Determinants of the Dividend Payout Policy: A Study on Listed Private Commercial Banks of Dhaka Stock Exchange Limited in Bangladesh

*Md. Zakir Hosain

Assistant Professor, Department of Finance, Bangladesh University of Business and Technology (BUBT), Dhaka Commerce College Road, Mirpur-02, Dhaka-1216, Bangladesh

Abstract: *This study aims to investigate the determinants of dividend payout policy of the listed private commercial banks in Bangladesh. In this study, eight variables are considered as potential determinants of dividend payout policy. Both pooled ordinary least square (POLS) and dynamic panel regression model were run on a sample of ten listed private commercial banks of Dhaka Stock Exchange Limited in Bangladesh for the period of eleven years from 2005 to 2015. While testing the impact of the eight independent variables on the dividend payout ratio, we concluded that only five can explain the dividend policy. Fixed effect regression model was chosen to test the relationship between dividend determinants and dividend payout. The results show that dividend payout ratio are positively and significantly affected by liquidity, firm growth, previous year's dividends but are negatively affected by leverage and profitability. Firm size, firm risk and ownership structure do not have a direct influence on the dividend payments. Thus, Leverage, liquidity, firm growth, previous year's dividends, and profitability are functioning as the key determinants of dividend payout of the listed private commercial banks in Bangladesh*

Keywords: *Determinants, Dividend Payout Policy, Dynamic Panel, POLS, Dhaka Stock Exchange, Bangladesh.*

I. Introduction

Banking system plays a very important role in the economics life of the nation. The health of the economy is closely related to the soundness of its banking system. Private commercial bank in Bangladesh is now an essential part of our economics system. Shareholders are the owners of the joint stock company. Generally the company distributes a portion of its earnings to the shareholders. The part of the earnings which is distributed among the shareholders is called dividend. Dividend policy determines how much of a company's earnings will be paid to the shareholders and how much will be retained. The return on a shareholder's investment comprise the dividends receive and the capital gain or loss during the period of share are held. Therefore, a dividend is an important element of shareholders' return.

Dividend policy remains a source of controversial despite years of theoretical and empirical research. Brealey & Myers (2005) described dividend policy as one of the top ten most difficult unsolved problems in financial economics. This description is consistent with Black 1976 who stated that the harder we look at the dividend picture, the more it seems like a puzzle, with pieces that don't fit together. It is noted that researchers have focused mainly on developed markets, while little or no attention has been paid to dividend policy in emerging markets. Thus this field is not well established in the financial literature. In the context of Bangladesh, a few empirical studies analyzed the dividend policy of listed private commercial bank in Dhaka Stock Exchange limited in Bangladesh. However, it is not clear as to what specific financial factors lead to affect the dividend payout policy of listed commercial banks of Dhaka Stock Exchange limited in Bangladesh and what are the relationships between dividend determinant and dividend payout policy. Therefore, these question motive me to make a encourage that a comprehensive investigation of determinant of dividend policy of listed private commercial bank in Dhaka Stock Exchange Limited in Bangladesh to make an important contribution to knowledge.

The rest of the paper is organized as follows: section 2 presents literature review while section 3 discusses the purpose of the study. Section 4 describes the variables and expected result from the study. The research methodology of the study is addressed in section 5 and discussion of result is included in section 6. Finally, section 7 concludes.

II. Literature Review

The controversy of the dividend policy is an old thread, making us go back to established a relationship between dividends and the value of the company. The roots of the empirical literature have been credited to John Lintner (1956) who conducted his study on American companies in the middle of 1950s which was

---

familiar as dividend relevance theory. He concluded that the dividend decision is based upon the current profitability and the previous year's dividends. Subsequently, there has been an ongoing debate on the dividend policy resulting in controversial and inconclusive results. Fama and Babiak (1968) tested the Lintner model on the dividend data of 392 major North American industrial firms and concluded that Lintner's dividend model has succeeded well in explaining the dividend changes of individual firms. In an opposite line to the relevance of dividends, Modigliani and Miller (1961) found evidence that the dividends paid did not affect the company's value or profitability of investors, that is, irrelevant to the value of the company. However, this irrelevance of dividends depends on certain assumptions, such as: facing rational expectations, tax and no transaction costs, information asymmetry and other market imperfections being the capital market perfect and efficient.

Mohamed *et al.* (2012) used a sample of 200 companies that are listed on Malaysian stock market from 2003 to 2005. They found that earning per share and returns on equity are significant indictors for profitability whether they are used jointly or independently. Aivazian *et al.* (2003) concluded that in U.S. firms and promising market firms, profitability affects dividend payout, high debt ratios lead to reduced dividend payments, and market-to-book ratio has a positive relationship with dividend payments. Zaman (2013) studied dividend policy of all 30 private commercial banks listed in Dhaka Stock Exchange over a period of seven years: January 2006 - December 2012. The paper shows that profitability appears to be a better determinant of bank dividend policy than a bank's growth and size. But it may not be concluded that profitability alone is a strong determinant of bank's dividend policy in the capital market of Bangladesh.

