The Impact of Firm Size on Dividend Behaviour: A Study With Reference to Corporate Firms across Industries in India

Azhagaiah Ramachandran
Veeramuthu Packkirisamy

The objective of this paper is to examine the association between the Corporate Leverage (CL) and the Dividend Policy (DP) of firms across industries in India in respect of Size of Corporate Firms. The investigation is conducted on a panel sample of 73 firms across industries [Cement, Chemical and Fertilizer, IT, Oil and Gas, Pharmaceutical, Shipping, and Textiles], which listed their shares in National Stock Exchange (NSE) in India for the period 1996–2007. The impacts of Capital Structure (CS) variables (leverage) on DP measures – dividend payout (Net dividend paid/net income) in the presence of some basic fundamental variables are considered to be the determinants of DP, using the Multiple Regression Technique (OLS method). The results of the cross-sectional OLS Model for the selected sample firms under various sectors show that there is a significant effect of selected independent variables, $\text{DPO}\alpha + \beta_1 \text{DPO}_{t-1} + \beta_2 \text{PAT} + \beta_3 \text{TDE} + \beta_4 \text{CF} + \beta_5 \text{SIZE} + \beta_6 \text{INV} + \beta_1 \text{LTD} + \beta_8 \text{STD} + e$. Therefore, this study proves that the DP of Small Size, Medium Size, Large Size, and Overall Corporate Firms across industries in India is dependent on the level of debt in CS.

Key Words: capital structure, dividend policy, corporate leverage, long term debt, short term debt, total debt
JEL *Classification:* G30, G32, G35

Introduction

From the practitioners' viewpoint, dividend policy (DP) of a firm has implications for stakeholders. For investors, dividends – whether declared or accumulated and paid at a later date – are not only a means of regular income, but also an important input in valuation of a firm. This implies

Azhagaiah Ramachandran is an Associate Professor at Kanchi Mamunivar Centre for Post Graduate Studies, Pondicherry Central University, India.

Veeramuthu Packkirisamy is a Research Scholar at Kanchi Mamunivar Centre for Post Graduate Studies, Pondicherry Central University, India.

Managing Global Transitions 8 (1): 49–78

that dividends may have negative consequences too for investors. Similarly, the cost of raising funds is not insignificant and may well lead to lower payout, particularly when positive net present value projects are available. Apart from flotation costs, information asymmetry between managers and outside investors may also have implications for DP. Further, in the presence of information asymmetry and flotation costs, investment decisions made by managers are subject to the pecking order of financing choices available.

One of the mechanisms of reducing expropriation of outside shareholders by agents is high payout, which will result in reduction of free cash flow available to managers. The presence of information asymmetry may also mean that managers need to signal their ability to generate higher earnings in future with the help of high dividend payouts (Bhattacharya (1979), Kose and Williams (1985), and Miller and Rock (1985)). Rozeff (1982) model payout ratios are presented as a function of three factors: flotation costs of external funding, agency cost of outside ownership, and financing constraints as a result of higher operating and financial leverage.

Statement of the Problems and Significance

The study mainly focuses on the effect of CS on DP of corporate firms across industries in India, and seeks to answer whether the size of the firm would appear to be one of the important factors in determining the dividend behavior of corporate firms in India.

Review of the Literature

Since strategies are aimed at acquiring competitive strength, this requires considerable funding, firms need to adopt appropriate financial policies to mobilize risk capital. The CS and DP is a complex set of analysis, as the investment decision and financing decision are important decisions a firm should take in the course of its operation. Gordon (1959) examined the three possible hypotheses with respect to what an investor pays for when he acquires a share or common stock that he is buying: (1) both the dividend and the earnings, (2) the dividends, and (3) the earning. It may be argued that most commonly he is buying for the price at some future date, but if the future price will be related to the expected dividends. Wilson (1967) argued that it should not be possible to increase the expected utility of one member without decreasing the expected utility of some other member. Hagen (1973) discussed the problem of determining

an optimal DP for a firm having a set of shareholders with specified preferences. An optimal DP will consequently mean a dividend payout rule, which maximizes some utility criterion as defined by the shareholders' preferences. Michel (1979) examined the extent to which industry dividend figures affect determination of a particular firm's DP.

Woolridge (1983) analyzed the effect of unexpected dividend changes of common stock, preferred stock, and bonds. Two potential effects are identified: a wealth transfer effect, and a signaling effect. Kane, Young, and Marcus (1984) found that there is a statistically significant interaction effect, i. e. that the abnormal return corresponding to any earnings or dividend announcement depends upon the value of the other announcement. Miller, and Rock (1985) examined the standard finance model of the firm's dividend decisions. The extension endogamies which the dividend announcement affects are amply documented in recent research. Ghosh and Woolridge (1989) examined the focuses on shareholders' reaction to growth-motivated cuts and omissions and stated that, although growth announcements mitigate the capital loss induced by dividend decreases, the stock-market response to growth-oriented dividend cuts is still strongly negative. Lim (1989) observed that dividend depends in part on the firm's current earnings and in part on the dividend of the previous year.

Lambert, Lanen, and Larcker (1989) found the association between the initial adoption of stock options for senior-level executives and subsequent changes in corporate DP, and suggested that dividends be reduced relative to expected dividends. Brennan and Thakor (1990) examined the preferential tax treatment of capital gains for individual investors; it is shown that a majority of a firm's shareholders may support a dividend payment for small distribution. For larger distribution open market stocks repurchase is likely to be preferred by a majority of shareholders, and for the largest distribution, tender offer repurchases dominate. Deangelo and Deangelo (1990) analyzed the DP adjustments of firms to protracted financial distress as evidenced by multiple losses during 1980–1985, and found that almost all sample firms reduced dividends, and more than half apparently faced binding debt covenants in the years they did so. Hodder and Senbet (1990) have developed a theory of CS in an international setting with corporate and personal taxes and highlighted the key role that corporate tax arbitrage plays in generating international CS equilibrium.

Allen (1991) examined the financial managers' perceptions of the

broad determinants of listed Australian company CS decisions. The results are consistent with Donaldson's previously reported American findings, in that firms appear to follow a pecking order with respect to funding sources and they also report policies of maintaining spare debt capacity. Yener (1991) analyzed the Korean securities market's reliance on debt financing and emphasis on debt financing as one of the major issues related to corporate financial policy in Korea. Factors such as persistently high international interest rates, foreign exchange rate fluctuations, inflation, international competition and indications of a slowdown in the world trade have led to increased pressure on the liquidity of many growth-oriented Korean firms, especially in the Manufacturing Sector. Chunchi and Kao (1992) found a significant relationship between dividend changes and subsequent earnings. Changes in DP are interesting because dividends are the focus of agency conflicts between owners and managers of firms (Rozeff 1982).

Akhigbe, Borde, and Madura (1993) used an event study methodology and found that the share price response for insurers is significant and positive. The magnitude of the response for life insurers is smaller than that of the other types of insurers or industrial firms, but is greater than that of the banks. Papaioannou and Savarese (1994) examined, in particular, the new tax law which lowered the top personal marginal tax rate for dividends. Johnson (1995) used recent theoretical models and suggested that debt and dividends can serve as substitute free cash flow control or signaling devices.

