

# Dividend Payout Determinants: Evidence from Indian Industries

<sup>1</sup>P.G. Thirumagal and <sup>2</sup>S. Vasantha

<sup>1</sup>School of Management studies, Vels Institute of Science, Technology and Advanced Studies,  
Chennai, India.

[tmgal.sms@velsuniv.ac.in](mailto:tmgal.sms@velsuniv.ac.in)

<sup>2</sup>School of Management studies, Vels Institute of Science, Technology and Advanced Studies,  
Chennai, India.

[vasantha.sms@velsuniv.ac.in](mailto:vasantha.sms@velsuniv.ac.in)

## Abstract

The main objective was to identify the determinants of dividend for five core industries viz, Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical industries with 15 years data from 2001 to 2015 using Panel regression. Industries have been analysed before and after financial meltdown (2008) and based on large, mid and small capitalization categories. Leverage, past dividend, Size of the company, Firm risk and profitability were the major determinants of dividend for majority of selected industries and market capitalization.

**Key Words:** Dividend, dividend policy, firm risk, firm size, leverage and profitability.

## 1. Introduction

Dividend policy is the percentage of earnings to be distributed as earnings and percentage of earnings to be retained by the firm (Droms & Wright, 2010). According to Brigham & Gapenski (1998), the main objective of dividend decision should be to maximize shareholders wealth in the long run than in short run. According to Baker, Veit and Powell (2001), size and pattern of cash distribution provided to the shareholders by the managers is the dividend policy. Dividend decision is still a puzzle in corporate finance. According to Brealey, R.A., S.C. Myers, et al., (2005), dividend policy is still one of the top unsolved problem in finance. Black, F., (1976) provided the statement “the harder we look at dividend the more it seems like a puzzle with pieces that just don’t fit together”.

Dividend policy is different from Country to country, industry to industry and company to company. Gordon, M.S., (1959) argued that dividend policy increases the shareholders wealth, Merton, H. Miller and Franco Modigliani (1961) and Miller, M.H. and M.S. Scholes (1978) argued that the dividend policy is irrelevant whereas Litzenberger, R.H and K. Ramaswamy (1982) argued that dividend policy decreases the shareholders wealth.

There are many other factors which impact the dividend decision of the firm. This study identifies the factors that impact the dividend among the Indian companies. The scope of financial management and the functions of finance manager have undergone changes in the last few decades but the goal or objective of the company remains unchanged. The main objective of the firm is shareholders wealth maximization. It is represented by the positive net present value of the financial decisions. Finance manager should identify optimum dividend policy that maximizes shareholders wealth by increase in the market value of the firm. The main objectives of the study is to investigate the determinants of dividend payout based on core industries in India viz Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical industries and based on market capitalization viz, Large cap, Mid cap and Small and based on global financial meltdown viz, pre financial meltdown and post financial meltdown.

## 2. Review of Literature

Jensen and Meckling (1976) analysed that dividend payments could reduce the agency cost of the monitoring the managers. Rozeff (1982) analysed the determinants of dividend payout ratio of 1000 firms covering 64 industries. Baker, Farrelly, & Edelman (1985) analysed that profitability and past year dividend of the company have an impact on the dividend of the firms. Lloyd et al (1985) found that size of the company was positively significant with dividend. Pruitt & Gitman (1991) examined that the dividend decision was determined by past year dividends. Jensen et al (1992) found significant

relationship between financial leverage and dividend payout. Alli, Khan, Ramirez (1993) found that cash flow was an important determinant than earnings. Agarwal & Jayaraman (1994) found significantly inverse relationship between financial leverage and dividend pay-out. Barclay et al (1995) found that size of the company was positively significant with dividend. Reeding (1997) found that size of the company was positively significant with dividend. Holder et al (1998) found that size of the company was positively significant with dividend. Brook, Charlton, & Hendershott (1998) analysed that increasing cash flow as the significant determinant of dividend. Allen et al (2000) examined that dividend payment provides signal about the firm's quality. Kakani et al (2001) studied the determinants of financial performance of Indian corporate sector in the post liberalization era for 566 companies during 1992 to 2000. Fama & French (2001) found that size of the company was positively significant with dividend. Grullon et al (2002). Mature firms pay more dividend and firms at the younger age retain more for future investments.. Hafeez & Javid (2008) examined the dividend determinants of Pakistan for 320 non-financial firms listed on the Karachi Stock Exchange for the period of 2001 to 2006. Al-Kuwari (2009) investigated the dividend determinants in GCC country stock exchanges using listed non-financial firms during 1999 to 2003. Bop Sik Kang (2009) investigated the Country (Australia, France, UK and US) influence on corporate dividend policy. Amitabh & Charu (2010) studied the determinants of dividend policy for 150 companies from 16 industries selected listed in BSE 500 index Osman & Mohammed (2010) analysed dividend policy of 37 financial and 105 non-financial firms of Saudi Arabia during 1989 to 2004. Sujata Kapoor (2010) investigated the impact of dividend policy on shareholders wealth of Indian firms in IT sector, FMCG sector and Service sector. Azhagaiah & Veeramuthu (2010) investigated the impact of capital structure based on firm size on dividend behaviour of Indian companies. Gustav & Gairatjon (2012) analysed the dividend payout determinants of 87 financial and non-financial Swedish large and mid-cap companies with variables free cash flow, growth, leverage, profit, risk and size during 2006 to 2010 using OLS and Tobit regression. Abdul & Takumi (2012) examined 50 companies' dividend determinants from Karachi stock exchange in Pakistan. Ayman (2012) examined the dividend determinants of 284 firms listed in Kuala Lumpur stock exchange from seven sectors using Multivariate analysis with dividend payout ratio as dependent variable. Anupam Mehta (2012) analysed the determinants of dividend from UAE companies. Rafique (2012) found the factors affecting the dividend payout among the non-financial firms listed in Karachi stock exchange. Sheikh Taher Abu (2012) investigated the dividend payout determinants from Bangladesh with 11 banks listed in DSE and CSE for eight years period from 2003 to 2010. Turki and Ahmed (2013) analysed Saudi Arabia firms' dividend determinants during the period 2004 to 2010 for 105 non-financial firms. Hossain et al (2014) investigated the impact of firm specific factors on dividend decisions in Bangladesh. 521 companies have been listed in Dhaka Stock Exchange (DSE) in which 150 were non-financial firms in 2013. Mohammad & Nasrollah (2014) investigated the relationship of age and

