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Determinant Factors of Dividend Policy Using a Structural Equation Modeling Approach: A Study of the Banking Sector of Bangladesh

Abstract. *One of the most controversial problems of modern corporate finance is the dividend policy, which can be described as a trade-off between the size of retained earnings and the amount of securities issued. When deciding on a dividend policy, firms take several aspects into account. The current study looks at the elements that influence banks' dividend distribution decisions. A panel dataset of 22 banks listed on the Dhaka Stock Exchange (DSE) from FY 1999 to 2018 was used for the empirical analysis. The results are inferred using structural equation modeling (SEM). The findings show that retained earnings, leverage, and size are important factors in determining dividend payouts, whereas earnings per share, cash flow, sales growth, liquidity, institutional ownership, sponsor ownership, individual ownership, risk, age, relative tax, return on assets, investment opportunity, and retained earnings are insignificant while taking dividend decision. The findings also support the notion that dividend payouts have reduced the agency problem and that management utilizes them as a signaling device. Furthermore, the findings show that the majority of dividend policy theories that are traditionally based on developed markets can be applied to emerging market countries like Bangladesh, because the majority of the characteristics found to be important in determining dividend policies in Bangladesh are consistent with those established in developed economies. This study's findings can be used by financial managers and policymakers to make proper dividend decisions. They can also assist investors in making portfolio selections based on sectoral dividend payment patterns.*

Keywords: *dividends, dividend policy banking sector, structural equation modeling, Dhaka Stock Exchange.*

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Визначальні фактори дивідендної політики на основі використання підходу моделювання за структурними рівняннями: дослідження банківського сектору Бангладеш

Анотація. *Однією з найбільш суперечливих проблем сучасних корпоративних фінансів є дивідендна політика, яку можна описати як компроміс між розміром нерозподіленого прибутку та сумою випущених цінних паперів. Приймаючи рішення щодо дивідендної політики, фірми враховують декілька аспектів. Це дослідження розглядає чинники, які впливають на рішення банків про розподіл дивідендів. Для емпіричного аналізу використано набір панельних даних про 22 банки, які котирувалися на фондовій біржі Дакки (DSE) з 1999 по 2018 фінансовий рік. Методологічною основою дослідження є підхід на основі моделювання структурних рівнянь. Результати показують, що нерозподілений прибуток, кредитне плече та розмір є важливими факторами у визначенні виплати дивідендів, тоді як прибуток на акцію, грошовий потік, зростання продажів,*

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ліквідність, інституційна власність, власність спонсора, індивідуальна власність, ризик, вік, відносний податок, рентабельність активів, можливість інвестування та нерозподілений прибуток є незначними факторами під час прийняття рішення про виплату дивідендів. Це дослідження також підтверджує думку про те, що виплати дивідендів зменшили проблему агента і що керівництво використовує їх як сигнальний пристрій. Виявлено, що більшість теорій дивідендної політики, які традиційно ґрунтуються на розвинутих ринках, можна застосувати до країн, що розвиваються, як от Бангладеш, оскільки більшість важливих характеристик для визначення дивідендної політики в Бангладеш, узгоджуються із тими, які були встановлені в країнах з розвиненою економікою. Результати цього дослідження можуть бути використані фінансовими менеджерами та політиками для прийняття правильних рішень щодо реалізації дивідендної політики. Дані цього дослідження також можуть допомогти інвесторам у виборі портфеля на основі галузевих моделей виплати дивідендів.

Ключові слова: *дивіденди, дивідендна політика, банківський сектор, моделювання структурних рівнянь, Дакська фондова біржа.*

1. INTRODUCTION

Dividends are defined as the distribution of wealth generated to shareholders. Dividend policy may be described as the trade-off between the size of retained earnings and the amount of cash or securities issued (Fama & Babiak, 1968). One of the most contentious problems in modern corporate finance is dividend policy. According to Baker, Powell, & Veit (2002), "the closer we look at the dividend picture, the more it appears to be a jigsaw, with pieces that just don't fit together." This enigma spawned a slew of contrasting theories and models to explain why firms pay or do not pay dividends. After several decades of relentless research, the dividend policy still remains one of the top ten critical unsolved topics in finance, with no agreement established (Miller & Rock, 1985).

