

Corporate Dividend Policy in Indian IT Industry

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Abstract

Dividend Policy is one of the hotly debated issues in finance. While shaping dividend payment, a sensible management strikes a balance between shareholder's expectation and firm's long-term interest. Several questions related to dividend decisions remain perplexing because of diverse and conflicting theories and empirical results. This paper attempts to give a focused overview of the important dividend theories and identify the leading factors that determine the dividend behavior in the corporate financial management using various econometric techniques. It may be concluded that lagged dividend, PAT, depreciation and sales are the most important factors affecting dividend decisions of the industry. However, Target payout ratio of the industry has increased to 57% in 2005-06 from negative number in 1996-97. The paper may serve as a structured signal for future researches in corporate dividend policy.

I. Introduction

ECONOMIC GROWTH AND development of any country depends upon a well-knit service and manufacturing sector. Among all the major service sector industries, information technology industry is undoubtedly a vital sector for Indian Economy. Information Technology (IT) industry in India is among the fastest growing segment of Indian industry compound with annual growth rate exceeding 50%. India has built up valuable brand equity in the global markets. The potential of high capacity to generate wealth, foreign exchange and employment has already caught the consideration of India's businessmen, citizens, economists, bureaucracy and politicians. Software driven IT industry is today at the top of India's national agenda as an instrument and a model for the modernization of

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India's economy. There are a number of decisions that have to be taken for efficient performance and attainment of objectives. Financial management decisions are one of those fundamental areas that require proper consideration. The present paper takes dividend decisions, one major aspect of financial management, as the area of research.

The area of corporate dividend policy has mesmerized financial scholars and economists for a long time, resulting in intensive theoretical modeling and empirical examinations. Dividend Policy is one of the most complex aspects in finance. Three decades ago, Black (1976) wrote, "The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together". Brealey and Myers (2002) have enlisted dividend policy as one of the top ten puzzles in finance.

A number of conflicting theoretical models, all lacking strong empirical support, define recent attempts by research in finance to explain the dividend phenomenon. But to come out with concrete conclusion, intensive study of all theoretical models together with empirical proof is mandatory. In the Indian context, a few studies have analyzed the dividend behavior of corporate firms. Krishnamurthy and Sastry (1971), Mahapatra and Sahu (1993), Bhat and Pandey (1994), Narasimhan and Asha (1997) and Narasimhan and Vijayalakshmi (2002) are the good examples of empirical research carried out in India in the field of dividend decisions. However, it is still not clear as to what is the dividend payment pattern of firms in India and why do they initiate and omit dividend payments or reduce or increase dividend payments. This paper analyzes the dividend payout of IT Industry in India and presents the dividend initiations and omissions and determinants of dividends. The efficiency and performance of IT industry is improving in all conducts. Say, e.g. India's IT market reached a turn over of US\$ 16.2 billion in 2004-05. The IT Sector employs 697,000 people and this is likely to reach 2 million by 2014. IT Companies are expected to account for 8-10% of GDP by 2008 from 1.4% in 2001. Regarding dividend decisions too the numbers are very positive. The total dividend paid by listed IT companies in 1996-97 was Rs 63.4 crore that has ascended to a high of Rs 4021.13 crore in 2005-06. Therefore, the industry is definitely worth to be studied in relation to dividend decisions.

The present paper is an attempt to bring out the real face of dividend decisions of IT industry in competitive global economy. Dividend decisions may enhance the market value of the firm but on the other hand it may mean less availability of internal funds and more dependence on external sources and expansion purposes. Furthermore, while determining dividend payment, a prudent management strikes a balance between shareholder's expectation and firm's long-term interest. Such analysis may be of great relevance from the policy point of view as the literature also suggests that if dividend decisions are handled efficiently, the ultimate results are reflected in the value of firms. Further, such analysis may be useful in enabling policymakers to identify the success or failure of policy initiatives or, alternatively, highlight different strategies undertaken by IT companies, which contribute to their successes.

The paper is divided into four sections. Section II discusses the Review of Literature. Section III defines leading determinants of dividend policy. Section IV presents research methodology. Section V throws light on the results and discussions of dividend decisions in Indian IT Industry and finally Section VI puts forward the conclusion and suggestions.

II. Review of Bygone Studies

Since the literature available in the field under reference is wide in nature and scope. The literature found in the form of popular write-ups, working groups, the research studies/articles of researchers/ economists and the comments of economic analysts are reviewed here in this section. The most important theoretical and empirical studies related to dividend decisions have been reviewed here.

Miller and Modigliani (1961) viewed dividends as irrelevant, and believed that in a world without market imperfections like taxes, transaction costs or asymmetric information; dividend policy should have no effect on its market value. However, since the capital market is neither perfect nor complete the dividend irrelevance proposition needs to be re-visited, especially focusing the effects of information content of dividends, agency cost and institutional constraints. The market imperfection of asymmetric information is the basis for three distinct efforts to explain corporate dividend policy. The mitigation of the information asymmetries between managers and owners via unexpected changes in dividend policy is the cornerstone of dividend signaling models. Agency cost theory uses dividend policy to better align the interests of shareholders and corporate managers. The free cash flow hypothesis is an adhoc combination of the signaling and agency costs paradigms; the payment of dividends can decrease the level of funds available for perquisite consumption by corporate managers. The signaling theories posit dividend policy as a vehicle used by corporate managers to transmit private information to the market Bhattacharyya (1979); Miller and Rock (1985); Williams (1988); John and Williams (1985). Agency cost models begins with the agency problems emphasized by Jensen (1986). Agency problems result from information asymmetries, potential wealth transfers from bondholders to stockholders through the acceptance of high-risk and high-return projects by managers, and failure to accept positive net present value projects and perquisite consumption in excess of the level consumed by prudent corporate managers. Large dividend payments reduce funds available for perquisite consumption and investment opportunities and require managers to seek financing in capital markets. The efficient monitoring of capital markets reduces less than optimal investment activity and excess perquisite consumption and hence reduces the costs associated with ownership and control separation Easterbrook (1984). Moreover, Lintner (1956), made an empirical attempt to explain corporate dividend behavior by means of conducting interviews of personnel of large firms of United States of America. It was established that the primary determinants of changes in dividends paid out were the most recent earnings and past

dividends paid. It was found that management is concerned with change in dividends rather than the amount and it tries to maintain a level of dividends. Also, there was propensity to move towards some target payout ratio but speed of adjustment varies among companies. There exist many empirical studies in India and abroad that identifies the pattern and factors affecting dividend policy. Some of the well established empirical studies have been summed up below.

