

Role of Corporate Governance in Determining Dividend Policy: Panel Evidence from India

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Abstract—The present study investigated the nexus between the structure of corporate governance and dividend policy using independent directors and board size as proxy variables for corporate governance for a total of 360 Indian non-financial and non-utility companies included in BSE 500 index during 2012-2016. The study also employed the firm-level control variables such as firm size, beta, profitability, and liquidity to control for firm specific characteristics. Using Tobit and Logit models, the study found that non-executive directors significantly and negatively determined the dividend payout ratio whereas the board size significantly and positively affected the dividend payout ratio of the selected firms. The other firm specific control variables used in the study also had the expected and desired influence on the dividend payout ratio in both the estimated models. Overall, the findings suggest that dividends could be a substitute for corporate governance for monitoring the agency problem.

Index Terms—Agency cost, board size, dividends, corporate governance, independent directors.

I. INTRODUCTION

Why companies pay dividends is still puzzling the financial economist at large even after six decades of [1] seminal work on dividend policy of firms. Existing theories such as agency, signaling, catering and clientele theory and empirical studies attempted to explain the dividend behavior of firms. However, the attempts made to explain the dividend behavior of firms largely remains inconclusive. One of the most important determinants of dividend behavior is the agency problem [2] which the firms try to mitigate through the structure, composition and conduct of board, which is one of the core elements of corporate governance [3].

In general, board of directors have information about firm's financial policies, so therefore it is posited that they can influence the dividend decision thereby mitigating the agency conflicts between the management and the shareholders [4]–[7]. Additionally, the presence and active participation of independent directors of a firm can influence the propensity to pay dividends thereby protecting the rights of shareholders [8], [9].

Thus, the present study investigates the role of board structure characteristics such as board independence, board size, board meeting, CEO duality and insider's ownership on dividend policy of Indian during 2012-16 for a set of 360 Indian non-financial and non-utility firms included in BSE 500 Index. This study fills the lacuna in the existing literature by focusing on linkage between corporate governance and

dividend policy in the context of an emerging economy, namely India.

The rest of the paper is sorted as follows. Section II discussed empirical studies related to dividend policy, agency cost and corporate governance. Section III outlines the methodology, and Section IV discussed the observed results. Finally, we talked and presented concluding remarks and limitations in Section V.

II. RELATED THEORETICAL AND EMPIRICAL STUDIES

A. Independent/Non-Executive Directors and Dividend Policy

Mansourinia, E., Emamgholipour, M., Rekabdarkolaei, E.A, and Hozoori, M [10] examined the connection between board independence and dividend payout ratio for Malaysian companies who found no significant impact of board independence on the firm's dividend ratio. Contrary to above findings, [11] who also investigated the role of independent directors on dividend policy for Malaysian firms found that there is a positive and significant influence on dividend payout ratio. However, [12] examining the impact of board independence on the dividend payout ratio for Sri Lankan hotel industry found that there exists an insignificant relationship between board independence and dividend payout ratio. Also [13] found a negligible power of board structure influencing the payout policy for Egyptian firms. Contrary to above studies, [14]–[16] found a significantly positive association of board independence on dividend payout policy. Similarly [17] investigating the impact of qualitative attributes of corporate governance on dividends of 714 Canadian firms found that with a stronger corporate governance mechanism dividends payment tends to be high and board composition influenced dividend payout positively and significantly.

B. Board Size and Dividend Policy

The usefulness of board can be enhanced by enlarging the firm's board size as it adds different skills and expertise in management which helps in minimizing the agency cost [18]. Similarly, [19] argued for a standardized board size where he claimed that a board size of eight or above eight would more efficiently manage the firm. He contended that a small board might agree on decisions beneficial to them only. However, as the board size increases there might be difference in opinion inside the boardroom which may be beneficial to the shareholders. Keeping this view [20] asserted that a large board with many directors is more valuable than the ones with small board with less number of directors because of their vast knowledge, resources and external links.

