends, likely due to the influence or pressure exerted by these investors on management. In Bangladesh, the dividend payout policies of listed

companies are directly shaped by institutional shareholders. These results align with agency theory (Jensen & Meckling, 1976), which suggests that lower monitoring costs enable boards of directors to distribute a larger share of profits to shareholders.

Policymakers should pay particular attention to formulating legislative guidelines on how equity shares should be allocated among different stockholders and in what percentages to ensure a proper balance of ownership among shareholders. Institutional investors, being more experienced and knowledgeable, can assist firms in reducing the agency costs of equity through active supervision of management. To promote good governance practices among listed companies on the Dhaka Stock Exchange (DSE) in Bangladesh, it is recommended that the proportion of institutional ownership in these firms be increased.

Findings from this study are valuable to investors in the capital market, including both individual and institutional investors, as they assist in making informed investment decisions when selecting specific companies. The Bangladesh Securities and Exchange Commission, Bangladesh Bank, and various government ministries may utilize these findings to inform their policy and regulatory decisions. Additionally, researchers, academicians, and financial managers can leverage these results to enhance their studies and research within the same relevant field.

This study has some limitations. Most of the data were obtained from the company's annual report, which may not fully reflect its current condition. Future research could consider quarterly data to enhance observations and produce more comprehensive outcomes. This study focuses solely on cash dividends. Additionally, the model could be retested using a similar approach for other payout methods, including stock dividends and stock buybacks. Finally, further research may explore the dynamic relationship between ownership structure and dividend policy using the GMM method, as well as conduct cross-country comparisons to assess the roles of different shareholders in dividend decisions.

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