Li, Feng, Song and Shu (2006) analyzed the decision-making of dividend policy and the reasons for dividends policy selection in non-state-owned listed companies in China by using structural equation modeling. The main research findings are as follows: (a) the dividend policy of non-state-owned listed companies in China can be interpreted by the western agency theory for dividend, and they found that if compared with manager, owner is a more important variable that influence the dividend policy, (b) four motives such as investment opportunities, refinancing ability, stock price and potential repayment capacity are all important factors for decision-maker to determine the dividend policy. Baker and Wurgler (2003) developed a theory in which the decision to pay dividends is driven by investor demand and also recognized that managers cater to investors by paying dividends when investors put a stock price premium on payers and not paying when investors prefer non payers. To test this prediction, four time series measures of the investor demand for dividend payers was constructed for the period 1962-2000. By each measure, non payers initiate dividends when demand for payers is high. By some measures, payers omit dividends when demand is low. Further analysis confirms that the results are better explained by the catering theory than other theories of dividends. No strong evidence was found for a traditional dividend clientel but investor sentiment appears to affect the demand for dividends. Desai, Foley and Hines Jr. (2002) analyzed dividend remittances by a large panel of foreign affiliates of US multinational firms. The sample consists of 10,838 affiliates with 1,347 parent companies during 1982-1997. The dividend policies of foreign affiliates, which convey no signals to public capital markets, nevertheless resemble those used by publicly held companies in paying dividends to diffuse common shareholders. The results verify that dividend policies of foreign affiliates are little affected by the dividend policies of their parent companies or parent company exposure to public capital markets.

DeAngelo and Skinner (2000) analyzed the information content of special dividends. The research concluded that special dividends were not displaced by stock repurchases, indicating that most specials failed to survive on their own accord and not because managers discovered the tax advantages of repurchases. Constatas (1995) examined the relationship between earnings, dividend declarations and investor returns. The empirical results of their study suggest that most of the information contained in dividends, which is useful to financial markets, is also contained in accounting earnings. But, there does appear to be some useful information in dividends that is not contained in accounting earnings.

Slovin, Sushka and Poloncheck (1994) assessed the information conveyed by commercial bank announcements of dividend reductions. It has been established that valuation effects on announcing banks are negative and significantly greater than for industrial firms. Cross-sectional regressions used in the study indicate that the size of dividend reductions is crucial but there is no evidence of clientel effects. Dhameja (1978) in his study tested the dividend behavior of Indian companies by classifying them into size group, industry group, growth group and control group. The study found that there was no statistically significant relationship between dividend pay out, on the one hand and industry and size on the other. Growth was inversely related to dividend pay out and was found to be significant. The main conclusions are that dividend decisions are better explained by Lintner's model with current profit and lagged dividend as explanatory variables. Fama and Babiak (1968) studied the determinants of dividend payments by individual firms during 1946-64. For this purpose, the statistical techniques of regression analysis, simulations and prediction tests were used. The study concluded that net income seems to provide a better measure of dividend than either cash flow or net income and depreciation included as separate variable in the model.

In the Indian context, a few studies have analyzed the dividend behavior of corporate firms. Krishnamurty and Sastry (1971) analyzed dividend behavior of Indian chemical industry for the period 1962-1967 and took cross sectional data of 40 public limited companies. The results revealed that Lintner model provides good explanation of dividend behavior. Mahapatra and Sahu (1993) find cash flow as a major determinant of dividend followed by net earnings. Bhat and Pandey (1994) undertake a survey of managers' perceptions of dividend decision and find that managers perceive current earnings as the most significant factor. Narasimhan and Asha (1997) observe that the uniform tax rate of 10 percent on dividend as proposed by the Indian Union Budget 1997-98, alters the demand of investors in favor of high payouts. Mohanty (1999) finds that firms, which issued bonus shares, have either maintained the pre-bonus level or only decreased it marginally there by increasing the payout to shareholders. Narasimhan and Vijayalakshmi (2002) analyze the influence of ownership structure on dividend payout and find no influence of insider ownership on dividend behavior of firms.

III. Leading Determinants of Dividend Policy

Dividend decision in the corporate sector is governed by a large number of determinants. The review of literature reveals that profit after tax, lagged dividend, depreciation, capital expenditure, current ratio, debt equity ratio, interest payments, change in sales, share price behavior, and cash flow are expected to have a direct bearing on the dividend policy decision of the firms. These determinants are briefly discussed here under:

3.1 Profit after Tax

The crucial determinant of dividend payments is the current earnings (profit after tax) representing the capacity to pay dividends, which have a positive relationship with dividends. Further, the level of profit is almost invariably the starting point in the management's consideration of whether dividend in any given year. This variable as a key determinant of dividend policy is found in the work of Lintner (1956), Fama and Babiak (1968) and others.

3.2 Cash Flow

Brittain (1966) suggests that cash flow is a more appropriate measure of the company's capacity to pay dividend. Cash flow is derived from profit after tax plus depreciation expense of the concerned financial year. He argues that dividend payment is considered a charge prior to depreciation and hence should be related to earning gross of depreciation. This variable has been proved to be significant determinant of dividend policy in the empirical works of Mahapatra (1992), Mahapatra and Sahu (1993).

