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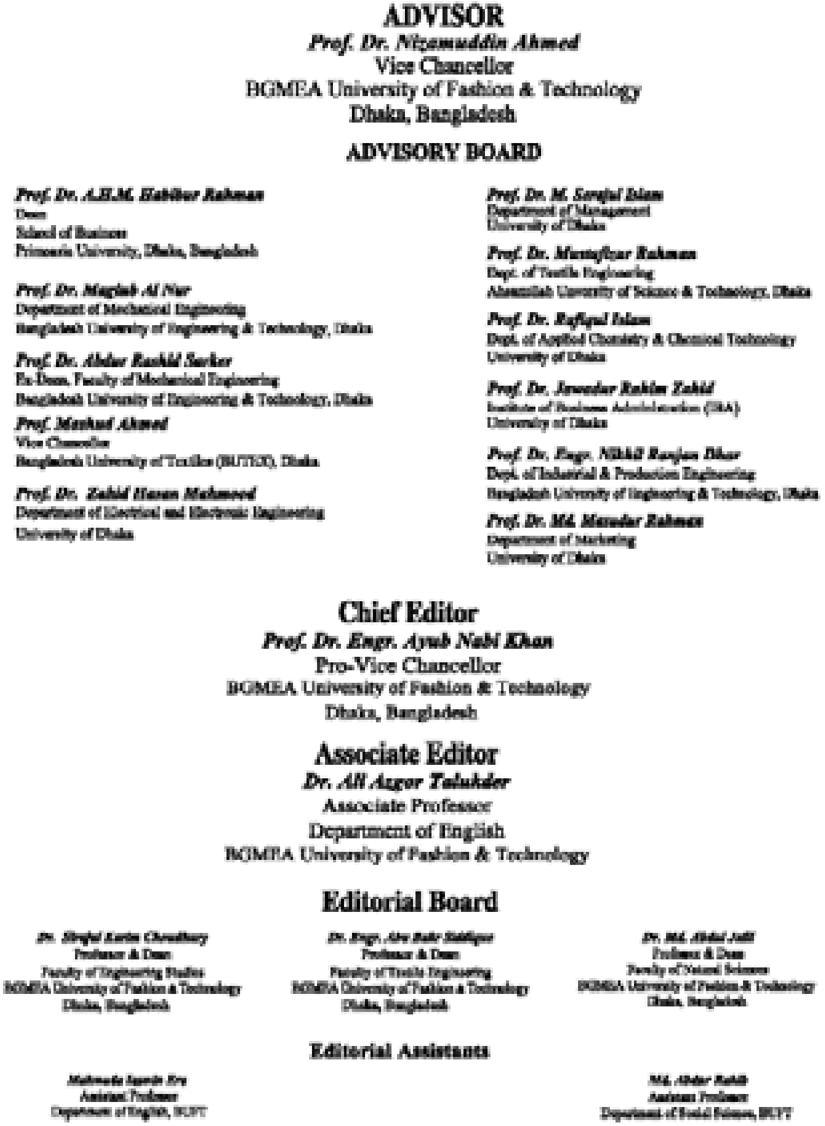

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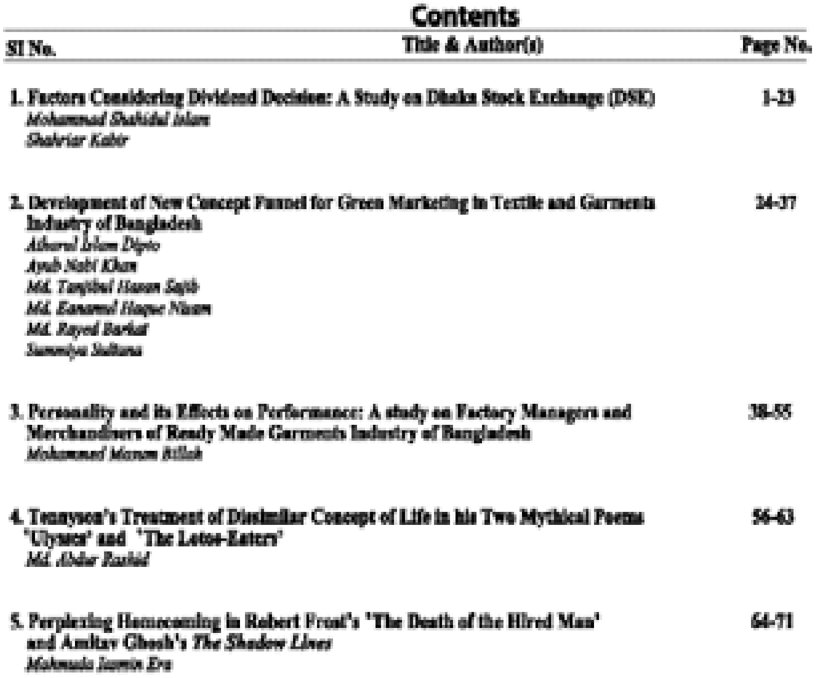

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Factors Considering Dividend Decision: A Study on Dhaka Stock Exchange (DSE)

Mohammad Shahidul Islam[1], Shahriar Kabir[2]

Abstract

A firm considers various factors when approaching a dividend policy decision. To analyze the determinants of dividend policy in the context of Bangladesh, relevant data has been taken from various financial indicators of sample companies. The pooled data regression model is used for interpreting results. Results show that the SG is negatively related to DPR and LIQ, RISK, OWNSP, ROA, lagged DPR are positively related to DPR. The decision maker, investors and other stakeholders should follow these findings.

Keywords: Pooled data regression model, EPS, DPR, MM model, Lintner model.

1. Introduction

Dividend may be defined as the distribution of created value to the shareholders. It may be in the form of 'Cash Dividend' or through distribution of stocks of the company which is known as 'Stock Dividend'. Dividend policy may be defined as the trade-off between the magnitude of retained earnings and distributed cash or securities. Dividend decision should not merely be taken to be a decision of appropriation of profits to the shareholders. There are several complex issues in it. So the factors influencing the dividend decisions have always been put under scanner by the experts and researchers in the field of financial management. Dividend payment of a company is looked upon differently by different group of people related to a company. For the investors, dividends are not merely means of regular earnings but also an important input for determining the worth and credential of the firm. For managers, dividend payment might well determine the level of investment in profitable investment projects. Lenders look at it carefully because they feel that the more the dividend payment, the less will be the amount available for servicing and redemption of their claims.

