Impact of Firm Specific Factors on Cash Dividend Payment Decisions: Evidence from Bangladesh

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This study aims to explore the impact of firm specific factors on cash dividend payment decisions for a sample of 41 non financial firms listed in Dhaka Stock Exchange (DSE) in Bangladesh during 2007-2011. This study tests a null hypothesis that none of the firm specific factors namely profitability, size, liquidity, growth, earnings volatility, and managerial ownership has significant effects on cash dividend payments using fixed-effect regression model under the assumption that intercepts vary for each firm and the slope coefficients are constant across firms. Checking multicollinearity, cross-sectional dependence, autocorrelation and controlling heteroskedasticity in the regression analysis it is found that profitability has statistically significant positive effects on cash dividend payments. This study has discovered a significant negative effect of earnings volatility and managerial ownership on dividend payments which were unfolded before this study. On the other hand, size, growth and liquidity were not found to be significant explanatory variables of dividend payments. Thus, profitability, earnings volatility and managerial ownership are functioning as the key determinants of cash dividend payments in Bangladesh.

Keywords: Bangladesh; Dhaka Stock Exchange (DSE); Dividend Payments; Firm Specific Factor; Listed Companies; Panel Data.

1. Introduction

Should a corporation pay dividends to common stockholders? Perhaps the answer of this question mostly depends on the effects of dividend payments on share price of the firm that ultimately yields a concern of dividend payment decisions. It implies payout policy, in which managers decide the size and pattern of cash distribution to shareholders over time. The presence of significant effect of dividend payments on share price has been raised by many theoretical as well as empirical researches done by Lintner (1956), Gordon (1959), Pradhan (2003), Ho (2003), Myers & Bacon (2004), Pani (2008), and Khan et al. (2011). On the other hand, Miller and Modigliani (1961) are the first advocates of proving that dividends are irrelevant and insignificant factor in maximizing firm's value under the assumptions of perfect and efficient markets.

In addition to Miller and Modigliani (1961), insignificant influence of the dividend on equity share price was also found in the study of Black and Scholes (1974), Uddin & Chowdhury (2005), and Adesola & Okwong (2009). Thus the statement given by Black (1976) in his

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study on dividend that "The harder we look at the dividend picture the more it seems like a puzzle, with pieces that just don't fit together" is quite appropriate. Nevertheless, historically firms adopt various dividend payment decisions like high or low pay out, stock dividend (bonus share) or cash dividend, or cash dividend in addition to stock dividend. Moreover, investors are aware of return on stock which is the combination of capital gain and dividend yield. If a firm maintains more retained earnings to finance profitable investment projects, dividend yield tends to go down and stockholders' wealth tends to go up resulting in a higher capital gain. On the other hand if a firm pays more dividends from its earnings, dividend yield tends to go up and stockholders' wealth tends to get lower since cash received as dividends by investors is not invested in the firm. Therefore, to maximize firm's value a manager should design an optimal dividend payment decisions. But no strict theory has been developed yet to determine the optimal amount of cash dividends. So it gets an attention for the financial managers in identifying some leading factors influencing cash dividend payments by which they can bring the firm into wealth maximization. To know the factors affecting the dividend payments is important since "stock price equals the present value of expected future dividends" (Gordon and Shapiro, 1956). According to Chay and Suh (2005), dividend policy of firms in different countries is to be different due to imposing various restrictions by countries having different social, economical, and legal environments. For example, Ho (2003) claimed that firm size in Australia and liquidity in Japan have positive effects on dividend payments, but risk and dividend payments are negatively related in Japan. Therefore, determinants of dividend payments are most likely to vary across countries as well as firms' characteristics i.e. size of firm, financial leverage, bankruptcy costs, profitability, growth opportunity, variability of earnings, liquidity, assets structure, ownership structure, etc.

To the best knowledge of authors, there are a few researches attempting to determine primary factors affecting dividend payment decisions of non-financial firms in Bangladesh such as Alam and Hossain (2012), and Abu (2012), but there is still disagreement which factors are significantly affecting a firm in paying cash dividends. Nevertheless, an important factor influencing dividend payments of a firm in developed country may not be equally important to a firm in developing country like Bangladesh. Furthermore, all possible influencing factors of dividend payments have not been considered in a research at a time and that is why some factors are still important to further use in measuring their effects on dividend payment decisions. Thus, this study included the two new independent variables like earnings volatility and managerial ownership which have not been considered in Bangladesh yet to examine their effects on cash dividend payments. In addition, this study used some measures of independent variables which are different from the measures used in previous study. According to Nirmala et al., (2011) the empirical evidences may differ from study to study depending upon the selection of the firms, sample size, sample period, and econometric methodology. Therefore, the main purpose of this study is to determine the firm specific factors influencing dividend payment decisions of non-financial firms listed on Dhaka Stock Exchange (DSE) in Bangladesh.