3.3 Lagged Dividend

Lagged dividend variable is the cash dividends paid by the company one year prior to the year under consideration. In order to follow a stable dividend policy management has to allow the past dividend trend to influence the current dividend payments. Moreover, it exhibits the speed of adjustment mechanism which states that companies try to achieve a certain desired payout ratio in the long run. Most of the theoretical and empirical studies have included this variable as an important determinant of dividend policy.

3.4. Depreciation Allowance

Depreciation charge is a non cash expense; it is added as an independent variable in the dividend behavior model, since regulation and accounting practices regarding depreciation might affect dividend policy inversely through its impact on current net profits. This variable has been used as explanatory variable by Brittain (1966), it was found statistically significant.

3.5 Capital Expenditure

Another important factor that determines the dividend decisions is the firm's capital expenditure. The extent to which the company decides to finance these expenditure from internal resources, both dividend and capital expenditure decision would compete with each other, therefore, capital expenditure in a company is negatively related to its dividend payments. The impact of this determinant has been studied by Dhrymes and Kurz (1964) and Mahapatra and Sahu (1993).

3.6 Current Ratio

Payment of dividend means cash outflows. Though, a firm may have adequate earnings to declare dividends, but it may not have sufficient cash to pay the same. Thus, current ratio of the firm is an important consideration in paying dividends. The greater the current ratio, the greater is ability to pay dividend. This variable has been involved by Krishnamurty and Sastry (1975).

3.7 Debt Equity Ratio

Another feature, which has strong impact on dividend behavior, is the debt equity ratio (capital structure). The demand for external finance usually arises in a company on account of constraints imposed by its internal resources. The higher the internal flows, given the investment requirements, lesser will be the demand for borrowings and vice-versa. Internal flows are generated by net profits after tax and dividend. That is, higher the dividend, higher the demand for borrowings. On the other hand, lower dividends would mean less demand for borrowings and low debt equity ratio. This variable has received emphasis in the work of Dhrymes and Kurz (1964), Mahapatra and Sahu (1993) and Mahapatra and Panda (1995).

3.8 Interest Payment

Another variable which may have a direct bearing on the dividend policy of the firms is the amount of interest. A rise in interest payment by a company would depress its dividend payment. In this context, Brittain (1966) finds dividends to be negatively related to interest payment.

3.9 Change in Sales

Change in sales measure the difference between the current period sales to the previous period sales. As suggested by Brittain (1966), rapid gains in earnings as indicated by sales change might make firms more cautious. Firms feel that the rapid growth can not be maintained and they might adopt more conservative dividend policy.

3.10 Share Price Behavior

There have been many attempts in the past to test whether or not the share price of a company affects its dividend policy (Friend and Puckett, 1964; Khurana, 1985; Mahapatra and Sahu, 1993). This variable is expected to have negative relationship with the dividend policy of a company.

IV. Research Methodology

A well comprehensible *modus operandi* empowers the innovative researcher to revisit the study setting. Good methodology follows the standards of the established conventions. For the present paper, a number of indispensable inimitabilities of the research methodology are defined here:

4.1 Objectives of the Paper

The main objective of the paper is to know the cause and effect association between dividend decision and its determinants in Indian IT Industry. Results of this study may be helpful for designing dividend policies at the industry as well as firm level.

4.2 Hypothesis

Hypothesis means the researcher must select from the intricacy of observed events such considerable and pertinent facts that would most effectively elucidate the problem under study. It gives you an idea about indispensable associations, which exist between the different fundamentals

within the complexity. Therefore, the hypothesis of the present study is: dividend decisions of Indian IT industry are not affected by any determinant (defined earlier in the study).

4.3 Nature and Sources of Data

The present paper is of analytical nature and makes use of secondary data. The relevant secondary data are collected from CMIE database 'prowess' and journals like Indian Journal of Commerce, Management Accountant, Business Today, Business India, Finance India have also been referred to obtain the relevant information.

4.4 Data Editing

For this study, the major part of data comes from secondary sources. The data has been collected in raw form from 'prowess' and then it was made suitable for analysis as per the methodology defined for the purpose.

4.5 The Sample

The determinants of dividend policy have been studied by using Backward Elimination Regression Model pertaining to Indian IT Industry for the period 1996-97 to 2005-06. The sample companies for each year are based on the following criteria

- the companies should be listed on National Stock Exchange (NSE).
- they should have paid cash dividend for the year under consideration.
- they should have declared cash dividends for the year prior to the year under consideration.
- a final sample of 40 companies is selected based on 30 days' average market capitalization.

4.6 The Model

To analyze the data, we have applied some statistical models like Backward Elimination regression model, Granger Causality Model and Lintner Model. Assuming a linear relationship between dividend and its determinants, the Modified Regression Model can be outlined as:

$$\text{DIVIDEND}_{it} = a_0 + a_1 \text{PAT}_{it} + a_2 \text{LAGDIV}_{it} + a_3 \text{DEP}_{it} + a_4 \text{FIXASSET}_{it} + a_5 \text{CURRATIO}_{it} + a_6 \text{DERATIO}_{it} + a_7 \text{INTEREST}_{it} + a_8 \text{SALE}_{it} + a_9 \text{PRICE}_{it} + a_{10} \text{CASHFLOW}_{it} + u$$

where,	DIVIDEND_{it}	Dividends in year t;
	PAT_{it}	Profit after tax in year t;
	LAGDIV_{it}	Dividends in year t-1;
	DEP_{it}	Depreciation in year t;
	FIXASSET_{it}	Capital expenditure or Fixed assets (t-(t-1));
	CURRATIO_{it}	Current ratio in year t;
	DERATIO_{it}	Debt equity ratio in year t;
	INTEREST_{it}	Interest payments in year t;
	SALE_{it}	Sales (t - (t-1));
	PRICE_{it}	BSE stock price in year t;
	CASHFLOW_{it}	Cash flow in year t;
	u	Random disturbance term.