Corporate dividend behaviour is looked upon in many ways by the experts in the area of financial literature. Several theories evolved explaining corporate dividend behaviour. One such theory is known as 'Signaling Theory'. According to this theory, a firm uses dividend policy as a mechanism to signal outsiders regarding the stability and growth prospect of the firm. Aharony and Swary (1980), Asquith and Mullins et al (1983). are the proponents of the signaling theory of dividend decision. However, recent studies have not supported this hypothesized relationship between dividend changes and future earnings (e.g., DeAngelo, DeAngelo and Skinner (1996), Benartzi, Michaely and Thaler (1997)).

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Another theory in respect of corporate dividend policy goes by the name of 'Incumbency Rent Theory'. Fudenberg and Tirole (1995) are the proponents of this theory. According to this theory if managers enjoy private benefit from being in control, they individually and rationally, smooth dividends. So, in bad times, they pay out too much dividends to lengthen their tenure and in good times, the managers are not to be worried about their tenure in office and naturally opt for lower dividend payment. Again, there is the 'Agency Theory' of dividend payment. According to this theory, dividend policies address agency problems between corporate insiders and outside shareholders. This theory suggests that, unless profits are paid out to shareholders, they may be diverted by the insiders for personal use or committed to unprofitable projects that provide private benefits for the insiders. As a consequence, outside shareholders have a preference of dividends over retained earnings. There is still another theory by the name of 'Tax Clientele Theory'. This theory is based on comparative tax treatment associated with cash received on account of current dividend and cash to be received in the future as capital gains arising out of change in share price. This theory uses the relative tax advantage of paying dividend now or retaining the excess cash for future capital gains in explaining the dividend behaviour of firms. This theory suggests that the tax on dividend (i.e., tax on current income) is greater than or equal to the tax on capital gains (i. e., tax on future income). Again, tax on dividend is to be paid now while tax on capital gains is to be paid in future. Thus, according to this theory the optimal dividend policy is no or very low dividend payment. Brennan (1970), De Angelo (1991), etc. are the proponents of this theory of dividend decision. Even after such a long period of time since corporate dividend behaviour emerged as one of the well-researched areas in financial management, dividend decision is still one of the thorniest puzzle in corporate finance. Least to say, factors affecting such a decision remain to be one of the areas where academicians and researchers are introspecting and have to do a lot. In this backdrop, the present study looks into the pattern of dividend payments in Bangladeshi context and analyzes the factors determining such payment of dividends.

2. Literature Review

The dividend payout ratio indicates the percentage of profits distributed by the company among shareholders out of the net profits, or what remains after subtracting all costs (e.g., depreciation, interest, and taxes) from a company's revenues. Most of the previous studies that investigated the impact of agency theory and transaction cost theory employed dividend payout ratios as a determinant of dividend in lieu of dividend per share and dividend yield (Rozeff, 1982; Lloyd,1985; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998; Chen et al., 1999; Saxena, 1999; Mollah et al., 2002; Manos, 2002; Travlos, 2002).

According to Pandey (2001), past dividend (DPR_{t-1}) paid by the companies is highly significant to the current dividend payout ratios for all industries in the Kuala Lumpur Stock Exchange (KLSE).Generally, the higher coefficients and associated t-statistics of DPR_{t-1} in the research imply the greater importance of past dividend in deciding the dividend payment. His research is also proven with strong evidence that the management of Malaysian companies always consider past dividend as a more important benchmark for deciding the current dividend payment. Previous year's dividend payment (LDPR) have been regarded as the primary indicator of a firm's capacity to pay dividends (Lintner, 1956), because it is assumed that the management will maintain a stable dividend policy. Furthermore, the information asymmetry hypothesis assumes that dividend policy is "sticky" or shows a tendency to remain at the level of previous dividends (Baskin, 1989). Ahmed and Javid (2009) examined the dynamics and determinants of dividend payout policy of 320 non-financial firms. The results consistently support that firms rely on both current earnings per share and past dividend to set their dividend payments. The positive relationship of dividend payout ratio (DPR) with the lagged dividend payout ratio is expected.

The decision to pay dividends starts with profits. Therefore, it is logical to consider profitability as a threshold factor, and the level of profitability as one of the most important factors that may influence firms' dividend decisions. The theory suggests that dividends are usually paid out of the annual profits, which represents the ability of the firm to pay dividends. Thus, firms incurring losses are unlikely to pay dividends. In his classic study, Lintner (1956) found that a firm's net earnings are the critical determinant of dividend changes. Furthermore, several studies have documented a positive relationship between profitability and dividend payouts (Jensen et al, 1992, Han et al., 1999, and Fama and French, 2002). Evidence from emerging markets Al-Malkawi also supports the proposition that profitability is one of the most important factors that determines dividend policy (see, for instance, Adaoglu, 2000, Pandey, 2001, and Aivazian et al., 2003). The positive relationship of dividend payout ratio (DPR) with the Earnings per share is expected.

A firm's cash flow is a good measure of the firm's liquidity and it is very important to compare a firm's liquidity position in relation to its dividend payment. According to Amidu and Abor (2006), cash dividend distribution does not only depends on the profitability of firms but also depends on the free cash flow which is the amount of operating cash flow left over after the payment for capital expenditures. The empirical results of this study indicate a significantly positive relationship between cash flow and dividend payout ratios and thus the liquidity or cash-flow position can be considered as an important determinant of the dividend payout ratio. Besides that, Chay and Suh (2005) also consider cash flow as a determinant of dividend payments where firms facing high levels of cash flow uncertainty are likely to pay low dividends fearing cash shortfalls in the future. The positive relationship of dividend payout ratio (DPR) with the cash flow is expected by whom.