Kowalski *et al* (2007) argued that more indebted firms prefer to pay lower dividends. Also, Al-Kuwari (2009) confirms that dividend policy is negatively related to leverage ratio. Rozeff, M., (1982) found that earnings of firms with high leverage are more risky and unpredictable and pay low dividends accordingly. Jensen G.R. (1992) found negative association of financial leverage with dividend payout ratios. However, Mollah A.S (2001) examined an emerging market and found a direct relationship between financial leverage and debt-burden level that increases transaction costs. Thus, firms with high leverage ratios have high transaction costs, and are in a weak position to pay higher dividends to avoid the cost of external financing.

Lloyd and Jahera (1985) concluded that larger firms become less dependent on internal funds which allow them to pay higher dividends. Juhmani (2009) studied sample consist of 35 Bahraini companies listed in Bahrain Stock Exchange from 2006 to 2007; he used descriptive and statistical analysis. He revealed that dividend payout has significant relationship with size of Bahraini companies, profitability and change in previous year dividends listed in Bahrain Stock Exchange. A study conducted by Reddy and Rath (2005) on Indian corporate firms in an emerging market during 1991 to 2001 found that firms that pay dividend are likely to be larger and more profitable than nonpaying firms.

La Porta *et al.* (2000) investigated countries with high legal protection and revealed that fast-growth firms paid lower dividends, as the shareholders were legally protected. On the other hand, in countries with low legal protection for shareholders, firms kept the dividend payout high, to develop and maintain a strong name, even when they had better investment opportunities

A research done by Murhadi (2008) on firms listed on PT Jakarta Stock Exchange during the period of 1995 to 2005 reveals that growing firms tend not to pay high dividend comparing to matured firms. A research conducted by Ajmi and Hussain (2011) on 54 Saudi-listed companies during the period of 1990 till 2006 reveals that firms with lower profit have a tendency not to pay dividend or pay low dividend. Previous studies indicate that higher profitability does not always influence firms to pay higher dividend.

Okpara (2010) analyzed the determinants of the dividend Payout policy of firms from Nigerian Securities and Exchange Commission. They concluded that there is a positive relationship between the liquidity and dividend payout supporting that firms with high liquidity tend to pay higher dividends as compared to firms facing unstable earning. On the contrary, Marfo-Yiadom and Agyei (2011) although, cash had a negative relationship with dividend policy, the results were not significant. In investigating the determinants of dividend policy Naceur *et al.* (2006) find that the high profitable firms with more stable earnings can manage the larger cash flows and because of this they pay larger dividends. Moreover, the firms with fast growth distribute the larger dividends so as attract to investors.Rozeff (1982) and Al-Malkawi (2007) concluded that the greater the percentage of insider ownership, the lower will be the dividend payout ratio. The probable explanation is that in case of higher insider ownership, agency cost will be lower and firms will retain more to reinvest. Grinstein and Michaely (2005) viewed that higher institutional holding have no impact on the firm's dividend payout ratio.

The relationship of firm's risk and dividend decision was investigated by Holder *et al.* (1998) and Ling *et al.* (2008) they concluded that beta has a negative association with dividend payout. Jensen *et al.* (1992) found that greater systematic risk increased the uncertainty of expected future earnings. Therefore, firms force to pay fewer dividends due to increase of uncertainty earnings. On the contrary, Mollah (2002) resulted that firms listed on the Dhaka Stock Exchange paid a large dividend, although the beta for their stock was high. He argued that in an emerging stock exchange, the dividend might not be the most appropriate tool to convey correct information about transaction costs to the market.

Past dividend trend is important enough to persuade the current dividend payment in order to maintain a stable dividend policy. In most of the empirical studies, this factor has been considered as an important variable. Imran (2011) empirically investigated the factors affecting the dividend payout decisions of Pakistan engineering sector using the data of 36 listed firms from 1996 to 2008. Using various panel data techniques, he found that the dividend payout was positively affected by last year's dividend, Lintner, J. (1965) viewed that firms usually set a target dividend payout ratio and tend to maintain dividend payments to this target.

III.   Purpose of the study

The purpose of this study is to investigate the determinants of dividend payout policy on the listed private commercial banks of Dhaka Stock Exchange Limited in Bangladesh. The study will enhance knowledge in the area of dividend payout policy as this research is based on a combination of various models with a view to improve prediction and make relationship between dividend determinants and dividend payout of the banks.

IV. Variables and Expected result of the Study

Dependent Variable:

Dividend Payout Ratio:

In this analysis the cash dividend is used as the proxy for dividend payout decisions, is used as dependent variable measured by the ratio of total amount of cash dividend paid to net income of a bank in given time period.

Independent Variables: We have selected some potential determinants which have an impact on the dividend payout decisions of firm. These variables are leverage, size, liquidity, profitability, growth, firm risk, ownership structure, previous year's dividend and profitability.