The remaining part of this paper is organized as follows: In Section 2.0, theoretical discussion is drawn. In section 3, literature is reviewed to recognize dividend payment decisions and its empirical determinants. The objectives of the study are addressed in section 4. Hypotheses of the study, that are to be tested, are presented in section 5.

Chapter 6 summarizes the methods and methodology of the research. Data analysis and interpretation of results are presented in section 7. Conclusions and recommendations for further analysis are discussed in section 8 followed by references.

2. Theoretical Discussion on Dividend Payment Decisions

After the entrance of the Miller and Modigliani (1961) argument that the dividend payments are irrelevant to share price to the field of corporate finance it was found a contradictory result compared to claim of Lintner (1956) and Gordon (1959). Thereafter, a lot of studies have been conducted aiming to determine leading influencing factors of dividend payments concerning with the three major theories of dividend policy such as agency theory, pecking order theory, and dividend-signaling theory.

According to **Agency Theory** given by Jensen and Meckling (1976), managers (agent) are not always highly intended to act in fulfilling the interest of the shareholders (principal) because ownership is independent of management or managers are given less than 100 percent of the firm's equity, hence managers are most likely to adopt an opportunistic behavior and benefit them from achieving their own selfishness that may put the firm at risk through the creation of agency problem. Jensen and Meckling (1976) argue that agency costs can be substantially lower if managers are given a large percentage of ownership of the company rather than a small percentage. Jensen (1986) claims that managers will be reluctant to pursue wasteful activities if firm decreases free cash flows by giving more cash dividend.

In **Pecking Order Theory,** Myers and Majluf (1984) argued that the costs of a project are financed with retained earnings first. If it is not sufficient the firms go for debt and then issue equity if further financing is required due to asymmetric information between managers and outside shareholders. High level of asymmetric information puts the investors into more risk and suggests them to use high discount rate that lowers the value of debt and equity or it makes the price of these securities more divergence from its rational price that raises the cost of issuing securities. Fama and French (2000) claimed that a firm with more profitable assets, low investments opportunities, and low financial leverage prefers high cash dividend payments.

Signaling theory claims that investors can see a reflection of firm's future earnings capacity in current dividends or in any change in dividend policy. In introducing signaling theory Bhattacharya (1979) explains dividends bring insider information of firm future prospects to investors that allay information asymmetric between managers and shareholders. John and Lang (1991) suggest that any change in dividend policy is caused by the investment opportunities of a firm and that is why investment opportunities give more accurate signals about firm's future earnings. Thus dividend policy can be a measure of firm future earnings and growth opportunities.

3. Literature Review on Dividend Payments and Factors Affecting Dividend Payment Decisions

3.1 Dividend Payments

In this analysis the cash dividend payment per share, proxy for dividend payment decisions, is used as dependent variable measured by the ratio of total amount of cash dividend to total number of common shares of a firm in given time period. Another measure of dividend payments, dividend payout ratio, was not appropriate for the sample date since in many firms denominator of this ratio, earnings per share, was negative that ultimately causes negative dividend payout. To avoid any effect of market price which might have been some extent irrational in DSE on account of weak form inefficient market evidenced by empirical findings of Mobarek and Keasey (2000) on the measure of dividend payments, dividend yield was not taken into account in this study. Moreover, this measure is used instead of dividend payout ratio or dividend yields in many empirical researches such as Naceur et al. (2006), Al-Shabibi and Ramesh (2011), Appannan and Sim (2011), Asif et al. (2011), and El-Essa et al. (2012).

3.2 Firm Specific Factors Affecting Dividend Payment Decisions

3.2.1 Profitability

The term profitability measures the power of profit generation of a firm and might be an important factor in influencing the size of cash dividend payments of Bangladeshi firms. A firm having a policy of paying out more dividends to its shareholders in long run must occupy substantial profits since it is a distribution of a portion of a company's net earnings (profits). Anil and Kapoor (2008) indicate that profitability is playing key functional role in determining the size of dividend payments of a firm. According to pecking order theory, signaling theory, and agency theory firms having more profits and less investment opportunities pay higher dividends. The findings of many studies revealed a positive and significant effect of profitability on dividend payments (Rozeff, 1982; Jensen et al., 1992; Fama and French, 2000; Al-Malkawi, 2007). Following Anil and Kapoor (2008), the ratio of earnings before interest and taxes to total assets is used as a proxy for profitability.