Collins, Saxena, and Wansley (1996) have recognized the potential differences in DP between regulated and unregulated firms, and focused on agency-cost and monitoring explanations for the relevance of dividends, revealing that there are fundamental differences in the relationship between insider holdings and DP for unregulated firms and utilities, but suggesting that the regulatory environment enhances rather than mitigates the importance of the insiders' role for utilities. Elston (1996) analyzed the importance of DP and liquidity constraints in the context of the firm's investment behavior, suggesting that after controlling for the firm's dividend payment, liquidity constraints remain an important determinant of the firm's investment behavior. Gulati and Zantout (1997) found that immunizing the firm's real growth potential against the effects of inflation and interest rate fluctuations generally requires frequent changes in its CS.

Koch and Shenoy (1999) considered a broader distinction among three

types of firms' value – maximizing firms (Tobin's q close to 1), over investing firms ($q < 1$), and under investing firms ($q > 1$). Using this interpretation of the free-cash-flow hypothesis, dividend and CS changes should reflect a larger change in agency costs (and thus a larger information effect) for both low and high q firms than that for firms with q values close to 1. Feed Back Measures (GFMS) found a distinct U-shaped relation between Tobin's q and the amount of predictive information contained in a firm's dividend and CS policies, with a minimum at a q value near one. Mohanty (1999) examined whether the firms offering bonus issue have been able to generate greater returns for their shareholders than those which have not offered any bonus issue but have maintained a steadily increasing dividend rate, and found that a few firms increased the dividend rate after a bonus issue, while the bonus issuing firms fielded greater returns to their shareholders than those which did not make any bonus issue but maintained a steadily increasing dividend rate.

Romano, Tanewski, and Smyrnios (2000) examined the factors that influence small-medium enterprises (SME) owner-managers' financing decisions and found that these processes are influenced by firm owners' attitudes toward the utility of debt as a form of funding as moderated by external environmental conditions, in addition to a number of other factors: e. g., culture; entrepreneurial characteristics; entrepreneurs' prior experiences in CS; business goals; business life-cycle issues; preferred ownership structures; views regarding control, debt equity ratios, and short- vs. long-term debt; age and size of the firm; sources of funding for growth; and attitudes. La Porta et al. (2000) examined the 'outcome model' and found that dividends are paid because minority shareholders pressure corporate insiders to disgorge cash; the 'substitute model' reveals that insiders are interested in issuing equity in the future pay dividends to establish a reputation for decent treatment of minority shareholders.

Ooi (2001) analyzed by employing panel data methodology; the DP of property firms quoted on the London Stock Exchange (LSE) shows that the dividend payout ratio of the average real estate corporation is dictated, to a large extent, by the firm's total asset holding and leverage ratio. Property investment firms pay significantly higher dividends when compared to property trading firms. Booth et al. (2001) examined whether CS theory is portable across countries with different institutional structures, and provided evidence that these decisions are affected by the same vari-

ables as exist in developed countries. Kumar and Lee (2001) examined how to develop an empirically dynamic model of discrete DP based on an inter-temporal signaling framework, in which dividend adjustments signal only substantial variations in the permanent earnings of the firm, and showed that dividend smoothing is positively associated with factors such as, earnings variance, low liquidity, and high probability of bankruptcy, as well as the expected return on capital investment by the firm.

Goldstein, Ju, and Leland (2001) found that most CS models assume that the decision on how much debt to issue is a static choice; however firms adjust outstanding debt levels in response to changes in the firm's value. Ahmed et al. (2002) examined this using both a market-based and an accrual-based measure of conservatism, and found that the firms facing more severe conflicts over DP tend to use more conservative accounting; they document that accounting conservatism is associated with a lower cost of debt after controlling for other determinants of the firm's debt costs. John Graham and Harvey (2002) examined finance theory, as well as aspects that are hard to reconcile and found systematic relationships between corporate financial choices and managerial factors, such as the extent of top management's stock ownership, and the age, tenure, and education of the chief executive officer (CEO). Baker and Wurgler (2002) found that firms are more likely to issue equity when their market values are high, relative to book and past market values, and to repurchase equity when their market values are low. As a consequence, current CS is strongly related to historical market values. The results suggest the theory that CS is the cumulative outcome of past attempts to time the equity market.

Stenbacka and Tombak (2002) analyzed the simultaneous investment and financing decisions made by incumbent owners in the presence of capital market imperfections, representing a theory for how the optimal combination of debt and equity financing depends on the firm's internal funds, and identity complementarities between the two financial instruments. Mao (2003) presented a unified analysis that accounts for both risk shifting and under-investment debt agency problems. For firms with positive marginal volatility of investment, equity holders' risk-shifting incentive will mitigate the under-investment problem, which implies that contrary to conventional views, the total agency cost of debt does not uniformly increase with leverage, and predicts that for high growth firms in which the under-investment problem is severe, the optimal

debt ratio is positively related to the marginal volatility of investment.

Gugler (2003) analyzed the relationship between dividends and the ownership and control structure of the firm for a panel of Austrian firms over the 1991–1999 period, and found that state-controlled firms engage in dividend smoothing, while family-controlled firms do not. Campello (2003) examined firm- and industry-level evidence of the effects of CS on product market outcomes for a large cross-section of industries over a number of years, and found that debt financing has a negative impact on firm's (relative- to-industry) sales growth in industries in which rivals are relatively un-levered during recessions, but not during booms. Graham, Lang, and Shackelford (2004) found that employee stock option deductions lead to large aggregate tax savings for Nasdaq. For S&P firms, in contrast, option deductions do not affect marginal tax rates to a large degree.

Anand (2004) analyzed most valuable public sector undertakings (PSUS) in India to find out the determinants of the DP decisions of the corporate firms in India, and revealed that the findings are in agreement with Lintner's study on DP. The DP is used as a signaling mechanism to convey information on the present and future prospects of the firm, and thus affects its market value. Mihir et al. (2004) examined the CS of foreign affiliates and internal capital markets of multi-national corporations (MNCS) and found that the MNCS appear to employ internal capital markets opportunistically to overcome imperfections in external capital markets. Nishioka and Baba (2004), who investigated the dynamics of CS of Japanese firms, found that the trade-off theory provides an appropriate framework to assess this issue after controlling for various variables as proxies for other hypotheses, including governance structure, the pecking order theory, and market-timing hypothesis. Among such variables, profitability as a proxy for the pecking order theory has significant explanatory power.

Sharma (2006), who examined the focuses on the dividend trends of selected Indian firms, found a strong confirmation for the signaling theories of Bhattacharya (1979), and Miller and Rock (1985), which gives inconclusive results about the tax-effect theory. Graham and Tuckerb (2006) investigated the magnitude of tax shelter activity to analyze whether participating in a shelter is related to corporate debt policy, and found that the average annual deduction produced by the shelters in their sample is very large, equalling approximately nine per cent of asset value. Faulkender, Milbourn, and Thakor (2006) presented an in-

tegrated theory of CS and DP, in which both financial policy choices are driven by the same underlying factors and jointly determined as implicit governance mechanisms to allocate control over real decisions between managers and investors. Singhania (2006) examined the dividend trends of manufacturing, non-government, non-financial, and non-banking companies listed on Bombay Stock Exchange (BSE) and found that the tax preferences theory does appear to hold true in the Indian context in the Indian case of both the categories of firms, i. e., regular payer and non-regular payer, and also found that there is a significant difference in average dividend payout ratio in the two different tax regimes, and also that there are wide industry-wise variations in empirical findings. Sharma (2007) offers mixed and inconclusive results about the tax-effect theory, which is not applicable to the selected Indian firms, thus indicating that the change in the tax structure does not have a substantial effect on the dividend behavior of firms. Kalea and Shahrurb (2007) found that the firm's leverage is negatively related to the R&D intensities of its suppliers and customers. Anil and Kapoor (2008) found that profitability has always been considered as a primary indicator of dividend payout ratio, while there are numerous factors other than profitability that also affect the dividend decisions of an organization e. g., cash flows, corporate tax, sales growth, market to book value ratio, and size. Dividend payout ratio is positively related to profits, cash flows, and size and, it has an inverse relationship with corporate taxes, sales growth and market to book value ratio.