Leverage: The leverage has been used as a proxy of debt ratio in this study which is used by Yahya and Hadi (2013). The ratio is calculated total liability to total asset for banks. Because leverage is a very important variable for the determinants of dividend behavior, if the level of the leverage is high its mean the firm is more risky in the cash flows. Long-term debt had negative impact on the amount of dividend paid. As usually the firms with higher leverage paid lower dividends in order to evade the cost of raising external capital of the firm.

Firm Size: The size of the firm is a major factor which can affect the firms' dividend policy. The size of the bank is measured by the natural logarithm of total assets as used by Gill et al. (2009) and is included to account for size variability. Large companies tend to be more competitive, with access to capital, better credit rating, and more customers, which will enhance their profitability and increase their ability to pay higher dividends (Dickens et al., 2002) which is similar Fama and French (2001) and Aivazian et al. (2003).

Liquidity: Liquidity is one of the important factors that can affect the decision or behavior of the dividend policy. Cash and Cash Equivalent over Net Total Assets is used as proxies of liquidity. These are also used by Kanwal & Kapoor, 2008; Ahmed & Javid, 2009). According to the signaling theory, firms with higher cash accessibility are able to pay higher dividends than firms with insufficient cash (Ho, 2003). Furthermore, according to the agency theory of cash flow, Jensen (1986) argued that firms with high cash flows pay higher dividends in order to diminish the agency conflict between their managers and shareholders.

Growth Opportunity: Generally, the high growth firms are smoother to pay their dividends to shareholders. Growth is the signals to the shareholders the firms having high growth opportunities. The interest income growth has been used as proxy of growth in the analysis of the study which are also used by Zaman (2013) and Yahya and Hadi (2013).

Firm Risk: Although risk can be measured in different ways, it will be proxied by the P/E ratio defined as the market price per share divided by earning per share since it implicitly incorporates the perceived risk of a given company's future earnings (Fama & French 1998; Friend & Puckett, 1964).

Ownership Structure: Institutional investors play an effective role at monitoring management than the individual investors. Because of their investment size and the resources at their disposal, Institutional investors have better incentive and capabilities to collect and evaluate information pertaining to their investments. Ownership structure related to the percentage of total shares held by insiders is used. This proxy is also used by Mark et al (1998).

Previous year's dividends: Lintner (1956) showed that historical dividends are essential in determining current dividends. Last year dividend is used as proxy for previous year's dividend. The model was tested and reaffirmed by Ahmed & Javid (2009) and Mollah (2009) who concluded that the previous year's dividends positively affect the current dividend payout ratio of a company. In this study, the last year's dividends payout is used as a proxy variable for historical dividends.

Profitability: Profitability has long been considered as the most determinants of a firm's ability to pay dividends. We used ROA as proxy for profitability. By the same way, Zaman (2013) and Yahya and Hadi (2013) have pointed out that the dividend payment pattern of a firm is affected by the ROA.

The variables are used in this study are summarized in the following table with the expected sign:

Variables	Symbol	Description	Expectation
Depended Variable			
Dividend payout ratio	DPR	Cash Dividend/ Net profit	
Independent Variables			
Leverage	LEV	Total liability/Total Asset	+/-
Firm Size	SZ	Natural Logarithm of Total Assets	+
Liquidity	LIQ	Cash and cash equivalent /Total asset	+
Growth Opportunity	GRO	(Current interest income - last year interest income) / last year interest income	-
Firm Risk	GRO	Market price per share/ Earning price per share	+/-
Ownership Structure	OS	Total share held by insiders / Total number of share	-
Previous year's dividends	PYD	Last year Dividend	+
Profitability	PROF	Net Income / Total asset	+

V. Methodology of the study

Research Design:
A research design is the blue print or the plan of a study. Due to the nature of the study quantitative research approach was followed. The study is based on unbalanced panel of listed commercial banks of Dhaka Stock Exchange in Bangladesh. The variables examined in this study consist of secondary yearly data collected mainly from annual report of selected commercial banks, Bangladesh Securities and Exchange Commission's (BSEC) annual report, Dhaka Stock Exchange annual report, local and international journals etc. Since the latest period of available data are included in the study. The time frame of the research will be limited to the period from 2005 to 2015. In this study, a purposive sampling technique is employed in selecting a particular company. To be included in the analysis, the company must meet three criteria, which are (i) having regular annual report for the study period; (ii) showing positive earnings throughout the period of the study; (iii) paying continuous cash dividend throughout the period of the study. After the above filtering, 10 listed private commercial banks of Dhaka Stock Exchange limited in Bangladesh have been included in this study.

Model Specification:
Unbalanced panel estimation techniques are used in this study because the selected all commercial banks do not contain equal information for the entire period. To maintain the data validity and robustness of the regressed result of the research, the basic classical linear regression model (CRLM) assumptions has been tested for identifying any misspecification and correcting them so as to augment the research quality which are errors equal zero mean test, stationary, normality, homoscedasticity, autocorrelation, multicollinearity. Since the study seeks to determine the variables influencing dividends payout policy of listed private commercial banks of Dhaka Stock Exchange Limited in Bangladesh over the last 11 years, the study uses panel data regression analysis of cross-sectional and time series data.