Towards this end [10], [15] observed that board size had a

positive impact on the dividend policy. Similarly [12] noted that board size and dividend payout is positively related but statistically insignificant. Kiel, G.C., Nicholson, G.J [21], Haniffa, R., Hudaib, M [22] found a positive effect of small board size on dividend policy. Contrary to above [23], [24] observed a negative but insignificant association of board size with dividend payout for Malaysian firms

III. DATA AND METHODOLOGY

A. Sample and Data

The companies listed in Bombay Stock Exchange (BSE) 500 index are selected to empirically investigate the nexus between the structure of corporate governance and dividend policy as these companies follow most of the requirements mentioned in Clause 49 of the listing agreement issued by Securities and Exchange Board of India (SEBI) during 2012 to 2016. Prior to 2012, the necessary data on independent directors and board size is not available for Indian firms. During the study period, the data for 460 companies out of 500 companies are available. Out of these 460 companies, this study exclude 75 financial and 22 utility companies as these companies are separately regulated. In addition, this paper exclude three firms' viz., Tata Communication, Indian Hotel Co, and Century Textile since their dividend payout ratio is very high relatively compared with other companies finally leaving about 360 companies for analysis. The necessary required data for the study was collected from Bloomberg database, various annual reports of the respective companies, Centre for Monitoring Indian Economic (CMIE) Prowess IQ database, SEBI, and BSE.

B. Model Specification and Hypothesis

The present study uses Tobit and Logit regression models due to the nature of the selected data. Tobit model is used because the dependent variable viz., dividend payout ratio (DPR) has values which are zero, more than zero or less than zero. It is worth mentioning that dividend payout ratio may have two outcomes. First, either zero in which case the firms do not distribute dividends and second a positive value in which case the firms declare dividends. Since the dividend payout ratio can never be negative, the left censoring random effect Tobit model is applied. The specification of the model is specified as below:

$$DPR_{it} = \begin{cases} DPR_{it}^* = \alpha + \beta' X_{it} + \epsilon_{it} & \text{if } DPR_{it} > 0 \\ = 0 & \text{if } DPR_{it} \leq 0 \end{cases} \quad (1)$$

where, DPR_{it}^* is a latent variable; X_{it} represent a vector of different independent variables used in the study, and ϵ_{it} is a residual error for company 'i' at year 't' with $N(0, \sigma^2)$. Specifically, the Tobit model applied in this study is as follows: (Explained in Section C: Measurement of Variables)

$$DPR_{it}^* = \alpha + \beta_1 INDDIR_{it} + \beta_2 BS_{it} + \beta_3 ROA_{it} + \beta_4 CR_{it} + \beta_5 FTA_{it} + \beta_6 SIZE_{it} + \beta_7 BETA_{it} + \beta_8 MTBV_{it} + \beta_9 BORR_{it} + \beta_{10} ISH_{it} + \epsilon_{it} \quad (2)$$

The random effect logit model employed by [12], [25] is also applied here mainly to know the probability of a firm being a dividend payer or non-payer. It is important to note that when a company takes dividend decisions, it may or may

not pay dividends. Therefore, it becomes a binary decision. Thus, a Logit model is appropriate and therefore is used. The specification of the Logit regression model is as follows:

$$P_{it} = E(DIVDUM = \frac{1}{x_{it}}) = \frac{1}{1+e(-X_{it}^R \beta)} \quad (3)$$

where DIVDUM represents the dividend dummy variable, which is equal to 1 if a firm 'i' is dividend payer in year 't' or 0 otherwise. $X_{it}^R \beta$ represents a matrix of unknown parameters to be estimated where $X_{it}^R \beta$ will vary between $-\infty$ to ∞ ; P_{it} range between zero and one. P_{it} in our model is a non-linear function related to $X_{it}^R \beta$. If the probability of a company to be a dividend payer is P_{it} the likelihood of non-payer will be $(1-P_{it})$. So,

$$P_{it} = \frac{1}{1+e(-X_{it}^R \beta)} \quad (4)$$

$$\text{Thus, } \frac{P_{it}}{1-P_{it}} = \frac{1+e(X_{it}^R \beta)}{1+e(-X_{it}^R \beta)} = e(X_{it}^R \beta) \quad (5)$$

where $P_{it}/1-P_{it}$ known as the odds ratio in support of paying dividend calculated as the probability of dividend payer (P_{it}) divided by the probability of dividend non-payer ($1-P_{it}$). Refer to "(4)," can be transformed by inserting the natural log on each side,

$$\ln DIVDUM = \ln\left(\frac{P_{it}}{1-P_{it}}\right) = X_{it}^R \beta \quad (6)$$