A firm which has high growth will have greater need for external financing and thus they may be motivated to establish a good reputation with stockholders through higher dividend payout in order to ensure access to external equity that can capitalize the firm (LaPorta, Silanes, Schliefer & Vishny, 2000). However, the research conducted by Amidu and Abor (2006) also stated that growth in sales were found to have statistically significant and negative associates with dividend payout ratios. According to them, growth in sales is used as proxies for the firm's future prospects since growing firms require more funds in order to finance their growth and therefore would typically retain greater proportion of their earnings by paying low dividend. In addition, Jeong (2008) also supported Amidu and Abor where sales growth is expected to be negatively related to the degree of dividend smoothing in term of dividend payout.

Eddy and Seifert (1988), Jensen et al. (1992), Redding (1997), and Fama and French (2000) indicated that large firms distribute a higher amount of their net profits as cash dividends, than do small firms. Several studies have tested the impact of firm size on the dividend. Lloyd et al. (1985) were among the first to modify Rozeff's model by adding "firm size" as an additional variable. They considered it an important explanatory variable, as large companies are more likely to increase their dividend payouts to decrease agency costs. Their findings support Jensen and Meckling's (1976) argument, that agency costs are associated with firm size. They were of the view that for large firms, widely spread ownership has a greater bargaining control, which, in turn, increases agency costs. Furthermore, Sawicki (2005) illustrated that dividend payouts can help to indirectly monitor the performance of managers in large firms. That is, in large firms, information asymmetry increases due to ownership dispersion, decreasing the shareholders' ability to monitor the internal and external activities of the firm, resulting in the inefficient control by management. Paying large dividends can be a solution for such a problem because large dividends lead to an increase in the need for external financing, and the need for external financing leads to an increase in the monitoring of large firms, because of the existence of creditors. Other studies related the positive association between dividends and firm size to transaction costs. For example, Holder et al. (1998) revealed that larger firms have better access to capital markets and find it easier to raise funds at lower costs, allowing them to pay higher dividends to shareholders. This demonstrates a positive association between dividend payouts and firm size. The positive relationship between dividend payout policy and firm size is also supported by a growing number of other studies (Eddy and Seifert, 1988; Jensen et al., 1992; Redding, 1997; Holder et al., 1998; Fama and French, 2000; Manos, 2002; Mollah 2002; Travlos et al., 2002; Al-Malkawi, 2007). The positive relationship of dividend payout ratio (DPR) with the firm size is expected.

A firm may have adequate earnings to declare dividends, but it may not have sufficient cash to pay the same. The liquidity position of a company is expected to be positively related to dividend payment. Current ratio and quick ratio has been used as proxy to measure liquidity position of the company by various researchers. Amidu and Abor (2006) found a positive relationship between cash flow and dividend payout ratios. Based on the findings of the studies, it can be speculated that there is a positive relationship between the liquidity and the dividend payout ratio.

In modern corporate environment there is separation between ownership and management, conflicts of interest can arise between managers, inside owners (controlling shareholders), and outside shareholders, such as minority shareholders. Referring to this problem, Jensen and Meckling (1976) describe the firm as a nexus of contracting relationships among individuals. However, when the manager makes a decision, it tends to be in favour of the agent, rather than of the firm. La Porta et al. (2000) illustrated that managers may take advantage of their authority to benefit themselves by diverting firm assets to themselves through theft, excessive salaries or sales of assets at favourable prices to themselves. Accordingly, the ownership structure in large firms may influence dividends and other financial policies (Desmetz, 1983; Desmetz and Lehn, 1985; Shleifer and Vishny, 1986; Morck et al., 1988; Schooley and Barney,1994; Fluck,1999; La Porta 2000; Gugler and Yurtoglu, 2003). Several studies have suggested that dividend payouts can play a useful role in reducing the conflict between inside and outside owners. When insider owners pay cash dividends, they return corporate earnings to investors and can no longer use these earnings to benefit themselves (La Porta et al., 2000).

A growing number of studies have found that the level of financial leverage negatively affects dividend policy (Jensen et al., 1992; Agrawal and Jayaraman, 1994; Crutchley and Hansen, 1989; Faccio et al., 2001; Gugler and Yurtoglu, 2003; Al-Malkawi, 2005). Their studies inferred that highly levered firms look forward to maintaining their internal cash flow to fulfill duties, instead of distributing available cash to shareholders and protect their creditors. However, Mollah et al. (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. To analyze the extent to which debt can affect dividend payouts, this study employed the financial leverage ratio, or ratio of liabilities (total short-term and long term debt) to total shareholders' equity. The negative relationship of dividend payout ratio (DPR) with the leverage is expected.

Several studies have been used to measure the beta value, as a proxy for the systematic risk where beta measures the stock's volatility in relation to the market (Rozeff, 1982; Lloyd et al., 1985; Alli et al., 1993; Moh'd et al., 1995; Casey and Dickens, 2000). This study uses price volatility (standard deviation) as a common proxy for firm risk, which represents a firm's operating and financial risk (Rozeff, 1982; Loyed et al., 1985; Jensen et al., 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998; Chen et al., 1999; Saxsena, 1999; Manos, 2002).

The dependent variable (DPR) used in the regression equations takes values over a continuous range, but both RELATAX (relative tax rate: capital gain tax rate/dividend tax rate) in the independent variables take on distinct values because of the limitation of data. Tax-adjusted models presume that investors require and secure higher expected returns on shares of dividend-paying stocks. The consequence of tax-adjusted theory is the division of investors into dividend tax clientele. Modigliani (1990) argued that the clientele effect is responsible for the alterations in portfolio composition. Masulis and Trueman's (1988) model predicts that investors with differing tax liabilities will not be uniform in their ideal firm dividend policy. They concluded that as tax liability increases (decreases), the preference for dividend payment also increases (decreases). Tax-adjusted model assumes that investors maximize after-tax income. As far back as 1967, Farrar and Selwyn (1967) concluded that in a partial equilibrium framework, individual investors choose the amount of personal and corporate leverage and also whether to receive corporate distributions as dividends or capital gain. Recently Amidu and Abor (2006) found a positive relationship between tax and dividend payout ratios.

