

Determinants of Dividends – A Study of companies listed in BSE 500 Index

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ABSTRACT

Profitability has always been considered as a primary indicator of dividend payout ratio. There are numerous other factors other than profitability that also affect dividend decision of an organization namely liquidity, risk, market capitalization, growth rate. Available literature suggests that dividend yield is positively related to profits and inversely related with liquidity, market capitalization and beta and there is no relation between growth rate and dividend yield. This paper attempt to empirically analyze the determinants of dividend of BSE 500 index companies. Descriptive statistics and statistical technique of correlation and regression have been used to explore the relationship between the key variables. Thus the main theme of this paper is to identify various factors that influence the dividend yield of BSE 500 index companies.

Keywords : Dividend yield, Payout policy, Profitability, Liquidity, BSE-500 Index

JEL Classification : G32, G35, E44

Introduction

Dividend policy is at the core of the theory of corporate finance. It is one of the most debated topics in the finance literature and still maintains its prominent position. Academicians & Researchers have developed many theoretical models and provided empirical evidence regarding the determinants of firm's dividend policy. The dividend policy issue, however, remains unresolved. Clear guidelines for an 'optimal payout policy' have not yet emerged despite of the voluminous literature. We still do not have an acceptable explanation for the observed dividend behavior of the companies. We are yet to understand completely the factors that derive dividend decisions and the manner in which these factors interact. This is known as dividend puzzle in the finance literature. Several hypotheses have been put forward to shed some light on this puzzle, but none of them have provided the answer.

In the seminal paper, Miller and Modigliani (1961) argue that given perfect capital markets, the dividend does not affect the firm value and is, therefore, irrelevant. Most financial practitioners and many academics greeted this conclusion with surprise because the conventional wisdom at the time suggested that a properly managed dividend policy had an impact on share prices and shareholders wealth. According to Brook et al. (1998) there is no reason to believe that corporate dividend policy is driven by a single goal.

What might be important to mention, is that researchers have primarily focused on developed markets, while little attention has been paid to dividend policy in emerging markets. As a result, this field is not well established in the financial literature. Dividend policy in emerging markets

is often very different in its nature, characteristics and efficiency, from that of developed markets.

As a result, there is considerable interest in identifying dividend policy determinants for the Indian companies. Thus, this paper continues the debate over dividends in the emerging markets area. Therefore, it may be that additional insight into the dividend policy debate can be gained for the case of developing countries.

The undertaken study examines the determinants of dividends from the context of a developing countries like India by focusing specifically on the firms listed on Bombay stock exchange (BSE). The study examines large cross section of 243 companies of BSE 500 index.

This paper is organized as follows: Section 2 presents in-depth literature review on dividend policy. Section 3 discusses the research hypothesis related to the factors affecting dividend policy and proxies used to represent such factors. The modeling framework and the measures of explanatory variables are described in Section 4. A Discussion on data collection is presented in Section 5. Section 6 discusses the empirical results of the data. Conclusions and future research suggestions are presented in Section 7.

Literature Review

“The harder we look at the dividend, the more it seems like a puzzle with pieces that just do not fit together.”

Black (1976) in his study concluded with this question: “What should the corporation do about dividend policy? We don't know”

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The subject of corporate dividend policy has captivated many economists. Broadly speaking, many imperfections do exist; these include asymmetric information, agency costs, bankruptcy, financial distress, clientele effects, etc. Therefore, various arguments have a bearing on the issue. Beyond that, the picture remains cloudy.

Lintner (1956) conducted a classic study on how U.S. managers make dividend decisions. He developed a compact mathematical model based on survey of 28 well established industrial U.S. firms which is considered to be finance classic. He asserted that managers adopt a policy of progressive and continuing partial adoption in order to stabilize dividend distributions and avoid erratic rates. According to him the dividend payment pattern of a firm is influenced by the current year earnings and previous year dividends.

Miller and Modigliani (1961) illustrated that under certain assumptions, dividend were irrelevant and had no influence on a firm's share price. They have argued that the market price of a share is affected by the earnings of the firm that results from the investment policy and is not influenced by the pattern of income distribution. The dividend policy is immaterial and is of no consequence to the value of firm. Since then financial researchers and practitioner have disagreed with Miller and Modigliani's proposition and have argued that they based their proposition on perfect capital market assumptions that do not exist in the real world. Those in conflict with Miller and Modigliani's ideas introduced competing theories and hypotheses to provide empirical evidence to illustrate that when the capital market is imperfect, dividends do matter. For instance, the bird in the hand theory (predicting Miller and Modigliani's paper) explained that investor prefer dividends (certain) to retained earnings (less certain).