Hence, the present study uses the following formula to estimate the Logit regression model:

$$\ln DIVDUM = X_{it}^R \beta + \epsilon_{it} \quad (7)$$

where, (DIVDUM), as mentioned before, is a dummy variable which takes the value of 1 if a company paid the dividend in year 't' and zero otherwise. X_{it} is the column matrix-vector of different independent variables for firm 'i' in year 't' and ϵ_{it} the residual error for the company 'i' in year 't' with $N(0, \sigma^2)$.

C. Measurement of Variables

To test the impact of corporate governance on dividend payouts two-dividend payout measures viz., dividend payout ratio and dividend dummy variables are used. Following [25], [19] the dividend payout ratio in Tobit model is measured as dividend per share divided by earning per share whereas for Logit model, the dividend dummy variable is used which is set to '1' if a firm pays dividend in year 't' and '0' otherwise. For both the models, the primary explanatory variables are independent directors (INDDIR) and board size (BS). Independent director refers to the percentage of independent directors on the board [19], [25]. Board size (BS) is measured as the total number of directors on a company's board [5], [26], [27].

The study also uses several firm specific control variables such as profitability, liquidity, assets structure, business risk, firm's size, borrowings, and insiders' ownership that determine the dividend policy of the selected firms. Profitability is measured as the return on asset (ROA), calculated by dividing the net income by total assets. Profitability is expected to have a positive and significant impact on the dividend policy because profitability increases the firm's capacity to pay dividends [2], [17]. To control the

firm's liquidity, current ratio (CR) has been used which is calculated as current assets divided by current liabilities. A high current ratio indicates financial stability of a firm which may have a capacity to pay higher dividends [19], [28], [29].

The assets structure of a company is controlled by using tangible assets ratio (FTA) which is measured as (total assets-current assets) divided by total assets of a company. Koch, P.D., Shenoy, C., [30] argued that tangible assets structure has a positive relationship with dividend policy while [31], [32] argued that assets tangibility has a negative relationship with the dividend payout policy.

Further, to control for the firm-specific business risk, beta (β) is employed. Most of the previous studies such as [33] have argued that β has an adverse impact on the dividend policy because as the risk of a firm increases the chance of being bankruptcy also increases, so the firms pay fewer dividends and keep more retained earnings to face any uncertainty.

Similarly, firm size (SIZE) is employed by taking the logarithm of total assets along with market to book ratio (MTBV) measured by dividing the market price per share by book price per share to control the firm's maturity. Finally, borrowing ratio measured as total debt to total assets (BORR) is used to see the impact of leverage on the probability of dividend payment. More debt may put more pressure on the management for monitoring in which case dividend payment may not be necessary to control agency cost. Therefore, a negative impact of borrowings on the dividend is projected.

Another curial internal factor is insider's shareholding (ISH) representing the shareholding of the insiders of a company i.e., only CEO and executives shareholdings in the company are employed as control variables.

IV. RESULTS AND DISCUSSION

Table I presents the descriptive statistics of the selected variables used in the regression analysis. It is found that the average dividend payout ratio is 23% of the EPS with a maximum of 700% of EPS. The average outside independent director of the board is found to be seven, with a highest of 14 found in case of Bharati Airtel Ltd. for the year 2012. The mean board size is found to be about 10 which vary between 3 to 20 among the selected firms.

The average ROA is 8% ranging from a lowest -88.54% to a highest of 61.70%, showing the variability among the selected firms. It is also evident from Table I that the selected firms are facing liquidity problems, as their CR average is found to be less than two times of current liability indicating that they may find it difficult to meet their short-term obligations. The selected firms borrowed around 24% of total assets from the market showing their dependency on the debt market. Table I also shows that the insiders hold about nearly 9.5% of total shares outstanding, which looks reasonable control of ownership. However, they may be in a position of influencing dividend decisions of the selected firms.