The financial literature documents that a firm's profitability is a significant and positive explanatory variable of dividend policy (Jensen et al., 1992; Han et al., 1999; Fama and French, 2000). However, there is a significant difference between dividend policies in developed and developing countries. This difference has been reported by Glen et al. (1995), showing that dividend payout rates in developing countries are approximately two-thirds of those in developed countries. Moreover, emerging market corporations do not follow a stable dividend policy; dividend payment for a given year is based on firm profitability for the same year. La Porta et al. (2000) compared countries that had strong legal protection for shareholders with those that had poor shareholder legal protection, and related that to countries with inferior quality shareholder legal protection. Their conclusion was that shareholders will take whatever cash dividend they can get from firm profits, where a dividend is perceived as unstable. Wang et al. (2002) compared the dividend policy of Chinese and UK listed companies, and found that the former tended to vote for a higher dividend payout ratio, than the latter. Moreover, UK companies had a clear dividend policy in which annual dividend increases and all companies paid a cash dividend. In contrast, Chinese companies had unstable dividend payments and their dividend ratios were heavily based on firm earnings for the same year, not on any other factor. The latter finding was consistent with that of Adaoğlu (2000), who stated that the main determinant in the amount of cash dividends in the Istanbul Stock Exchange was earnings for the same year. Any variability in the earnings of corporations was directly reflected in the cash dividend level. A similar result was reported by Pandey (2001) for Malaysian firms. Al-Malkawi (2007) identified the profitability ratio as the key determinant of the corporate dividend policy in Jordan. As a proxy, this study measured firm profitability by the return on asset (ROA). The positive relationship of dividend payout ratio (DPR) with the ROA is expected.

A review of the literature revealed several explanations for the relationship between growth opportunities and dividend policy. One explanation was that a firm tended to use internal funding sources to finance investment projects if it had large growth opportunities and large investment projects. Such a firm chooses to cut, or pay fewer dividends, to reduce its dependence on costly external financing. On the other hand, firms with slow growth and fewer investment opportunities pay higher dividends to prevent managers from over-investing company cash. As such, a dividend here would play an incentive role, by removing resources from the firm and decreasing the agency costs of free cash flows (Jensen, 1986; Lang and Litzenberger, 1989; Al-Malkawi, 2007). Consequently, dividends were found to be higher in firms with slow growth opportunities, compared to firms with high-growth opportunities, as firms with high-growth opportunities have lower free cash flows (Rozeff, 1982; Lloyd et al., 1985; Jensen et al., 1992; Dempsey and Laber, 1992; Alli et al., 1993; Moh'd et al., 1995; Holder et al., 1998). Several studies found that the sales/revenues growth rate was commonly used as a proxy variable for growth opportunities (Rozeff, 1982; Lloyd et al., 1985; Jensen et al, 1992; Alli et al., 1993; Moh'd et al., 1995 ; Holder et al., 1998; Chen et al., 1999, Saxsena, 1999; Manos, 2002; Travlos, 2002). Firms with many investment opportunities have large cash requirements and thus may pay low dividends. This is the standard view taken by researchers in extant payout literature [see, for example, Rozeff (1984), Smith and Watts (1992), La Porta et al. (2000), Fama and French (2001), DeAngelo et al. (2006)].The impact of investment opportunities on dividends will be negative.

DeAngelo et al. (2006) pay attention to the fact that dividends are paid usually by mature and established firms. They argued that firms with a low earned/contributed capital mix are in the capital infusion stage and thus cannot afford to pay dividends, while firms with a high earned/contributed capital mix are mature firms with large cumulative profits and thus are likely to pay dividends. Consistent with their financial life cycle theory, they found that the probability of firms paying dividends tends to increase with the earned/contributed capital mix. We have used the retained earnings-to-total equity ratio (RE/TE) as a proxy for the earned/contributed capital mix. According to DeAngelo et al. (2006), RE/TE has a greater impact on the probability of paying dividends than alternative measures of earned/contributed capital mix such as the retained earnings-to-total assets ratio. Based on the financial life cycle theory of dividends; we predict that the impact of RE/TE on dividends is positive. Following Fink et al (2009), We have defined age as the number of years since a firm's listing date. The positive relationship of dividend payout ratio (DPR) with the age of the firm is expected.

Huda and Farah (2011) explored the determinants of the dividend policy of firms in the banking industry of Bangladesh. Dividend decision of a bank basically depends on its size, profitability, liquidity and retained earnings. The study is an attempt to find out the key dividend determinant variables and their impact over cash, stock and total payout ratio. Statistical techniques of simple and multiple regressions have been used to explore the relationships between variables. The investigation results show the predictor variables have a significant relationship with stock payout and an apparent relationship with cash payout. Amongst all the independent variables, Net Income turns out to be most influential indicator in elucidating dividend payouts.

Sumaiya (2013) studied to determine factors that have statistically significant impacts on the dividend policy of banks with multiple regression analysis and it is seen that bank profitability, growth, and size are not significant in explaining bank dividend policy in 2006. However, their role in explaining dividend strengthens with time till 2010. Ahmed and Mukit(2014) identified the impact of various factors determining the firm's dividend paying behavior in the capital market of Bangladesh. They found that in Bangladesh profitability, corporate tax and market to book value ratios are the significant determinants of dividend payout ratio and operating cash flow per share, current ratio and debt to equity ratio are the insignificant determinants of dividend payout ratio.

3. Problem Statement

Study of dividend payments has a very illustrious history. In 1956, John Lintner has laid the foundation for the modern understanding of dividend policy. According to him, dividends are sticky, tied to long-term sustainable earnings, paid by matured companies and smoothened from year to year. Later, Miller and Modigliani (1961) demonstrate that under the condition of perfect capital market and zero taxes, dividends do not affect the value of the firm (Dividend Irrelevance theory) and as such the shareholders are indifferent as to the payment of dividend and retention of profits. Consequently, managers are not to bother too much about the incidence and quantum of dividend payments. However, Gordon (1962) and Walter (1963), during the same time period, prove dividend to be relevant for the valuation of the firm and hence the shareholders are seen to be not at all indifferent as to the payment of dividend and retention of profits. From the above literature review, we have taken the factors, which influence on dividend decision. It is observed that the research work in this field is not sufficient in Bangladesh. This issue motivates us to conduct the study in this field. Previous results also show that dividend rate is more or less explained by a good number of explanatory variables. But the explanatory power of these variables comes down considerably in the matter of their relation with dividend payout or dividend yield. The purpose of the study is to identify the determinants of dividend policy decision and it nature of influence on dividend decision in the capital market of Bangladesh.

