

VALIDITY OF LINTNER'S DIVIDEND BEHAVIOUR MODEL IN INDIAN BANKING SECTOR: AN EMPIRICAL ANALYSIS

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ABSTRACT

Dividend Policy is a crucial decision area in the field of corporate finance. A number of studies have been undertaken in the literature of finance, attempting to categorise, explain and measure the different types of observed corporate dividend behaviour. However, very little research efforts have been made so far on the dividend behaviour of banking sector. The present study is an attempt in this direction. It seeks to examine the validity of the Lintner's dividend behaviour model in three major commercial banks of India namely HDFC Bank, ICICI Bank, and State Bank of India. The result of the study discloses that the Lintner's model is holding good only in ICICI Bank with all specifications.

INTRODUCTION

Dividend decision is an important decision in the field of financial management which we mean the payout policy that the managers follow in deciding the size and pattern of cash distribution to the shareholders. While deciding about the distribution of dividend the financial managers come across a number of factors that influence the dividend decision. Research has attempted to explain the influencing role of the various factors in the process of dividend decision but a universally acceptable conclusion is yet to be drawn. 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 do not fit together". For about five decades now, the research on dividend policy has grown significantly not only on the foreign firms but also on the Indian firms. Researchers like Lintner(1956),Darling(1957), Brittain(1966)have developed mathematical models to address this decision problem. Basing on those works, many researchers from India as well as from abroad have carried out a handful number of studies during the last five decades. The contribution of Fama and Babiak (1968), Walter (1967) and others is also significant in this regard. The recent works of Mahapatra and Panda (1995), Garg, Verma and Gulati (1996), Mishra and Narender(1996), Pandey (2001), Mahapatra and Biswasroy (2006), Pal and Goyal (2007), Sudhahar and Saroja (2010) are

noteworthy in the Indian context. Most of these studied are on dividend policy and behaviour of non banking companies. However, very few attempts have been made so far on the dividend behaviour of banking companies. Thus, the present study is an attempt to evaluate the significance of Lintner's dividend behaviour model on the Indian banks included in the SENSEX.

REVIEW OF LITERATURE

The work of Lintner (1956) established a milestone in the field of dividend policy research who uncovered for the first time that firms maintain a target payout ratio and they adjust their dividend payout policy to this target. Using the partial adjustment model to define the primary determinants of dividend policy of US firms, he found that firms establish their dividends in accordance with the level of current earnings and the dividend paid in the previous year. Basing on this land mark study of Lintner (1956), Brittain(1966) considered current year's free cash flow and current year's depreciation as explanatory variable in his study. Similarly Darling (1957) considered last year's profit after tax, current year's depreciation and amortisation and current year change in sales over the preceding two years as explanatory variable in his model over and above profit after tax. Since then, a number of empirical studies have been carried out all over the world and it has been a subject of enquiry by academicians, researchers, financial analysts for many decades.

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The followings are some of the reviews of the literatures which were published recently in the context of Indian firms.

Mahapatra and Panda (1995) in their study tried to explain the dividend behaviour in the Indian situation with reference to three selected industries namely cotton, paper, and sugar. Considering the sample size of 43 companies for twelve years i.e. from 1977-78 to 1988-89, the study reveals that dividend decision is primarily governed by cash flow. The determinants like flow of net debt, flow of net debt are found to be significant in paper and cotton industry respectively where as the determinant like interest payment has turned out to be significant in sugar and paper industry. However, determinants like investment demand and share price behaviour have no significance on the dividend policy decisions of the sample companies. Garg, Verma and Gulati (1996) have made an attempt to explain the dividend behaviour of 44 Indian textile firms over the period of 1980-81 to 1989-90 and they concluded that dividend policy is primarily determined by the current year profit after tax and dividends paid in the previous year, i.e. lagged dividend. This confirms the Lintner's model as the best fit model for Indian textile firms. The study of Mishra and Narender (1996) on State Owned Enterprises (SOEs) purely draws upon the data published by the Department of Public Enterprise (DPE) in its annual public enterprise surveys for the years from 1984-85 to 1993-94. All the SOEs (thirty nine in number), which have declared dividend since 1985-86 till 1993-94 constitute the sample for the study. For the purpose of analysis, the sample has been divided into three broad groups such as Manufacturing, Petroleum and Service. To study the dividend behaviour pattern of SOEs, Lintner's model is applied which establishes the relationship between current year's dividend per share (DPS) with current year's earning per share (EPS) and previous year's dividend per share (LDPS) i.e. lagged dividend. From their study they found that Lintner's argument goes majority of SOEs. Further their study indicates that lagged dividend plays a significant role than that of current year's EPS in taking dividend decision in SOEs. Mahapatra and Biswasroy (2006) conducted a study to know the dividend behaviour in the context of Indian firms