Dividends should not be viewed just as a choice to distribute earnings to shareholders. It has a number of complicated concerns. As a result, the variables impacting dividend decisions have long been scrutinized by financial management specialists and scholars. A firm's dividend payout is seen differently by different groups of persons involved with the company. Dividends are a crucial input for judging the worth and credibility of a company for investors since they are more than just a representation of regular earnings (Imam, Barker, & Clubb, 2008). Dividend payments may well impact the degree of investment in lucrative investment initiatives for management. Lenders scrutinize it closely because they believe that the higher the dividend payment, the less likely it is that the borrower would default (Lambrecht & Myers, 2012). A great deal of empirical and theoretical work has been done during the last fifty years and researchers have examined a variety of elements that influence a company's dividend policy. The findings of these researches have not completely answered the difficulties surrounding dividend decisions. For example, the drivers of dividend choice are not consistent among enterprises, nations and across time (Baker & Weigand, 2015). Variations in dividends among nations have also been observed as a result of variances in economic policy for each country, including corporate governance policies (Bae, Chang, & Kang, 2012) and relevant legislation (Yarram & Dollery, 2015). Additionally emerging and developed markets differ in a variety of ways. According to Aivazian, Booth, & Cleary (2003), dividends in emerging market enterprises are more variable than dividends in US firms. They discover that country-specific factors influence dividend policy in developing countries. They have also found that, as compared to US corporations, emerging market firms pay bigger dividends, which is perplexing. According to Dempsey, Laber, & Rozeff (1993), sectors/industry determine dividend policy. Summarizing all of these research, it is possible to conclude that the variables influencing dividend policy are diverse and might rely on the policies and market structure of enterprises, sectors, and nations.

Until recently, the investigation of dividend policy in emerging stock markets was less extensive than in established markets. According to Abor & Bokpin (2010), dividend behavior in emerging nations has not been adequately examined. As a result, a more in-depth research of developing market firms' dividend-paying behavior is necessary. The purpose of this article is to examine the factors that influence the dividend distribution policy of Bangladesh's financial industry, which is a developing country in South Asia. This study focuses on the banking sector in particular since it is seen as a significant economic contributor to Bangladesh's economy, accounting for 7.7 percent of GDP (Sarker, Ghosh, & Palit, 2015). Despite the importance of the banking industry to the Bangladeshi economy, research into dividend policies in Bangladeshi listed banks has been sparse. The majority of dividend behavior research are centered on non-financial enterprises in Bangladesh (Hasan, Wahid, Amin, & Hossain, 2021); (Mollah, 2011); (Rahman & Al Mamun, 2015); (Rifat, Bushra, & Nisha, 2020). Eventually, this extends the necessity to understand the driving aspects of this sector's dividend distribution strategy.

Using a sample of 22 banks listed on the Dhaka Stock Exchange from 1999 to 2018, this study empirically identifies the key determinants impacting the banking sector's dividend payment behavior. Using the Structured Equation Model (SEM) technique, the results reveal that leverage (LEV), size, and retained earnings (RE) all have a substantial influence on the dividend payment ratio whereas earnings per share, cash flow, sales growth, liquidity, institutional ownership, sponsor ownership, individual ownership, risk, age, relative tax, return on

assets, investment opportunity, and retained earnings are negligible when making a dividend choice.

Given the facts stated above, this research adds to the current literature in two ways. Firstly, it sheds light on an emerging market's dividend policy. Secondly, by examining dividend behavior in the banking industry, this study seeks to fill a key vacuum in the current literature.

2. LITERATURE REVIEW

2.1 Theoretical Background

Corporate dividend behavior is looked upon in many ways by the experts in the area of financial literature. Several theories evolved explaining corporate dividend behavior. 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 & Swary, 1980).

Another theory in respect of corporate dividend policy goes by the name of 'Incumbency Rent Theory' developed by Fudenberg & Tirole (1995). 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 (Moh'd, Perry, & Rimbey, 1995). 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 in the name of 'Tax Clientele Theory' suggested by Brennan (1970). 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 (Allen, Bernardo, & Welch, 2000). This theory uses the relative tax advantage of paying dividend now or retaining the excess cash for future capital gains in explaining the dividend behavior 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. Even after such a long period of time since corporate dividend behavior 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.

