Factors Affecting Pay-out Policy: A Panel Data Study on Selected Bangladeshi Companies

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Abstract

Considering dividend payout as one of the most major financial decisions that the firms need to make to reward the stakeholders and optimizing the value of the firm, the paper aims to identify the factors affecting the dividend payment decision in a particular year by constructing two empirical models. Estimation results using an unbalanced panel data of 196 companies from 17 sectors over the period 2003-2015 listed in Chittagong Stock Exchange, Bangladesh, reveal that previous year's dividend and current EPS and age of the firm positively affects the decision to pay or not to pay dividends; while high public ownership negatively affects the payment decision of dividends. On the other hand, only amount of dividends paid last year and current year's EPS are found to have positive and significant effect on dividend per share paid this year. The dividend payment policy is found to vary across different sectors and time periods. The paper establishes a new baseline from which further statistically rigorous studies can be undertaken to formulate and implement policies for a growing market with untapped growth potential.

Introduction

The corporate dividend policy is central to decisions in corporate finance (Chauhan & Pathak, 2020). Corporate dividend payout policy plays a crucial role in financial markets and has distinct functions (Gill, Biger, & Tibrewala, 2010). Dividend is a tool of market competition (Grullon & Michaely, 2007) and a proper dividend decision on how much of the company's profits are being given back to shareholders can aid the company to survive in a competitive market (Gill, Biger, & Tibrewala, 2010). If the company maintains

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regularity and consistency in paying dividends, that will encourage existing shareholders to keep their investments in the company. Allen, Bernardo, and Welch (2000) summarized the current consensus when they concluded, "Although a number of theories have been put forward in the literature to explain their pervasive presence, dividends remain one of the thorniest puzzles in corporate finance." Lotto (2020) reminds cautiously that dividend payments will depend on whether the firm is liquid enough to afford it.

The dividend decision of a firm is an outcome of various considerations (Gupta & Banga, 2010). Kania (2005) identifies financial factors as important in the dividend payout decision, a view which is shared by Jabbouri (2016). Being one of the most significant topics in the finance literature both in theoretical and empirical dimensions, extensive research has been conducted on the many facets of dividend policy of firms (Jabbouri & Attar, 2018). The dividend decision involves a number of stakeholders, including financial managers, consulting firms, institutional investors and government authorities (Longinidis & Symeonidis, 2013). Cultural differences are also stated to be important in explaining variations in dividend policies (Bae, Chang, & Kang, 2012). The dividend declaration is a crucial decision (Saravanakumar, 2011) and is affected by various factors (Baker & Weigand, 2015; Bhattacharya, 2007). Financial reporting quality is also stated to affect corporate dividend policy (Koo, Ramalingegowda, & Yu, 2017).

Applying a number of econometric techniques, the study attempts to determine the factors that explain dividend payout decisions using an unbalanced panel data of 196 companies from 17 sectors over the period 2003-2015 listed on the Chittagong Stock Exchange, Bangladesh. Firstly, random effect panel logistic regression models were used to determine the factors affecting the decisions "to pay" or "not to pay" dividends. Secondly, this paper also applies the random effect linear regression for the expanded model to ascertain the factors affecting how much dividend to pay.

The remainder of the paper is organized as follows: Section 2 reviews the contemporary research literature. Section 3 and 4 provide an overview of the data and methodology respectively. Section 5 presents the empirical findings and analysis, and Section 6 discusses the findings and their implications.

Literature Review

Miller and Scholes (1978) state that even though the tax rate for dividends and capital gains are different under the US tax system, dividends do not affect the value of the company. Lintner (1956) proposes the "Bird in Hand" theory which has been supported by various researchers including Gordon (1959; 1962). In financial terms, the theory says that investors are more willing to invest in stocks that pay current dividend rather than to invest in stocks that retain earnings and pay dividends in the future. Gordon's (1962) model supports this by saying though the capital gains in the future may provide a higher return than the current dividends, there is no guarantee that the investor will accumulate a higher return due to the high degree of uncertainty. The