4. Research Questions

What are the determinants or factors of dividend decision in Bangladesh?

5. Objectives

a) To analyze the determinants of dividend policy in the context of Bangladesh.

b) To suggest a comprehensive dividend policy framework for improving the dividend policies.

6. Research Design

6.1 Sample

The study is based on secondary data obtained from published annual reports of sample firms, Monthly Review of Dhaka Stock Exchange and website of DSE. The sample includes listed manufacturing firms of DSE. It is taken 86 companies from manufacturing sectors as sample. The sample period is 20 years from 1994 to 2013 for study.

6.2 Hypothesis

H_0: *Dividend payout is not influenced by the factors: Lagged dividend payout ratio, Earnings per share, Cash flow, Sale growth, liquidity, Institutional ownership, Sponsor ownership, Individual ownership, Leverage, Risk, Age, Size, Relative tax, Return on assets, Investment Opportunity, Retained earnings to equity.*

6.3. Variables used in study

Dependent Variable: Dividend Payout Ratio (DPR)

Independent Variables: *Lagged dividend payout ratio, Earnings per share, Cash flow, Sale growth, liquidity, Institutional ownership, Sponsor ownership, Individual ownership, Leverage, Risk, Age, Size, Relative tax, Return on assets, Investment Opportunity, Retained earnings to equity.*

6.4 Model & Methods

We have identified the dependent and independent variables and have chosen the proxies for the variables depending on the previous empirical evidences in this case. The study has run the structural equation modeling approach based on the selected proxies. In this approach, more emphasis is given to the previous studies for identifying variables. Michaelsen (1961), Gerber (1988), Holder et al. (1998), and Saxena (1999) adopted this approach in their empirical studies.

This theoretical statement could be framed as:

$$DPR_{it} = \alpha + \beta_1 DPR_{it-1} + \beta_2 EPS_{it} + \beta_3 LEV_{it} + \beta_4 CF_{it} + \beta_5 SG_{it} + \beta_6 SIZE_{it} + \beta_7 LIQ_{it} + \beta_8 OWN(SPONSOR)_{it} + \beta_9 OWN(INST)_{it} + \beta_{10} OWN(IND)_{it} + \beta_{11} RISK_{it} + {}_{\beta 12} AGEit + \beta_{13} RELATAX_{it} +00\ \beta_{14} RE/TE_{it} + \beta_{15} ROA_{it} + \beta_{16} INVEST\ OPPORT_{it} + u_{it}$$

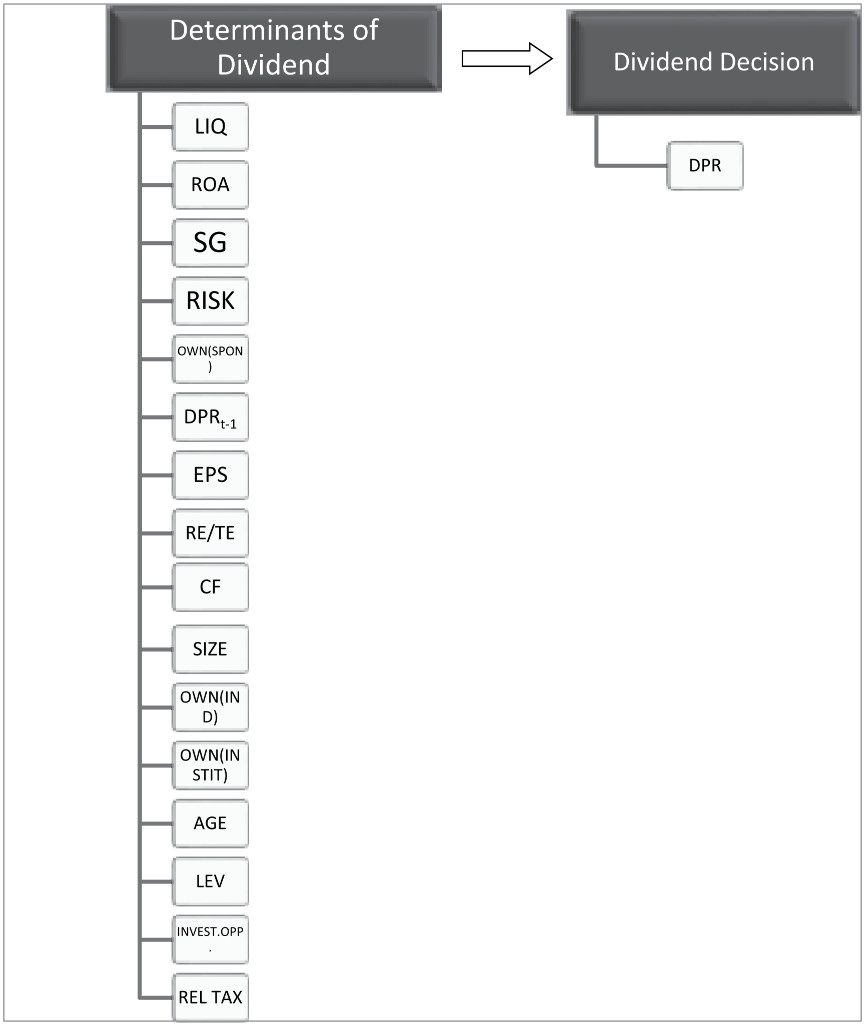
Where,

Dependent Variable:

Dividend Payout Ratio = Cash dividend per share/Earning per share*100
Independent Variables:
DPR_{t-1}=Lagged dividend payout ratio
EPS (Earnings per share) =Net Profit/Total Shares
CF (Cash flow) = Net cash flow/ total number of share
SG (Sale growth) = $(Sales_t - Sales_{t-1})/Sales_{t-1}*100$
SIZE (Size) = Log of Total Assets
LIQ(Liquidity)= Quick Ratio ((current assets-inventory)/current liabilities)
OWNIST (Institutional ownership)= No. of Share held by institution/total no. of share
OWNSPONSOR(Sponsor ownership)= No. of share held by sponsor/ total no. of shares
OWNIND(Individual ownership)= No. of share held by individual/ total no. of shares
LEV(Leverage)= Total liabilities/ total assets
Risk= standard deviation of daily stock return over 365 days (Volatility)
RELATAX (Relative tax) = Capital gain tax rate/ Dividend tax rate
ROA (Return on assets) = Net income/ Total asset
INVESTOPP (Investment Opportunity) = (Net fixed $asset_t$ -net fixed $asset_{t-1}$)/ net fixed $asset_{t-1}$*100
RE/TE (Retained earnings to total equity ratio)= (Retained earnings/total shareholders' equity)*100
Firm age (AGE)= Natural log of No. of years of listing on the stock exchange

Methods: Descriptive statistics and Pooled data Regression Techniques are also used to identify significant variables.