Rozeff (1982) also extended the theory by providing the agency cost explanation of dividend policy, which is based on the observation that firms pay dividend and raise capital simultaneously. The factors which seems to influence the dividend payout ratio is the firms funds requirement for investment purpose, firms debt financing, and a third factor suggested in this paper is agency costs. Firms with greater investment, as measured by greater current and prospective growth rate of revenues have lower dividend payout because external finance is costly. The beta is used as an indicator of market risk. Findings suggested that firms having higher level of market risk will payout dividends at lower rate in order to avoid the costs of external finance. Agency costs are incurred in monitoring company management to prevent inappropriate behavior. Large dividends payouts reduce internal cash flows, forcing managers to seek external financing, and thereby, making them liable to capital suppliers, thus reducing agency costs.

Anand, M. (2004) in his study identified dividend decisions are important as they provide a signaling mechanism for the future prospects of the firm and decisions and thus affect the market value.

Naceur, S.B., et al. (2006) in their study tests the main determinants that may drive the dividend policy of Tunisian quoted firms. They identified that ownership concentration, financial leverage does not have any impact on dividend. Liquidity, Size of stock market has a negative influence; profitability has a positive influence on dividend.

Amidu, M. and J. Abor. (2006) in their study seeks to examine the determinants of dividend payout ratio of listed companies in Ghana. Their study indicates a statistically significant and positive relationship between dividend payout, cash, profitability and Corporate Tax. The results show negative but insignificant association between risk, institutional holdings and dividend payout ratios, negative and statistically significant association between growth in sales, market to book value and dividend payout ratios.

Anil, K. and S. Kapoor. (2008) in their study examines the issue of dividend payout from emerging markets perspective by focusing specially on Indian Information Technology Sector, concluding that only liquidity and beta is a note worthy determinant. Profitability has positive relationship with dividend ratio but it is not an important determinant and other variables like corporate taxes, sales growth & market to book value ratio has negative relationship with dividend payout ratio in IT sector.

Factors Influencing Dividend Decision and Research Hypothesis

The Previous section reviewed the framework of dividend policy and discussed several studies that tested dividend policy in emerging markets. This section formulates to further examine the factors, which may affect corporate dividend policy. This section also explains the appropriate proxy variables used to measure the factors affecting dividend payouts.

Research Hypotheses

Profitability

Profitability measures the business performance. It is defined as the ability of a firm to generate profit. A firm's profitability is considered to be an important factor that affects dividend policy. This is because profitable firms are willing to pay higher amounts of dividends and hence a

positive relationship is expected between firm's profitability and its dividend payments. This result is also supported by the signaling theory of dividend policy. ROI is used as a proxy for profitability. Therefore, the first hypothesis becomes:

H_{01} : There is no significant relationship between dividend yield and profitability.

H_{11} : There is a significant relationship between dividend yield and profitability.

Liquidity

Liquidity measures the extent to which a firm is able to meet its payment obligations. The cash flow position of a firm is an important determinant of dividend payouts. A poor liquidity position means less generous dividend due to shortage of cash. A firm's liquidity is an important factor that affects the firm decision to pay cash dividends. High liquidity firms, i.e., firms with higher cash availability and near cash assets, pay higher dividends to shareholders than those with insufficient cash. Current ratio is used as a proxy for liquidity. Therefore, the second hypothesis becomes:

H_{02} : There is no significant relationship between dividend yield and liquidity.

H_{12} : There is a significant relationship between dividend yield and liquidity.

Risk

Beta value is used by several studies as a proxy for the systematic risk. Beta measures the stock's volatility in relation to the market. In addition, it has been argued that high-risk firms tend to have a higher volatility in their cash flows, than low-risk firms. Consequently, the external financing requirement of such firms will increase, driving them to reduce the dividend payout to avoid costly external financing. Hence, firms avoid commitment to pay large dividends, as the uncertainty about earnings increases. Beta is used as a proxy for business risk. Therefore, the hypothesis in regard to risk is formulated as:

H_{03} : There is no significant relationship between dividend yield and risk.

H_{13} : There is a significant relationship between dividend yield and risk.