Though an ample number of research studies has been undertaken in the field of CS and DP, very few of them have associated the effect of CS on DP based on size of the firms. Therefore, to fill this gap in the literature and to shed light, the present paper attempts to analyze the effect of CS on DP, considering the size of the firms across industries in India.

Scope of the Study

The paper is an attempt to provide an empirical support to the hypothesized relationship between CS and DP in respect of the size of corporate firms across industries. Hence, the study proposes to seek answers to the following stated questions:

- How far does the corporate firms' mix of CS policies dynamically interact overtime to influence firms' performance with respect to DP?

- Is there a significant impact of CS on DP based on size?
- How far are the CS and DP inter-related?

Objectives of the Study

- To analyze the impact of CS on DP in respect of the size of corporate firms across industries in India.
- To suggest appropriate measures with respect to the inter-dependence of CS and DP in respect of the size of corporate firms across industries.

H_0^1 *There is no significant relationship between the level of debt in* CS *and level of equity dividend in Cement Industry, Chemical and Fertilizer Industry, Information Technology Industry, Oil and Gas Industry, Pharmaceutical Industry, Shipping Industry, and Textile Industry.*

H_0^2 *There is no significant relationship between the level of debt in* CS *and level of equity dividend in small size firms, medium size firms, large size firms, and all selected firms across all selected sectors.*

H_0^3 *There is no significant effect of selected independent variables on* DPO *of Cement Industry, Chemical and Fertilizer Industry, Information Technology Industry, Oil and Gas Industry, Pharmaceutical Industry, Shipping Industry, and Textile Industry.*

H_0^4 *There is no significant effect of selected independent variables on* DPO *of small size firms, medium size firms, large size firms, and all firms under selected sectors.*

Methodology

SOURCES OF DATA

The study used only secondary data, which are collected from CMIE [Center for Monitoring Indian Economy Private Limited] Prowess Package. The data collected from this source have been compiled and used as per the objectives of the study.

SAMPLING DESIGN

The study has been made on a sample of 73 corporate firms across seven industries in India. These industries have been chosen based on a stratification process in respect of dividend high yielding sectors. The stratification process for the choice of corporate firms across industries has been adopted based on the asset value of firms, i. e., corporate firms whose total assets value has been significantly increasing over the period have

TABLE 1 Number of corporate firms chosen for the study

Industry	Number of corporate firms
Cement	12
Chemical and Fertilizer	10
IT	8
Oil and Gas	10
Pharmaceutical	15
Shipping	10
Textile	8
Total corporate firms	73

been included in the sample of corporate firms, in this way of stratification the sample of 73 corporate firms has been arrived at, after giving due consideration to the parameters, i. e., proper and regular dividend payment to shareholders, and availability of required data for the study period.

Further, the sample corporate firms are classified into three groups based on assets value viz., small size firms – firms whose total assets value is up to Rs. 100 crore (ten million); medium size firms – firms whose total assets value is between Rs. 100 crore (ten million) and Rs. 500 crore (50 million); large size firms – firms whose total assets value is larger than Rs. 500 crore (50 million).

Tools Used for Analysis

RATIOS

$$\text{STD\_TA} = \frac{\textit{Short Term Debt}}{\textit{Total Assets}} \cdot 100 \tag{1}$$

$$\text{LTD\_TA} = \frac{\textit{Long Term Debt}}{\textit{Total Assets}} \cdot 100 \tag{2}$$

$$\text{TD\_TA} = \frac{\textit{Total Debt}}{\textit{Total Assets}} \cdot 100 \tag{3}$$

CORRELATION COEFFICIENT (KARL PEARSON'S COEFFICIENT OF CORRELATION)

$$\textit{The significance of the correlation coefficient} = \frac{r}{(1-r)^2(n-2)} \tag{4}$$

$$\textit{Degrees of freedom} = (n-2) \tag{5}$$

Correlation analysis is carried out to find out the existence of multi-co

linearity among independent variables, in order to decide what variables can be used in the OLS regression model, or how the regression model with all independent variables can be used.

OLS REGRESSIONS

Here, the impacts of CS variables (leverage) on dividend policy measures – dividend payout (net dividend paid/net income) in the presence of some basic fundamental variables–are considered to be the determinants of dividend policy using the multiple regression technique (OLS method). Before using the OLS method, the degrees of relationship among independent variables as well as between independent and dependent variables were analysed with Pearson-product moment correlation. It is appropriate to use the regression technique with the step-wise procedure, if there is any collinearity among some independent variables. The specification of the regression model is given below:

$$\begin{aligned} \text{DPO} = {} & \alpha + \beta_1 \text{DPO}_{t-1} + \beta_2 \text{PAT} + \beta_3 \text{TDE} + \beta_4 \text{CF} + \beta_5 \text{SIZE} \\ & + \beta_6 \text{INV} + \beta_7 \text{LTD} + \beta_8 \text{STD} + e, \end{aligned} \tag{6}$$

where DPO = Dividend Payout Ratio, DPO_{t-1} = Lagged DPO, PAT = Profit After Tax (Net Income), TDE = Total Distributable Earnings, CF = Cash Flow, SIZE = Firm Size (natural logarithm of Total Assets), INV = Capital Expenditure, LTDTA = Long-Term Debt to Total Assets, STDTA = Short-Term Debt to Total Assets, β = estimated coefficients, α = intercept term, e = error.

CHOW TEST

The Chow Test formula is:

$$F(k, \text{N}_1 + \text{N}_2 - 2k) = \frac{[\text{SSE}_p - (\text{SSE}_1 + \text{SSE}_2)] : k}{(\text{SSE}_1 + \text{SSE}_2) : (\text{N}_1 + \text{N}_2 - 2k)}, \tag{7}$$

where SSE_p = sum of squared error term for pooled model, SSE_1 = sum of squared error term for group 1, SSE_2 = sum of squared error term for group 2, k = number of estimated parameters (including constant), N_1 + N_2 = N's for each of group 1 and group 2, respectively.

Period of the Study

The data used for the study relate to the selected corporate firms across industries in India for the period of ten years, on a yearly basis ranging from 1996–1997 to 2006–2007.

Limitations of the Study and Scope for Further Study

- The study is limited to only 7 industries. Therefore, this comprises the trend of only a few numbers of industries, which would not be sufficient, totally, to generalize the inferences to the whole of a country, India.
- The data used for the study are secondary in nature. Therefore, the accuracy of the results of analysis is dependent, too, upon the reliability and accuracy of the compiled secondary data.

Further studies could be undertaken by future researchers in the following aspects and areas:

- by undertaking studies in other industries, new and interesting inferences could be found;
- by categorizing the firms into various classes based on other bases, proportion of capital elements, e. g., debt and equity studies, could also be conducted.