3.2.2 Firm Size

Large firms are more likely to have low growth opportunity than small firms since it is expected that large firms have already discovered and utilized it's all potentiality that results in the benefits of diversification come through more stable or less volatile cash flows, less often failure, and economies of scale in some aspects and substantial earnings. Paying low dividend might jeopardize future investments of a large firm having sizeable earnings as it creates an opportunistic field for management where they can ask more perquisites by making ill investments. In addition to, agency problems are larger for bigger size firms than smaller size firms due to ownership dispersion or shareholders' inability to monitor overall activities of firm which is backed up with arguments of Jensen and Meckling (1976). To mitigate this agency problem a payment of higher dividends might be one of the possible solutions since it can lower retained earnings and force the firm's management to be more

dependent on external financing. Fama and Jensen (1983) argue that large firms enjoy less asymmetric information since these firms tend to provide more information to outside investors than smaller firms. Chang and Rhee (1990) claim that large firms can highly afford to have easy access to capital markets. Eventually, larger firms may issue debt and equity at lower costs than smaller firms and thus they more confidently rely on external financing rather than internal financing like retained earnings and have more incentives to pay large dividends. Thus above discussions follow a positive association between firm size and dividend payments which is supported by the findings of other empirical researches such as Jensen et al. (1992), Moh'd et al. (1995), Barclay et al. (1999), Al-Malkawi (2007), and Al-Kuwari (2009). Following Barclay et al. (1999) this study uses the natural log of total sales to measure firm's size.

3.2.3 Liquidity

The term liquidity measures whether the firm has enough current assets to meet the short term liabilities. A firm in poor liquidity position and higher level of debts is understandably reluctant to pay more dividends so that it avoids going technical insolvency since the continuation of technical insolvency brings the firm in bankruptcy risk. In the context of signaling theory firms with higher cash flows pay higher dividends to shareholders than those with insufficient cash flows. Thus liquidity should have positive effects on dividend payments of a firm which is also supported by other prior literatures (Ho, 2003; Anil and Kapoor, 2008; Mehta, 2012). But Alam and Hossain (2012) found a significant negative association between liquidity and dividend rate. In the line with study of Mehta (2012) the proportion of current assets to current liabilities is chosen as a proxy for liquidity.

3.2.4 Growth

Firms with high growth opportunities will need additional funds to finance the new projects for expansion purposes. But there is a common need to solve a problem arising from financing the new projects that which source would be preferable to firms at first to fulfill the costs of new projects - internal or external source of fund? According to pecking order theory a growing firm seeks to raise retained earnings (internal source of fund) by paying lower dividends or not paying any dividends as it is expected that they suffer from asymmetric information and investment risk that cause a rise in cost of external financing (Myers and Majluf, 1984). The same solution was reported in agency cost theory (Jensen and Meckling, 1976) that suggests a firm with low growth opportunity chooses to pay high dividend as it lowers the free cash flows to managers and prevent the them from doing wasteful activities which is supported by empirical studies like Rozeff (1982), Chang and Rhee (1990), Jensen et al. (1992), Ho (2003), and Al-Malkawi (2007). As such, this view shows an inverse relationship between growth opportunity and dividend payments. On the contrary, growing firms will seek more funds and objectively depend on external financing and thus they are more likely to send a good signal to investors through higher dividend payments. These views imply that firms with high growth opportunities are motivated to pay more dividends which is argued by signaling theory and evidenced by the results of empirical researches like Myers and Bacon (2004), Naceur et al. (2006), Afza and Mirza (2011), and Alam and Hossain (2012). Following Naceur et al. (2006) this study uses the percentage change in book value of total assets as a proxy for firm growth.

3.2.5 Earnings Volatility

Earnings volatility used as a proxy of business risk is one of the major constraints of a firm in attaining sustainable growth of development since it hinders the firms in accumulating the required amount of funds for the implementation of long term investment decisions. In addition, investment in this firm is considered more risky that motivates potential investors to lower the price of equity and debt by using higher discount rate, which ultimately raises cost of external financing and keep the firm far away from the issue of any additional debt and equity (Ellili and Farouk, 2011). Hence, a firm with higher earnings volatility tends to keep high retained earnings in meeting the costs of unfavorable circumstances or costs of new projects. Therefore, there is inverse effect of earnings volatility on dividend payments. Empirical studies that confirm the above theoretical prediction include Chang and Rhee (1990), and Moh'd et al. (1995), and Ho (2003). Following Ellili and Farouk (2011) this study uses the ratio of standard deviation of EBIT over total assets to measure earnings volatility.