signaling theory of dividends has its origin in Lintner's (1956) study that reveals that the price of a company's stocks usually changes when the dividend payments changes. Bhattacharya (1979) argues that even though there is a tax disadvantage for dividends, companies would choose to pay dividends in order to send positive signals to shareholders and outside investors. The signaling hypothesis is further developed by Miller and Rock (1985) who state that there is a high degree of information asymmetry between managers and outside investors. Asquith and Mullins (1983) provide empirical evidence in favor of the signaling theory and argue that an increase of dividend payments tends to increase shareholders' wealth. The agency theory of dividend hypothesis states that dividend payments can be utilized to reduce agency problems (Rozeff, 1982; Easterbrook, 1984; Dempsey & Laber, 1992). Holder, Langrehr and Hexter (1998), and Saxena (1999) explained that dividends can be a significant instrument in diminishing agency costs since paying high dividends would require a company to depend on capital markets as their key financing resource.

Jensen (1986) argues that firms with high levels of free cash flow are likely to suffer from agency conflict as managers may use the free cash flow to benefit themselves at the expense of their shareholders. Smith and Watts (1992) and La Porta et al. (2000), support Jensen's (1986) argument by adding that free cash flow allows managers to engage in wasteful projects and companies with a high free cash flow should increase dividend payments to lessen the associated agency costs. Thanatawee (2011) states that higher profitability should be able to generate free cash flow and Patra, Poshakwale and Yong (2012), Nizar Al-Malkawi (2007), and Moradi, Valipour and Mousavi (2012) find a positive relationship between profitability and dividend payouts when examining factors influencing corporate dividend decisions. Igan, de Paula, and Pinheiro (2006) and Gupta and Banga (2010) show liquidity as an important determinant of dividend payouts supporting the proposition that companies with high free cash flow or high liquidity are the ones more likely to pay dividends.

According to Fama and French (2012), leverage entails risk as a firm bears the obligation to make interest payments and the principal amount when they acquire debt financing. Failure in meeting these obligations may lead the firm into liquidation; therefore, leverage should restrict dividend payment. Patra, Poshakwale and Yong (2012), and Moradi, Valipour and Mousavi (2012) examine determinants of corporate dividend policy in Greece and Tehran respectively and find a significant negative relationship between leverage and dividend payouts. However, Thanatawee (2011), and Utami and Inanga (2011) find a positive relationship between leverage and dividend policy for listed firms in Thailand and Indonesia respectively. Marfo-Yiadom and Agyei (2011) study the determinants of dividend policy of banks in Ghana covering the five-year period from 1999 to 2003. Their results show that profitability, debt, changes in dividend and collateral capacity are statistically significant factors which positively influence dividend policy of banks in Ghana. Alam and Hossain (2012) show similar findings for dividend policy of UK companies listed in London Stock Exchange. According to their study, leverage, profit-

ability, and market capitalization influence the dividend rate positively. Al-Shubiri (2011) examines the factors that determine the dividend policies of 60 industrial firms listed on the Amman Stock Exchange from 2005 to 2009 and the study demonstrates that leverage, institutional ownership, business risk and asset structure are negatively related with dividend payout ratios. Al-Malkawi (2008) finds size, profitability, and age increase the likelihood to pay dividends and financial leverage decrease the probability to pay dividends using unbalanced panel data with 1137 firm-year observations covering the period between 1989 and 2003 of publicly quoted companies in Jordan. The findings suggest that factors affecting dividend policy in developed stock markets are likely to be applicable for emerging markets as well.

Jensen and Meckling (1976), Lloyd, Jahera, and Page (1985), and Jensen, Solberg and Zorn (1992) find that large companies are more likely to increase their dividend payouts to decrease agency costs and minimize the asymmetric information problem. Other studies have illustrated a positive association between dividends and company size from a transaction cost prospective, arguing that large companies characteristically have better access to capital markets and a better opportunity to raise financing at a lower cost (Eddy & Seifert, 1988; Redding, 1997; Holder, Langrehr, & Hexter, 1998; Fama & French, 2001). El-Essa et al. (2012) study the factors affecting dividend policy decisions of industrial corporations listed in Amman Stock Exchange from 2005 to 2011 and find a positive relationship between dividends and net cash flows, earnings before interest and tax, earning per share, price to book value ratio, dividend yield and firm size. Musa (2009) applies the parsimonious multiple regression model to investigate the dividend policy of 53 firms quoted on the Nigerian Stock Exchange during 1993 to 2002. His results reveal that five metric variables (previous dividend, current earnings, cash flows, investment, and net current assets) have significant aggregate impact of the dividend policy of the sample firms, whereas three non-metric variables (growth, firm size and industry classification) do not provide a statistically significant improvement to their model.