2.2 Factors Affecting Dividend Policy: Global Context

Lintner (1956) has made a pioneering study to see various aspects of distribution of corporate earnings among dividends, retained earnings and taxes. He found that firms are primarily concerned with the stability of dividends and managers appear to believe strongly that market puts a premium on firms with a stable dividend policy. He has also observed that earnings are the most important determinant of dividend decision. He has pointed out that most companies have a target payout ratio. If sudden surge in earnings occurs, firms adjust their dividends slowly. Moreover, firms have found to be more reluctant to cut dividends. He also argued that even if investment opportunities are abundant for a firm, then also the firm opts to pay dividend at a level which is more or less the same as that of the previous years. After that the firm judges the adequacy or otherwise of internal funds and accordingly it decided on resorting to outside funds to meet that investment requirement.

Collins, Saxena, & Wansley (1996) have studied the role of insiders in determination of dividend policy of a firm. Study results indicate that payout ratio is negatively related to firm's past and future expected growth rate of earnings, its level of systematic risk and its insider holdings. They also found that regulatory status plays more important role in the determination of strength of association between insider holding and payout ratio in the case of utilities than in the case of financial firms.

D'souza & Saxena (1999) examined the effects of agency cost, market risk, and investment opportunities on an international firm's dividend policy. He used assets and previous sales growth and market to book value of stock with its investment chances use as the substitute for the agency cost, investment chances, market threat accordingly. He used the three hundred forty-nine companies as a sample worldwide for finding the relationship among dividend payout, agency costs, investment chances, market threat. He used past three years' sales growth and market to book value of stock, as an alternative for the firm's investment chances in the near future. The dividend payout variable used in his study, with 3 years straight average taken from 1995 to 1997, while the institutional holdings, beta value, growth, and market and book values all pertain to the year 1997. He obtained dividend payout, beta and growth data from Data Stream, while institutional ownership is obtained from World Scope Disclosure. Multiple regression analyses are used for explaining association among the dividend payout, agency costs, investment chances, market threat payout ratio, where as dividend is dependent variable while beta, past three years' sales growth, percentage of assets, with market-to-book value are independent variables. Outcome of this research maintain the previous research outcome because it shows agency cost and market threat is negative effect on dividend payments, but it not maintains the outcome about negative impact of investment chance on dividend, according to this research investment chances has significant impact on dividend payout policy with respect to international point of view.

Gugler & Yurtoglu (2003) observed that state-controlled firms are characterized by dividend smoothening, very high payout and strong reluctance to cut dividends while family-controlled firms are not subject to dividend smoothening, have a low payout and are least reluctant to cut dividends. According to him, this finding applies more to firms having good growth prospects (positive R&D spending). But, in case of firms with low investment opportunities (no R&D spending), target payout ratio tends to be much higher irrespective of who controls the corporation (state control or family control).

Bechmann & Raaballe (2007) found that the characteristics of dividend payers are: positive earnings, high ROE (net earnings to book equity), low volatility in ROE, high retained earnings, large firm size, and whether the firm paid out dividends in the previous year. MV/BV, leverage and owner structure play no role in whether a firm pays dividends or not.

Anil & Kapoor (2008) attempted to empirically analyze the determinants of dividend payout ratio of Indian Information Technology sector. The paper also focuses on identifying whether various factors available as per literature influence dividend payout ratio in IT sector in India in existing scenario or not. Statistical techniques of correlation and regression have been used to explore the relationship between key variables. Thus, the main theme of this study is to identify the various factors that influence the dividend payout policy decisions of IT firms in India.

Gupta & Banga (2010) studied on the determinants of corporate dividend policy. A dividend decision of a firm is an outcome of various considerations. These considerations differ across time and industry. The study re-examines various factors that have a bearing on the dividend decision of a firm by using a two-step multivariate procedure. First, factor analysis is performed on the data to extract prominent factors from various variables and then multiple regressions is conducted such factors. Results of factor analysis indicate that leverage, liquidity, profitability, growth and ownership structure are the major factors. Regression on these factors shows leverage and liquidity to be the determinants of the dividend policy for Indian companies.

