

Determinants of Dividend Policy

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ABSTRACT

The dividend distribution decision is one of the key components of corporate policy and has thus been an issue of interest to investors and researchers alike. Several studies have been attempted, resulting in many different theoretical and empirical explanations for the rationale behind dividend decision. However, the findings have been debatable, leading to no firm conclusion as to what determines the dividend policy.

The present research attempts to study the impact of earnings per share, financial leverage, maturity of Indian businesses, Net cash flow for investment, current ratio and total assets on dividend payments. Companies listed on Nifty 50 Index of the National Stock Exchange have been analysed using Correlation and Regression Models to conclude that Earnings per share and Net Cash Flow play a significant role in predicting the Dividend Payment patterns of Indian businesses.

Keywords: Dividend Distribution, Financial Leverage, Age, Size of Company, EPS, Net Cash Flow, Current Ratio.

INTRODUCTION:

The Dividend Distribution Policy of companies is one of the most widely discussed and debated topics in finance. Innumerable theories, explanations and models have been developed by academicians and experts to explain the factors that managers of organisations should consider while deciding on the dividend policy of their firms. Several attempts have also been made to predict the future dividend payments of firms by recognising and ascertaining the relative importance of factors that determine dividend policy.

The need to predict these future cash payments to investors arises from the debate first initiated by Miller & Modigliani (1961) and Gordon (1963) & Lintner (1962,1964) . Miller & Modigliani, in their widely recognised study trivialised the role of dividends in predicting the value of a company. However, Gordon & Lintner stressed on the "Bird in Hand" theory, to support the importance of dividends in deciding firm value.

Over the years several researches attempted have recognised certain common factors that seem to play a significant role in deciding the dividend decision of corporations. Foremost of these determinants are: financial constraints, level of profits, size and age of the firm, availability of investment opportunities and pressure from shareholders and regulatory authorities.

Financial constraints of a company like annual interest and repayment obligations make it necessary for a firm to withhold earnings in order to repay creditors. At times, companies are legally required to fulfil certain requirements of the credit institutions before declaring dividend. Thus, a higher financial leverage is expected to cause a reduction in the dividend payments of the firm.

Profitability of a firm reflects the returns that a firm is earning on investments. The long term objective of any business is to increase the return to its owners as per shareholder wealth maximisation concept. Thus, with growth in earnings and profits, a company is likely to increase its dividend pay-outs to shareholders. This is also reflected in the studies conducted by various researchers. A research conducted by Lintner (1956) on American companies showed evidence that dividend decisions made by companies are based on the current profitability and dividends of the previous year.

Age and size of a firm are also expected to have a positive linear relationship with dividend payments. These factors are to some extent related to the level of financial constraints imposed on firms. Large firms have an easy access to external capital market due to higher value of assets and positive growth prospective. They are thus less likely to depend on internal sources of funds to invest in assets or new ventures. Smaller firms on the other hand are forced to depend on retained earnings, reducing dividend payments.

Similarly, age of the firm affects the dividend paid due to the variability in growth opportunities available. Young companies grow at a higher pace and thus require more funds to be re-invested in the business. On the other hand, as a company becomes mature, its growth opportunities shrink. As an investment opportunity, mature companies also hold a prestige value due to the value of trust that is attached to their brand. Thus, due to lack of re-investment requirement and to maintain trust in the brand, mature companies are likely to pay a higher dividend to its stockholders.

All the above relationships have been observed in varying degrees of magnitude in research carried out in different parts of the world.

The current study explores the impact financial leverage, firm age, earning per share, size, current ratio and net cash flow on dividend per share, for companies listed in the Nifty 50 index over a period of seven years.

REVIEW OF LITERATURE:

A number of researches have been undertaken by academicians and analysts in various developed and developing economies of the world so as to observe the relationship between dividend payment and the fundamental variables affecting it. These studies have been reviewed to understand the factors and conditions relevant for the said relationship.

Indian Studies:

Y Subba Reddy (2002) examined the dividend behaviour of Indian corporate firms over the period 1990-01 with the help of trade-off theory and signalling hypothesis. He examined a large sample of stocks traded on NSE and BSE, to conclude that trade-off theory (effect of tax regime) did not hold in Indian context. He also observed that on an average, dividend paying firms are larger and more profitable than non-paying firms.