The literature which focuses on the determinants of dividend payout policies in the context of Bangladesh is scarce. Abu (2012) uses a balanced panel data on 11 commercial banks listed at Dhaka and Chittagong Stock Exchange over 2003-2010. By applying ordinary least squares, fixed and random effect estimations, they find that current earnings has positive role on the payout decision of the selected firms, whereas EPS has a negative impact which might not reflect the whole picture as the author himself admits several limitations of the estimated results as the used variables and the number of samples cover only a small percentage of the overall market. Huda and Abdullah (2014) in a study on the Chittagong Stock Exchange, through applying multiple regression and correlation analysis, find that director's ownership and return on equity (ROE) are positively associated with dividend policy; whereas institutional ownership and leverage are negatively associated with dividend policy. Hossain et al. (2015) also attempt to determine the impact of firm specific factors on cash dividend payment decisions, but for a sample of 41

non-financial firms listed in Dhaka Stock Exchange (DSE) in Bangladesh during 2007-2011. Applying fixed-effect regression model on their panel data, they find profitability to have positive and significant effect; earnings volatility and managerial ownership to have negative significant effect on dividend payments; in contrast, size, growth and liquidity are not found to have any significant effect.

Data

The study applied a multistage data collection process. In the first stage, all the 208 listed companies on the Chittagong Stock Exchange (CSE) were selected during the sample time frame of thirteen years from January 2003 to December 2015. In the second stage, 196 listed companies from were retained based on available and usable information. In the third stage, required panel data were collected for the 196 companies. Data pertaining to earnings per share and dividend payout ratio were collected from the Chittagong Stock Exchange, while data related to other control variables, i.e. age of company, total asset, net asset value per share and shareholding pattern were collected from the annual reports and websites of the companies according to their respective financial years. The final selection of 196 companies from 17 sectors over the period 2003-2015 consists of 1510 firm-year observations.

Table 1: Companies Selected for Study by Different Sector of Chittagong Stock Exchange

No	Sector	Number of firms
1	Bank	27
2	Finance	23
3	Pharma & Chemical	23
4	Insurance	22
5	Textile	19
6	Engineering	18
7	Fuel & Power	15
8	Food	11
9	Cement	6
10	Miscellaneous	6
11	Mutual Fund	6
12	IT	5
13	Service & Estate	5
14	Tannery	5
15	Ceramics	3
16	Paper	1
17	Telecom	1
	Total	196

Source: Chittagong Stock Exchange.

Methodology

Econometric analysis was conducted to determine the pattern and extent of dividend payments over the study period in two steps. In the first step, random effect panel logistic regression models were used to determine the factors that explain dividend payout decisions in the market. Random effect logistic model has been employed because the dependent variable is categorical in nature and involves the discrete choice "to pay" or "not to pay" dividends. The study uses firm-specific explanatory variables which are likely to be collinear with the firm fixed effects variables. Fixed effects panel regression could not be performed because for some firms there exists no variation in the dependent variable over the study period.

The study also applies the random effect linear regression model to ascertain whether the main findings in the logit regression are robust to the use of an alternative measure of dividend policy (Dividend per share) which measures the amount of dividend paid per share in a year. This is to see whether the same factors that explain the decision "to pay" or "not to pay" also explain "how much to pay."

Variable Definitions

Dependent Variable

Model 1: In the first regression model, the dependent variable is the discrete choice "to pay" or "not to pay" dividends which is measured as a dummy variable with values of 1 if the firm pays dividend in a certain year and 0 otherwise.

Model 2: In the second regression model, dividend per share was used as a dependent variable which is calculated by multiplying earning per share (EPS) with dividend payout ratio.

Independent Variables

Seven explanatory variables were used in the two regression models. EPS represents earning per share of the firm in corresponding year to represent the firm's profitability; net asset value is used as proxy for the size of a company; yearly return is calculated as (P1-P0)/P0 where, P0= Initial stock price (Jan-1), P1 = Ending stock price (Dec-30) and age of the company were used as control variables. Lagged dependent variable is also included as an independent variable to see the effect of previous dividend declaration on the current decision. Shareholding by institution, public and director were also used to control ownership pattern in order to explore their impact on dividend payout decision.