TABLE I: DESCRIPTIVE STATISTICS

STATS	N	MEAN	SD	SE(MEAN)	SKEWNESS	P50	MIN	MAX
DPR	1219	0.234	0.566	0.016	-1.659	0.198	-8.571	7.143
INDDIR	1215	6.833	2.296	0.066	0.352	7.000	0.000	14.000
BS	1219	9.548	2.744	0.079	0.543	9.000	3.000	20.000
ROA	1197	7.817	9.100	0.263	-0.622	6.275	-88.548	61.707
CR	1215	1.800	1.653	0.047	4.885	1.405	0.126	18.239
SIZE	1219	10.830	1.535	0.044	0.541	10.653	6.753	15.618
β	1180	1.371	7.500	0.218	-5.438	1.449	-115.699	32.300
BORR	1219	23.540	19.559	0.560	0.461	22.100	0.000	81.959
MTBV	1214	4.137	7.560	0.217	4.170	2.373	-72.281	116.706
ISH	1209	9.425	16.696	0.480	2.167	0.881	0.000	79.061

TABLE II: CORRELATION MATRIX

	DPR	INDDIR	BS	ROA	FTA	CR	SIZE	β	BORR	MTBV	ISH
DPR	1.00										
INDDIR	0.009	1.00									
BS	0.041	0.69*	1.00								
ROA	0.11*	0.014	0.047	1.00							
FTA	-0.03	0.07*	0.10*	-0.14*	1.00						
CR	0.03	-0.023	-0.056	0.28*	-0.10*	1.00					
SIZE	0.02	0.31*	0.40*	-0.20*	0.08*	-0.20*	1.00				
β	-0.01	-0.03	-0.012	-0.11*	0.015	-0.006	-0.054	1.00			
BORR	-0.09*	0.07*	0.10*	-0.58*	0.30*	-0.41*	0.33*	0.07*	1.00		
MTBV	0.051	-0.01	-0.027	0.28*	-0.09*	0.117*	-0.17*	-0.04	-0.24*	1.00	
ISH	0.020	-0.16*	-0.09*	0.11*	-0.055	-0.05*	-0.16*	0.012	-0.001	-0.001	1

Table II shows the Pearson's correlation matrix, which measures the nature and degree of relationship among the selected variables employed in the study. The correlations between the variables are low to moderate, which proves the absence of multicollinearity among the selected variables. The correlation coefficients of the selected variables vary

from -0.009 to 0.69 which falls within an acceptable range. However, the size of the board and percentage of non-executive directors is found to have the highest correlation in the correlation matrix.

The Tobit and Logit regression results are reported in Table III and IV respectively. It can be observed from Table

III, the estimated value of rho score (a measure overall model fit) is about 0.185 indicating a satisfactory explanatory power of the selected independent variables.

TABLE III: DETERMINANTS OF DIVIDENDS: ESTIMATES FROM TOBIT MODEL

Independent Variables	Coefficient	SE	z	P>z	95% Confidence Interval	
					Lower Limit	Upper limit
INDDIR	-0.029**	0.013	-2.170	0.030	-0.055	-0.003
BS	0.029**	0.012	2.470	0.014	0.006	0.052
ROA	0.009*	0.003	3.530	0.000	0.004	0.014
CR	-0.016	0.013	-1.290	0.197	-0.041	0.008
FTA	0.090	0.0979	0.92	0.356	-0.101	0.282
SIZE	0.025***	0.014	1.770	0.077	-0.003	0.053
β	0.004***	0.002	1.930	0.054	0.000	0.007
MTBV	0.000	0.003	0.140	0.887	-0.005	0.006
BORR	-0.003**	0.001	-2.080	0.037	-0.005	0.000
ISH	0.001	0.001	0.490	0.624	-0.002	0.003
Constant	-0.141	0.149	-0.940	0.345	-0.433	0.151
Sigma_U	0.210	0.023	9.160	0.000	0.165	0.255
Sigma	0.441	0.012	38.270	0.000	0.419	0.464
Rho	0.185	0.036			0.123	0.263

Notes: 1. The dependent variable is dividend payout ratio. 2. Number of observations=1158; Censored observations=181 and uncensored observations=977. 3. Log Likelihood = -792.091; Wald Chi² (9) = 43.990; Porb>chi²=0.000. 4. *, **, *** indicate significance level at 1%, 5% and 10% level of significance respectively.

