

PANEL DATA ANALYSIS: FACTOR DETERMINANTS OF DIVIDEND PAYOUT RATIO; EVIDENCE FROM NSE AUTOMOBILE SECTORAL INDEX

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ABSTRACT

This study analyzes the factor determinants of dividend payout ratio on selected companies of Automobile sectorial index of NSE. The study covers the period from 1st April 2007 to 31st March 2017, which consist of ten years. The collected data has been tested by different econometrical tools like Pooled Least Square Regression Equation, Fixed Effect model, Random Effect model and Hausman Test. The empirical result of the study exposes that there is significant difference between dividend payout ratio Corporate Tax, Current Earnings, Firm Size and Profitability. There is no significant difference between dividend payout ratio and Debt Equity Ratio and Growth Opportunities.

Keywords: Dividend Payout ratio, Pooled OLS, Fixed and Random Effect model.

INTRODUCTION

The term dividend refers to the distribution of firm profit to the shareholder. Hence, dividend decision is one of the crucial roles in the firm financial decision. According to Lintner (1956), firms in the developed markets target their dividend payout ratio with the help of current earnings and past dividends. Therefore, in order to reach such target, various modifications are made in the dividend policy of a firm and thus firms should have a stable dividend policy. According to Modigliani and Miller (1961), dividend decision is irrelevant because it does not have any effect on the market price. According to Bhattacharya (1980), dividends provide information or “signals” to the market concerning the company’s future performance. A dividend cut, for example, immediately signals that the firm is retaining its free cash flow (FCF) for future expansion or that it is uncertain about its future earnings and thus avoiding dividend payouts. Signaling theory argues that managers cannot cut or increase the dividend rate arbitrarily because omitting dividends sends out negative signals to the market.

Dividend policy is still one of the challenging arguments in the international financial zone. Abundant researchers have attempted its interpretation from various aspects. And yet, general consensus does not exist regarding the factors determining the dividend policy. This paper focuses on the factors affecting the dividend decision of public listed companies.

This study aims to investigate the relationship between Corporate tax, Current earnings, Debt Equity Ratio, Firm size, Growth Opportunities, Profitability and dividend policy and also to study the determinants of dividend policy of public listed companies in India. The samples of the study are selected 13 Automobile companies listed in NSE based on continuous dividend payment made to the shareholders starting from 2007 until 2017. The researcher used panel data for analysis. Panel data is a longitudinal data or cross-sectional time series data. It is data that is derived from a small number of observations over time on a large number of cross-sectional units. (www.thoughtco.com)

REVIEW OF LITERATURE

Manoj Anand (2004), the study consisted of 474 firms in the private sector and 51 in the public sector in India. This research examined that the dividend payout ratio and dividend changes follow the long term basis. It mainly based on the financial position. It also indicated that the dividend payout is based on the future and thus it affects the market value. Dividend policy is considered on the basis of investor preference.

Thanh Truong and Richard Heaney (2007), the study examined the interaction between the largest shareholder and dividend policy in a sample of 8,279 listed firms drawn from 37 countries. The analysis of the study shows that firms are more likely to pay dividends when profitability is high, debt is low, investment opportunities are limited or when the largest shareholder is not an

insider. Further, the magnitude of dividend payout tends to be smaller when the largest shareholder is either an insider or a financial institution.

S. Franklin John and K. Muthusamy (2010), the study analysis was based on the corporate dividend policy on Indian paper industry. The lintner divided model is used for calculating dividend payout ratio, The results imply that the Indian paper industry employs more leverage for narrating dividend payout ratio.

Uwuigbe Olubukunola Ranti (2013), the study investigated the determinants of dividends policy in the Nigerian stock exchange market. The study basically modeled to examine the effects of financial performance of firms, firm size, Debt Equity Ratio and board independence on the dividend payout decisions of listed out from Nigerian stock exchange. The study showed that there is a significant positive relationship between size of firms firms' financial performance and the dividend payouts.