4.6.1 Backward Elimination Regression Model

It is a variable selection procedure in which all variables are entered into the equation and then sequentially removed. The variable with the smallest partial correlation with the dependent variable is considered first for removal. If it meets the criterion for elimination, it is removed. After the first variable is removed, the variable remaining in the equation with the smallest partial correlation is considered next. The procedure stops when there are no variables in the equation that satisfy the removal criteria.

4.6.2 Granger Causality Model: An Authentic Measure For Cause & Effect Analysis

To test the relationship between dividend and its determinants regression model can be used. Though regression analysis deals with the dependence of one variable on the other variable, it does not imply causation. In fact, the question arises whether one can statistically detect the direction of causality (cause and effect relationship). The Granger (1969) approach to the question of whether X causes Y is to see how much of the current Y can be explained by past values of Y and then to see whether adding lagged values of X can improve the explanation. Y is said to be Granger-caused by X if X helps in the prediction of Y, or equivalently if the coefficients on the lagged X's are statistically significant. Note that two-way causation is frequently the case; X Granger causes Y and Y Granger causes X. It is important to note that the statement "X Granger causes Y" does not imply that Y is the effect or the result of X. Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term. Consider the following model in which X and Y are expressed as deviation of respective means:

$$Y_t = \sum_{i=1}^n \alpha_i X_{t-i} + \sum_{j=1}^n \beta_j Y_{t-j} + \mu_{1t} \quad (1)$$

$$X_t = \sum_{i=1}^n \lambda_i Y_{t-i} + \sum_{j=1}^n \delta_j X_{t-j} + \mu_{2t} \quad (2)$$

where, it is assumed that disturbance u_{1t} and u_{2t} are uncorrelated.

The null hypothesis is $H_0: \sum \alpha = 0$, that is X does not Granger-cause Y in the first regression and $H_0: \sum \lambda = 0$ in the second regression, which implies Y does not Granger-cause X. To test the hypothesis, we apply the F test. The null hypothesis is rejected when the lagged X and Y terms come to be significant.

Therefore, Granger Causality Test has been applied over dividend and its determinants to know which factor is actually a dependent variable and which one is independent.

4.6.3 Lintner's Model

The Lintner's model is the foundation of many researches carried out in the field of dividend decision. Lintner elaborates a model in which he affirms that the dividend policy of a company can be summed up in two objectives:

the first includes the annual variation in dividends and second expresses the objective dividend as a constant proportion of profits obtained. The final model presented by him is:

$$\text{Div}_t = a_0 + k r E_t + (1 - k) \text{Div}_{t-1} + u$$

or
$$\text{Div}_t = a_0 + a_1 E_t + a_2 \text{Div}_{t-1} + u$$

where, a_0 Constant term;
 Div_t Target dividend payment for any year t ;
 E_t Earnings in year t ;
 r Target payout ratio;
 k Adjustment factor; and
 u Random disturbance term.

Since kr and $(1-k)$ are impounded in a_1 and a_2 (the regression coefficients), respectively, Lintner concluded that these two parameters are embedded in the corporation's dividend behavior.

4.6.4 Target Payment Ratio (R)

Corporations desire and, hence, design stable dividend payments in terms of their dividend payout ratio, which is determined by the company's current earnings. In other words, the target payout ratio acts as a guideline for management to follow when the companies intend to declare their dividends. The target payout ratio can be derived from the regression coefficients through the identity: $r = a_1 / (1 - a_2)$.

4.6.5 Adjustment Factor (K)

Due to strong bias against dividend cuts, increase in earnings is translated into increase in dividends only gradually to avoid future downward revision. This lag in adjustment of current dividends to the increase in earnings is a kind of safety device designed to make dividends a function of permanent earnings rather than transitory earnings that cannot be sustained. Other terminology that is used for k is speed of adjustment, which is derived from the identity $k = (1 - a_2)$.

V. Results and Discussions

The analysis of dividend policy of Indian IT Industry and its determinants has emerged with some concrete results. Four independent variables, specifically, lagged dividend, PAT, depreciation and changes in sales are the major aspects directing dividend decisions in the industry. R square and adjusted R square are high for the whole period under consideration. Moreover, d statistics of Durbin-Watson test is confirming that there is no problem of autocorrelation with the data. Target payout ratio and adjustment factor has also been calculated as per modified Lintner's model. Results of Granger Causality Test have also been incorporated.

5.1 Results of Backward Elimination Regression Model

In 1996-97, debt equity ratio and lagged dividend are the only factors affecting dividend policy of IT companies in India. These factors are

significant at 1% level. PAT has also emerged as important factor having positive impact on dividend policy. Constant term is not significant for dividend policy in this industry.

Table I
1996-97 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-0.232	0.192		-1.205	0.245	0.961	0.954	1.391
DERATIO	0.877	0.245	0.175	3.574	0.002			
LAGDIV	1.005	0.082	0.850	12.331	0.000			
PAT	0.029	0.014	0.145	2.076	0.053			

Table II exhibits that lagged dividend, price and depreciation are significant at 1% level. Constant term is abnormally showing negative relationship with dividend policy. Depreciation is having positive impact on dividend payments, which shows company's ability to pay current dividends as per target payout ratio after charging depreciation from current earnings. R square and adjusted R square both are high at 0.983 and 0.981 respectively; supporting the explanatory power of the model.

Table II
1997-98 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	0.055	0.106		0.521	0.608	0.983	0.981	1.552
DEP	0.040	0.013	0.135	3.035	0.006			
LAGDIV	0.987	0.044	0.827	22.507	0.000			
PRICE	0.001	0.000	0.154	4.237	0.000			

Analysis presented by Table III shows that only lagged dividend is significant at 1% level. PAT, changes in fixed assets and current ratio are also affecting dividend policy significantly but at 5% level. Changes in sales are having negative impact on dividend decision; illustrating that rapid gain in earnings as indicated by sales change might make firms more cautious. Firms feel that the rapid growth cannot be maintained and they might adopt more conservative dividend policy. Constant term is also present in the final model established by using backward elimination regression model. But it is negative and insignificant.