3.2.6 Managerial Ownership

According to Jensen and Meckling (1976) and Rozeff (1982) giving a significant portion of ownership to managers acts as healthy mitigating factor which motivates them to run the firm in accordance with the owners' interest that is highly deemed to have lower agency problems . In addition, Jensen (1986) claimed that paying more dividends to common shareholders can lower the managers' intention to plow too much cash into ill-advised projects as it functions as a remedial measure of free cash flow problems and finally leads to lower agency problems. Hence, dividend payments can be used as a substitute for managerial ownership to lower the ability of managers to pursue wasteful activities. Firms which have higher managerial ownership should pay low dividends and increase retained earnings that yield a negative association between dividends and managerial ownership. This negative impact of managerial ownership on dividend payments has been verified by the findings of other empirical studies namely Holder et al. (1998), Myers and Bacon (2004), Kania and Bacon (2005), and Al-Malkawi (2007). Following Rozeff (1982), Jensen et al. (1992), Holder et al. (1998), and Kania and Bacon, (2005) the managerial ownership is measured by the percentage total shares held by insiders (top managers, directors, supervisors and other executive officers).

4. Objective of the Study

This study aims to accomplish the following objectives:

i. To identify the firm specific factors affecting dividend payment decisions of non-financial firms listed   in   Dhaka Stock Exchange.
ii. To analyze whether each of the factors has significant effects on dividend payment decisions (Dividend Payment per Share).

5. Hypothesis of the Study

Following the debate about dividend payments in literature, the proposed null hypotheses regarding the key possible influential factors of the dividend payment decisions of listed firms are as follows:

H_{01}: There is no significant effect of profitability on cash dividend payments.
H_{02}: There is no significant effect of firm size on cash dividend payments.
H_{03}: There is no significant effect of liquidity on cash dividend payments.
H_{04}: There is no significant effect of growth on cash dividend payments.
H_{05}: There is no significant effect of earnings volatility on cash dividend payments.
H_{06}: There is no significant effect of managerial ownership on cash dividend payments.

6. Methods and Methodology of the Study

6.1 Sample Size

For the purpose of this study, population has been defined in terms of the number of companies listed on Dhaka Stock Exchange Ltd. (DSE) in Bangladesh. There are 521 companies listed on DSE including 150 non-financial firms in 2013. The analysis of this study did not take any presence of banks and the other financial institutions due to their specific financial activities and supervision of central bank on their operations. Thus, eventually this study started its journey taking into account 41 non-financial firms listed in DSE during 2007-2011 to discover whether firm's specific factors have significant impact on cash dividend payments of Bangladeshi firms. This study was conducted based on the availability of data in a form of soft copy hard copy for selected non-financial firms at DSE library. Table 1 shows frequency distribution of industry classification.

Table 1: Frequency Distribution of Industry Classification.

Industry	Frequency
Ceramic	3
Cosmetic	5
Pharmaceuticals	10
Jute	3
Fuel andPower	7
Food	10
Information Technology	3
Total	**41**

6.2 Data Collection Procedures

This study is based on secondary data. The data used in this analysis have been collected from the book value based yearly financial data shown in the financial statements (Balance Sheet, Profit and Loss Account) of selected companies over 2007 to 2011. To keep consistency to the objectives of the study the overall data have been divided into two groups; one is the firm specific factors namely growth, ownership structure, earnings

volatility, liquidity, profitability, and size, which are acting as independent variables in this study in measuring their effects on dividend payment decisions and another is dependent variable named dividend payments.

6.3 Data Analysis Procedures

In order to examine the effects of firm specific factors on dividend payments this study used panel data which is composed of time series and cross sectional data. In analyzing this kind of data any one of the following three estimation models, namely, pooled ordinary least square (OLS) model, fixed-effect model and random-effect model can be used to get best results but with different assumptions. The pooled OLS model produces and explains regression estimators under the hypothesis that intercept values of all firms and the slope coefficients of control variables for all firms are identical respectively. But this regression gives distorted results of what could have truly happened if the assumptions that there is no time or individual effects among the firms are not satisfied. On the other hand, fixed-effect model estimates the regression coefficients under the assumption that intercepts vary for each firm and the slope coefficients are constant across firms. Finally, Random-effect model assumes that intercept value of each company is the result of a random deviation from a common mean value of intercept and estimates the coefficients by letting that the individual or group effects are uncorrelated with other explanatory variables. In order to know whether there is any significant evidence of using pooled OLS model rather than random-effect model Breusch-Pagan Lagrange multiplier (Greene, 2003) test is employed. Thereafter, to make sure that which one estimation model either fixed-effect or random-effect can best explain estimators Hausman specification test is used. The remaining analysis of the study will be conducted through an investigation to work out whether the selected regression model is affected by any significant presence of multicollinearity, cross-sectional dependence, autocorrelation, and heteroskedasticity. Analyses are computed using STATA version 11.0 for windows.