Hussainey, Mgbame, & Chijoke-Mgbame (2011) found a positive relationship between dividend yield and stock price changes and a negative relationship between dividend payout ratio and stock price changes. In addition, their results show that firm's growth rate, debt level, size and earnings explain stock price changes. The study supports the fact that dividend policy is relevant in determining share price changes for a sample of firms listed in the London Stock Exchange. The challenge for managements/accountants is to generally improve the quality of the financial statements (i.e. income statement) to avoid producing wrong information which could lead to wrong decisions by investors.

Alzomaia & Al-Khadhiri (2013) studied to examine the factors determining dividend represented by Dividends per share for companies in the Saudi Arabia stock exchanges (TASI). In this study they run a regression model and used a panel data covering the period from of 2004 to 2010 for 105 non- financial firms listed in the stock market. The model investigate the impact of Earnings per share (EPS), Previous Dividends represented by dividends per share for last year , Growth, Debt to Equity (D/E) ratio, Beta & Capital Size on Dividends per Share. The results consistently support that Saudi listed non-financial firms rely on current earnings per share and past dividend per share of the company to set their dividend payments.

2.3 Prior Evidences: Bangladesh Context

Dividend distribution patterns in emerging economies diverge from those in industrialized countries for a variety of reasons, including taxation, stock market volatility, and information asymmetry (Al-Kuwari, 2009).

In the context of companies operating in Bangladesh, Jahur & Nazneen (2005) identified some broad groups of factors affecting dividend decisions. These are: 1) Factor of dividends, yield and payout ratio, 2) Factor of profitability and capital structure, 3) Factor of dividends and earnings volatility, 4) Factor of returns, profitability ratios and behavior of share prices and 5) Factor of firm's profitability, changes in size and composition of firm's share capital size. Thus, they found enough empirical evidence in respect of the fact that corporate financial decision makers impart required considerations pertaining to capital structure decision, expansion and growth of the firms, profitability and earnings volatility and even behavior of share prices.

Mollah, Bhuyan, Mobarek, & Pope (2008) investigated the behavior of pay-out policy of Dhaka Stock Exchange (DSE) listed firms preceding and following financial crisis to see whether dividend policy appears as significant measure to protect the general shareholders' interest after the crisis in 1998. OLS models are tested on DSE data preceding (1988-1997) and following financial crisis (1999-2003), on which no other study has been conducted yet. The empirical results fail to trace noticeable improvements in pay-out policy after the market crisis and dividend policy does not appear as a significant measure to protect the shareholders' interest in the emerging market of Bangladesh.

Huda & 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.

Zaman (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 & Muktadir-Al-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.

Above literature review have guided us to develop the following hypothesis: (H_1) ***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.***

3. RESEARCH METHODOLOGY

3.1 Sample

The study is based on secondary data obtained from published annual reports of sample banks, monthly review of Dhaka stock exchange and website of DSE. The sample includes listed banks of DSE. It is taken 22 banks from as sample. The sample period is 20 years from 1999 to 2018 for study. We have taken banks, which are enlisted before 2010 in DSE as population. From the population (30), it is taken 22 banks as sample through sample size determination techniques.

$$n = \frac{N}{1 + N(e)^2} \quad (1),$$

where, n = Sample size, N= Population size, e = level of precision.

3.2 Variables

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.

3.3 Econometric Model

Proxies for dependent and independent variables are identified and selected based on the prior studies such as Holder, Langrehr, & Hexter (1998) and Saxena (1999). Based on the proxies used, the structural equation modeling technique was used in the study. Structural Equation Modeling is used to demonstrate how models that better reflect the theoretical connection between variables may improve interpretability and provide different results. Structural equation modeling (SEM), often known as path analysis with latent variables, is currently a widely used approach in the behavioral and social sciences for capturing dependence (perhaps "causal") interactions in multivariate data.