Table III
1998-99 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-0.429	0.303		-1.416	0.170	0.962	0.955	2.127
CURRATIO	0.184	0.075	0.102	2.440	0.022			
FIXASSET	0.022	0.009	0.137	2.402	0.024			
LAGDIV	1.032	0.091	0.830	11.298	0.000			
PAT	0.022	0.010	0.226	2.085	0.048			
SALES	-0.007	0.003	-0.178	-1.958	0.062			

Again, in 1999-00, lagged dividend, interest and depreciation are most significant factors determining dividend policy in Indian Information Technology Industry. The impact of debt equity ratio is also noteworthy; the level of significance is 10%. Depreciation is affecting positively. It confirms the ability of the company to conform to the predetermined dividend commitments.

Table IV
1999-00 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-0.292	0.471		-0.620	0.540	0.919	0.907	1.513
DEP	0.169	0.031	0.629	5.386	0.000			
DERATIO	2.584	1.416	0.111	1.826	0.079			
INTERST	-0.393	0.064	-0.683	-6.181	0.000			
LAGDIV	1.512	0.138	0.853	10.974	0.000			

In the year 2000-01, lagged dividend, changes in fixed assets, PAT, and depreciation all are affecting dividend policy at 1% level of significance. Significance of fixed assets variable shows that the dividend decisions are not independent of the other uses of corporate funds and changed in fixed assets level i.e. capital expenditure would be an important determinant of dividend payments.

Constant term is negative and insignificant. Depreciation is having negative impact on dividend decisions. It exemplifies that higher depreciation charges will lead to a reduction in the after tax earnings available for dividend payments and vice-versa. But in the year 1997-98 it showed positive relation with dividend payments. These are contradicting results. R square and adjusted R square both are high; values are 0.951 and 0.945 respectively.

Table V
2000-01 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-0.431	0.573		-0.752	0.458	0.951	0.945	2.095
DEP	-0.207	0.047	-0.563	-4.416	0.000			
FIXASSET	0.051	0.013	0.334	3.813	0.001			
LAGDIV	1.789	0.143	0.888	12.511	0.000			
PAT	0.024	0.006	0.348	3.718	0.001			

In 2001-02, yet again lagged dividend and depreciation are the most significant factors affecting dividend policy. Depreciation is showing negative relation with dividend decision. But in this year price and changes in sales are also influencing dividend policy considerably. Both these factors are affecting dividend decisions positively. Constant term is also significant but at 10%.

Table VI
2001-02 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-1.378	0.766		-1.798	0.082	0.975	0.972	2.003
DEP	-0.102	0.025	-0.185	-4.026	0.000			
LAGDIV	1.413	0.103	0.735	13.679	0.000			
PRICE	0.008	0.002	0.218	4.035	0.000			
SALES	0.037	0.005	0.314	7.954	0.000			

Table VII presents that fixed assets variable is the only change from last year's results. It has replaced depreciation. In this year change in fixed assets, lagged dividend, price and change in sales are significant at 1% level. But fixed assets and price are showing negative impact. This behavior is consistent with previous empirical results. Constant term is not demonstrating significant impact on dividend decision.

Table VII
2002-03 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	2.026	1.214		1.669	0.106	0.973	0.969	2.217
FIXASSET	-0.102	0.034	-0.100	-3.024	0.005			
LAGDIV	1.584	0.102	1.087	15.486	0.000			
PRICE	-0.018	0.004	-0.367	-4.569	0.000			
SALES	0.041	0.011	0.266	3.928	0.000			

As per the results of Table VIII, Constant term is affecting dividend decisions of Indian IT Industry at 1% level of significance for the first time during the period of study. To quote Lintner (1956), "The constant term will be zero for some companies but will generally be positive to reflect the greater reluctance to reduce than to raise dividends which was commonly observed" Constant factor is significant at 1% level; which supports earlier results. Again lagged dividend has emerged as the factor, which can cause noteworthy change in dividend policy. PAT, price and changes in sales are also affecting dividend decisions considerably. R square and adjusted R square both are high at 0.972 and 0.968 respectively; supporting the explanatory power of the model.

Table VIII
2003-04 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-17.150	5.481		-3.129	0.004	0.972	0.968	2.124
LAGDIV	-1.611	0.384	-0.300	-4.191	0.000			
PAT	0.446	0.102	0.658	4.374	0.000			
PRICE	0.085	0.013	0.394	6.345	0.000			
SALES	0.153	0.076	0.235	2.004	0.053			

The analysis in table IX established a strange result. Lagged dividend is not present in final model given by backward elimination regression analysis. Depreciation, interest payments and PAT are the principal factors affecting dividend policy; these are significant at 1% level. Depreciation is confirming negative impact on dividend payments; it confirms that as charge for depreciation augments earnings after tax available for dividend payments diminishes. Therefore, the ability of the company to conform to the predetermined dividend commitments gets weakened.

Table IX
2004-05 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	12.609	8.045		1.567	0.126	0.896	0.887	2.037
DEP	-1.220	0.330	-0.563	-3.693	0.001			
INTEREST	4.031	1.474	0.163	2.734	0.010			
PAT	0.356	0.037	1.415	9.565	0.000			

Regression results in Table X exhibit that lagged dividend, change in sales (SALES), and depreciation have come out to be the best predictors of dividend policy of IT industry; their coefficients are significant at 1% level. Furthermore, interest payment variable is significant at 5% level. It is important to note that interest payments have negative relation with dividend, which is theoretically and logically correct. Constant term is also significant at 10% level.