Aliya Bushra and Nawazish Mirzato (2015), the study identified significant determinants of firms' dividend policy across different sectors in Pakistan. The study found that find that profitable firms tend to give higher dividends than loss-making firms. Firm size has a negative relationship with the dividend payout ratio and dividend yield, indicating that, the larger the firm, the more likely it is to retain cash to pay off its liabilities. Growth in sales is positively related to dividend yield, whereby an increase in sales leads to higher profitability and higher dividend payments. Ownership concentrated within institutions (such as banks and insurance companies), the management/family, and individuals have a negative impact on the payout ratio.

Nishant B. Labhane Jitendra Mahakud (2016), the study analyzed the trends and the determinants of the dividend policy of Indian companies that were continuously paying the dividend during the whole period study that is from 1994–1995 to 2012–2013. The findings of the study exposed that investment opportunity, Debt Equity Ratio, size of the company, business risk, firm life cycle, profitability, tax and liquidity are the major determinants of the dividend policy for Indian companies. These results were robust across the period also. The findings are consistent with the pecking order, transaction cost, signalling and firm life cycle theories of the dividend policy.

Anjana C.A and P. Balasubramanian (2017), examined some of the features that determine the behaviour of firms' dividend payouts ratio in NSE. For this purpose, the Regression analysis was used for the study. The result exposed that more than 80 per cent of the companies' value comes under the level of significance and 20 per cent of them come above the level of significance.

OBJECTIVES OF THE STUDY

The overall objective of the study is to identify the determinants of dividend payout ratio on NSE Automobile index. The following are more specific objectives. They are;

1. to examine the factors like current earning, corporate tax, growth opportunities, firm size, Debt Equity Ratio and Profitability influencing dividend payout ratio; and
2. to compute descriptive statistics of selected explanatory variables.

HYPOTHESES

1. H_0 : There is no significance difference between dividend payout ratio and current earning, corporate tax, growth opportunities, firm size, Debt Equity Ratio and Profitability.
2. H_0 : The Random Effect Model is more appropriate than fixed effect model.

METHODOLOGY OF THE STUDY

SAMPLE SELECTION

In March 2018, automobile sector reached nearly three times growth of 19.3 per cent comparison in March 2017 sales i.e., 5.2 per cent. During this period sales are rapidly growth irrespective of increase of fuel prices, inflation and hike in interest rates. Automobile industry attains maximum profit due to a high volume of sales. Sales and profit are prime factors for determining dividend. Henceforth, the researcher has chosen the automobile industry for this study.

National Stock Exchange (NSE) is the leading stock exchange in India. Hence, the NSE Sectoral indices of Automobile index have been chosen for further studies. As on 31st March 2018, NSE Automobile Sectoral Index has 16 companies scrips. The researcher has selected only 13 companies scrip's based on a continuous distribution of dividend over the study period. The study period includes 1st April 2007 to 31st March 2017, which consists of 10 years. The remaining three company scrips were not considered due to non-distribution of dividend throughout the study period.

DATA COLLECTION

The data collected for this empirical study are dividend payout ratio, current earning, corporate tax, growth opportunities, firm size, Debt Equity Ratio and Profitability. In order to collect these data the researcher has used www.screener.in. The data collected was from 1st April 2007 to 31st March 2017, which is consists of 10 years.

TOOLS USED FOR THE STUDY

In order to identify the factor determinants of dividend payout ratio the researcher has applied.

Descriptive Statistics

It consists of Average or Mean (Maximum, Minimum) and Standard Deviation.

Pooled Ordinary Least Square

Pooled Ordinary Least Square model assume that unobservable characteristics are even, , independent of i --no heterogeneity. That is, we have:

$$Y_{it} = \alpha + CTAX_{it} + CEAR_{it} + DER_{it} + FSIZ_{it} + GOPP_{it} + PROF_{it} + \epsilon_{it}$$

Where i = Company, t = time period

Fixed Effect Model

The fixed OLS model assumes that the individual specific effect is correlated with independent variable. In fixed effect model the group mean is fixed.

$$Y_{it} = \alpha + CTAX_{it} + CEAR_{it} + DER_{it} + FSIZ_{it} + GOPP_{it} + PROF_{it} + \epsilon_{it}$$

Random Effect Model

The random OLS model assumes that the individual specific effects are uncorrelated with the independent variables. In random effect model the group mean is random.