Manos and Green (2001) analysed Indian group companies so as to observe relationship between dividend payments and the age of the firm. They reported a positive relationship between age of company and its pay-out level for non-group affiliated Indian companies. Their findings established maturity as an important determinant of dividend payment policy in Indian firms.

Kapoor, Kanwal and Misra (2010) studied the factors determining dividend distribution in FMCG companies in India. Effect of 21 variables was examined to conclude that profitability, cash flows, liquidity and long term solvency were the primary factors affecting the dividend policy of Indian FMCG firms.

Bisht, Singh and Kavidyal (2015) analysed a random sample of Sensex incorporated firms from various industries over a period of 5 years. A multiple regression model was used to establish relationships. Profitability, Debt Ratio, Price per Share and Beta were found to be the significant factors explaining variability in dividends.

International Studies:

Chikashi Tsuji (2010) tested the determinants of dividend initiations and continuations from the perspectives of catering theory and signalling hypothesis in Japanese electrical appliances industry. It was found that the Japanese electrical appliance industry's dividend policy did not behave as predicted by catering theory. Cross-sectional viewpoint supported the relationship between corporate earnings and dividends. However, dividends were in turn observed to have a negative impact on corporate earnings in the years immediately following dividend distribution.

Nguyen Thi Xuan Trang (2012) took the case of Vietnamese firms. 116 companies listed on the HOSE and HNX in the year of 2009 were studied using a multiple regression model. The results showed a positive relation of dividend with profitability and a negative relationship with business risk represented by beta.

Asad and Yousaf (2014) undertook a study to observe the impact of leverage on dividend payment behaviour of Pakistani manufacturing firms. The study observed 44 companies across different sectors to conclude that there exists a positive linear relationship between leverage and dividend payments of Pakistani manufacturing firms.

Tamimi (2014) also found a significant relationship between financial leverage and company age with dividend payments. Dividend patterns of manufacturing firms listed on Tehran Stock Exchange were observed from 2005 to 2011 to arrive at this conclusion.

Pandey (2003) explored the patterns in corporate dividend policy of companies listed on Kuala Lumpur Stock Exchange. The results confirmed presence of industry variables in deciding the magnitude and consistency of dividends. A very strong correlation was found between company earnings and dividend payments.

OBJECTIVE OF THE STUDY:

This study has been undertaken with the objective of finding and measuring the existence and importance of the relationship between dividends and accounting variables.

RESEARCH METHODOLOGY:

The firms studied were the Nifty 50 Index of the National Stock Exchange of India, at the time of undertaking the research. Banking, financial services and companies that reported a loss during the period considered for the study were excluded; 41 firms were analysed.

Data was collected for Dividend per Share (DPS), Firm Age, Financial Leverage (Debt to Total Assets), Earning per Share (EPS), Total Assets, Net Cash Flow from Investing Activities and Current Ratio from 2010 to 2016.

Explanatory variables that have been used for the analysis have been explained in detail below. Correlation, bivariate linear regressions and multivariate linear regression were performed on panel data in order to discover the relationship between dividend per share and the variables described below.

Variables in the study:

The dependent variable in the research is Dividend per Share (DPS); Company Age, Leverage, Earning per Share (EPS), Size of the Firm, Net Cash Flow in Investing Activities and Current Ratio are the independent variables.

1. Dividend per Share (DPS): Dividend is that portion of the net profits after tax which is distributed to the shareholders. DPS is calculated as:
$$\text{DPS} = \text{Dividend Paid} / \text{No. of Equity Shares}$$
2. Company Age: Company age has been taken as measure of maturity of a business. It has been calculate as:
$$\text{Company Age} = \text{Present Year} - \text{Year of Establishment}$$
3. Leverage: Debt to Total Assets Ratio has been taken as a measure of financial leverage of the firm.
$$\text{Leverage} = \text{Total Debt} / \text{Total Assets}$$
4. Earnings per Share (EPS): Earnings refer to the amount of profits after tax and preference dividend payment. It is that part of the profit which is available for the shareholders. EPS is calculated as:
$$\text{EPS} = \text{Earnings} / \text{No. of Equity Shares}$$
5. Size of the Firm: The natural log of Total Assets has been used to represent the size of the firm.
$$\text{Size} = \text{Natural Log (Total Assets)}$$
6. Net Cash Flow in Investing Activities (NCF-I): Net cash flow in/from investing activities has been used in order to track re-investment of funds into the business.
7. Current Ratio (CR): Current Ratio has been used in order to observe the short term solvency position of the firm. Current Ratio is calculated as:
$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities}$$