This econometric model is developed as follows:

$$DPR_{it} = \alpha + \beta_1 DPR_{it-1} + \beta_2 EPS_{it} + \beta_3 LEV_{it} + \beta_4 CF_{it} + \beta_5 SG_{it} + \beta_6 SIZE_{it} + \beta_7 LIQ_{it} + \beta_8 OWN(SPONSOR)_{it} + \beta_9 OWN(INST)_{it} + \beta_{10} OWN(IND)_{it} + \beta_{11} RISK_{it} + \beta_{12} AGEit + \beta_{13} RELATAX_{it} + \beta_{14} RE/TE_{it} + \beta_{15} ROA_{it} + \beta_{16} INVEST OPPORT_{it} + u_{it} \quad (2)$$

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 Structural Equation Modeling Techniques are used to identify significant variables.

4. FINDINGS AND ANALYSIS

We have shown the impact of determinants on dividend policy along with other variables with regression model. Now, we want to develop an optimum model by using structural equation modeling techniques.

4.1 Significant Variables

We have run the existing model ($DPR_{it}= \alpha + \beta_1 DPR_{it-1}+ \beta_2 EPS_{it}+ \beta_3 LEV_{it}+ \beta_4 CF_{it}+ \beta_5 SG_{it}+ \beta_6 SIZE_{it}+ \beta_7 LIQ_{it}+ \beta_8$ $OWN(SPONSOR)_{it}+ \beta_9$ $OWN(INST)_{it}+ \beta_{10}$ $OWN(IND)_{it} + \beta_{11}$ $RISK_{it}+ \beta_{12}$ $AGE_{it}+ \beta_{13}$ $RELATAX_{it}+ \beta_{14}$ $RE/TE_{it}+ \beta_{15}$ $ROA_{it} + \beta_{16}$ INVEST $OPPORT_{it} + +u_{it}$) with structural equation modeling.

Table 1

Regression Weights: (Group number 1 – Default model)-Maximum Likelihood Estimates

Variables			Estimate	S.E.	C.R.	P
DPR	<---	DPR_{it-1}	.109	.267	.407	.684
DPR	<---	EPS	.042	.014	3.096	.002
DPR	<---	RE	-1.545	.510	-3.031	.002
DPR	<---	CF	.038	.018	2.032	.042
DPR	<---	OWNINST	-.026	.040	-.648	.517
DPR	<---	OWNIND	-.057	.212	-.271	.787
DPR	<---	OWNSP	-1.746	.203	-8.590	***
DPR	<---	INVTOPP	-.205	.071	-2.897	.004
DPR	<---	LEV	10.574	.895	11.820	***
DPR	<---	SG	-.367	.086	-4.246	***
DPR	<---	ROA	-3.992	.893	-4.468	***
DPR	<---	AGE	-37.438	4.822	-7.764	***
DPR	<---	RISK	-.705	.951	-.741	.458
DPR	<---	SIZE	-5.780	2.808	-2.059	.040

From the table 1, it is seen that the C.R.(critical ratio) of $DPR_{it-1,}$ EPS, RE, CF, OWNPS, INVETOP, LEV, SG, ROA, AGE, SIZE are .409, 3.09, -3.03, 2.05, -8.59, -2.89, 11.82, -4.24, -4.46, -7.76 and -2.05 respectively which exhibit significant impact on the DPR.

4.2 Model Fit

This is a conventional null hypothesis significance test (NHST) for the goodness of fit test, albeit with the "hoped for" decision reversed so that the aim is now to "accept" the null hypothesis, and not reject it. If the discrepancy (expressed as a $\chi 2$ variate) between the model implied covariance and the observed sample covariance is larger than the expected distribution value by a probability usually adjudged at a 0.05 threshold (as per convention in NHST), then the model is rejected as "not-fitting". Conversely, if the fit statistic is less than the value expected, with a probability of occurrence >0.05, then the model is accepted as "fitting"; that is, the null hypothesis of "no difference" between the model-implied population covariance and the actual observed sample covariance is not rejected. This test has become known amongst SEM users as the $\chi 2$ "exact- fit" test.

Table 2

Notes for Model (Default model)

Computation of degrees of freedom (Default model)	
Number of distinct sample moments:	170
Number of distinct parameters to be estimated:	50
Degrees of freedom (170 - 50):	120
Result (Default model)	
Minimum was achieved	
Chi-square = 335.556	
Degrees of freedom = 120	
Probability level = 0.000	

Here, the chi-square value is 335.556 and p- value is 0.0 which indicates the rejection of null hypothesis. So, this model does not fit and the modification is required to get the optimum model.