Table 2 presents the descriptive statistics of all variables used in this study. On an average, 60% of the selected companies paid dividends during the study period. The table shows that in terms of holding shares, on an average directors

own 41% of shares traded in the Chittagong Stock Exchange, followed by 35% by the general public and 17% by institutional investors. The table also indicates that the mean earning per share (EPS) is 5.5 Taka. On an average, companies' average age is 21 years, average size is 48.9 and average company earnings return 21.5% annually.

Table 2: Descriptive Statistics

Variables	Mean	SD	Minimum	Maximum
Dividend Payer (0/1)	0.6	0.5	0	1
Yearly Return (%)	21.5	71.4	-93.1	829.3
EPS	5.5	9.6	-26.2	104.7
Net Asset Value	48.9	120.9	-50.8	1572.9
Director Holding (%)	41.6	19.6	0	96.3
Institution Holding (%)	17.1	13.7	0	92.06
Public Holding (%)	35.4	18.1	0	99
Age of the company (in years)	20.8	11.5	1	57

Source: Data Set, Chittagong Stock Exchange

Empirical Analysis

Assumptions such as linearity, normality and homoscedasticity, which are related to the distribution of explanatory variables in linear regression models are not required in non-linear models. The study checks for possible multicollinearity using variance inflation factors (VIF). Table 3 below shows VIF for each of the variables is below 10 and the mean VIF is 1.46. This indicates that there is a multicollinearity problem in the variables selected for this study.

Table 3: Multicollinearity Analysis

Variable	Variance Inflation Factor (VIF)	1/VIF
EPS	1.28	0.49
NAV	1.16	0.53
Yearly Return	1.01	0.58
Age of the company	1.12	0.78
Director Holding	1.90	0.86
Institution Holding	1.73	0.89
Public Holding	2.05	0.99
Mean VIF	1.46	

Source: Data Set, Chittagong Stock Exchange

Regression results for the Random Effect Logistic model explaining whether to pay dividend or not are presented in Table 4. The results show that previ-

ous year's dividend has a strong positive and statistically significant effect on current dividend payment decision which can be associated with the Signaling Theory of dividend payout. According to this theory, there is a positive association between dividend payout and share prices (Abdullah, Quader & Saha, 2018) and therefore, companies do not want to lower their payout which is feared to create a negative impact on the firm's value. Also, rather than following the residual dividend policy, companies prefer to follow a stable pay out pattern which is why previous year's dividend positively affects the current dividend payment decision.

The results also indicate that EPS played an important role for the dividend payout and companies that generate high EPS are more likely to pay dividends. This implies that companies generating high net income tend to share their profitability with the shareholders. It is also found that firms are least likely to pay a dividend when public ownership is high compared to other directorial and institutional ownerships. This may indicate that management of the companies having absence or weak presence of institutional ownership tend to use their discretionary power and position to influence the dividend policy of the company. Companies' establishment age is also positively related with dividend payout, that is older firms are likely to pay dividends. Usually mature companies are likely to be financially sound and thus can maintain stability in their dividend payment policy compared to the new and young ones. Current year's return and net asset value of the firms are not found to have significant effect on dividend payment decision. This result supports the evidence that Bangladeshi companies are less interested to invest in their capital investment and do not prefer to follow residual policy (Abdullah, Parvez & Tooheen, 2017), rather they follow dividend smoothing pattern. So net asset value of the company may not have any significant impact on pay out.

There exists variation in paying dividend among different sectors in Dhaka Stock Exchange. Compared to the Finance sector, mutual funds and tanneries are more likely to pay dividends.

Also, companies are significantly less likely to pay dividends in 2007-2012 compared to 2003-2006. The turmoil in share market, global recession may have had a bad impact on the companies to pay the dividend during 2007-12 financial years. These results remain consistent throughout the different models from 1 to 7.