6.5 Conceptual Framework


Determinants of Dividend
Dividend Decision
DPR
LIQ
ROA
SG
RISK
OWN(SPON)
DPR$_{t-1}$
EPS
RE/TE
CF
SIZE
OWN(IND)
OWN(INSTIT)
AGE
LEV
INVEST.OPP.
REL TAX

7. Pooled Data Regression Model: Study on Manufacturing Sectors

Descriptive Statistics:

The descriptive statistics is shown in table-1 which represents the mean, standard deviation of variables.

Table-1: Descriptive Statistics

	Mean	Std. Deviation	N
DPR	21.4934	15.31370	20
DPR_{t-1}	21.4845	8.01277	20
EPS	33.0071	10.57957	20
RE/TE	13.6872	68.09011	20
CF	11.4234	38.43686	20
SG	1.0576E2	320.53986	20
SIZE	6.4568	.60403	20
LIQ	1.8796	.37714	20
OWN(SPONSOR)	41.9433	2.23869	20
OWN(INDIVIDUAL)	31.3278	3.65695	20
OWN(INSTITUTION)	15.4245	1.85630	20
LEV	2.3985	4.61013	20
RISK	5.3267	4.39947	20
AGE	2.5979	.20852	20
RELATIVE TAX	1.5000	.00000	20
INVEST. OPPORT.	33.4716	50.10906	20
ROA	5.7033	6.39315	20

Multi collinearity

The Tolerance is simply the reciprocal of VIF (Variance Inflation Factor) and is computed as: Tolerance=1/VIF. The large values of VIF are unwanted and undesirable. The larger values of tolerance are indicating of lesser problem with collinearity. The theoretical maximum value of tolerance is 1.00 and minimum value of tolerance is zero.

From the table 5 & 6, it is observed that the tolerance of the variable LIQ, ROA, SG, RISK, OWN(sponsor), $\text{DPR}_{t-1,}$ EPS, RE/TE, CF, SIZE, OWN(individual), OWN(institution), LEV, AGE, INVEST.OPPORT are 0.832, 0.826, 0.520, 0.823, 0.394, 0.374, 0.309, 0.930, 0.835, 0.252, 0.438, 0.491, 0.726, 0.296, 0.664 respectively which are highly positive and more than zero. So, it is concluded that the variables are free from multicollinearity.

Auto correlation

Durbin-Watson test is for correlation between errors. It tests whether adjacent residuals are correlated (one of assumption of regression is that the residuals are independent). In short, this option is important for testing whether the assumption of independent errors is tenable. The test statistic can vary between 0 and 4 with a value of 2 meaning that the residuals are uncorrelated. A value greater than 2 indicates a negative correlation between adjacent residuals whereas a value below 2 indicates a positive correlation. As a very conservative rule of thumb, Field (2009) suggests that the values less than 1 or greater than 3 are definitely cause for concern. The value of Durnin-Watson test of this model is 1.943 which is more than 1 and near to 2(table-3). So, it indicates the model is free from autocorrelation.

Homoscedasticity

In the linear regression the error term is assumed to be homoskedastic constant across observations. Violation of this assumption is pernicious. Estimates of standard errors for the regression coefficients are biased and the direction of the bias is not known a priori may inflate or deflate t-tests. The Breusch- Pagan/ Cook-Weisberg test is used to test heteroskedasticity in this study as shown in table.2 by using STATA. A large chi-square would indicate that the heteroskedasticity is present.

Table 2: Breusch- Pagan/ Cook-Weisberg test for heteroskedasticity

Test	Chi-square(chi2)	Prob> chi2
Breusch- Pagan/ Cook-Weisberg test	11.63	.752

From the table 2, it is observed that the chi- square value is small, indicating heteroskedasticity is probably not a problem. Here, the chi-square value is 11.63(p=.752) and indicates the insignificancy which infers that the errors have a constant variance (the data does not suffer from heteroscedasticity).

Coefficient of Multiple Determinations (R^2)

The summary of the model is shown in table 3. The table represents the R, R^2, and adjusted R^2. R is the values of multiple correlations co-efficient between the predictors and the outcome. Where LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} are used as a predictors. Among the 9 models, we have taken the model 8 for highest R^2 (0.963). The R value of model 8 is 0.981 which implies the strong relationship between independent variables and dependent variable.

Table-3: Model Summary[d]

Model Summary[j]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.711[a]	.505	.476	11.08094	.505	17.378	1	17	.001	
2	.809[b]	.654	.611	9.55246	.149	6.876	1	16	.018	
3	.892[c]	.796	.755	7.58336	.142	10.388	1	15	.006	
4	.950[d]	.903	.875	5.41504	.107	15.418	1	14	.002	
5	.966[e]	.933	.908	4.65590	.030	5.938	1	13	.030	
6	.977[f]	.954	.931	4.03554	.020	5.304	1	12	.040	
7	.973[g]	.947	.926	4.15590	-.007	1.787	1	12	.206	
8	.981[h]	.963	.944	3.61880	.016	5.145	1	12	.043	
9	.981[i]	.962	.947	3.51417	.000	.259	1	12	.620	1.943

a. Predictors: (Constant), LIQ

b. Predictors: (Constant), LIQ, OWN(INSTITUTION)

c. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA

d. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG

e. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK

f. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK, OWN(SPONSOR)

g. Predictors: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR)

h. Predictors: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

i. Predictors: (Constant), ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

j. Dependent Variable: DPR

The R^2 shows the amount of variance of DPR of explained by LIQ, ROA, SG, and RISK, OWN (sponsor), DPR_{t-1}. The value of R^2 of the model-8 is .963 which indicates that the independent variables explain 96.3% of the dependent variable (DPR). This represents satisfactory result for interpreting the model. The adjusted R^2 gives more idea of how well the model generalizes and the value should be same or very close to the value of R^2. In this study, the difference for the final model is fair bit (0.963-0.944=0.019 or 1.9%). This shrinkage means that if the model were derived from the population rather the sample, it would account for approximately 1.9 % less variance in the outcome.