4.3 Modifying the model to obtain the Optimum model: Evaluating Model fit

From the modified model, it is seen that the chi-square value is zero. So, the null hypothesis is accepted that the model fit the data. So, it indicates the modified model is an accepted model. Since the minimum was achieved, I have proceeded further for calculation and interpretation.

Table 3

Result (Default model)

Minimum was achieved Chi-square = .000 Degrees of freedom = 0 Probability level cannot be computed

4.4 Optimum Model

Figure 1 indicates the optimum model which mentions the impact the influential factors on dividend payout ratio.

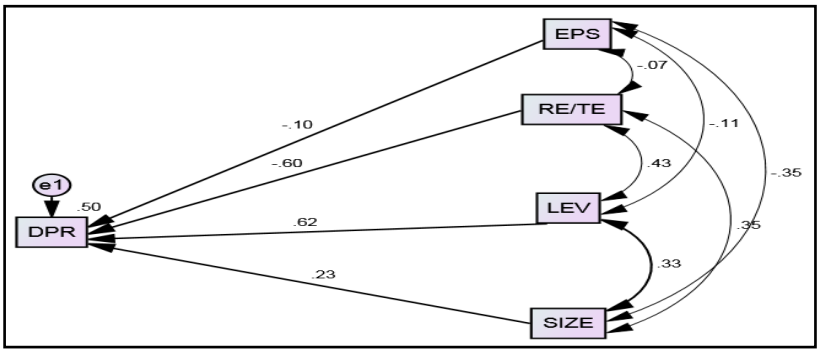

Figure 1. **Optimum Model of Dividend Determinants: Banking Sectors**

The standardized regression weights and the correlations are independent of the units in which all variables are measured; therefore, they are not affected by the choice of identification constraints. The correlation between EPS & RE, EPS &LEV, EPS & SIZE, RE &LEV, RE&SIZE, LEV& SIZE are -.07, -.11, .36, .43, -.35, .33. The entries -0.10, -.60, 62, .23 are standardized regression weights of EPS, RE, LEV, SIZE respectively. The number .50 is the squared multiple correlation of DPR with EPS, RE, LEV, SIZE.

4.5 Regression Weights

From the table 4, it is seen that the C.R of LEV, SIZE and RE are 3.45, 2.28 and -3.29 which are statistically significant. So, it is certain that the LEV, SIZE and RE have impact on the dividend payout ratio.

Table 4

Maximum Likelihood Estimates: Regression Weights

(Group number 1 - Default model)							
Variables			Estimate	S.E.	C.R.	P	Label
DPR	<---	EPS	-.013	.021	-.596	.551	
DPR	<---	RE	-2.488	.756	-3.291	.001	
DPR	<---	LEV	5.187	1.501	3.455	***	
DPR	<---	SIZE	6.096	4.755	2.282	.048	
Standardized Regression Weights: (Group number 1 - Default model)							
DPR	<---	EPS	-.100				
DPR	<---	RE	-.599				
DPR	<---	LEV	.618				
DPR	<---	SIZE	.234				
Correlations: (Group number 1 - Default model)							
EPS	<-->	RE	-.071				
RE	<-->	LEV	.435				
LEV	<-->	SIZE	.325				
EPS	<-->	LEV	-.114				
RE	<-->	SIZE	.351				
EPS	<-->	SIZE	-.348				
Squared Multiple Correlations: (Group number 1 - Default model)							
DPR			0.502				

4.6 Squared Multiple Correlations:

Squared multiple correlations are also independent of units of measurement. The squared multiple correlation of a variable is the proportion of its variance that is accounted for by its predictors. In the present study, LEV and RE account for 50% of the variance of DPR.