$$Y_{it} = \alpha + CTAX_{it} + CEAR_{it} + DER_{it} + FSIZ_{it} + GOPP_{it} + PROF_{it} + \epsilon_{it} + \mu_{it}$$

Table 1.1
Variable Used For the Study

Dividend	Dependent Variable	Dividend / Net income
Corporate tax (CTAX)	Independent Variable	Tax paid during the year
Current earnings (CEAR)		EBIT/ Total Assets
Debt Equity Ratio (DER)		Total Debt/ Total Equity
Firm size (FSIZ)		Log (Total Assets)
Growth Opportunities (GOPP)		((Current year Sales- Last year Sales) / Last year Sales)
Profitability (PROF)		(Net Profit/owners equity)*100

DATA ANALYSIS AND INTERPRETATION

Table 1.2
Descriptive Statistics For NSE Automobile Sectoral Index

Variables	Descriptive Statistics				
	Mean	Maximum	Minimum	Std. Dev.	Observations
Dividend	25.351	108.760	0.000	17.063	130
Corporate tax	0.275	1.322	-0.155	0.129	130
Current earnings	0.172	0.470	-0.024	0.083	130
Debt Equity Ratio	0.432	2.472	0.000	0.479	130
Firm size	8.724	10.851	6.322	0.977	130
Growth Opportunities	0.182	1.582	-0.688	0.264	130
Profitability	20.579	65.219	0.897	10.688	130

Source: Compiled from EViews.7

The table 1.2 depict that descriptive statistics for dependent and independent variables used in the Pooled OLS regression equation. The average dividend payout ratio of selected companies during the study period is 25.351 with the standard deviation of 17.063. It is understood that, the selected companies of NSE Automobile Sectoral spend 25.351 the profit after tax to pay dividends to the shareholders. Moreover, fluctuation gap of the dividend payout ratio of selected companies has maximum value of 108.760 and the minimum value of 0. In addition to that, the table also explains about mean, maximum, minimum and standard deviation for independent variable.

Table 1.3
Panel Least Squares or Pooled Least Square Regression Equation

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.89548	11.15228	1.335644	0.1841
Corporate Tax	-18.82591	10.25557	-1.835677	0.0688

Current Earnings	-119.6056	25.95493	-4.608203	0.0000
Debt Equity Ratio	1.189869	3.129164	0.380251	0.7044
Firm Size	1.010629	1.228131	0.822899	0.4122
Growth Opportunities	-10.54635	5.003209	-2.107917	0.0371
Profitability	1.396944	0.182925	7.636696	0.0000
R-squared	0.407668	Mean dependent var		25.35092
Adjusted R-squared	0.378773	S.D. dependent var		17.06345
S.E. of regression	13.44906	Akaike info criterion		8.088038
Sum squared resid	22247.90	Schwarz criterion		8.242444
Log likelihood	-518.7225	Hannan-Quinn criter.		8.150778
F-statistic	14.10894	Durbin-Watson stat		1.116421
Prob(F-statistic)	0.000000			

Source: Compiled from EViews.7

The Table 1.3 displays the results of Pooled OLS regression of factors determinants of dividend payout ratio in NSE Automobile index. The coefficient values of Corporate Tax, Current Earnings, and Growth Opportunities and Profitability factors are significant at 5 and 10 per cent level. However, Debt Equity Ratio and Firm Size are not determining the dividend payout ratio based on the probability value. Moreover, R2 value is low and Durban-Watson Statistic is less than two. It understood that it is not a correct fit model for factors determinants of dividend payout ratio. As per the panel data procedure if pooled OLS is unfit moved to either fixed effect model or random effect model.