The paper uses regression models to test the relationship between the chosen dividend determinants and dividend itself. In order to established a panel regression, the three panel data analysis methods were used pooled ordinary least square (POLS), the fixed effect model (FEM) and the random effect model (REM). Each of these models was analyzed and the most suitable model was selected. The Pooled Regression Model consists of a linear regression where the coefficient (β_i) and the intercept (β_0) are estimated. The linear regression is based on the assumption of residuals are normally distributed, the mean is zero, the variance is constant and error term are independent from the explanatory variables (Gujarati, 2004)

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta7 X_{7it} + \beta_8 X_{8it} + \varepsilon_{it} \dots\dots\dots \textit{(i)}$$

Where, Y is the dependent variables (Dividend Payout Ratio) and X_1, X_2, X_3, X_4, X_5, X_6, X_7, and X_8 are the explanatory variables (Leverage, Firm Size, Liquidity, Growth Opportunity, Firm Risk, Ownership Structure, Previous year's dividends and Profitability). The error term is ε_{it} and the intercept is β_0. This model is restricts the co-efficient of the explanatory variables to be common across the unit (i) and the time period (t).

In contrast to the pooled regression model, the fixed effect model considers that the intercept of the companies differ because of unique company effects such as industry differences, differences in the market and others differences in the companies. The fixed effect model is based on the slope coefficient are constant (Sahai and Ojdea, 2005).

$$Y_{it} = \beta_{0i} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta7 X_{7it} + \beta_8 X_{8it} + \varepsilon_{it} \dots\dots\textit{(ii)}$$

Where, Y is the dependent variables (Dividend Payout Ratio) and X_1, X_2, X_3, X_4, X_5, X_6, X_7, and X_8 are the explanatory variables (Leverage, Firm Size, Liquidity, Growth Opportunity, Firm Risk, Ownership Structure, Previous year's dividends and Profitability). The error term is ε_{it} and intercept of each cross sectional unit is β_{0i}. The (i) on the intercept β_0 demonstrates that the interest of the companies can be different because of the individual company effect. This model is restricts the co-efficient of the explanatory variables to be common across the unit (i) and the time period (t).Random effect model assumes that there are no individual's specific effects of companies. However, the individual effect it considers is a random variable is assumed to be uncorrelated with the explanatory variables (Copper *et al*, 2009). The model is also consider the mean value of the intercept and its variance, (Gujarati, 2004).

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta7 X_{7it} + \beta_8 X_{8it} + \varepsilon_i + \varepsilon_{it}........(iii)$$

In the equation (iii), the error term ε_i for individual specific effect and the error term for combined time series and cross section (ε_{it}) have been used in this model All three models were considered in this study ordinary least squared (OLS), fixed effect model (FEM) and random effect model (REM). The most appropriate model was selected based on redundant likelihood and the husman test.

Analysis of the Data:
Data collected from different source are to be computed and analyzed by the researcher by applying modern statistical technique. Some computer software such as MS Excel and Strata is to be used for detail statistical analysis. To make the data more meaningful, those will be analyzed in tabular form.

VI. Discussion of Results
To maintain the data validity and robustness of the regressed result of the research, the following classical linear regression model (CRLM) assumptions have been tested for identifying any misspecification and correcting them so as to augment the research quality.

The Errors Have Zero Mean (E (e) = 0):
The Errors Have Zero Mean (E (e) = 0) According to Brooks (2008), if a constant term is included in the regression equation, this assumption will never be violated. Thus, the regression model used in this study will include a constant term, even if not significant.

Unit-Root Test (Stationary Test):
Stationary implies that the mean, variance, and autocorrelation of a variable do not change over time. In this study, stationary of the data is tested using Fisher type-a unit root test for unbalanced panels as suggested by Maddala and Wu (1999) where a p-value greater than 5% indicates that the data has a unit root and is non-stationary. Philips Perron Test (PP) test is used to check the stationary of this study. Results reported in Table 1 indicate that all the variables are stationary, except the SZ variable, which is stationary only at lag 1.

Table 1: Fisher-type unit-root test based on Phillips-Perron Test

Variables	Lags	chi-squared	p-value
DPR	0	68.7008	0.0000
LEV	0	33.7703	0.0035
SZ	1	22.4980	0.0083
LIQ	0	25.5367	0.0007
GRO	0	74.4557	0.0000
PE	0	15.5575	0.0162
OS	0	28.5367	0.0003
PYD	0	65.9826	0.0000
PROF	0	125.5380	0.0000

The Normality Test:
The normality assumption assumes that the errors of prediction are normally distributed. Jarque Berra test has been used to check the null hypothesis that the sample is drawn from a normally distributed from population (Park, 2002). The Jarque-Berra test would not be significant and p-value should be greater than 5% if the residuals are normally distributed (Brooks, 2008). The results in Table 2 report a P-value of 0.3167, higher than 0.05, suggesting that normality assumption holds.