4.7 Model Fit Summary

Table 5

	CMIN				
Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	20	.000	0		
Saturated model	20	.000	0		
Independence model	5	19.604	15	.188	1.307
Baseline Comparisons					
Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	1.000		1.000		1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000
Parsimony-Adjusted Measures					
Model	PRATIO	PNFI	PCFI		
Default model	.000	.000	.000		
Saturated model	.000	.000	.000		
Independence model	1.000	.000	.000		
NCP					
Model	NCP	LO 90	HI 90		
Default model	.000	.000	.000		
Saturated model	.000	.000	.000		
Independence model	4.604	.000	20.239		

- CMIN – minimum value of the discrepancy between the model and the data. This is the same as the chi-square statistic. Here, CMIN is 0 which indicates the model fit.
- Baseline Comparisons – NFI [Normed Fit Index] shows how far between the (terribly fitting) independence model and the (perfectly fitting) saturated model the default model is. In this case, it's 100% of the way to perfect fit.
- Parsimony-Adjusted Measures – The PRATIO [Parsimony Ratio] is an overall measure of how parsimonious the model is.
- NCP – the non-centrality parameter. The columns labeled "LO 90" and "HI 90" gives the 90% confidence interval for this statistic. This statistic can also be interpreted as a chi-square, with the same degrees of freedom as in CMIN. Here, this value is 0 which indicates the support of model fitness.

Optimum Model: $\mathbf{DPR_t = \alpha + \beta_1 LEV_t + \beta_2 RE_t + \beta_3 SIZE_t + u_{it}}$

So, Structural equation modeling reveals that the LEV, SIZE and RE have impact on the dividend payout ratio.

5. DISCUSSION

5.1 RE/TE (Retained earnings to total equity ratio)

The coefficient of RE/TE is negatively significant. It indicates that the DPR is negatively related to RE/TE because a firm that plans to finance future investment opportunities from retained earnings would distribute lesser profits as dividends. Thus, retained earnings of the current year are negatively associated with dividend paid.

5.2 SIZE (Size)

The coefficient of size is positively significant. The positive relationship between dividend payout policy and firm size is also supported by a growing number of other studies such as Fama & French (2000), Manos (2003), Al-Malkawi (2007)

As mentioned previously, larger firms pay a higher cash dividend for several reasons. First, large firms face high agency costs as a result of ownership dispersion, increased complexity, and the inability of shareholders to monitor firm activity closely. Hence, such firms pay a larger dividend to reduce agency costs (Jensen & Meckling, 1976). Second, as a result of the weak control in monitoring management in large firms, a large dividend payout increases the need for external financing, which, in turn, leads to the increased monitoring of large firms by creditors. This may be a quality that is attractive to the shareholders (Sawicki, 2005). Another explanation for this positive association might be related to large firms' easier access to capital markets, and their ability to raise funds with lower issuance costs for external

financing. Consequently, large firms are better able than small firms to distribute higher dividends to shareholders (Holder et al., 1998).

5.3 LEV (Leverage)

The coefficient of leverage is positively significant. Because, the, 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. In some industries payout and leverage ratios are positively related while in other industries the relationship is negative. Mollah (2011) examined an emerging market and found a direct relationship between financial leverage and debt-burden level that increases transaction costs.

6. CONCLUSIONS

Using financial data from Bangladeshi-listed banks, this study provides new information on the key determinants of dividend policy in an emerging market economy. This study uses structured Equation model approach to examine the factors affecting dividends of the financial sector of Bangladesh. Using the Panel dataset of 20 years of 22 listed banks in DSE the findings show that Retained Earnings, Leverage, and Size are important factors in determining dividend payouts, whereas Earnings per share, Cash flow, Sales growth, liquidity, Institutional ownership, Sponsor ownership, Individual ownership, Risk, Age, Relative tax, Return on assets, Investment opportunity, and Retained earnings are insignificant while taking dividend decision. The findings also support the notion that dividend payouts have reduced the agency problem and that management utilizes them as a signaling device. This is due to the fact that Bangladeshi banks like to keep their dividend policies stable, therefore the availability of investment options and the lack of cash are unimportant factors in setting dividend policy. The findings offer investors unbiased guidance on the issues that determine Bangladeshi banks' dividend policy. Furthermore, the findings show that the majority of dividend policy theories that are traditionally based on developed markets can be applied to emerging market countries like Bangladesh, because the majority of the characteristics found to be important in determining dividend policies in Bangladesh are consistent with those established in developed economies.

However, more research is needed to look at the impact of other firm-specific variables including corporate governance rules and investor demographics, which were not considered in this study. Future research should look into the factors that influence other financial institutions' dividend policies, such as insurance firms.

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