with a sample size of fifty nine companies which consists of four industries namely general engineering, cotton, sugar and paper. The period of study was for twelve years commencing from 1987 to 1999. They have examined to see whether the dividend policy of the firm is influenced by profit after tax (PAT), or lagged dividend (LD) or cash flow (CF). They used the Lintner's profit model and Brittain's cash flow model in their study to know the model of 'good fit'. In the Lintner's model, both the explanatory variables such as profit after tax (PAT) and lagged dividend (LD) are found to be statistically significant only in case of sugar and paper industries where as from the Brittain's Cash flow model, both the explanatory variables such as cash flow (CF) and lagged dividend (LD) found to be statistically significant in all the four sample industries. Thus their findings support the proposition that cash flow rather than profit after tax is a better measure of the company's capacity to pay dividend. Sudhahar and Saroja (2010) carried out an empirical study on the determinants of dividend policy in the Indian banking industry. The data are spread over a period of ten years i.e. from 1997-98 to 2006-07. Their study was based on a sample of 20 banks listed on the Bombay Stock Exchange (BSE) under Group A and B. The entire study has been carried out in two ways, where in one way they have tested the dividend models of Lintner, Brittain and Darling and in the other way they have developed a model by considering nine independent variables such as previous year dividend payout ratio, size in terms of volume of sale, current ratio, debt ratio, tangibility calculated as net fixed assets divided by total assets, return on investment, dividend tax, corporate tax and interest liability and these independent variables were regressed with the dividend payout ratio of the current year. From the study of the above notable models of Lintner, Brittain and Darling it is found that Brittain's explicit depreciation model is the best model in explaining the dividend policy of the banks, where current year depreciation and current year profit after tax are considered as explanatory variables. Further, the regression model developed by the authors indicates the significance of return on investment (ROI) followed by last year dividend payout ratio and size in terms of volume of sale in the dividend policy of the Indian banks.

RESEARCH METHODOLOGY**Objective of the Study**

Banks are the financial institutions which bridge the gap between the surplus spending units and deficit spending units and thus act as the catalyst in the economic development of the country. Like any other firms, the banks are also having the objective of wealth maximisation. It is often argued that the share prices of a bank tend to be reduced whenever there is a reduction in dividend payment (Sudhakar and Saroja, 2010). In the context cited above the objective of the present research work is to test the proposition of Lintner(1956) which states that Dividend payout is a function of net current earnings after tax and dividend paid in the previous year.

Study Period and Data Collection

The relevant data for the study have been primarily collected from the CMIE Prowess database which is widely used for research studies in India. All the three banking companies included in SENSEX namely, HDFC Bank, ICICI Bank and SBI have been chosen for the purpose of the study. Data relating to Profit after Tax (PAT), Equity Dividend paid (DIV), covering a period of 11 years i.e., from 1998-99 to 2008-09, were collected for all the three sample banking companies for the purpose of analysis. The processing and preliminary analyses of data were carried out by using MS Excel. For regression analysis, Minitab Software was used.

The Lintner's Model

The partial adjustment dividend behaviour model of Lintner(1956) is the most recognised empirical investigation on dividend behaviour to date. This model is the foundation on the basis of which many research works have been carried out. Lintner(1956) postulates that dividend payout is a function of net current earnings after tax and the dividend paid in the previous year. In his study, Lintner found that the firms, generally, think in terms of proportion of earnings to be paid as dividend and they have a Target Payout ratio which acts as a guideline for management to follow where the firms do not change the dividend rate immediately with the change in earnings. They change their rate of dividend slowly, in order to adjust with the target pay out ratio. The rate of change towards the target payout ratio is known as Speed of Adjustment Coefficient. The above

theoretical formulation of Lintner(1956) has been based on the Partial Adjustment Model developed by Marc Nerlove and used as an estimating equation in the present study. The final model of Lintner is presented as follows:

$$D_t = \alpha_0 + krP_t + (1-k)D_{t-1} + U_t$$

$$D_t = \alpha_0 + \alpha_1 P_t + \alpha_2 D_{t-1} + U_t$$

Where D_t is the dividend paid in the current year t , D_{t-1} is the dividend paid in the preceding year $t-1$, P_t is the profit after tax in the current year, r is the target payout ratio, k is the adjustment factor and U_t is the random disturbance term. kr and $(1-k)$ are impounded in the place of a_1 and a_2 (the regression coefficients) respectively. The value of r and k can be found out as follows $r = a_1 / (1-a_1)$ and $k = (1-a_2)$.