Table 2: Jarque Berra Test

Skewness/Kurtosis tests for Normality					
Variable	*Obs*	*Pr(Skewness)*	*Pr(Kurtosis)*	*adj chi2(2)*	*Prob>chi2*
Residuals	110	0.1667	0.6534	2.09	0.3167

The Homoscedasticity Test:

Homoscedasticity refers to the assumptions that dependent variable(s) exhibit equal levels of variance across the range of independent variable(s) (Hair *et al.* 2006). To test for homoscedasticity, the Breush-Pagan test and the White test will be used. Results reported in Table 3 indicate that the null hypothesis cannot be rejected since the p-values of both tests are considerably greater than 0.05. The results conclude that there is homoscedasticity so no further corrections for the sample are required.

Table: 3 Breusch Pagan test and White's test

Breusch-Pagan Test		**White's test**	
Ho: constant variance		*Ho: homoskedasticity*	
chi2	*0.63*	*chi2*	*22.00*
P-value	*0.3567*	*P-value*	*0.3639*

The Autocorrelation Test:

It is a test statistic that is used to detect the presence of autocorrelation. It test that the residuals from a linear regression or multiple regression are independent. Since the Durbin Watson test is only applicable to test autocorrelation in time series, this study uses Wooldridge (2002) test appropriate in panel-data models where a significant test statistic indicates the presence of serial correlation. The P-value of the test is greater than 5% as shown in Table 4, suggesting the presence of no autocorrelation of errors.

Table: 4 Wooldridge test:

Wooldridge test for autocorrelation in panel data	
H0: no first order autocorrelation	
F(1, 3)	1.778
Prob > F	0.2451

The Multicollinearity Test:

Multicollinearity refers to the situation in which independent variables are highly correlated; resulting in a paradoxical effect, whereby the regression model fits the data well, but none of the independent variables has a significant impact in predicting the dependent variable (Gujarati, 2004). The existence of multicollinearity is tested by calculating the Variance Inflation Factor (VIF). According to the rule of thumb VIF coefficient greater than 10 indicates the presence of multicollienarity. The VIF values in the table 5 below less than 10 so there is no multi-collinearity problem that means the Independent variables included in the model are not substantially correlated with each other.

Table: 5 Variance Inflation Factor (VIF) of the Independent variables:

Variables	*VIF*	Tolerance
LEV	2.25	0.785740
SZ	2.99	0.397153
LIQ	1.89	0.782788
GRO	2.29	0.874210
PE	3.88	0.446008
OS	2.85	0.306545
PYD	3.19	0.557088
PROF	3.82	0.294433

Result of Regression Analysis:

The pooled regression model estimated a linear relationship between the dependent variables and independent variables. In this regard it was assumed that the Leverage, liquidity, firm growth, Firm size, firm risk, previous year's dividends, ownership structure and profitability would be explain the dividend payout ratio.

Table: 6 Pooled Ordinary Least Square Model (POLS)

Variables	Coefficient	Std.Error	t-statistic	P-Value
Constant	.2063	.03286	7.2590	0
LEV	-1.1822	.4910	-2.5480	.0191**
SZ	-.2350	.1840	-1.7722	.1125
LIQ	.8532	.2655	3.3581	.0002*
GRO	.4550	.1256	3.8000	.0000*
PE	.0863	.1350	2.5680	.0599
OS	-.0260	.0455	.5562	.5676
PYD	.2260	.0711	2.7725	.0112**
PROF	-1.963	2.8550	-.71681	.4880
No. of observations: 110 F-test: 7.048 Prob.>F: 0000 R^2: .3125				

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

In the pooled regression model, four variables, namely Leverage, liquidity, firm growth and previous year's dividend out of selected eight variables in the model was significant. The significant variables in the model were the good predicator of dividend payout, while the rest of the insignificant variables were poor predictors of dividend payout. Unlike a pooled regression model the fixed effect model assumes that the slope of the co-efficient is constant but allows the intercept to vary across the individual companies is the sample. This is a more realistic assumption for the different companies in the sample of this study. As a result the fixed effect model was investigated to determine whether it's a better estimator than the pooled regression model.

Table: 7 Fixed Effect Model (FEM)

Variables	Coefficient	Std.Error	t-statistic	P-Value
Constant	.0772	.04376	.6570	.5632
LEV	-.8022	.0010	-3.9470	.0276**
SZ	-.1550	.1140	-2.2712	.2215
LIQ	.8832	.2655	4.3971	.0001*
GRO	.4250	.1756	4.6002	.0002*
PE	.0643	.1950	3.5880	.1598
OS	-.0200	.0852	1.5061	.3674
PYD	.2860	.0711	3.5826	.0012*
PROF	-1.462	3.0250	-1.8167	.0880***
No. of observations: 110 F-test: 10.775 Prob.>F: 0000 R^2: .7226				

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

The outcome of the fixed effect model shown demonstrates that all the variables significant except Firm size, firm risk and ownership structure. The appropriateness of the fixed effect model should be tested using fixed effect redundancy test (Brooks, 2014). This test compares the fixed effect model and the pooled regression model in order to establish if the fixed effect are significant in comparison to the pooled regression

model. If indicated whether to incorporate heterogeneity in the model. In this regard, the following redundancy test of this study is presented below:

Table: 8 Redundancy test for the fixed effect

Test Cross-Section fixed effects			
Effects Test	Statistic	d.f	P-value
Cross-Section F	1.654	-.9714.00	.0072*
Cross-Section Chi-square	70.825	9	.0005*

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

The result of this test demonstrates that cross –section F and Chi-square were both significant at 1% level of significance. The outcome indicates that the null hypothesis could be rejected at a 1% level of significance. Therefore, the intercept of the companies were not same, which is true because the companies in the sample for this study different. So, this result confirmed that the heterogeneity among the cross section. In this regard, the pooled regression model could be rejected for the study. The relevance of the random effect model to this study also had to be determined. As a result, the relevance of the random effects model to this study was determined with the Hausman Test.

The Hausman test was performed in order to test null hypothesis that the random effects model is preferred due to higher efficiency. This null hypothesis could be accepted if the P-value of the Chi-square statistic of the Hausman test was greater than .05. Therefore, it would be safe to use the random effect model (Brooks, 2014). However, this null hypothesis is rejected if P-value is less than .05. This indicates that random effect is correlated with the error i.e (it is not efficient). In this case, the fixed effects model was more efficient than the random effects model. Hausman test result of this study is presented below.

Table: 9 Hausman Test

Test Cross-Section random effects			
Test Summary	Chi-Sq.Statistic	Chi-Sq.d.f	P-value
Cross-Section random	20.7521	5.8371	.0001*

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

The redundant test indicates that the fixed effect model was suitable for this study, while the Hausman test also indicates that the fixed effect model was suitable for the study. From the regression analysis, we can see that the value of R-square was .7226 which means that 72.26% of the total variation of dividend payments was due to the effect of the independent variables. A positive / negative relationship is expected between financial leverage and dividend payout of the banks. In this study we found significant negative relationship between financial leverage and dividend payout. It is 5% level of significance which p-value is 0.0276. The rationale behind this result is that high financial leverage lead to high interest expense and low net income. As a result less earning will be available of the banks. In this situation, the banks pay low dividend to its shareholders. This result is consistent with Jensen et al (1992) and Rozeef (1982).

Liquidity displays a positive sign which is similar of my expectation. Its p-value .0001 which is significant at 1% level of significance. The result suggests that the banks with high liquidity have to pay high dividends in order to reduce the agency conflict between manager and shareholders. Such findings about the liquidity are confirmed by Okpara (2010) suggesting that the firms with high liquidity tend to pay higher dividends as compared to firms facing unstable earnings.As expected, the result shows that the relationship between growth and dividend payout is negative and significant at 1% significance level with a p-value of 0.0002. Therefore, growing banks require more funds in order to finance their growth and therefore would typically retain greater proportion of their earnings by paying low dividends. This means that listed private commercial banks in Bangladesh with high growth opportunities tend to pay fewer dividends, a view supported by Murhadi (2008) who noticed that dividend payout ratio is negatively related to a firm's need for funds to finance growth opportunity.

Although the sign of the coefficient was not as expected, the coefficient of the profitability is negative and statistically significant at 10% level of significance. Supporting this logic, Okpara (2010) concluded that when firms experience surplus earnings, they allocate most of them into retention for the plugging back and growth of the firm. However; the findings are contradicted by Aivizian et al (2003) and Amidu and Abor (2006). The reconciliation between the two results may rest on the difference between the samples used. The result shows that the co-efficient of previous year dividend is positive which is similar of my expectation. Its p-value .0012 which is significant at 1% level of significance. This finding reflects that previous dividend payment records of any firm serve as a signal about future time period for the investors about the company's

financial strength and future growth prospect. This result is consistent with Al-Ajmi and Hussain (2011) and Ahmed and Javid (2009). Three variables appeared to be statistically insignificant such as firm size, firm risk and ownership structure. This suggests that these variables do not have a direct influence on the dividend payments of the listed commercial bank in Bangladesh.

VII.   Conclusion

This study attempts to investigate the relationship between dividend determinants and dividend payout of the listed private commercial banks in Bangladesh. Both pooled ordinary least square (POLS) and dynamic panel regression model were run on a sample of ten listed private commercial banks of Dhaka Stock Exchange limited in Bangladesh for the period of eleven years from 2005 to 2015. The banks selected factors included in the study were Leverage, Firm Size, Liquidity, Growth Opportunity, Firm Risk, Ownership Structure, Previous year's dividends and Profitability. While testing the impact of the eight independent variables on the dividend payout ratio, we concluded that only five can explain the dividend policy. Fixed effect regression model was chosen to test the relationship between dividend determinants and dividend payout. The result indicates that leverage and liquidity is one of the most important variables in predicating future dividend payment behavior. We found strong negative association of financial leverage and positive association with dividend payout ratio. It demonstrated that highly leveraged banks would be willing to pay low dividends and retain more and high liquidity tends to pay higher dividends after maintaining a substantial amount of liquid cash. The negative and significant relationship between profitability and dividend policy gave us two diverse interpretations. The first one is explained by the current situation in Bangladesh. The political instability of the country obliges banks to use the surplus earnings to allocate most of them into retention for the plugging back for harsh economical periods. The other explanation is that the surplus earnings of the firm are being allocated mostly to the growth opportunities of the company so that the banks can open new branches in different regions and countries where they found projects with positive net present value. The result shows that growth is significantly negative and previous year dividend is significantly positively related with dividend payout. These finding reflects that growing banks require more funds in order to finance their growth and therefore would typically retain greater proportion of their earnings by paying low dividends and previous dividend payment records of any firm serve as a signal about future time period for the investors about the bank's financial strength and future growth prospect. Firm size, firm risk and ownership structure do not have a direct influence on the dividend payments of the listed commercial bank in Bangladesh.