TABLE IV: DETERMINANTS OF DIVIDENDS: ESTIMATES FROM LOGIT MODEL

Independent Variables	Coefficient	Std. Err.	z	P>z	95% Confidence Interval	
					Lower Limit	Upper limit
INDDIR	-0.687**	0.306	-2.250	0.025	-1.286	-0.088
BS	1.067*	0.316	3.380	0.001	0.448	1.685
ROA	0.068***	0.037	1.840	0.065	-0.004	0.141
CR	-0.192	0.193	-0.990	0.322	-0.571	0.187
FTA	1.8138	1.787	1.01	0.310	-1.689	5.317
SIZE	0.654**	0.324	2.020	0.043	0.020	1.288
β	-0.021	0.041	-0.530	0.597	-0.101	0.058
MTBV	0.021	0.031	0.660	0.509	-0.040	0.081
BORR	-0.051**	0.023	-2.190	0.028	-0.096	-0.005
ISH	0.034	0.027	1.280	0.201	-0.018	0.086
Constant	-4.351	3.253	-1.340	0.181	-10.726	2.024
/Lnsig2u	2.991	0.218			2.563	3.419
Sigma_U	4.461	0.487			3.602	5.526
Rho	0.858	0.027			0.798	0.903

Notes: 1. The dependent variable is dividend dummy (DIVDUM). 2. Number of observation=1147. 3. Log Likelihood = -174.400; Wald = 25.570; Porb>chi²=0.002. 4. *, **, *** indicate significance level at 1%, 5% and 10% level of significance respectively.

The two primary independent variables of Tobit model viz., INDDIR and BS have the expected sign and are significant. For instance, the coefficient value of INDDIR is negative and found to be significant (Z= -2.170, p<.05), whereas the coefficient value of BS is positive and found to be significant (Z=2.470, p<.05). Consistent with Tobit model, Logit model (Table IV) also produces similar evidence. The results indicate that when the numbers of independent directors increase, the dividend payment to the shareholders goes down. This may happen because the independent directors tend to protect the interests of minority shareholders that mitigate the agency problem. Therefore, firms may not use dividend payment as a tool to reduce the agency problem. Thus, with the inclusion of more number of independent directors on the board of the company may mitigate the conflicts between the agent and principal. Hence, the results support that firms might use corporate governance and dividend policy as a substitute for each other.

Profitability (ROA) of firms is found to be positive and significant (Z = 3.53, p< 0.01) in the both the estimated models indicating that profitable firms are more likely to pay dividends than the unprofitable firms. Therefore, the probability of being a dividend payer is more if the firm has higher profitability ratio.

Similarly, the selected variables like the firm size also

shows a significant and positive relationship with dividend payout ratio of the selected firms indicating that as the firms average total assets increase the payment of dividends will also increase. Fixed assets structure has a positive relationship but is found to be insignificant in both the estimated models. Further, the Tobit and Logit model also show that there exists an insignificant and negative correlation between the liquidity and dividend payout of the selected firms indicating more the payment of dividend leads to less liquidity.

V. CONCLUSION AND POLICY IMPLICATION

The present study applied both panel Tobit and Logit model to find the relationship between corporate governance and dividend payout ratio of 360 non-financial and non-utility companies listed in BSE 500 index during 2012-2016. The study also used other control variables (like firm size, profitability, liquidity, assets structure, firm's risk, leverage, and insider shareholdings). From the estimated models, it is found that for the corporate governance variables used in the study viz., independent directors and board size have significant positive and negative relationship respectively with the dividend payout ratio of the selected firms. The other control variables also have the expected

desired influence on the dividend payout ratio in both the estimated models. Therefore, it is concluded that dividends could be a substitute for corporate governance for monitoring the agency problem, which has a necessary policy implication for the firms. For example, to mitigate the agency problem the firms can have directors that are more independent on its board, which may reduce the need of paying dividends. Thus, the firms operating in emerging economy like India can try to increase the corporate governance practices by expanding the role of independent directors and encourage more participation in board meetings, which can reduce agency cost.

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