Major Findings on Across-Industry Analysis

Tables 2 to 9 present the results of regression analysis for sample firms under seven sectors.

It is evident (see table 2) that lagged dividend payout has a significant positive effect on DPO ($\beta = 0.2605$, $t = 2.77$, $p < 0.01$) and INV has a significant negative impact on the dependent variable ($\beta = -0.0697$, $t = -2.03$, $p < 0.05$). This shows that the dividend payout in the previous year plays a vital role in determining the current year dividend payout of sample firms under Cement Sector. However, the increase in capital expenditure decreases the level of dividend payout significantly. In the full model with addition of CS variables, only the said variable is found to have a significant coefficient with DPO.

None of the debt variables has a significant impact on DPO, as their coefficients are insignificant. However, coefficient of determination is found to have increased by two per cent. So, [Chow-test] F is calculated to find whether there is a collective impact of those two CS variables on DPO. The F is found to be insignificant, providing strong evidence that CS does not have any effect on DP in terms of distribution of dividend payout relative to net income of the sample firms under Cement Sector. Therefore, H_0^1 in respect of Cement Sector is rejected, as DPO_{t-1} has a positive impact at 1% level (0.2605), and INV has a negative impact at

TABLE 2 Results of Cross-Sectional OLS Model for sample firms under Cement Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	9.3640**	2.11	25.7511**	2.04
DPO_{t-1}	0.2605***	2.77	0.2342**	2.46
PAT	0.0170	1.50	0.0107	0.88
TDE	0.0298	1.63	0.0329	1.79
CF	—	—	—	—
Size	—	—	—	—
INV	–0.0697**	–2.03	–0.0697**	–2.03
LTD_TA	—	—	–0.2628	–1.56
STD_TA	—	—	–0.0577	–0.19
R^2	0.1462		0.1680	
Adjusted R^2	0.1131		0.1185	
F-value	4.41***		3.340***	
	4.103		6.101	
Chow Test *F*-value			1.32	
			2.101	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

5% level (–0.0697) in the reduced model; with respect to the full model DPO_{t-1} (0.2342), and INV (–0.0697) at 5% level.

The regression analysis (see table 3) shows that both, the reduced model and the full model, are fitted significantly (*F*-value = 3.70, $p < 0.01$ and $F = 2.70$, $p < 0.05$). The reduced model fitted with only lagged DPO, PAT, TDE and CF, and together explaining 14.84 per cent of the variation in DPO ($R^2 = 0.1484$). The coefficients of PAT with positive sign and of TDE with negative sign are significant. That is, net profit increases the DPO, and any increase in TDE decreases it. The negative relationship between TDE and DPO indicates that the sample firms under this industry have reduced dividend payout when a portion of net income is held for future investments (Reserve and Surplus). With the best-fitted (reduced) model, leverage variables are added and the full model is run. R^2 value has increased but the significance of PAT and TDE has disappeared. Further, none of the coefficients of the debt variable is found to be significant, revealing that they do not have a unique impact on DPO after

TABLE 3 Results of Cross-Sectional OLS Model for Sample Firms under Chemical and Fertilizer Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	26.2192***	4.81	35.0989***	3.14
DPO_{t-1}	0.1954	1.65	0.2300*	1.82
PAT	0.0676*	1.92	0.0452	1.12
TDE	–0.0188**	–2.23	–0.0150	–1.61
CF	0.0132	1.57	0.0150	1.76
INV	—	—	—	—
LTD_TA	—	—	–0.1525	–0.75
STD_TA	—	—	–0.4550	–1.08
R^2	0.1484		0.1632	
Adjusted R^2	0.1084		0.1028	
F-value	3.70***		2.70**	
	4.85		6.83	
Chow Test *F*-value			0.73NS	
			2.83	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

partialling out the effect of some characteristics of firms. But the negative sign of the coefficient has shown that increase in debt financing in CS is likely to reduce the DPO. *F* (Chow) for both LTD and STD reveals that there has been an increase in R^2 value of the full model. But, *F* (Chow) is found to be insignificant, providing evidence that CS does not play a vital role in determining the dividend payout relative to net income of sample firms under the Chemical and Fertilizer Sector. Hence, H_0^1 is rejected in respect of PAT at 10% level (0.0676), and TDE negatively at 5% level (–0.0188) in reduced model; with respect to the full model DPO_{t-1} (0.2300) at 10% level for Chemical and Fertilizer Sector in respect of PAT and TDE.

The analysis shows (see table 4) that the reduced model, even after step-wise procedure, is not fitted significantly. But coefficients of explanatory variables in the model are significant at a level of 10 per cent. This may be due to the existence of high collinearity between PAT and TDE. The significant negative coefficient of lagged DPO indicates that payout of dividend from net income is reduced if dividend payout in

TABLE 4 Results of Cross-Sectional OLS Model for Sample Firms under Information Technology Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	70.8656	2.76	80.2616	3.00
DPO_{t-1}	−0.0737*	−1.81	−0.0603	−1.41
PAT	0.0237**	2.12	0.0196*	1.66
TDE	−8.7622*	−1.85	−9.3753**	−1.96
CF	—	—	—	—
Size	—	—	—	—
INV	—	—	—	—
LTD_TA	—	—	−0.2897	−1.20
STD_TA	—	—	−0.0894	−0.18
R^2	0.0736		0.0983	
Adjusted R^2	0.0327		0.03	
F-value	1.80NS		1.44***	
	3.68		5.66	
Chow Test *F*-value			0.90	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

the previous year is high. The full model with leverage variables is also not fitted significantly, and explanatory power of the model (R^2 values) is higher when compared to that of the reduced model. But the significance of lagged DPO has disappeared in the presence of leverage. The negative sign of leverage variables reveals that there are chances of reduction in DPO with increase in debt fund. On the whole, it is found that sample firms belonging to Information Technology Sector have kept giving dividends, irrespective of their performance. Hence, H_0^1 is rejected in respect of DPO_{t-1} negatively at 10% level (−0.0737) and PAT at 5% level (0.0237), and TDE negatively at 10% level (−8.7622) in reduced model for Information Technology Sector; with respect to the full model PAT (0.0196) at 10% level, and TDE negatively at 5% level (−9.3753).

The analysis (see table 5) shows that both the reduced (*F*-value = 10.40, $p < 0.01$) and full models (*F*-value = 7.21, $p < 0.01$) for Oil and Gas Sector are fitted significantly at 1 per cent level.

The explanatory variable in the reduced model explains 26.63 per cent of the variable in DPO. Also, the coefficients of lagged DPO ($\beta = 0.4485$, p

TABLE 5 Results of Cross-Sectional OLS Model for sample firms under Oil And Gas Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	14.0944***	4.72	20.8602***	3.69
DPO_{t-1}	0.4485***	4.53	0.3920***	3.86
PAT	0.0032*	1.69	0.0030	1.56
TDE	–0.0005	–1.39	–0.0005	–1.49
CF	—	—	—	—
Size	—	—	—	—
INV	—	—	—	—
LTD_TA	—	—	–0.1809*	–1.87
STD_TA	—	—	–0.0710	–0.57
R^2	0.2663		0.3002	
Adjusted R^2	0.2407		0.2585	
F-value	10.40***		7.21***	
	3.86		5.84	
Chow Test *F*-value			2.03	
			2.84	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

< 0.01) and PAT ($\beta = 0.0032$, $p < 0.10$) are significant with a positive sign. From the significant positive co-efficient of these variables, it is inferred that the increase in net profit kept increasing the dividend payout every year among the sample firms under Oil and Gas Sector. The explanatory power of the full model with addition of leverage variables is found to have increased by 3.39 per cent ($R^2 = 0.3002$ when compared to $R^2 = 0.2663$ for the reduced model). Also the coefficient of leverage variable, LTD_TA is significant positively ($\beta = -0.1809$, $p < 0.10$), indicating that the dividend payout has come down to a significant level when there has been a considerable increase in debt financing in CS from long-term sources.