Regression models namely pooled OLS, fixed-effect and random-effect are specified as the following equations numbering I, II, and III respectively.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \varepsilon_{it} \ldots\ldots (I)$$
$$Y_{it} = \beta_{0i} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \varepsilon_{it} \ldots\ldots (II)$$
$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \varepsilon_i + \mu_{it} \ldots (III)$$

Where:
i =1……N (cross sectional unit)
t=1…T (time series unit)
Y_{it} = **Div** = Dividend per share (dependent variable)
X_{1it} - X_{6it} = independent variables for firm i and time t
X_1 = **Prof** = Profitability
X_2 = **Growth** = Growth of firm
X_3 = **Liqu** = Liquidity
X_4 = **Size** = Size of firm
X_5 = **EargVol** = Earnings volatility
X_6 = **Mang** = Managerial ownership

β_0= common intercept

$\beta_1 - \beta_6$= coefficients of independent variables

β_{0i}= intercept of each cross sectional unit

ε_{it}= error term for firm *i* at time *t*

ε_i= cross sectional error term

μ_{it}= disturbance term for firm *i* at time *t*

7. Analysis and Discussion of Results

This section contains the descriptive statistics of variables, LM test, Hausman specification test, Correlation coefficients, Pasaran test, Wooldridge test, Wald test and the results of regression analysis of 41 sample firms in 7 types of industries listed on DSE during the five year period from 2007 to 2011.

7.1 Descriptive Statistics

The analysis of this study starts with a descriptive statistics of dependent and independent variables revealing mean, maximum, minimum, and standard deviation presented in table 2. From the table 2, it is observed that, on average, selected Bangladeshi companies are paying 12.76341% cash dividend to its shareholders. The maximum cash dividend paid out by any one company in any year is 70% while the minimum level of dividend payment is zero. Zero value of dividend payment means the firms were either unable to pay dividend or retain their all earnings. The average value of profitability is 5.892905% with the variation of individual data set from the mean value by 7.799261%. The maximum profitability for a firm in any year is 35.87% while the minimum value is -16.25%. The average growth rate of selected firms is 10.7041% with a standard deviation of 19.95159%. The liquidity ratios indicate that, on average, firms have sufficient current assets to settle 1.75 times of current liabilities. The mean value of size measured in log of sales is 19.23878% while the standard deviation is 1.699778. The maximum and minimum value of size is 22.94 and 14.26 respectively. The mean value of earnings volatility measured in the ratio of standard deviation of EBIT over total asset is 3.865273-time with a standard deviation of 6.095319. On average, 46.06459% of ownership of the firms is held by the directors, sponsors, and managers, which are the measure of managerial ownership, while the standard deviation is 18.04898.

Table 2: Summary of Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.
Div	12.76341	13.43699	0	75
Prof	5.892905	7.799261	-16.25	35.87
Growth	10.7041	19.95159	-33.81	93.91
Liqu	1.746839	1.769464	.021	16.57
Size	19.23878	1.699778	14.26	22.94
EargVol	3.865273	6.095319	.11	75
Mang	46.06459	18.04898	12.19	92.72

7.2 Collinearity

Table 3 shows the correlation matrix of the independent variables to examine the presence of multicolinearity. In table 3 the highest correlation coefficient, 0.2720, is found between profitability and size. In general, independent variables having collinearity at 0.7 or greater would not be included in regression analysis due to existence of multicollinearity. Thus all of the sample independent variables are free from problems of multicollinearity and more competent for regression analysis.

Table 3: Summary of Correlation Coefficients between Independent Variables

	Prof	Growth	Liqu	Size	EargVol	Mang
Prof	1.0000					
Growth	0.1886	1.0000				
Liqu	0.1573	0.1573	1.0000			
Size	0.2720	0.0097	0.0083	1.0000		
EargVol	0.1451	0.0240	-0.0453	-0.0401	1.0000	
Mang	-0.0256	0.0265	0.0069	0.1118	0.0315	1.0000

7.3 Model Selection for Panel Data Analysis

Table 4 shows the results of Breusch-Pagan Lagrange multiplier (LM) (Greene, 2003) test in order to know whether Pooled OLS is useful for analyzing the sample panel data. According to the LM test results, the null hypothesis that variance across entities is zero is rejected at 1% level of significance. Hence, there is no need to run a Pooled OLS regression.