Size

Firms can be categorized according to their size (measured by market Capitalization, total sales or total assets) for the

purpose of statistical analyses. For firm, size variable has become a key variable in prior literature to explain the firm's decision to pay dividends. Large firms are more likely to be mature and thus have easier access to capital markets, and should be able to pay more dividends. This indicates that large firms can afford to pay higher dividends than the financing, and hence positive relationship is expected between firm size and dividend policy, indicating that large firms will have less issuing costs. The findings of the various papers support the hypothesized positive association between firm size and dividend policy. Market capitalization is used as a proxy for firm size. Therefore the Hypothesis in regard to firm size becomes:

H_{04} : There is no significant relationship between dividend yield and size.

H_{14} : There is a significant relationship between dividend yield and size.

Growth

Growth may also have impact on dividend payout ratios. Dividend payout levels are not totally decided after a firm's investment and financing decisions have been made rather, the dividend decision is taken along investment and financing decisions. Rapidly growing firms require external financing because working capital needs normally exceed the incremental cash flows from new sales. Such firms choose to cut, or pay fewer dividends, to reduce its dependence on costly external financing. CAGR is used as a proxy for growth. The hypothesis in regard to growth becomes:

H_{05} : There is no significant relationship between dividend yield and growth.

H_{15} : There is a significant relationship between dividend yield and growth.

Theoretical Framework and Measures of Variables

To investigate the five hypotheses created in this study associated with determinants of dividend of BSE 500 index companies, this study undertook an empirical testing of a model with the following framework:

$$\text{DIV YIELD} = f(\text{PROF, LIQU, RISK, SIZE, GROW}) \dots (1)$$

Where:

Dividend yield is a financial ratio that shows how much a company pays out in dividends each year relative to its

share price. Dividend yield is the dependent variable that is defined as:

$$\text{Dividend yield} = \text{Annual dividend per share} / \text{Price per share}$$

ROI (return on investment) is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. It is used as a proxy for firm's profitability.

$$\text{ROI} = \text{pbit} / \text{average capital employed} * 100$$

Current Ratio is a liquidity ratio that measures a company's ability to pay short-term obligations. It is used as a measure for firm's liquidity.

$$\text{Current ratio} = \text{current assets no asset held for sale} / \text{current liabilities and provisions}$$

Beta (β) of a stock or portfolio is a number describing the relation of its returns with those of the financial market as a whole. Beta is used as a proxy for risk.

Firm size (size) is measured as a natural log of market capitalization. This is due to the fact that large firms will pay dividends to reduce agency costs.

Growth rate (GROW) is measured as the compound annual growth rate of sales.

Data

Bombay Stock Exchange Limited constructed a new index, christened BSE-500, consisting of 500 scrip's w.e.f. August 9, 1999. The changing pattern of the economy and that of the market were kept in mind while constructing this index. BSE-500 index represents nearly 93% of the total market capitalization on BSE. BSE-500 covers all 20 major industries of the economy. BSE-500 provides the most comprehensive view of the Indian Capital Market. The BSE -500 index is scientifically calculated and the 500 companies are selected based on market capitalization, liquidity and balanced industry representation.

The sample selected for study consists of 243 companies, which are constituents of BSE 500 index. The year of study is 31st march 2010. The data has been sourced from prowest database of CMIE. The variables that have been identified can be stated as follows:

$$\text{DIV YIELD} = \beta_0 + \beta_1 \text{ PROF} + \beta_2 \text{ LIQU} + \beta_3 \text{ RISK} + \beta_4 \text{ SIZE} + \beta_5 \text{ GROW}$$

Table 1: Operational Definitions of Variables

Variables	Operational definitions
1. Dividend Yield	DIV YIELD: Annual dividend per divided by Price per share
2. Profitability	ROI(Return on investment): Profit before interest and tax divided by average capital employed
3. Liquidity	CR(Current ratio) current assets no asset held for sale divided by current liabilities and provisions
4. Risk	BETA(Risk): variability in returns with those of the financial market as measured by Beta
5. Size	MC (Market capitalization): natural log of market capitalization
6. Growth rate	CAGR: compound annual growth rate

Empirical Analysis of Data

Descriptive statistics and the mathematical techniques of correlation and regression were used to explore the relationship between the variables.