Table X
2005-06 Coefficients and Model Summary

	B	Std. Error	Beta	t	Sig.	R Square	Adj. R Square	D-W
(Constant)	-27.569	14.142		-1.949	0.069	0.984	0.980	2.084
DEP	3.435	0.233	1.150	14.759	0.000			
INTEREST	-5.796	3.018	-0.061	-1.921	0.073			
LAGDIV	1.230	0.173	0.577	7.095	0.000			
SALES	-0.248	0.036	-0.734	-6.796	0.000			

5.2 Target Payment Ratio and Adjustment Factor

The Table XI demonstrates the target payout ratio and adjustment factor related to dividend policy of Indian Information Technology Industry. Adjustment factor was negative for most of the years; which is an abnormal behavior. But it reached highest value in 2003-04; the reason for this change can be seen if the data related to dividend payments by IT industry is analyzed thoroughly. In this year many companies paid remarkable dividend much higher than their previous payments. Some of these are HCL Technologies Ltd, Infosys Technologies Ltd, Wipro Ltd and Mphasis BFL Ltd; these companies made at least twice payments this year in the form of dividends. Moreover, Infosys Technologies Ltd made approximately five times payments in comparison to previous year. Average adjustment factor for the period under consideration is 0.12; it illustrates that on an average an IT company takes 8 years to reach its target payout ratio.

Target payout ratio is positive in only five years. In other five years the ratio turned negative which has no explanation. If the exceptional negative numbers are removed from the list average target payout ratio becomes 36%; which is high ratio for the industry. The industry is following a stable dividend policy as is evident from behavior of lagged dividend in relation to current dividend demonstrated by regression analysis. But the target payout ratio and adjustment speed towards target payout ratio, which are affected by current earnings, are not showing very considerate results. Both these measurements turned negative and average is also not very significant.

Table XI

Year	Adjustment Factor	Target Payout Ratio
1996-97	-0.005	-5.80
1997-98	0.013	0.74*
1998-99	-0.032	-0.69
1999-00	-0.512	-0.02*
2000-01	-0.789	-0.03
2001-02	-0.413	-0.01*
2002-03	-0.584	0.02*
2003-04	2.611	0.17
2004-05	1.121 [#]	0.32
2005-06	-0.230	0.57*
Average	0.120	-0.47

Notes : * Implies that PAT coefficient was not available in the final regression model; therefore, these values have been computed from coefficients found in earlier models.

Implies that lagged dividend coefficient was not available in the final regression model; therefore, this value has been computed from coefficients found in earlier models.

5.3 Results of Granger Causality Test

Granger Causality Test has been applied over dividend and its determinants to know which factor is actually a dependent variable and which one is independent. The results are very astounding. It was applied to all the determinants decided with the help of concerned literature. But only two factors have shown dependence of dividend decisions over them. These are PAT and Depreciation. In these factors too only 12 and 9 IT companies respectively have shown significant impact on dividend. 3I Infotech Ltd., Aftek Ltd, Aztecsoft Ltd, Hinduja TMT Ltd, I-Flex Solutions Ltd, I gate Global Solutions Ltd, Infosys Technologies Ltd, KPIT Cummins Infosystems Ltd, NIIT Ltd, Patni Computer Systems Ltd, Wipro Ltd and Zenith Infotech Ltd. have demonstrated considerate impact of PAT over dividend decisions. HCL Technologies Ltd, Hinduja TMT Ltd, Infosys Technologies Ltd, Infotech Enterprises Ltd, KPIT Cummins Infosystems Ltd, Mastek Ltd, Rolta India Ltd, Satyam Computer Services Ltd and Wipro Ltd have displayed thoughtful impact of depreciation over dividend. These results are not very well in symmetry with regression results. Through regression, the study found lagged dividend imperative but Granger test

shows that there is no impact of lagged dividend over current dividend rather current dividend is affecting lagged dividend. But, it can be concluded that two other important factors affecting dividend decisions, namely, PAT and depreciation are showing same results in Granger test also.

Table XII
Granger Causality Test between Depreciation
and Dividend Payments

Null Hypothesis	Probability Lag 1
IINFODIV does not Granger Cause IINFODEP	0.12319
IINFODEP does not Granger Cause IINFODIV	0.75927
AFTEDIV does not Granger Cause AFTEDP	0.00078
AFTEDP does not Granger Cause AFTEDIV	0.18623
AURIDEP does not Granger Cause AURIDIV	0.81591
AURIDIV does not Granger Cause AURIDEP	0.16622
AZTEDIV does not Granger Cause AZTEDEP	0.77653
AZTEDEP does not Granger Cause AZTEDIV	0.75703
CMCDIV does not Granger Cause CMCDEP	0.01105
CMCDEP does not Granger Cause CMCDIV	0.62318
CRA DIV does not Granger Cause CRADEP	0.23932
CRADEP does not Granger Cause CRA DIV	0.55527
FINTDIV does not Granger Cause FINTDEP	0.70184
FINTDEP does not Granger Cause FINTDIV	0.99724
FOURDIV does not Granger Cause FOURDEP	0.12630
FOURDEP does not Granger Cause FOURDIV	0.97150
GTLDIV does not Granger Cause GTLDEP	0.51927
GTLDEP does not Granger Cause GTLDIV	0.36337
GEODDIV does not Granger Cause GEODDEP	0.06990
GEODDEP does not Granger Cause GEODDIV	0.12860
GEODIV does not Granger Cause GEODEP	0.23932
GEODEP does not Granger Cause GEODIV	0.55527
HCLDIV does not Granger Cause HCLDEP	0.79016
HCLDEP does not Granger Cause HCLDIV	0.04881
HELIDIV does not Granger Cause HELIDEP	0.30647
HELIDEP does not Granger Cause HELIDIV	0.66731
HEWEDEP does not Granger Cause HEWADIV	0.32296
HEWADIV does not Granger Cause HEWEDEP	0.99537
HINDDIV does not Granger Cause HINDDEP	0.02699
HINDDEP does not Granger Cause HINDDIV	0.01286
IFLEDIV does not Granger Cause IFLEDEP	0.01747
IFLEDEP does not Granger Cause IFLEDIV	0.47404
IGATDIV does not Granger Cause IGATDEP	0.14263
IGATDEP does not Granger Cause IGATDIV	0.95715
INFYDIV does not Granger Cause INFYDEP	0.23101
INFYDEP does not Granger Cause INFYDIV	0.00490
INFODIV does not Granger Cause INFODEP	0.27491
INFODEP does not Granger Cause INFODIV	0.09817
KLGDIV does not Granger Cause KLGDEP	0.25280
KLGDDEP does not Granger Cause KLGDIV	0.19948
KPITDIV does not Granger Cause KPITDEP	0.00545
KPITDEP does not Granger Cause KPITDIV	0.00239
MASDIV does not Granger Cause MASDEP	0.48890
MASDEP does not Granger Cause MASDIV	0.00841
MPHADIV does not Granger Cause MPHADDEP	0.30647
MPHADDEP does not Granger Cause MPHADIV	0.66731
NIITDIV does not Granger Cause NIITDEP	0.18404