The study makes use of Bivariate Linear Correlation and Linear Regression to check and measure the relationship between Dividend Payments and the various explanatory variables.

$$\text{DPS} = f(\text{Age, Leverage, EPS, Size, NCF-I, CR})$$

Bivariate Correlations (Pearson r) were calculated for all variables. In order to check the explanatory variables for multicollinearity, Variation Inflation Factor (VIF) has been calculated. Variance Inflation Factor estimates how much the variance of a coefficient is "inflated" because of linear dependence with other predictors. VIF of 2.5 and above gives evidence of strong multicollinearity.

The multiple linear regression model used is as follows:

$$\text{DPS}_{it} = \beta_0 + \beta_1(\text{Age}_{it}) + \beta_2(\text{Leverage}_{it}) + \beta_3(\text{EPS}_{it}) + \beta_4(\text{Size}_{it}) + \beta_5(\text{NCF-I}_{it}) + \beta_6(\text{CR}_{it}) + \varepsilon_i$$

Where β_0 is the constant, β_n is the regression coefficient and ε_i represents the error term.

Similarly, bivariate regressions were run for each independent variable and also multivariate regressions for few variables at a time.

Accordingly, the following hypotheses have been developed:

H :0 there is no significant relationship between DPS and independent variables taken separately and taken together.

H :1 there is a significant relationship between DPS and independent variables taken separately and taken together.

ANALYSIS AND INTERPRETATION:

AS can be seen in the descriptive statistics in Table 1, average dividend per share (DPS) is 10.68 for the selected firms over the seven year period. Mean age was 48.8, Leverage 0.47, EPS 42.33, Size 12.64, Net Cash Flow from Investing 66417.97 and Current Ratio 1.6

Table 1: Descriptive Statistics

Summary Statistics							
	DPS	Leverage	EPS	Age	CR	Size	Net CF (Investing)
Mean	10.68	0.47	42.33	48.80	1.60	12.64	66417.97
Median	5.00	0.45	20.17	43.00	1.35	12.70	27972.30
Standard Deviation	16.42	0.19	59.21	25.12	0.96	1.41	113492.67
Kurtosis	10.34	-0.79	14.83	-0.50	7.66	1.65	14.35
Skewness	3.00	-0.02	3.46	0.55	2.20	-0.78	3.42
Count	287	287	287	287	287	287	287

Table 2: Bivariate Regressions

Summary of Bivariate Regression Results with DPS as Dependant Variable					
Independent Variable	Intercept	Coefficient	R Square	F	Significance
Leverage	17.46	-14.53	0.028	8.22	0.004
EPS	1.064	0.227	0.671	583.71	6.098E-71
Size	31.22	-1.62	0.019	5.645	0.018
Age	6.456	0.086	0.017	5.098	0.024
Net Cash Flow	12.12	-2.2E-05	0.022	6.571	0.01
Current Ratio	9.411	0.796	0.002	0.613	0.43

From the bivariate regressions (table 2), we can see that all variables except for current ratio are highly statistically significant ($p \leq 0.05$) in explaining the dependant variable DPS. Before we proceed to multiple regressions we check the correlation between all variables.

Table 3: Correlation

Correlation						
	DPS	Leverage	EPS	Age	CR	Size
DPS	1					
Leverage	-0.1674	1				
EPS	0.8197	-0.172	1			
Age	0.1325	0.066	0.148	1		
CR	0.0463	-0.6273	0.0530	-0.0874	1	
Size	-0.1393	0.2199	-0.104	0.1520	-0.1767	1
Net CF (Investing)	-0.1501	0.0930	-0.060	0.0010	-0.2618	0.5923

As can be seen from Table 3, DPS has the maximum positive correlation (0.82) with EPS. It is negatively correlated with leverage, size and net CF and has positive correlation with Age and Current Ratio . However some of the explanatory variables are also correlated, which could be a cause of concern as this can lead to the problem of multicollinearity. As can be seen from Table net cash flow from investing and size of the firm (0.59) and leverage and current ratio (-0.63) are moderately correlated. In order to proceed to the multiple regression model, the explanatory variables have been tested for multicollinearity using Variation Inflation Factor. As can be seen in table 4, VIF in all cases is below 2.5.