Table 4: Panel Data Model Choice

Test	Null Hypothesis	Chi-square	P-value
Breusch-Pagan Lagrange multiplier test (LM) for random effects	Ho: Var(u) = 0	272.63	0.0000
Hausman specification test for fixed effects	Ho: Random Effects is Available	19.83	0.0000

The results of Hausman specification test are also shown in table 4 with an objective to choose the appropriate regression model between fixed and random-effect model. These results failed to reject the null hypothesis that the estimators of fixed and random-effect models do not differ significantly (there is no random effects in panel data) at 1% level of

significance which indicates strong evidence in supporting the use of fixed-effect model for the panel data.

Therefore, fixed-effect regression model is finally selected which is as follows;

$$\mathbf{Div_{it} = \beta_{0i} + \beta_1 Prof_{it} + \beta_2 Growth_{it} + \beta_3 Liqu_{it} + \beta_4 Size_{it} + \beta_5 EargVol_{it} + \beta_6 Mang_{it} + \varepsilon_{it}}$$

7.4 Cross-sectional dependence, Autocorrelation and Heteroskedasticity

To measure the cross sectional dependence Pasaran test (Hoechle) is used under a null hypothesis that residuals are not correlated across entities. The absence of cross sectional dependence in the regression model for sample panel data has been detected by Pesaran's test result which are as follows:

Pesaran's test of cross sectional independence = -0.527
Probability = 0.5979

To examine whether the selected regression model (fixed-effect model) for panel data of this study falls in autocorrelation problems Wooldridge test is applied. Test results indicate that the model can produce estimators having no influence of first order autocorrelation as the null hypothesis is not rejected at 5% significance level. The results of Wooldridge test are given below.

H0: No first order autocorrelation
F (1, 40) = 0.691
Probability > F = 0.4108

Wald test is applied to check whether there is any significant presence of heteroskedasticity in the fixed-effect regression model for panel data under a null hypothesis that variance of residuals is constant (homoskedastic) across panels. According to the test results shown below, null hypothesis is rejected at 5% significance level that detects the presence of heteroskedasticity in the model which are as follows:

H0: No groupwise heteroscedasticity (Constant variance is available)
Chi-Square (41) = 96038.60
Probability>Chi-Square = 0.0000

Therefore, in correcting the effects of heteroskedasticity the fixed-effect regression model, robust standard errors is applied to examine the true influence of firm specific factors on size of cash dividend payments of some nonfinancial firms listed on DSE in Bangladesh.

7.5 Results and Discussion of Panel Data Regression Analysis

Table 5 shows the results of pooled OLS without any fixed effects, pooled OLS with firm level fixed-effect, pooled OLS with time effects and Fixed-effect regression model with time variants effect under robust standard errors to control the presence of heteroskedasticity in

each of the four models. The value of F-statistic of all the models is statistically significant at 1% level, which means that the coefficients of all the variables except the constant are significantly different from zero and hence prove the validity of estimated models. In table 6, all the models report a significant positive effect of profitability on dividend per share. Both of pooled OLS model without any fixed effects and with time effects reveals a significant negative relation between growth and dividend payments, but the remaining models show an insignificant positive relation. In all the regression models the negative coefficient value of liquidity is found, but it is statistically significant solely in pooled OLS regression model with firm level fixed effect. Size of firm is positively influencing the firms' dividend payment, which is found significant in booth of pooled OLS without any fixed effects and pooled OLS with time effects regression models. Another firm level factor, earnings volatility, has negative and significant impact on cash dividend payment capacity of listed firms on DSE in Bangladesh. In pooled OLS without fixed effects and pooled OLS with time effects regression models, a significant positive effect of managerial ownership on cash dividend payment has been found. On the other hand, in pooled OLS with firm level fixed effects and Fixed-effect with time variant regression models show a significant negative relation between managerial ownership and cash dividend payment by firms in Bangladesh.

Moreover, the early results of LM test and Hausman specification test proved the necessity of drawing the final interpretation on the estimators of Fixed-effect regression model with time variants. Therefore, the following discussions are followed by the results of Fixed-effect regression model.