Table 4: Results of Random Effects Logistic Regression of the Determinants of Dividend Payout Decisions

Dividend paid (yes/no)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Yearly Return$_{i,t}$	0.13	-0.03	-0.13	-0.13	-0.10	-0.10	-0.07
L.Dividend Paid (0/1)		2.44***	2.46***	2.46***	2.42***	2.36***	2.19***
EPS$_{i,t}$			2.09***	1.96***	1.83**	1.68**	2.01**
NAV$_{i,t}$				0.49	0.31	0.26	0.18
Age of the company					0.54**	0.59**	0.53*

(Table 4 Continued)

(Table 4 Continued)

Director Holding						0.13	0.13
Institution holding						-0.12	-0.07
Public Holding						-0.56*	-0.70*
Sector (Ref=Finance)							
Mutual Fund							1.04**
Bank							-0.13
Engineering							0.19
IT sector							-0.03
Textile							0.24
Insurance							-0.01
Food							0.18
Fuel & Power							0.08
Pharmaceutical and Chemical							0.27
Service/Ceramic/Telecom							0.38
Tannery/ Cement							0.50*
Year (Ref=2003-2006)							
2007—2012							-0.76***
2013-2015							0.06
Number of observations	1711	1510	1510	1510	1510	1510	1510

Standardized beta coefficients; * p<0.05, **p<0.01, *** p<0.001
Source: Data Set, Chittagong Stock Exchange

In Table 5, the study demonstrates the effects of explanatory variables on the amount of dividend paid. Random Effect Linear Regression model is employed here to explore the factors affecting the amount of dividend to be paid and therefore, only those observations having dividends paid by the companies are included in the estimation. The results indicate that two variables positively and significantly influence the amount of dividend paid, which are extent of dividends paid last year and EPS and both are found to have positive and statistically significant effects on current dividend payment per share which can be explained similarly as in case of the earlier model. The results also indicate that companies from bank and IT sectors are significantly more likely to pay more dividends compared to finance companies. Also, compared to 2003-2006 companies are significantly more likely to pay higher dividends in 2013-2015.

Table 5: Results of Random Effects Linear Regression model of the Determinants of the Amount of Dividend Payment Decisions

Dividend Per Share (DPS)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Yearly Return$_{i,t}$	0.02	0.014	0.008	0.008	0.007	0.007	0.007
L.DPS		0.930***	0.829***	0.829***	0.830***	0.822***	0.822***
EPS$_{i,t}$			0.136*	0.135*	0.137*	0.140*	0.140*
NAV$_{i,t}$				0.002	0.003	0.003	0.003
Age					-0.012	-0.008	-0.008
Director Holding						0.012	
Institution holding						-0.027	-0.027
Public Holding						-0.019	-0.019

(Table 5 Continued)

(Table 5 Continued)

Sector (Ref=Finance)							
Mutual Fund							0.016
Bank							0.020*
Engineering							0.025
IT sector							0.019***
Textile							0.01
Insurance							0.013
Food							0.028
Fuel & Power							-0.014
Pharmaceutical and Chemical							0.001
Service/Ceramic/Telecom							0.024
Tannery/ Cement							0.001
Year (Ref=2003-2006)							
2007--2012							0.022
2013-2015							0.046***
Number of observations	1045	909	909	909	909	909	909

Source: Data Set, Chittagong Stock Exchange

Conclusion

One of the most major financial decisions that the firms have to make is to fix their dividend payout policy. Therefore, identifying the factors leading to a dividend payment decision in a particular year and rationalizing how much dividend to pay becomes essential for a firm to make an ideal dividend declaration. Constructing two empirical models using an unbalanced panel data of 196 companies from 17 sectors over the period 2003-2015 listed in Chittagong Stock Exchange, Bangladesh, this paper finds that previous year's dividend and current EPS and age of the firm have positive and statistically significant effect on current dividend payment decisions. Besides, firms having high public ownership are less likely to pay dividends when public ownership is high compared to other directorial and institutional ownerships. On the other hand, only amount of dividends paid last year and current year's EPS are found to have positive and significant effect on dividend per share paid this year. The dividend payment policy also varies across different sectors and time periods. Although the study findings is in agreement with a number of previous studies, and the Bangladesh market has its own distinct characteristics, the study establishes a new baseline from which further statistically rigorous studies can be undertaken to formulate and implement policies for a growing market with untapped growth potential.

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