Table 4: Variation Inflation Factor

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Leverage	.550	1.819
	EPS	.932	1.073
	Total_Assets	.586	1.707
	Age	.929	1.076
	Net_CF	.584	1.713
	CR	.548	1.825

a. Dependent Variable: DPS

Table 5: Multiple Regressions with varying number of independent variables

Summary of Multiple Regressions DPS as Dependant Variable									
Independent Variables	Intercept	Coefficient					Adj R Sq	F	Sig F
		EPS	Leverage	Age	Size	CR			
EPS, Leverage	2.2	0.22**	-2.32				0.67	291.76	1.37E-69
EPS, Leverage, Age	1.8405	0.22**	-2.45	0.009			0.669	193.99	2.43E-68
EPS, Leverage, Age, Size	9.189	0.22**	-1.53	0.01	-0.63		0.671	146.77	1.15E-67
EPS, Leverage, Age, Size, CR	10.71	0.22**	-2.91	0.014	-	-	0.676	117.209	1.256E-66

** p value < 0.01

Table 6: Multiple Regressions with all six independent variables

Multiple Regression with all independent Variables in the study and DPS as Dependant Variable						
	Coefficients	t Stat	P-value	F	Sig F	Adj R Sq
Regression				101.402	2.956E-67	0.678
Intercept	3.4958691	0.558284	0.5771			
Leverage	-5.3325058	-1.35757	0.17569			
EPS	0.22338	23.18114	4.3E-67**			
Size	0.2262894	0.442836	0.65823			
Age	0.0058225	0.255991	0.79815			
Net CF (Investing)	-1.788E-05	-2.81506	0.0052**			
Current Ratio	-1.085329	-1.39334	0.16462			

** p value < 0.01

The primary objective of this study was to test the relationship of dividend per share with various accounting factors. For this purpose, bivariate and multivariate regressions performed using two, three, four, five and all six variables using panel data over seven years for 41 companies. As depicted in Table 5 and Table 6, the beta coefficients of EPS and Net Cash Flow from Investing are highly statistically significant with p-values less than 0.01.

Additionally, R-squared, which is used to predict the success of the regression model stands at 0.67. This signifies that 67% of the variance of the dependent variable i.e. Dividend per share is explained by the estimated regression model. The F- statistics with a p values tending to 0, show that these results are highly significant.

Like Manos and Green (2001) and Tamini (2014) we found age and leverage to be significant explanatory factors. However, they ceased to be significant when all variables were considered in the multiple regressions. Profitability (EPS) was found to be statistically significant like Kapoor, Kanwal and Mishra (2015) and Pandey (2003).

Thus, null hypothesis is rejected, and we establish that while there is a significant relationship between dividend payout and majority of independent variables when considered one at a time, when all variables are taken together, there is a significant relationship between DPS, EPS and net cash flow.

CONCLUSION:

- a) There exists a significant negative relationship between financial leverage, size and net cash flow and dividend payments of the firm.
- b) There exists a positive relationship between EPS, age and current ratio and dividend payments of the firm.
- c) From the bivariate regressions all variables except for current ratio were statistically significant in explaining the dependant variable DPS.
- d) In the multivariate regressions only EPS and net cashflow were statistically significant.

We can conclude that EPS is the major determinant of dividend per share and can explain 67 % of variation in the same. Net cash flow though highly statistically significant adds marginally and 68% variation can be explained by the two variables.

LIMITATIONS AND SCOPE FOR FURTHER RESEARCH:

The sample chosen for research is Nifty 50 Index of the National Stock Exchange. While Nifty 50 has representation from various sectors in the economy and is an accurate indicator of the Indian stock market, a

wider selection may give different results.

The model explains only 67% to 68% variation in Dividend per Share. Thus, approximately 32% of the variations in DPS remain unexplained.

Nevertheless, the findings of this study can be used further to model the determining factors of Dividend Payments on a larger sample of companies with a more comprehensive set of variables.

It would also be very interesting to explore the effects of industry and period factors on Dividend Payments.

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