However, both the leverage measures together failed to explain variation in DPO, as *F* (Chow) ($F = 2.03$, $p > 0.10$) is insignificant, i. e., the sample firms under Oil and Gas Sector have not considered the status of debt financing in CS before distributing a part of their net income as dividend. Hence, H_0^1 is rejected in respect of DPO_{t-1} positively at 1% level

TABLE 6 Results of Cross-Sectional OLS Model for Sample Firms under Pharmaceutical Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	30.5227**	2.35	27.3356**	2.10
DPO_{t-1}	0.4011***	4.86	0.3999***	4.90
PAT	–0.0396	–1.28	–0.0276	–0.88
TDE	0.0180**	2.38	0.0190**	2.44
CF	–0.0044	–0.94	–0.0099*	–1.87
SIZE	–3.4379	–1.41	–3.6663	–1.48
INV	—	—	—	—
LTD_TA	—	—	0.0018	0.02
STD_TA	—	—	0.4469**	2.15
R^2	0.2001		0.2285	
Adjusted R^2	0.1691		0.186	
F-value	6.45***		5.37***	
	5.129		7.127	
Chow Test *F*-value			2.34*	
			2.127	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

(0.4485) and PAT at 10% level (0.0032) in the reduced model; with respect to the full model DPO_{t-1} positively (0.3920) at 1% level, and LTD_TA negatively at 10% level (–0.1809) in respect of DPO_{t-1}, PAT and LTD_TA for Oil and Gas Sector.

The full model with inclusion of leverage variables of sample firms under Pharmaceutical Sector is fitted significantly with the coefficient of determination to the extent of 22.85 per cent ($R^2 = 0.2285$, $F = 5.37$, $p < 0.01$). Further, in the full model the effect of CF becomes significant with a negative sign ($\beta = -0.0099$, $p < 0.01$). Between leverage variables, the coefficient of STD_TA is significant positively at 5 per cent level ($\beta = 0.4469$, $p < 0.01$). Therefore, the sample firms kept the dividend payout on the positive side when they have sizeable fund in reserves and surpluses through borrowing from short-term sources even if there has been a marginal decline in PAT as well as a notable decline in CF. The *F* result (Chow) ($F = 2.34$, $p < 0.01$) [significant] reveals that CS with a sizeable level of short term fund and meagre level of long-term fund have

TABLE 7 Results of Cross-Sectional OLS Model for Sample Firms under Shipping Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	7.2854**	2.31	1.2477	0.26
DPO_{t-1}	0.4928***	5.54	0.4392***	4.70
PAT	–0.0382	–1.38	–0.0327	–1.17
TDE	0.0066	1.04	0.0057	0.90
CF	—	—	—	—
Size	—	—	—	—
INV	0.0203	1.48	0.0161	1.16
LTD_TA	—	—	0.2320*	1.77
STD_TA	—	—	0.0205	0.04
R^2	0.3033		0.3292	
Adjusted R^2	0.2705		0.2807	
F-value	9.25***		6.79***	
	4.85		6.83	
Chow Test *F*-value			1.60	
			2.83	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

significant explanatory power on the DPO of sample firms under Pharmaceutical Sector. Hence, H_0^1 is rejected in respect of DPO_{t-1} [positively at 1% level (0.4011)] and TDE at 5% level (0.0180) in the reduced model; with respect to the full model DPO_{t-1} [positively (0.3999)] at 1% level, and TDE at 5% level (0.0190), CF negatively at 10% level (–0.0099), and STD_TA positively at 5% level (0.4469) in respect of DPO_{t-1}, TDE, CF, and STD_TA of Pharmaceutical Sector.

The firms under Shipping Sector are significantly positively related to lagged DPO ($r = 0.5243$, $p < 0.01$) and LTD_TA ($r = 0.3546$, $p < 0.01$). Only PAT and TDE ($r = 0.9196$, $p < 0.01$) and TDE and INV ($r = 0.8412$, $p < 0.01$) are collinear with each other. In order to know which is superior over the other in explaining DPO when otherwise held constant, PAT, TDE and INV are included in the reduced model, and step-wise procedure is carried to get the model of best fit. The results (see table 7) show that the degree of collinearity between PAT and TDE has come down to marginal level in the presence of lagged DPO and INV (capital expendi-

ture), because these two variables are found in the reduced model even after the step-wise process. All the four explanatory variables in the reduced model could explain to the extent of 30.33 per cent of variation significantly in DPO (F-value = 9.25, $p < 0.01$).

As far as the estimated co-efficient of the explanatory variables, in the reduced model, are concerned, only the co-efficient of lagged DPO (β = 0.4928, $p < 0.01$) is significant positively, which reveals that the sample firms under Shipping Sector have kept increasing the dividend payouts over the period when all others are held constant. The full model with CS proxies, LTD_TA and STD_TA is also fitted significantly with a co-efficient of determination at 32.92 per cent in DPO (R^2 = 0.3292, F-value = 6.79, $p < 0.01$). Also, the co-efficient of LTD_TA is significant positively at 10 per cent level (β = 0.2320, t = 1.77, $p < 0.01$). This reveals that the sample firms under Shipping Sector have kept paying dividend irrespective of the level of increase in debt fund in CS through long-term financing. The difference in explained variance (R^2) between the two models is not significant (Chow F = 1.63 is insignificant), indicating that the influence of long-term debt financing on DPO has disappeared with a marginal increase in short-term fund in CS. Hence, there is no impact of CS on DP of the sample firms under Shipping Sector, and therefore H_0^1 is rejected in respect of DPO_{t-1} positively at 1% level (0.4928) in the reduced model; with respect to the full model DPO_{t-1} positively (0.4392) at 1% level, and LTD_TA positively at 10% level (0.2320) of Shipping Sector.

In respect of sample firms under Textile Sector, no multi-collinearity among the independent variables is found, and the DPO is not correlated with all the variables, providing evidence that distribution of part of the net income as dividend is independent of earnings, cash flow, and debt fund in CS. However, the analysis shows that the reduced model with coefficient of determination to an extent of 7.75 per cent (see table 8) is fitted significantly (R^2 = 0775, F-value = 2.90, $p < 0.10$), whereas the full model is not, though there has been a marginal increase in the explained variation with inclusion of CS variables (R^2 = 0.0810, F = 1.47, $p > 0.10$ – insignificant). But the significant co-efficient of PAT (β = 1.9594, t = 2.11, $p < 0.05$) with a positive sign and that of TDE (β = –0.3547, t = –2.13, $p <$ 0.05) with a negative sign in both the models indicates that DPO is more than that of the net profit, and dividend paid from the total distributable earnings without considering the debt financing in CS for Textile Sector.