Findings of this study immense would be helpful to the individual investors as well as institutional investors of our capital market to take the sound investment decision regarding selecting the banks for their investment, helps to security analysts to consisting portfolio and policy-making bodies of selecting banks to make an efficient, effective and reasonable dividend payout decision which in the long run will help them to achieve their objective of maximizing profit and satisfying employees and shareholders' needs.
Further study can be conducted by enhancing sample size and time frame in order to reduce the error and increase the accuracy of the findings. Further studies could also include other determinants of dividend of dividend payout policy such as firm maturity, tax on dividend payout policy, macro-economic variables etc.

Reference

[1]   Ahmed, H., & Javid, A. (2009). Dynamics and determinants of dividend policy in Pakistan: Evidence from Karachi stock exchange non-financial listed firms. *International Research Journal of Finance and Economics, 29*, 110–125.
[2]   Aivazian, V., Booth, L., & Cleary, S. (2003). Do emerging market firms follow different Dividend policies from U.S. firms? *Journal of financial research,* 26(3), 371–387.
[3]   Ajmi, J.A., & Hussain, H.A 2011, "Corporate dividend decisions: evidence from Saudi Arabia", *Journal of Risk Finance*, vol. 11, no. 1, pp. 41-56.
[4]   Al-Kuwari, D. (2009), "Determinants of the Dividend Policy in Emerging Stock Exchanges: The Case of GCC Countries", *Global Economy & Finance Journal, Vol. 2 No. 2 September 2009. pp. 38-63.*
[5]   Al-Malkawi, H.A.N., 2007. "Determinants of Corporate Dividend Policy in Jordan: An Application of the Tobit Mode"l. *Journal of Economic & Administrative Sciences*, 23(2): 44-70.
[6]   Black, F. (1976). The dividend puzzle. *Journal of Portfolio Management, 2*, 5–8. http://dx.doi.org/10.3905/jpm.1976.408558--
[7]   Brealey, R., & Myers, S. 2005, Principles of Corporate Finance. *London: McGraw-Hill,* pp. 155–167.
[8]   Cooper, H.J., Hedges, L.V. & Valentine J.C (2009). The handbook of research synthesis and meta-analysis, New York; Russell Sage Foundation.
[9]   Dickens, R. N., Casey, M., & Newman, J. (2002). Bank dividend policy: Explanatory factors. *Journal of Business and Economics, 41*, 3–12.
[10]   Fama, E., & French, K. (1998). Value versus Growth: The international evidence. *Journal of Finance, 53*, 1975–1999. http://dx.doi.org/10.1111/0022-1082.00080
[11]   Fama, E., & French, K. (2001). Disappearing dividends: Changing firm characteristics or lower propensity to pay. *Journal of Financial Economics, 60*, 3–43. http://dx.doi.org/10.1016/S0304-405X(01)00038-1
[12]   Friend, I., & Puckett, M. (1964). Dividends and stock prices. *The American Economic Review, 5*(54), 656–682.
[13]   Gill, A., Biger, N., Pai, C., & Bhutani, S. (2009). The determinants of capital structure in the service industry: evidence from United States. *Open Bus Journal, 2*, 48–53. http://dx.doi.org/10.2174/1874915100902010048
[14]   Grinstein, Y. and R. Michaely 2005. Institutional holdings and payout policy. *The Journal of Finance*, 60(3): 1389-1426.