(Contd....)

NIITDEP does not Granger Cause NIITDIV	0.86167
NITDIV does not Granger Cause NITDEP	0.17404
NITDEP does not Granger Cause NITDIV	0.61670
PATNDIV does not Granger Cause PATNDEP	0.12319
PATNDEP does not Granger Cause PATNDIV	0.75927
POLDEP does not Granger Cause POLDIV	0.64236
POLDIV does not Granger Cause POLDEP	0.00019
ROLTDIV does not Granger Cause ROLTDEP	0.09545
ROLTDEP does not Granger Cause ROLTDIV	0.00651
SATYDIV does not Granger Cause SATYDEP	0.01926
SATYDEP does not Granger Cause SATYDIV	0.05531
SSIDIV does not Granger Cause SSIDEP	0.00027
SSIDEP does not Granger Cause SSIDIV	0.29593
SASKDIV does not Granger Cause SASKDEP	0.85280
SASKDEP does not Granger Cause SASKDIV	0.19948
SONDIV does not Granger Cause SONDEP	0.56041
SONDEP does not Granger Cause SONDIV	0.50030
SUBDEP does not Granger Cause SUBDIV	0.63600
SUBDIV does not Granger Cause SUBDEP	0.00190
TATEDIV does not Granger Cause TATEDEP	0.28528
TATEDEP does not Granger Cause TATEDIV	0.19948
TACDIV does not Granger Cause TACEDEP	0.85280
TACEDEP does not Granger Cause TACDIV	0.18000
TECHDEP does not Granger Cause TECHDIV	0.02296
TECHDIV does not Granger Cause TECHDEP	0.05370
TELEDEP does not Granger Cause TELEDIV	0.32296
TELEDIV does not Granger Cause TELEDEP	0.95370
WIPRDIV does not Granger Cause WIPRDEP	0.53861
WIPRDEP does not Granger Cause WIPRDIV	0.07336
ZENIDIV does not Granger Cause ZENIDEP	0.35634
ZENIDEP does not Granger Cause ZENIDIV	0.50643
ZENDIV does not Granger Cause ZENDEP	0.56041
ZENDEP does not Granger Cause ZENDIV	0.54003

Table XIII

Granger Causality Test between PAT and Dividend Payments

Null Hypothesis	ProbabilityLag 1
IINFODIV does not Granger Cause IINFOPAT	0.80538
IINFOPAT does not Granger Cause IINFODIV	0.00852
AFTEDIV does not Granger Cause AFTEPAT	0.84804
AFTEPAT does not Granger Cause AFTEDIV	0.06885
AURIPAT does not Granger Cause AURIDIV	0.59100
AURIDIV does not Granger Cause AURIPAT	0.16220
AZTEDIV does not Granger Cause AZTEPAT	0.06019
AZTEPAT does not Granger Cause AZTEDIV	0.08373
CMCPAT does not Granger Cause CMCDIV	0.81591
CMCDIV does not Granger Cause CMCPAT	0.16622
CRADIV does not Granger Cause CRAPAT	0.23900
CRAPAT does not Granger Cause CRADIV	0.52700
FINTDIV does not Granger Cause FINTPAT	0.59559
FINTPAT does not Granger Cause FINTDIV	0.55515
FOURDIV does not Granger Cause FOURPAT	0.12630
FOURPAT does not Granger Cause FOURDIV	0.06150
GTLDIV does not Granger Cause GTLPAT	0.25701
GTLPAT does not Granger Cause GTLDIV	0.49670
GEODDIV does not Granger Cause GEODPAT	0.99000
GEODPAT does not Granger Cause GEODDIV	0.18600
GEODIV does not Granger Cause GEOPAT	0.05404

(Contd....)