Significance of the Model: F-Test

ANOVA table is shown in table 4 which represents the significance of the model through the F-test. It tests whether R^2 is different from zero. The F values of model 1, model 2, and model 3, model 4, model 5, model 6, model 7, model 8, model 9, are 17.378, 15.130, 19.467, 32.489, 36.345, 41.199, 46.280, 51.722, and 65.76 which are statistically significant. It is interpreted that the Final model(model 8) significantly improves the ability to predict the outcome variable(dependent variable).The F-statistics(F=51.722) of the model 8 is significant at 1 percent level of significant indicating that the model provides significant explanation of variation in the dividend payout ratio of nonfinancial sector.

Table-4:ANOVA[d]

ANOVA[j]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2133.787	1	2133.787	17.378	.001[a]
	Residual	2087.382	17	122.787		
	Total	4221.169	18			
2	Regression	2761.176	2	1380.588	15.130	.000[b]
	Residual	1459.992	16	91.250		
	Total	4221.169	18			
3	Regression	3358.559	3	1119.520	19.467	.000[c]
	Residual	862.610	15	57.507		
	Total	4221.169	18			
4	Regression	3810.651	4	952.663	32.489	.000[d]
	Residual	410.518	14	29.323		
	Total	4221.169	18			
5	Regression	3939.363	5	787.873	36.345	.000[e]
	Residual	281.806	13	21.677		
	Total	4221.169	18			
6	Regression	4025.741	6	670.957	41.199	.000[f]
	Residual	195.427	12	16.286		
	Total	4221.169	18			
7	Regression	3996.639	5	799.328	46.280	.000[g]
	Residual	224.530	13	17.272		
	Total	4221.169	18			
8	Regression	4064.020	6	677.337	51.722	.000[h]
	Residual	157.148	12	13.096		
	Total	4221.169	18			
9	Regression	4060.627	5	812.125	65.762	.000[i]
	Residual	160.542	13	12.349		
	Total	4221.169	18			

a. Predictors: (Constant), LIQ

b. Predictors: (Constant), LIQ, OWN(INSTITUTION)

c. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA

d. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG

e. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK

f. Predictors: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK, OWN(SPONSOR)

g. Predictors: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR)

h. Predictors: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

i. Predictors: (Constant), ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

j. Dependent Variable: DPR

Significance of the Variables/Model Parameters

The result of model parameters is shown in table 5. The coefficient (B) indicates the individual contribution of each predictor to the model. The B values tell about the relationship between DPR and each predictor. If the value is positive, it indicates that there is a positive relationship between the predictor and the outcome whereas a negative co-efficient represents a negative relationship. The B values also tell us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. The unstandardized beta(B) values has an associated standard error indicating to what extent these value would vary across different sample and these standard errors are used to determine whether or not the B values differ significantly from zero. In the model 8, the Coefficient (B) values of LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} are 2.36, 1.411, -0.034, 1.481, 3.894, 0.461 respectively. It infers that the LIQ, ROA, RISK, OWN (sponsor), DPR_{t-1} have positive relationship and SG, has negative relationship with DPR. The OWN (sponsor) has highest coefficient (3.894) which indicates the Sponsors has maximum role in DPR determination.

Table-5:Coefficients[a]

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF	
8	(Constant)	-109.955	29.753		-3.696	.003					
	LIQ	2.360	4.636	.058	2.36	.045	.711	.145	.028	.832	1.201
	ROA	1.411	.147	.589	9.616	.000	.501	.941	.536	.826	1.210
	SG	-.034	.004	-.703	-9.102	.000	-.286	-.935	-.507	.520	1.922
	RISK	1.481	.214	.425	6.930	.000	.276	.894	.386	.823	1.215
	OWN(SPONSOR)	3.894	.607	.569	6.416	.000	.311	.880	.357	.394	2.537
	DPR_{t-1}	.461	.203	.241	2.268	.043	.543	.548	.126	.374	2.650

a. Dependent Variable: DPR

The t test associated with B value is a significant predictor. That predictor is making a significant contribution to the model (if the value is less than 0.05). The smaller the value of significance, p value (and the larger the value of t) is the greater the contribution of that predictor (independent variable).

We have explained the final model (model 8) because this includes all predictors that make a significant contribution to dividend payout ratio. From the table 5, it is observed in model 8 that the t value of LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} are 2.36(p=.045), 9.61(p=.000), -9.10(p=.000), 6.93(p=.000), 6.416(p=0.00), 2.268(0.043) respectively which are significant at 1 percent level of significant. The p values of the independent variables, LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} are less than .05 which also indicates the significance of the variables. So, finally it is concluded that among the independent variables, LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} act as a determinant of dividend decision. The OWN (institution) is also a significant determinant which is shown in model 1.

The standardized beta values tell the number of standard deviation that the outcome will change a result of one standard deviation change in one predictor. The standardized beta values are all measured in standard deviation units. So, these are directly comparable, therefore, they provide a better insight into the importance of a predictor in the model. In the model 8, the standardized betas of LIQ, ROA, SG, RISK, OWN (sponsor), DPR_{t-1} are .058, 0.589, -0.703, 0.425, 0.569, 0.241 respectively which also represent the significant contribution on DPR.

Non-Significant Variables

From the table 6, it is shown that the model 8 explains the contribution of EPS, RE/TE, CF, SIZE, OWN (individual), LEV, AGE, INVESTOPPORT on the dividend decision. The coefficient of EPS, RE/TE, CF, SIZE, OWN (individual), LEV, AGE, INVESTOPPORT are -0.047, -0.075, 0.051, -0.059, 0.318, 0.082, 0.014, 0.002 respectively which indicates the little impact of these variables on dividend payout ratio. The t value of EPS, RE/TE, CF, SIZE, OWN (individual), LEV, AGE, INVESTOPPORT are -0.454(p=.658), -1.34(p=.207), 0.822(p=0.429), -0.511(0.619), 1.864(p=0.089), 1.296(p=0.22), 0.134(p=0.896), 0.023(p=0.982) which are not statistically significant. So, it is concluded that EPS, RE/TE, CF, SIZE, OWN (individual), LEV, AGE, INVESTOPPORT have not significant impact on dividend decision.