Descriptive Statistics

Table 2: Descriptive Statistics

	DIVYIELD (%)	ROI (%)	CR (Ratio)	BETA (Number)	MC (Rs.)	CAGR (%)
Mean	1.11	25.6	1.94	1.03	10.62	31.19
Median	74	20.98	1.34	1.03	10.40	17.51
Std. Deviation	1.02	21.71	3.15	.38	1.33	88.91
Variance	1.05	471.46	9.94	.15	1.76	7904.51
Skewness	2.14	3.61	11.05	.23	.90	10.92
Std. Error of Skewness	.16	.16	.16	.16	.16	.16
Kurtosis	5.37	19.54	147.41	-.31	.50	134.79
Std. Error of Kurtosis	.31	.31	.31	.31	.31	.31
Minimum	.01	3.07	.31	.27	8.50	.13
Maximum	6.08	176.29	45.17	2.25	15.07	1206.56

Table 2 provides the descriptive statistics for all the regression variables. Compound annual growth rate has the highest mean value of 31.19, highest variance with a value of 7904.51 and the highest maximum value of 1206.56. ROI (return on investment) has the highest median with a value of 20.98. Market capitalization has the highest minimum value of 8.5.

6.2 Correlation Matrix

Table 3: Correlation Matrix

Variables	DIV YIELD (%)	ROI (%)	CR (Ratio)	BETA (Number)	MC (Rs.)	CAGR (%)
DIV YIELD(%)	1	.266**	-.084	-.174**	-.134*	.000
ROI (prof) (%)		1	-.125	-.422**	.224**	-.095
CR(liquidity) (ratio)			1	.115	-.006	.028
BETA(risk) (Number)				1	-.216**	.126*
MC(size) (Rs.Million)					1	-.045
CAGR(gr)						1

**Correlation is significant at the .01 level
 *Correlation is significant at the .05 level

Table 3 highlighted that there is a significant correlation between Dividend yield, ROI(prof),MC(size) and Beta (Risk).ROI(prof) is positively correlated with dividend yield and BETA(risk) is negatively correlated with dividend yield and are significant at 1% level of significance suggesting that highly profitable firms pay more dividend and high risk firms pay lower dividends to their shareholders.MC(size) is negatively correlated with dividend yield and is significant at 5% level of significance.CR(liquidity) is negatively correlated with dividend yield but it is not significant. Dividend yield is not correlated with CAGR (growth rate) as it is apparent from the correlation matrix.

Regression Results

Bivariate regression results

Table: 4 Adjusted R square values

	ADJ. R Square
ROI(prof)	.067
CR(liquidity)	.007
BETA(risk)	.026
MC(size)	.014
CAGR(growth rate)	-.004

In Table: 4 profitability explains the highest variation in dividend yield.

Table 5: Regression coefficients and their t values

	Alpha	t (Alpha)	Beta	t (Beta)
ROI(prof)	.786	8.012*	.013	4.285*
CR(liquidity)	1.106	15.096*	-.027	-1.136
BETA(risk)	1.585	8.525*	-.466	-2.744*
MC(size)	2.206	4.185*	-.103	-2.102*
CAGR(growth rate)	1.107	15.878*	-.5456	.007

Table 5 provides that all the regression constants are significant and beta coefficients of profitability, beta and market capitalization variables are significant.

Multivariate Regression Results

A deeper look at the Adjusted R square reveals that existing model explains 10.4% of the variation in the Dividend yield of BSE 500 index companies since it assumes a value .104.

Table 6: Regression coefficients and their t values

	Regression coefficients	t value
Constant(α)	2.863	4.924*
ROI(prof)	.013	3.914*
CR(liquidity)	-.013	-.663
BETA(risk)	-.287	-1.571
MC(size)	-.167	-3.423*
CAGR(growth rate)	.000	.501

Table 6 provides that constant, profitability and market capitalization are significant whereas other variables are insignificant.

Conclusion

This study examines the determinants of dividend of BSE 500 index companies in India. The analyses are performed using data derived from prowest database of CMIE .The period of study is 31st march 2010.Descriptive statistics and the statistical techniques of correlation and regression are used for the analyses. The results show positive relationship between dividend yield and profitability. The results suggest that, profitable firms tend to pay high dividend. The results also show negative association with other variables except growth rate which shows no relationship between the two. Firms experiencing earning volatility find it difficult to pay dividend, such firms would therefore pay less or no dividend. In bivariate regression the value of Adjusted R Square is highest for profitability which means profitability explained highest variation in dividend yield as compare to other variables. In multivariate regression a deeper look into the R square reveals that the existing model explains 10.4% of dividend payment pattern of BSE 500 index companies. And since P assumes a value of .000 which suggests the overall applicability of the existing model.

Since the existing variables explain just 10.4% of the dividend behavior of BSE 500 index companies. Future research can be focused on discovering variables that explains the remaining 89.6% of the behavior.

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