Table 1.4
FIXED EFFECT MODEL

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.102392	16.32203	0.496408	0.6206
Corporate Tax	-25.53073	7.830100	-3.260588	0.0015
Current Earnings	-99.30417	25.41157	-3.907834	0.0002
Debt Equity Ratio	-4.661737	3.752705	-1.242234	0.2168
Firm Size	3.558519	1.980160	1.797086	0.0750
Growth Opportunities	3.771027	4.064708	0.927749	0.3556
Profitability	0.563576	0.188638	2.987598	0.0035
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.720599	Mean dependent var		25.35092
Adjusted R-squared	0.675291	S.D. dependent var		17.06345
S.E. of regression	9.723306	Akaike info criterion		7.521232
Sum squared resid	10494.24	Schwarz criterion		7.940333
Log likelihood	-469.8801	Hannan-Quinn criter.		7.691527
F-statistic	15.90439	Durbin-Watson stat		1.982557
Prob(F-statistic)	0.000000			

Source: Compiled from EViews.7

The Table 1.4 shows the results of fixed effect model for factors determinants of dividend payout ratio in NSE Automobile index. The coefficient values of Corporate Tax, Current Earnings, Firm Size and Profitability factors are significant at 5 and 10 per cent level. However, Debt-Equity Ratio and Growth Opportunities are not determining the dividend payout ratio based on the probability value. Additionally, R2 value is high and Durban-Watson Statistic is closer to two, it understood that it is a good sign for factors determinants of dividend payout ratio.

Table 1.5

Random Effects Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.76769	13.22442	1.041080	0.2999
Corporate Tax	-24.18419	7.755470	-3.118340	0.0023
Current Earnings	-101.1418	23.21980	-4.355843	0.0000
Debt Equity Ratio	-2.765808	3.292527	-0.840026	0.4025
Firm Size	2.347935	1.549612	1.515176	0.1323
Growth Opportunities	0.262744	3.942908	0.066637	0.9470
Profitability	0.790005	0.174278	4.533021	0.0000
Effects Specification				
			S.D.	Rho

Cross-section random			7.422237	0.3682
Idiosyncratic random			9.723306	0.6318
	Weighted Statistics			
R-squared	0.256190	Mean dependent var		9.702424
Adjusted R-squared	0.219906	S.D. dependent var		11.60100
S.E. of regression	10.24635	Sum squared resid		12913.47
F-statistic	7.060786	Durbin-Watson stat		1.639127
Prob(F-statistic)	0.000002			
	Unweighted Statistics			
R-squared	0.318823	Mean dependent var		25.35092
Sum squared resid	25584.90	Durbin-Watson stat		0.827317

Source: Compiled from EViews.7

The Table 1.5 shows that the results of Random effect model for factors determinants of dividend payout ratio in NSE Automobile index. The coefficient values of Corporate Tax, Current Earnings, and Profitability factors are significant at 1 per cent level. However, Debt Equity Ratio, Firm Size and Growth Opportunities are not determining the dividend payout ratio based on the probability value. Additionally, R2 value is low and Durban-Watson Statistic is less than two, it understood that it is a not good sign for factors determinants of dividend payout ratio.

Table 1.6
HAUSMAN TEST

H₀: The random effect model is more appropriate:

H_A: The fixed effect model is more appropriate.

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	19.588815	6	0.0033

Source: Compiled from EViews.7

The Table 1.6 shows the results of Hausman Test. It is typically used for selecting the most appropriate model of panel data namely Fixed Effect and Random Effect. The p-values of Hausman test shows that 0.00 which is less than 0.05. Hence, we reject the null hypothesis and accept the alternative hypothesis i.e., the fixed effect model is more appropriate. The output results in Table 1.3 shows the value of R2 in the fixed effect regression model is 0.720599. It means that the fitness of independent variables (Corporate Tax, Current Earnings, Firm Size and Profitability) in explaining the dependent variable (DPR) of selected companies listed in NSE Automobile Sectoral Index for 2007-2017 value is 72.06 per cent, while the rest of 27.94 per cent described other variables that are not included in this study. Hence, it is understood that there is a significant difference between dividend payout ratio Corporate Tax, Current Earnings, Firm Size and Profitability. There is no significant difference between dividend payout ratio and Debt-Equity Ratio and Growth Opportunities.

CONCLUSION

The study shows sturdy evidence for factors determinants of dividend payout ratio on selected companies of Automobile sectorial index of NSE. The researcher concludes that Corporate Tax, Current Earnings, Firm Size and Profitability factors significantly influence the Dividend Payout Ratio. On the other hand, Debt-Equity Ratio and Growth Opportunities do not significantly influence the Dividend Payout Ratio.

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