Table-6: Excluded Variables^{d}

Excluded Variables^{j}

					Partial Correlation	Collinearity Statistics		
Model		Beta In	t	Sig.	Tolerance	VIF	Minimum Tolerance	
8	EPS	-.047^{h}	-.454	.658	-.136	.309	3.236	.192
	RE/TE	-.075^{h}	-1.340	.207	-.375	.930	1.075	.231
	CF	.051^{h}	.822	.429	.241	.835	1.198	.218
	SIZE	-.059^{h}	-.511	.619	-.152	.252	3.973	.198
	OWN(INDIVIDUAL)	.318^{h}	1.864	.089	.490	.438	2.287	.089
	OWN(INSTITUTION)	.168^{h}	1.595	.139	.434	.491	2.036	.127
	LEV	.082^{h}	1.296	.222	.364	.726	1.378	.210
	AGE	.014^{h}	.134	.896	.040	.296	3.375	.200
	INVEST. OPPORT.	.002^{h}	.023	.982	.007	.664	1.506	.219

a. Predictors in the Model: (Constant), LIQ

b. Predictors in the Model: (Constant), LIQ, OWN(INSTITUTION)

c. Predictors in the Model: (Constant), LIQ, OWN(INSTITUTION), ROA

d. Predictors in the Model: (Constant), LIQ, OWN(INSTITUTION), ROA, SG

e. Predictors in the Model: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK

f. Predictors in the Model: (Constant), LIQ, OWN(INSTITUTION), ROA, SG, RISK, OWN(SPONSOR)

g. Predictors in the Model: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR)

h. Predictors in the Model: (Constant), LIQ, ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

i. Predictors in the Model: (Constant), ROA, SG, RISK, OWN(SPONSOR), DPR_{t-1}

j. Dependent Variable: DPR

8. Summary of Findings

DPR_{t-1}(Lagged dividend payout ratio)

The Coefficient value of DPR_{t-1} is 0.461 and the t value is 2.268 (p=0.043). This result indicates that the lagged dividend payout ratio is statistically positively significant. The higher coefficients and associated t-statistics of DPR_{t-1} in the research imply the greater importance of past dividend in deciding the dividend payment. For taking dividend decision the previous year dividend is considered.

This result is similar to various studies. According to Pandey (2001), past dividend paid by the companies is highly significant to the current dividend payout ratios for all industries in the Kuala Lumpur Stock Exchange (KLSE). Previous year's dividend payment have been regarded as the primary indicator of a firm's capacity to pay dividends (Lintner, 1956), because it is assumed that the management will maintain a stable dividend policy. Ahmed and Javid (2009) examined the dynamics and determinants of dividend payout policy of 320 non-financial firms.

SG (Sale growth)

The coefficient of SG (sales growth) is -0.034 and the t value is -9.102 (p=0.00) which is negatively significant. The growth in sales is used as proxies for the firm's future prospects since growing firms require more funds in order to finance their growth and therefore would typically retain greater proportion of their earnings by paying low dividend.

The result supports the result of the Amidu and Abor who (2006) also stated that growth in sales were found to have statistically significant and negative associates with dividend payout ratios. In addition, Jeong (2008) also supported Amidu and Abor where sales growth is expected to be negatively related to the degree of dividend smoothing in term of dividend payout. Higgins (1972) argues that payout ratio is negatively related to a firm's need for funds to finance growth opportunities. Rozeff (1982), Lloyd *et al.* (1985), Collins *et al.* (1996), and recently Amidu and Abor (2006), all show a significantly negative relationship between historical sales growth and dividend payout.

OWNSPONSOR (Sponsor ownership)

The coefficient of Sponsor Ownership is 3.89 and the t value is 6.416 (p=0.00) which is positively significant. The Sponsors play vital role in dividend decision making. The dividend payouts can play a useful role in reducing the conflict between inside and outside owners.

This result supports that the ownership structure in large firms may influence dividends and other financial policies (Desmetz, 1983; Desmetz and Lehn, 1985; Shleifer and Vishny, 1986; Morck et al., 1988; Schooley and Barney, 1994; Fluck, 1999; La Porta 2000; Gugler and Yurtoglu, 2003).

Risk

The coefficient of Risk is 1.48 and the t value is 6.93(p=0.00) which is positively significant. The Risk is positively influence on DPR which implies 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. Mollah (2002) found that firms listed on the Dhaka Stock Exchange paid a large dividend, even though the beta for their stock was high.

ROA (Return on Assets)

The coefficient of ROA is 1.411 which indicates that if the ROA increases by 1 percent the DPR will increase by 1.411 percent. The t value is 9.61 (p=0.00) which is statistically significant. If the company can make more profit, they will pay more dividends to the shareholder. Seve0ral studies have documented a positive relationship between profitability and dividend payouts (see, for example, Jensen et al, 1992, Han et al., 1999, and Fama and French, 2002). Depending on evidences from emerging markets, Al-Malkawi also supports the proposition that profitability is one of the most important factors that determines dividend policy (see, for instance, Adaoglu, 2000, Pandey, 2001, and Aivazian et al., 2003).

LIQ (Liquidity)

The coefficient of liquidity is 2.36 and the t value is 2.36 (p=0.045) which is positively significant. The liquidity position of a company is expected to be positively related to dividend payment.

9. Recommendations

The companies should follow continuous dividend policy practices with a view to boosting investor morale as well as keeping stock market as safe harbor for investment and financing sector. The dividend decision makers should consider mainly the liquidity and earnings of the company for giving dividend to the shareholders. The decision maker, investors and other stakeholders should follow these findings.

10. Conclusion

The purpose of the study is to identify the determinants of dividend decision of listed companies in DSE. The significant determinants are sponsor ownership, lagged dividend payout ratio, leverage, liquidity, sales growth, risk, profitability (ROA) in manufacturing sector. These findings will help the investors, dividend decision maker and other related parties in the capital market of Bangladesh.

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