GEOPAT does not Granger Cause GEODIV	0.55681
HCLDIV does not Granger Cause HCLPAT	0.78263
HCLPAT does not Granger Cause HCLDIV	0.81444
HELIDIV does not Granger Cause HELIPAT	0.34700
HELIPAT does not Granger Cause HELIDIV	0.68731
HEWADIV does not Granger Cause HEWEPAT	0.77524
HEWEPAT does not Granger Cause HEWADIV	0.90404
HINDDIV does not Granger Cause HINDPAT	0.76085
HINDPAT does not Granger Cause HINDDIV	0.05896
IFLEDIV does not Granger Cause IFLEPAT	0.82725
IFLEPAT does not Granger Cause IFLEDIV	0.07042
IGATDIV does not Granger Cause IGATPAT	0.34348
IGATPAT does not Granger Cause IGATDIV	0.01589
INFYDIV does not Granger Cause INFYPAT	0.03272
INFYPAT does not Granger Cause INFYDIV	0.00199
INFODIV does not Granger Cause INFOPAT	0.40545
INFOPAT does not Granger Cause INFODIV	0.88138
KLGDIV does not Granger Cause KLGPAT	0.26280
KLGPAT does not Granger Cause KLGDIV	0.99480
KPITDIV does not Granger Cause KPITPAT	0.39415
KPITPAT does not Granger Cause KPITDIV	0.06507
MASDIV does not Granger Cause MASPAT	0.07739
MASPAT does not Granger Cause MASDIV	0.24622
MPHADIV does not Granger Cause MPHAPAT	0.84054
MPHAPAT does not Granger Cause MPHADIV	0.18240
NIITDIV does not Granger Cause NIITPAT	0.36218
NIITPAT does not Granger Cause NIITDIV	0.01706
NITDIV does not Granger Cause NITPAT	0.19040
NITPAT does not Granger Cause NITDIV	0.71670
PATNDIV does not Granger Cause PATNPAT	0.80538
PATNPAT does not Granger Cause PATNDIV	0.00852
POLDIV does not Granger Cause POLPAT	0.91704
POLPAT does not Granger Cause POLDIV	0.08585
ROLTDIV does not Granger Cause ROLTPAT	0.04541
ROLTPAT does not Granger Cause ROLTDIV	0.15475
SATYDIV does not Granger Cause SATYPAT	0.13582
SATYPAT does not Granger Cause SATYDIV	0.15968
SSIDIV does not Granger Cause SSIPAT	0.83163
SSIPAT does not Granger Cause SSIDIV	0.11678
SASKDIV does not Granger Cause SASKPAT	0.85280
SASKPAT does not Granger Cause SASKDIV	0.49480
SONDIV does not Granger Cause SONPAT	0.60410
SONPAT does not Granger Cause SONDIV	0.60030
SUBPAT does not Granger Cause SUBDIV	0.36000
SUBDIV does not Granger Cause SUBPAT	0.00190
TATEDIV does not Granger Cause TATEPAT	0.47735
TATEPAT does not Granger Cause TATEDIV	0.98793
TACDIV does not Granger Cause TACEPAT	0.52800
TACPAT does not Granger Cause TACDIV	0.71800
TEHPAT does not Granger Cause TECHDIV	0.29600
TECHDIV does not Granger Cause TEHPAT	0.55370
TELEPAT does not Granger Cause TELEDIV	0.22960
TELEDIV does not Granger Cause TELEPAT	0.65370
WIPRDIV does not Granger Cause WIPRPAT	0.05870
WIPRPAT does not Granger Cause WIPRDIV	0.05949
ZENIDIV does not Granger Cause ZENIPAT	0.25183
ZENIPAT does not Granger Cause ZENIDIV	0.09122
ZENDIV does not Granger Cause ZENPAT	0.23305
ZENPAT does not Granger Cause ZENDIV	0.37425

VI. Conclusion and Suggestions

Analysis made with the help of various econometric tools came to some concrete results regarding dividend decisions of Indian IT Industry. It has been summed up that the industry follows stable dividend policy as lagged dividend has emerged as the significant factor. Other results have been summarized below:

- It can be concluded that Indian Information Technology Industry follows more or less stable dividend policy as lagged dividend has emerged as the most significant factor in Backward Regression Analysis for the period under consideration.
- Lagged dividend, PAT, change in sales and depreciation are the factors demonstrating significant effect over dividend decisions of Indian IT Industry. Lagged dividend and PAT are positively linked to dividend decision but sales and depreciation are showing mixed impact on the decisions regarding dividend payments.
- Change in sales as determinant of dividend decisions is showing mixed results; for three years it has given positive and for another two years it was negative with dividend. Positive relation with dividend establishes that IT companies are able to grow dividend payments with increasing sales and vice versa. But, as it was established by Brittain (1966) that growing sales make firms more cautious and they adopt conservative dividend policy. Indian IT industry is exhibiting mixed relation between sales and dividend decisions. It is showing both cognizant and positive relation.
- Depreciation is again explaining both positive and negative impact on dividend payments. Its positive relation elucidates company's ability to pay current dividends as per target payout ratio after charging depreciation from current earnings. But negative linkage illustrates that higher depreciation charge will lead to a reduction in the after tax earnings available for dividend and vice-versa. Another time the impact is not clear. Indian IT industry is a growing industry; therefore the mixed results are apparent. It has not yet established standards for its financial decisions.
- Other important factors like capital expenditure, interest and cash flow have not proved to be affecting dividend policy.
- Target payout ratio of the industry has increased to 57% in 2005-06 from negative number in 1996-97. An unusual outcome of the study is negative average target payout ratio. But the industry is a growing industry that came into existence a few years back. For the reason abnormal outcome of the target payout ratio should not be considered as the ratio has improved in the last three years.
- Adjustment factor is showing very low speed of the industry to reach target payout ratio; it is only 0.12 on an average. It indicates that the industry is improving in terms of dividend payments also.
- Granger causality test has specified only two factors affecting dividend policy of Indian IT Industry. These are PAT and depreciation. In these factors too there are only 12 and 10 Information Technology Companies confirming those results. That is, only 25 percent IT companies organize their dividend policy keeping in consideration PAT and Depreciation.

Dividend policy continues to be an often-conversed area between financial economist and corporate managers. The theories and justifications that have emerged resulted in an enormous theoretical and empirical body of research with hundreds of papers. But the controversy over the subject motivates the conduct of research; where answers to many questions are still not clearly developed. The paper summarized the most important theories of dividend and leading determinants of dividend. Dividend policy of Indian IT Industry has been analyzed using Backward Elimination Regression Model, Modified Lintner's Model and Granger Causality Model. The study may be used as a ready reference for future researches on the area under discussion. Further, for the policy makers of the Indian IT Industry, the study may prove to be valuable for re- drafting their dividend policy keeping in view the outcome of the study.

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