Hence, H_0^1 is rejected in respect of PAT positively at 5% level (1.9594), and TDE negatively at 5% level (–0.3547) in the reduced model; with re-

TABLE 8 Results of Cross-Sectional OLS Model for Sample Firms under Textile Sector (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	20.3188***	2.98	21.4650	0.80
DPO_{t-1}	—	—	—	—
PAT	1.9594**	2.11	1.9488**	2.01
TDE	–0.3547**	–2.13	–0.3929*	–1.97
CF	—	—	—	—
Size	—	—	—	—
INV	—	—	—	—
LTD_TA	—	—	0.0265	0.07
STD_TA	—	—	–0.1521	–0.31
R^2	0.0775		0.0810	
Adjusted R^2	0.0508		0.0261	
F-value	2.90*		1.47NS	
	2.69		4.67	
Chow Test *F*-value			0.13	
			2.67	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

spect to the full model, PAT positively (1.9488) at 5% level, and TDE negatively at 10% level (–0.3929). Hence, H_0^1 is rejected in respect of the effect of PAT and TDE on DPO of Textile Sector.

Firm Size-Wise Analysis

The relationship between DP measured as DPO (dividend payout paid/net income) and CS for sample firms with small, medium and large size total assets is analyzed and the results are shown in tables 9–12. DPO is positively related with lagged DPO ($r = 0.1953$, $p < 0.05$), PAT ($r = 0.1950$, $p < 0.05$), TDE ($r = 0.1680$, $p < 0.10$), and negatively associated with CF ($r = –0.1793$, $p < 0.10$) and INV ($r = –0.3634$, $p < 0.01$). From significant correlation coefficients, it is found that the current year DPO has impacted on the previous year DPO, increase in PAT and decrease in capital expenditure (INV) among small size sample firms.

With regard to the unique impact of control and debt variables, the results of regression analysis using reduced and full model for small size

TABLE 9 Results of Cross-Sectional OLS Model for small size firms under all selected sectors (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	23.6180***	5.61	18.5859***	2.73
DPO_{t-1}	0.2350**	2.04	0.2323**	2.00
PAT	0.4259	1.64	0.4732*	1.77
TDE	—	—	—	—
CF	—	—	—	—
Size	—	—	—	—
INV	–1.1126***	–3.78	–1.1996***	–3.81
LTD_TA	—	—	0.1216	0.89
STD_TA	—	—	0.1182	0.47
R^2	0.1927		0.2003	
Adjusted R^2	0.1675		0.1578	
F-value	7.64***		4.71***	
	3.96		5.94	
Chow Test *F*-value			0.45	
			2.94	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

sample firms across the selected sectors reveal (see table 9) that both the reduced model ($R^2 = 0.1927$, $F = 7.64$, $p < 0.01$) and full model ($R^2 = 0.2003$, $F = 4.71$, $p < 0.01$) are fitted significantly, explaining to an extent of 19.27 per cent and 20.03 per cent of the variation respectively for the reduced model and full model in respect of DPO. The co-efficient of PAT is significant at the level of 10 per cent, which shows that the lagged DPO and PAT have a positive effect on DPO when there has been a decline in capital expenditure (INV).

Whereas, the co-efficient of LTD_TA and STD_TA is not significant, revealing the fact that the DPO is independent of the debt level in CS of small size sample firms, which supports the significance of both the leverage variables in explaining the DPO (*F* of Chow test is insignificant). Hence, H_0^2 is rejected in respect of DPO_{t-1} positively at 5% level (0.2350), and INV negatively at 1% level (–1.1126) in the reduced model; with respect to the full model DPO_{t-1} positively (0.2323) at 5% level, PAT at 10% level (0.4732), and INV negatively at 1% level (–1.1996) for Small size firms

TABLE 10 Results of Cross-Sectional OLS Model for medium size sample firms under all selected sectors (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	36.8846	1.64	34.5672	1.46
DPO_{t-1}	0.1634**	2.55	0.1592**	2.47
PAT	−0.1142*	−1.78	−0.1196*	−1.67
TDE	0.0582**	2.13	0.0479	1.22
CF	0.0418**	2.04	0.0442**	2.14
Size	−5.2592	−1.20	−4.2581	−0.82
INV	−0.0660	−1.26	−0.0688	−1.31
LTD_TA	—	—	−0.0664	−0.66
STD_TA	—	—	0.1230	0.73
R^2	0.0577		0.0628	
Adjusted R^2	0.0354		0.0329	
F-value	2.58**		2.10**	
	6.253		8.251	
Chow Test *F*-value			0.68	
			2.251	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

under all selected sectors. Therefore, the DP of small size sample firms across all selected sectors is independent of the level of debt in CS.

The regression model for medium size firms is fitted significantly (see table 10) with all the control variables, but together they explain to an extent of 5.77 per cent of the variation in DPO ($R^2 = 0.0577$, $F = 2.58$, $p < 0.05$). The co-efficient of lagged DPO ($\beta = 0.1634$, $t = 2.55$, $p < 0.05$), TDE ($\beta = 0.0582$, $t = 2.13$, $p < 0.05$) and CF ($\beta = 0.0418$, $t = 2.04$, $p < 0.05$) is significant positively, and that of PAT ($\beta = -0.1142$, $t = -1.78$, $p < 0.10$) is significant negatively in the reduced model.

In the presence of leverage variables (full model), the statistical significance of TDE has disappeared. Therefore, there has been a continuous increase in DPO when there has been an increase in TDE and CF, even if there is a decline in PAT when the status of debt is not taken into consideration. However, with marginal decrease in LTD and considerable increase in STD, the medium size firms have not considered TDE before distributing dividend payout to shareholders. Hence, CS and DP are un-

TABLE 11 Results of Cross-Sectional OLS Model for large size firms under all selected sectors (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	14.8011***	7.37	18.9381***	5.58
DPO_{t-1}	0.4380***	7.89	0.4390***	7.90
PAT	—	—	—	—
TDE	—	—	—	—
CF	—	—	—	—
Size	—	—	—	—
INV	—	—	—	—
LTD_TA	—	—	–0.1238*	–1.78
STD_TA	—	—	–0.0455	–0.37
R^2	0.1741		0.1830	
Adjusted R^2	0.1713		0.1747	
F-value	62.21***		21.88***	
	1.295		3.293	
Chow Test *F*-value			1.60	
			2.293	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

related with each other in the case of medium size sample firms of all selected sectors. (*F* of Chow test is insignificant), and therefore rejecting H_0^3 in respect of DPO_{t-1} positively at 5% level (0.1634), PAT negatively at 10% level (–0.1142), TDE positively at 5% level (0.0582), and CF positively at 5% level (0.0418) in the reduced model; with respect to the full model DPO_{t-1} positively (0.1592) at 5% level, PAT negatively at 10% level (–0.1196), and CF positively at 5% level (0.0442). Hence, there is a significant effect of DPO_{t-1}, PAT, TDE, and CF on DPO in medium size sample firms under all selected sectors.

The full model regression analysis with step-wise approach for large size sample firms, in which leverage variables as proxy for CS are included, is fitted significantly (see table 11) explaining to the extent of 18.30 per cent of the variation in DPO ($R^2 = 0.1830$, $F = 21.88$, $p < 0.01$).