Limitation of the Study

The study is based on the secondary data collected from the CMIE prowess data base for the sample companies. Thus, the study possesses all the inherent limitations of the secondary data. Small sample size can be considered as another limitation whereby higher degree of precision can not be achieved. The size of the sample is restricted because of the selection criteria fixed for the purpose of sample selection. Basing on the aforesaid limitations, due care has been taken in deriving the result from the regression model.

RESULTS OF LINTNER MODEL:

This section seeks to analyse the applicability of Lintner's model on dividend policy of the selected banks. The analysis of the determinants will be carried out with the help of an econometric model namely partial adjustment model. The bank wise result of the model has been displayed in the table-1. The analysis table contains the information pertaining to regression coefficients and the values of t -test, F-test, R^2 and D-W test. The interpretation of the results has been made accordingly.

*** Significant at 1% level. ** Significant at 5% level.

Figures in brackets are 't' values of for the estimated coefficients.

The results of the model are depicted in the above table-1 which discloses that the estimated regression model explained well the dividend

behaviour of the selected banks as in all the cases the F-value is found to be statistically significant at 1% level of significance. The coefficient of determination (R^2) in the above regression model is found to be very high ranging from 97.6% to 99.9% which signifies the well explanation of dependant variable by the independent variables. The robustness of the regression model can be inferred from its D-W value which indicates about the absence of autocorrelation in the regression models

for all the banks. In the above regression model one variable i.e. profit after tax is found to be significant at 1% level of significance in case of all the banks under consideration where as lagged dividend is found to be insignificant. Thus, the empirical results show the more influence of profit after tax on current year dividend than the lagged dividend. The constant term shows positive sign in case of HDFC Bank and ICICI Bank which supports the Lintner model. To quote Lintner(1956), "The constant term will be zero

Table-1: Regression Results of Lintner's Model

Explanatory Variables	HDFC Bank	ICICI Bank	SBI
Intercept	11.959*** (4.27)	9.61 (0.39)	-154* (-2.86)
Current Year Profit (PAT _t)	0.1849*** (8.21)	0.2892*** (8.18)	0.1998*** (4.70)
Last Year Dividend (DIV _{t-1})	-0.0061 (-0.04)	0.0602 (0.48)	0.0884 (0.30)
R ²	99.9	99	97.6
F- Value	6062.47***	404.7***	160.26***
D-W Value	2.86	1.73	1.37

Analysis of Target Payout Ratio and Speed of Adjustment Coefficient

Table-2: Target Payout Ratio and Speed of Adjustment Coefficient

Name of the Banks	Speed of Adjustment Coefficient (k)	Target Payout Ratio (r)
ICICI Bank	0.94	0.307
SBI	0.912	0.219

for some companies but will generally be positive to reflect the greater reluctance to reduce than to raise dividends which was commonly observed". The constant term of HDFC Bank is statistically significant at 1% level of significance where as in case of SBI, it is found to be significant at 5% level.

However constant term in case of SBI shows negative sign which indicates the management's desire not to have stable dividend policy. Considering the detail specification of the model it can be concluded that the ICICI Bank is found to be the best fit for the Lintner's

model. Thus the above inferences drawn from the above analysis approves the proposition of Lintner(1956) "Dividend payout is a function of net current earnings after tax and dividend paid in the previous year".

The table-2 displays the target payout ratio (r) and adjustment factor (k) relating to dividend policy of ICICI Bank and SBI. The target payout ratio is found to be the highest in case of ICICI Bank (0.307) followed by SBI (0.219) during the study period. The speed to achieve the target is also high in case of ICICI Bank. The study shows the significant impact of the current earnings on the target payout ratio and the adjustment speed towards target payout ratio of the above two banks.

CONCLUSION:

This study has tested the Lintner model using the specified framework of econometric modelling. The study result discloses that to a significant extent the estimated regression model with profit after tax variable explains satisfactorily the dividend behaviour of the banks under study which supports the Lintner's model. However, only one bank i.e. ICICI Bank follows the Lintner's model with all specifications. This bank is characterised by high target payouts coupled with high speed of adjustment coefficients. Further, the analysis reveals that the banks follow more or less a stable dividend policy which can be known from the intercept values of the regression equation. The above drawn conclusions are to be analysed and tested further in order to get precise conclusion.

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