[15]   Gujarati, D.N. (2004). Basic econometric, 4th Edition, New Delhi, Tata McGraw Education.
[16]   Ho, H. (2003). Dividend policies in Australia and Japan. *International Advances in Economic Research, 9*(2), 91–100. http://dx.doi.org/10.1007/BF02295710
[17]   Holder, M. E., Langrehr, F. W., & Hexter, J. L. (1998). Dividend policy Determinants: An Investigation of the Influences of Stakeholder Theory. *Financial Management*, 27(3), 73-82.
[18]   Imran, K. (2011). Determinants of dividend payout policy: A case of Pakistan engineering sector. *The Romanian Economic Journal, 41*, 47–59.
[19]   Jensen, G. R., Solberg, D. P., & Zorn, T. S. (1992). Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies. *The Journal of Financial and Quantitative Analysis*, 27(2), 247-263.
[20]   Juhmani, O. I. H. (2009). Determinants Of Dividend payout Policy: Evidence From Bahraini Firms. *Journal of International Finance and Economics*, 9(2), 77-86.
[21]   Kanwal, A., & Kapoor, S. (2008). Determinants of dividend payout ratios: a study of Indian information technology sector. *International Research Journal of Finance and Economics, 15*, 63–71.
[22]   Kowalewski, O., Stetsyuk, I. and Talavera. (2007), "Corporate Governance and Dividend Policy in Poland",Working Paper. German Institute for Economic Research.
[23]   La Porta, R., Lopez-de Silanes, F., Shleifer A. and Vishny, R. (2000), "Agency problems and dividend policies around the world*", Journal of Finance, vol. 55, pp. 1–33*
[24]   Ling, F. S., Mutalip, M. L. A., & Shahrin, A. R. (2008). Dividend Policy: Evidence From Public Listed Companies In Malaysia. *International Review of Business Research Papers*, 4(4), 208-222.
[25]   Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review, 46*(2), 97–113.
[26]   Lintner, J., 1965. "The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets." *The Review of Economics and Statistics*, 47(1): 13-37.
[27]   Lloyd, W.P., J.S. Jahera and D.E. Page, 1985. "Agency Costs and Dividend-Payout Ratios", *Quarterly Journal of Business and Economics*, pp: 19-29.
[28]   Marfo-Yiadom, E. and Agyei, S.K. (2011), "Determinants of Dividend Policy of Banks in Ghana", *International Research Journal of Finance and Economics. Vol. 61.*
[29]   Mark, E. Holder, Frederick W. Langrehr and J. Lawrence Hexter, 1998. "Dividend Policy Determinants: *An Investigation of the Influences of Stakeholder Theory Financial Management", 27(3): 73-82.*
[30]   Mohamed, N., Hui, W. S., Omar, N. H., Abdul Rahman R., Mastuki, N., AbdulAzis, M. A. & Zakaria, S. (2012). Empirical Analysis of Determinants Of Dividend Payment: Profitablity And Liquidity. Unpublished manuscript, Universiti Teknologi MARA, Accounting Research Institute & Faculty of Accountancy, Selangor, Malaysia
[31]   Mollah, A.S. (2001), "Dividend Policy and Behaviour, and Security Price Reaction to The Announcement of Dividends in an Emerging Market - A Study of Companies Listed on the Dhaka Stock Exchange", Unpublished PhD thesis, Leeds University Business School, University of Leeds.
[32]   Mollah, S. A. (2009). Testing partial adjustment behavioral models in emerging markets: Evidence from pre and post market reforms in Bangladesh. *Global Journal of Business Research, 3*(1), 1–14.
[33]   Mollah, S., K. Keasey, and H. Short, (2002). The Influence of Agency Costs on Dividend policy in an Emerging Market: Evidence from the Dhaka Stock Exchange, Working Paper.
[34]   Murhadi, WR 2008, "Study on dividend policy in Indonesian capital market*", Journal Manajemen & Kewirausahaan, vol. 1, issue: March, pp. 1-29.*
[35]   Naceur, S., Goaied, M. and Belanes, A. (2006), "On the Determinants and Dynamics of Dividend Policy*", International Review of Finance, Vol. 6, No. 1-2, pp. 1- 23.*
[36]   Okpara, G. C. (2010). A diagnosis of the determinant of dividend pay-out policy in Nigeria: A factor analytical approach. *American Journal of Scientific Research, 8*, 57–67.
[37]   Reddy, YS & Rath, S 2005, "Disappearing dividends in emerging markets? Evidence from India", Emerging Markets Finance and Trade, vol. 41, no. 6, pp. 58-82.
[38]   Rozeff, M., 1982. "Growth, beta and agency costs as determinants of dividend payout ratios." *Journal of financial Research*, 5(3): 249-259.
[39]   S. H. Eng., M.H. Yahya, Hadi A.R. A., "The Dividend Payout Policy-a Comparison Malaysian Islamic and Conventional Financial Institutions". The 2013 WEI International Academic Conference Proceedings Istanbul, Turkey
[40]   Sahi,H. & Ojeda, MM (2005). Analysis of Variance for random models, Network, Springer.
[41]   Zaman Sumaiya (2013). "Determinants of Dividend Policy of A Private Commercial Bank in Bangladesh: Which is The Strongest, Profitability, Growth or Size?" BIAM Foundation, Dhaka, Bangladesh ISBN: 978-1-922069-39-9.

Appendix:
1) Bank Asia Limited (OAL)
2) One Bank Limited (OBL)
3) Trust Bank Limited (TBL)
4) United Commercial Bank Limited (UCBL)
5) Uttara Bank Limited (UBL)
6) Pubali Bank Limited (PBL)
7) Eastern Bank Limited (EBL)
8) Dutch-Bangla Bank Limited (DBBL)
9) Dhaka Bank Limited (DBL)
10) Mercantile Bank Limited (MBL)