Table 5: Summary of regression estimates with robust standard errors

Model	OLS model without any Fixed Effects		OLS model with Firm Level Fixed Effects		OLS model with Time Effects		Fixed Effects model with Time Variants	
Variables	Coef.	P>t	Coef.	P>t	Coef.	P>t	Coef.	P>t
Prof	0.5699	**0.000*****	0.3758	**0.005*****	0.5777	**0.000*****	0.3813	**0.020****
Growth	-0.0697	**0.095***	0.0010	0.957	-0.0727	**0.078***	0.0001	0.997
Liqu	-0.4088	0.308	-0.7099	**0.076***	-0.4331	0.304	-0.7382	0.163
Size	1.0477	**0.059***	1.3235	0.202	1.0275	**0.065***	1.3149	0.272
EargVol	-0.2856	**0.050****	-0.0607	**0.000*****	-0.2868	**0.054***	-0.0565	**0.001*****
Mang	0.0841	**0.059***	-0.2451	**0.016****	0.0850	**0.058***	-0.2507	**0.048****
Firm_Level								
2			-1.7748	0.629				
3			20.4424	0.000***				
4			8.4120	0.056*				
5			-0.7650	0.797				
6			4.3005	0.101				
7			10.3891	0.025**				
8			8.5738	0.101				
9			6.7514	0.027**				
10			6.3523	0.105				
11			3.7880	0.333				
12			6.6473	0.121				
13			12.5510	0.029**				
14			17.1029	0.000***				
15			6.3512	0.028**				
16			11.5530	0.001***				
17			13.4084	0.005***				
18			7.0620	0.071*				
19			-5.1501	0.258				
20			5.0486	0.160				
21			26.9582	0.000***				
22			0.4721	0.878				
23			31.6536	0.000***				
24			55.2905	0.000***				
25			-5.8145	0.291				
26			4.0115	0.427				
27			15.4856	0.000***				
28			2.9864	0.384				
29			0.5044	0.811				
30			0.8862	0.812				
31			22.7230	0.001***				
32			12.8297	0.000***				
33			5.1181	0.214				
34			3.2015	0.286				
35			3.3297	0.519				
36			3.9639	0.182				
37			39.1113	0.000***				
38			13.0673	0.000***				
39			42.6232	0.000***				
40			-0.7275	0.792				
41			-2.7928	0.385				
Year								
2008					-1.4649	0.568	-0.8532	0.171
2009					-1.2170	0.645	-0.3802	0.636
2010					-0.3533	0.891	0.2003	0.852
2011					-0.7784	0.792	-0.7978	0.598
Constant	-12.0625	0.238	-12.3064	0.519	-10.9169	0.300	-1.3559	0.945
Model Summary	F(6, 198) = 8.39 Prob > F = 0.0000 R-squared=0.1822		F(46,158)= 219.56 Prob > F = 0.0000 R-squared= 0.9068		F(10, 194) = 5.16 Prob> F = 0.0000 R-squared= 0.1838		F(10,40) = 8.68 Prob > F = 0.0000	

***significant at 1% level, **significant at 5% level, and *significant at 10% level

7.5.1 Profitability

In this study profitability is found significant influential factors for dividend payments of Bangladeshi firms. The positive coefficient value (0.3813) of profitability is statistically significant at 1% level and thus the first the null hypothesis that profitability has no significant effect on dividend payments has been rejected, which mean that any increase in the ratio of EBIT to Total Assets of Bangladeshi firms leads to an increase in the dividend per share. This result is consistent to the previous studies such as Rozeff (1982), Jensen et al. (1992), Fama and French (2000), and Al-Malkawi (2007). But this result is not in line with research findings by Alam and Hossain (2012) as they found a negative association between profitability and dividend rate. The one possible reason behind these differences in results might be that they used the ratio of net profit after tax to total assets and this study used the ratio of EBIT to total assets as a measure of profitability.

7.5.2 Growth

Results of regression model show that coefficient value of firm's growth is not significant since the fourth null hypothesis is not rejected at 5% level. Nonetheless, a positive association between firm's growth and dividend payments is strongly supported by the findings of empirical studies such as Myers and Bacon (2004), Naceur et al. (2006), Afza and Mirza (2011), and Alam and Hossain (2012). The positive relation confirms signaling theory and implies that the growing firms need more funds to undertake new investments that could be financed with external source and thus they are more likely to send a positive signal to investors through higher dividend payments.

7.5.3 Liquidity

Table 5 also reveals that liquidity has negative impact on dividend payments of Bangladeshi firms but it is still insignificant in the model as the third null hypothesis is not rejected at 5% significance level. But, this association of liquidity with dividends confirms to the prediction of pecking order theory. Firms that maintain high liquidity ratio tend to generate more retained earnings instead of paying more cash dividends to meet the costs of new investments or pay overdue liabilities. Negative relationship between liquidity and dividends was also found in the study conducted by Alam and Hossain (2012) in Bangladesh.