Besides, LTD_TA has a unique significant negative impact on DPO ($\beta = -0.1238$, $t = -1.75$, $p < 0.10$). However, there is a lack of collective impact of both leverage variables on DPO (*F* of Chow test is significant). Hence,

TABLE 12 Results of Cross-Sectional OLS Model for all sample firms under all selected sectors (mean values in %)

Independent variable	Reduced Model		Full Model	
	Coeff.	*t*-value	Coeff.	*t*-value
Intercept	15.3441***	11.17	19.6463***	8.00
DPO_{t-1}	0.3094***	7.79	0.3010***	7.56
PAT	0.0013	1.36	0.0006	0.61
TDE	—	—	—	—
CF	—	—	—	—
Size	—	—	—	—
INV	—	—	—	—
LTD_TA	—	—	–0.1117***	–2.43
STD_TA	—	—	–0.0070	–0.08
R^2	0.0889		0.0972	
Adjusted R^2	0.0861		0.0917	
F-value	31.91***		17.55***	
	2.654		4.652	
Chow Test *F*-value			3.00**	
			2.652	

NOTES *** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level.

H_0^4 is rejected in respect of DPO_{t-1} positively at 1% level (0.4380) in the reduced model; with respect to the full model DPO_{t-1} positively (0.4390) at 1% level, LTD_TA negatively at 10% level (–0.1238) for large size firms under all selected sectors. The distribution of dividend payout is independent of the CS between debt and equity of the large size sample firms across all selected sectors.

It is evident from the result of regression analysis for all sample firms pooled together (see table 12) that both, the reduced model as well as the full model are fitted significantly, explaining to the extent of 8.89 per cent ($R^2 = 0.0889$, $F = 31.91$, $p < 0.01$) and 9.72 ($R^2 = 0.0972$, $F = 17.55$, $p < 0.01$) variation in DPO respectively. In the reduced model, only lagged DPO and PAT are retained by step-wise procedure. Between the estimated co-efficient, it is significant positively only for lagged DPO ($\beta = 0.3094$, $t = 7.79$, $p < 0.01$). The co-efficient, though positive, is not significant for PAT, indicating that the PAT has a unique negligible effect on DPO in the presence of the previous year's DPO status. However, in the presence of

leverage variables, though present with insignificant co-efficient, the degree of unique relationship of PAT with DPO has decreased heavily. At the same time, the co-efficient of lagged DPO is significant at 1 per cent level ($\beta = 0.3010$, $t = 7.56$, $p < 0.01$). Besides, between LTD_TA and STD_TA, the coefficient of LTD_TA is significant negatively ($\beta = -0.1117$, $t = -2.43$, $p < 0.05$) at 5 per cent level. The difference in explained variance between the full model and the reduced model (difference in R^2) is also significant at 5 per cent level (Chow $F = 3.00$, $p < 0.05$). Hence, it is found that all the sample firms across all selected sectors keep distributing dividend if it is done so in the previous years, and increase/decrease in DPO is based on the level of debt fund in CS. Hence, H_0^5 is rejected in respect of DPO_{t-1} positively at 1% level (0.3094) in the reduced model; with respect to the full model DPO_{t-1} positively (0.3010) at 1% level, LTD_TA negatively at 1% level (–0.1117) as there is significant impact of DPO_{t-1}, LTD_TA on DPO in all sample firms under all selected sectors, therefore DP in terms of dividend payout is significantly influenced by the CS of firms in India.

Concluding Remarks

This study examines the impact of firm size on the dividend behaviour of corporate firms in India, and has been carried out on 73 firms by empirically analysing the determinants of DP over a wider testing period from 1996/1997 to 2006/2007. Dividend behaviour was tested using the full-Britain model and its variants on the pooled cross sectional/time series data for the sample of observations from 1996/1997 to 2006/2007. The models are estimated using the Ordinary Least Square (OLS) method.

Dividend stocks are expected to provide a combination of dividend cash flows and capital gains from the investors' view. The preference of shareholders for one or the other should have a powerful influence on decisions regarding dividend payment, which leads one to examine the extent to which dividend payments and dividend yields vary significantly across firms, industries and time. Firms come in various sizes and shapes, and they could be single-owner enterprises or large MNCs with many shareholders cutting across geographical boundaries. The management of each firm normally makes DP, but the nature of the ownership can play an important role in DP decision.

While investors concentrate their attention on dividend yield, management pays more attention to the impact of dividend payouts on the firm's capital needs. A high dividend pay out reduces firm's access to re-

tained earnings, which is often viewed as the lowest cost source of capital. For that reason, management may prefer lower dividend payout ratios, but must recognize the realities imposed by shareholders' preference for at least some payment of dividends. According to the traditional view of CS, when a firm's leverage exceeds the optimum CS, its cost of capital increases. Shareholders will want more dividends and more money will be needed to meet interest obligations to debt holders, the weighted average cost of capital will be high and the firm's liquidity position may be affected and growth retarded.

The purpose of this study was to empirically analyse the extent to which the perceived theory about the conventional determinants of dividend behaviour of corporate firms explains the dividend behaviour of quoted firms across industries in India with respect to size. The effects of firm size, growth prospect and the level of gearing on dividend behaviour of firms have been analysed. The dividend behaviour of corporate firms in India's emerging market seems to be significantly influenced by a number of factors, which substantially differ from what is common in developed countries.

Irrespective of the sector, the relationship between the CS and DP remains same, i. e in most of the cases the impact of CS measures, viz., LTD_TA, STD_TA, and TD_TA on DP is unique. The hypothesis which formulated that 'there is no significant relationship between the level of debt in capital structure and level of equity dividend' has been rejected in almost all the sectors. The inter-correlation matrix among variables in the regression models for various sectors also supports the conclusion that there is impact among the independent variables chosen for the study. The results of the cross-sectional OLS Model regression for the selected sample firms under various sectors also show that there is a significant effect of selected independent variables [$\text{DPO} = \alpha + \beta_1 \text{DPO}_{t-1} + \beta_2 \text{PAT} + \beta_3 \text{TDE} + \beta_4 \text{CF} + \beta_5 \text{SIZE} + \beta_6 \text{INV} + \beta_7 \text{LTD} + \beta_8 \text{STD} + e$] on the dividend pay out.

The study proves that the equity dividend percentage and the debt financing in CS are inversely related to each other in most of the sectors. Besides, the CS of sample firms significantly influences dividend payout across all selected sectors when pooled together, but sector-wise and size-wise, there is an insignificant relationship between DP and CS. Therefore, it is concluded that the DP of small size, medium size, large size, and overall corporate firms across industries in India is independent of the level of debt in CS.

References

Aharony, J., and I. Swary. 1980. Quarterly dividend and earnings announcements and stockholders' returns: An empirical analysis. *Journal of Finance* 35 (1): 1–12.

Ahmed, A., B. K. Billings, R. M. Morton, and M. Stanford-Harris. 2002. The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review* 77 (4): 867–90.

Akhigbe, A., S. F. Borde, and J. Madura. 1993. Dividend policy and signaling by insurance companies. *The Journal of Risk and Insurance* 60 (3): 413–28.

Allen, D. E. 1991. The determinants of the capital structure of listed Australian companies: The financial manager's perspective. *Australian Journal of Management* 16 (2): 103–28.

Anand, M. 2004. Factors influencing dividend policy decisions of corporate India. *The* ICFAI *Journal of Applied Finance* 10 (2): 5–16.

Anil, K., and S. Kapoor. 2008. Determinants of dividend payout ratios: A study of Indian information technology sector. *International Research Journal of Finance and Economics* 15 (may): 63–71.