7.5.4 Firm Size

The regression results of fixed-effect model reveal an insignificant positive effect of firm size on dividend while the second null hypothesis is not rejected at 5% significance level. This value implies that the large size firms in Bangladesh pay more cash dividends, which is parallel to agency theory (Jensen and Meckling; 1976) and also backed up by the findings of empirical researches done by Jensen et al. (1992), Moh'd et al. (1995), Barclay et al. (1999), Al-Malkawi (2007), and Al-Kuwari (2009). But Alam and Hossain (2012) found a negative relationship between firm size and dividend rate using log of total assets as a proxy of firm size, which is not consistent with the present study. This measure of size might imply that a firm can increase its total assets with excessive debt that obligates the firm to pay more interest and low dividends. On the other hand the present study used log of total

sales that means the greater the sales revenue the higher the firm size and the higher the dividend payment.

7.5.5 Earnings Volatility

Analysis of the effects of earnings volatility on dividend payments is new in Bangladesh since it has not been used as an explanatory variable yet, as per best knowledge of the researchers of this study. Results of Fixed-effect regression analysis in table 5 indicate that earnings volatility has significant negative effects on the firm's cash dividend payment decisions since the fifth null hypothesis is rejected at 1% significance level. The negative coefficient value of this factor implies that any increase in earnings volatility results in a decrease in cash dividend payment capacity of a firm. This result is strongly backed up by previous empirical studies such as Chang and Rhee (1990), Moh'd et al. (1995), and Ho (2003). One explanation regarding the negative coefficient value of earnings volatility may be that a high earnings volatility signals a business risk to investors, which instructs them to adjust this risk by lowering the value of equity and debt, and hence both of equity and debt become more expensive to firms, and the resulting loss influences the firms to retain more earnings and to pay low cash dividends.

7.5.6 Managerial Ownership

The control variable managerial ownership has not been widely used in Bangladesh in examining its influence over the managerial decision for dividend payments. In Fixed-effect regression analysis it is found that managerial ownership has significant negative influence on dividend payment decisions of Bangladeshi firms and thus the sixth null hypothesis is rejected at 5% significance level. The negative sign of this coefficient implies that any increase in managerial ownership results in a decrease in cash dividends because managers given more shares of the company are highly indented to implement such decisions that address owner's interest and low agency problem. Consequently, firms wish to pay low dividend which is in compliance with the findings of Holder et al. (1998), Myers and Bacon (2004), Kania and Bacon (2005), and Al-Malkawi (2007).

8. Conclusions

This study attempts to investigate how firm specific factors affect the dividend payments of a sample of 41 Bangladeshi firms listed in DSE. Panel data used in the study were collected from the financial statements of each firm during the five-year period from 2007 to 2011. To select a model that would have the best power of explanation in analyzing these data Breusch-Pagan Lagrange multiplier (LM) test and Hausman specification test were conducted. Test results suggested applying fixed-effect regression model rather than random-effect regression model and pooled OLS method. Thereafter, applying Pasaran test and Wooldridge test it was confirmed that the selected regression model can produce estimators without the presence of cross-sectional dependence and autocorrelation. But, the presence of heteroskedasticity in the data was suspected because the null hypothesis under Wald test was rejected at 5% level of significance. As a remedial measure of heteroskedasticity, fixed-effect regression model with robust errors was run under an assumption that intercepts vary across each firm but the slope coefficients are constant

across firms. It is the first time in Bangladesh that this study has used earnings volatility and managerial ownership as regressors to examine their effects on cash dividend payment per share. In addition, this study applies different measure of some independent variables that were not considered in previous studies in Bangladesh. The findings of this study show that profitability has significant positive relation with dividend payments, though it is contrary to the findings of the study of Alam and Hossain (2012). This result suggests the investors, who seek for more cash dividend, to buy stock of such a company that experiences more profits. On the other hand, this study has also found that managerial ownership and earnings volatility are negatively and significantly related with dividend payments. These results describe something new in the context of Bangladesh because they were never appeared in any research in Bangladesh. Negative association between managerial ownership and dividend payments implies that a firm giving more ownership to its managers, directors, supervisors and other executive officers can alleviate agency problems and concentrate on project expansion. This suggests that investors can find high growth opportunity in that firm. The study further reveals that a firm with high earnings volatility is reluctant to pay cash dividend due to tackle the high business risk. Moreover, size, liquidity, and growth were not found to be significant explanatory variables of cash dividend payment decisions of listed firms on DSE in Bangladesh.

Nonetheless, this study only uses dividend payment per share as a dependent variable, the other definitions of dividend payments like dividend payout ratio and dividend yield can be used in future study to identify which definition is powerfully explained by given control variables. This study covers some data taken from the abnormal behavior period of DSE comprising from 2009-2010 while DSE experienced a huge crash that might affect the results of the study. Besides, the reliability of the findings of the study can be investigated by conducting similar research in other developing countries. In conclusion, overall results can be improved by including new explanatory variables and observations.

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