Baker, M., and J. Wurgler. 2002. Market timing and capital structure. *The Journal of Finance* 57 (1): 1–32.

Bhattacharya, S. 1979. Imperfect information, dividend policy, and the 'bird in the hand' fallacy. *Bell Journal of Economics* 10 (1): 259–70.

Booth, L., V. Aivazian, A. Demirguc-Kunt, and V. Maksimovic. 2001. Capital structures in developing countries. *The Journal of Finance* 56 (1): 87–130.

Brennan, M. J., and A. V. Thakor. 1990. Shareholder preferences and dividend policy. *The Journal of Finance* 45 (4): 993–1018.

Campello, M. 2002. Internal capital markets in financial conglomerates: Evidence from small bank responses to monetary policy. *The Journal of Finance* 5 (6): 2773–805.

Chunchi, W., and C. Kao. 1992. The adjustment of dividends to permanent earnings. *Southern Economic Journal* 58 (4): 1058–71.

Collins, M. C., A. K. Saxena, and J. W. Wansley. 1996. The role of insiders and dividend policy: A comparison of regulated and unregulated firms. *Journal of Financial and Strategic Decisions* 9 (2): 1–9.

Deangelo, H., and L. Deangelo. 1990. Dividend policy and financial distress: An empirical investigation of troubled NYSE firms. *The Journal of Finance* 14 (5): 1415–31.

Elston, J. A. 1996. Dividend policy and investment: Theory and evidence from US panel data. *Managerial and Decision Economics* 17 (3): 267–75.

Faulkender, M., T. Milbourn, and A. Thakor. 2006. Capital structure and dividend policy: Two sides of same coin. Http://apps.olin.wustl.edu/faculty/milbourn/flexibility.pdf.

Ghosh, C., and J. R. Woolridge. 1989. Stock-market reaction to growth-induced dividend cuts: Are investors myopic? *Managerial and Decision Economic* 10 (1): 25–35.

Gordon, M. J. 1959. Dividends, earnings, and stock prices. *The Review of Economics and Statistics* 41 (2): 99–105.

Graham, J. R., and C. Harvey. 2002. How do CFOs make capital budgeting and capital structure decisions? *Journal of Applied Corporate Finance* 15 (1): 8–23.

Graham, J. R., M. H. Lang, and D. A. Shackelford. 2004. Employee stock options, corporate taxes, and debt policy. *The Journal of Finance* 59 (4): 1585–618.

Graham, J. R., and A. L. Tuckerb. 2006. Tax shelters and corporate debt policy. *Journal of Financial Economics* 81 (3): 563–94.

Goldstein, R., N. Ju, and H. Leland. 2001. An EBIT-based model of dynamic capital structure. *The Journal of Business* 74 (4): 483–512.

Gulati, D., and Z. Zantout. 1997. Inflation, capital structure, and immunization of the firm's growth potential. *Journal of Financial and Strategic Decisions* 10 (1): 77–90.

Gugler, K. 2003. Corporate governance, dividend payout policy, and the interrelation between dividends, R&D and capital investment. *Journal of Banking and Finance* 27 (7): 1297–321.

Hagen, K. P. 1973. Optimal dividend policies and corporate growth. *The Swedish Journal of Economics* 75 (3): 238–48.

Hodder, J. E., and L. W. Senbet. 1990. International capital structure equilibrium. *The Journal of Finance* 45 (5): 1495–516.

Johnson, S. A. 1995. Dividend payout and the valuation effects of bond announcements. *The Journal of Financial and Quantitative Analysis* 30 (3): 407–23.

Kalea, J. R., and H. Shahrurb. 2007. Corporate capital structure and the characteristics of suppliers and customers. *Journal of Financial Economics* 83 (2): 321–65.

Kane, A., K. L. Young, and A. Marcus. 1984. Earnings and dividend announcements: Is there a corroboration effect? *The Journal of Finance* 39 (4): 1091–99.

Koch, P. D., and C. Shenoy. 1999. The information content of dividend and capital structure policies. *Financial Management* 28 (4): 16–35.

Kose, J., and J. Williams. 1985. Dividends, dilution and taxes: A signaling equilibrium. *Journal of Finance* 40 (4): 1053–70.

Kumar, P., and B. S. Lee. 2001. Discrete dividend policy with permanent earnings. *Financial Management* 30 (3): 55–76.

La Porta, R., K. Lopez-de-Silanes, A. Shleifer, and R. W. Vishny. 2000. Agency problems and dividend policies around the world. *The Journal of Finance* 55 (1): 1–33.

Lambert, R. A., W. N. Lanen, and D. F. Larcker. 1989. Executive stock option plans and corporate dividend policy. *The Journal of Financial and Quantitative Analysis* 24 (4): 409–25.

Lim, K. G. 1989. Dividend policy and tax structure. *Economics Letter* 31 (3): 269–72.

Mao, C. X. 2003. Interaction of debt agency problems and optimal capital structure: Theory and evidence. *The Journal of Financial and Quantitative Analysis* 38 (2): 399–423.

Michel, A. 1979. Industry influence on dividend policy. *Financial Management* 8 (3): 22–6.

Mihir, A., C. Desai, F. Foley, and J. R. Hines, Jr. 2004. A multinational perspective on capital structure choice and internal capital markets. *The Journal of Finance* 59 (6): 2451–87.

Miller, M. H., and K. Rock. 1985. Dividend policy under asymmetric information. *The Journal of Finance* 40 (4): 1031–51.

Mohanty, P. 1999. Dividend and bonus policies of Indian companies: An analysis. *Vikalpa* 24 (4): 35–42.

Nishioka, S., and N. Baba. 2004. Dynamic capital structure of Japanese firms: How far has the reduction of excess leverage progressed in Japan? Bank of Japan Working Paper Series 04-E-16.

Ooi, T. L. J. 2001. Dividend payout characteristics of UK property companies. *Journal of Real Estate Portfolio Management* 7 (2): 133–42.

Papaioannou, G. J., and C. M. Savarese. 1994. Corporate dividend policy response to the Tax Reform Act of 1986. *Financial Management* 23 (1): 56–63.

Romano, C. A., G. A. Tanewski, and K. X. Smyrnios. 2000. Capital structure decision making: A model for family business. *Journal of Business Venturing* 16 (3): 285–310.

Rozeff, M. S. 1982. Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Economics* 5 (3): 249–59.

Singhania, M. 2006. Taxation and corporate payout policy. *Vikalpa* 31 (4): 47–64.

Sharma, D. 2006. Corporate dividend trends: An empirical study of Sensex companies. *Indian Journal of Accounting* 37 (1): 14–21.

———. 2007. Are dividends in vogue in India? An empirical study of Sensex companies. *The Icfaian Journal of Management Research* 6 (3): 22–9.

Stenbacka, R., and M. Tombak. 2002. Investment, capital structure, and

complementarities between debt and new equity. *Management Science* 48 (2): 257–72.

Wilson, D. R. 1967. A Pareto-optimal dividend policy. *Management Science* 13 (9): 756–64.

Woolridge, R. J. 1983. Dividend changes and security prices. *The Journal of Finance* 38 (5): 1607–15.

Yener, D. 1991. Corporate capital structure and taxes in the Korean manufacturing sector. *Global Finance Journal* 2 (3–4): 207–19.