leverage of the firms with dividend for the listed firms in Tehran stock exchange during 2005 to 2011 using multivariable regression.

Christopher & Rim (2014) analysed the determinants of dividend policy among Lebanese listed banks. Azhagaiah & Gejalakshmi (2014) examined the determinants of dividend in Indian IT sector. Using Multi stage sampling, Out of 84 firms, 20 IT firms listed in NSE for 5 years period from 2008 to 2012 have been selected for the study. Nasser and Shirazi (2015) investigated the determinants of dividend policy in Tehran stock exchange listed companies for 5 years data from 2008 to 2013. Ali Tariq (2015) analysed the joint determinants of leverage and dividend of non-financial firms of India and Pakistan during 2010 to 2014 using multiple regression. Henrik & Victor (2015) examined the dividend determinants of Swedish firm during pre and post financial crisis which occurred in 2008. Thirumagal & Vasantha (2015) analyse the factors influencing dividend decision and its impact on firm performance. Titus & Ambrose (2015) examined the dividend determinants for 60 NSE listed firms in Kenya with 10 years data from 2004 to 2014. Banerjee (2016) analysed dividend determinants for IT companies for five years.

Based on the literature review it was observed that many researchers have analysed the determinants of dividend pay-out of different industries, some researchers have separately found dividend determinants during pre and post financial meltdown which occurred in 2008 due to US Subprime crisis. This study identified dividend determinants of Indian industries.

### **3. Research Methodology**

In this research five industries viz Automobile, Infrastructure & Construction, Energy, Information technology and Pharmaceutical industry were used. Fifteen companies have been segregated as five large capitalization, five mid capitalization and five small capitalization from each industry. Fifteen years data (2001 to 2015) were used to identify dividend determinants by using dividend payout ratio, profitability, leverage, liquidity, firm risk, growth opportunities, past dividend, investment demand, maturity of the company, institutional shareholding, agency cost, firm size and audit type. Panel data regression was used to identify the dividend determinants.

#### **A. Dimensions of the Research**

- To analyse the determinants of dividend payout among the Indian companies.
- To examine the dividend payout determinants based on all selected industries together during 2001 to 2015
- To analyse the determinants of dividend payout based on all selected industries together before financial meltdown (2001 to 2007) and after financial meltdown (2009 to 2015).
- To analyse the dividend payout determinants based on market capitalization during 2001 to 2015.

- To find out the determinants of dividend payout for all selected industries during 2001 to 2015.

The study was based on analytical and empirical research design using secondary data. Secondary data were collected from Prowess database of Centre for Monitoring Indian Economy (CMIE), [www.bseindia.com](http://www.bseindia.com) and [www.nseindia.com](http://www.nseindia.com) were the source of data for the research. Based on the requirement, the Secondary data was compiled from the database. Five important industries viz., Automobile industry, Infrastructure & Construction industry, Energy industry, Information technology and Pharmaceutical industry companies have been considered for the study from NIFTY 500 index. There were 31 Automobile industry companies, 51 Infrastructure & Construction industry companies, 38 Energy industry companies, 29 Information technology industry companies and 35 Pharmaceutical industry companies listed in NIFTY 500 index. Using multistage random sampling, fifteen companies have been chosen from each industry which includes 5 large capitalization companies, 5 mid-capitalization companies and 5 small capitalization companies.

By 2001 to 2015, companies with the following categories have been segregated based on market capitalization. Companies which did not omit dividend payment for more than three continuous years were selected. Only cash dividend was considered for the research. Companies with market capitalization of more than Rs. 20,000 Crores was considered as large capitalization companies, Rs. 5,000 to Rs. 20,000 Crores was considered as mid-capitalization companies and less than Rs. 5,000 Crores was considered as small capitalization companies (Source: [www.equitymaster.com](http://www.equitymaster.com)). The study used 15 years data from 2001 to 2015. A large number of years have been considered to enable the researcher to analyse the objectives as for the whole period (2001 to 2015), pre financial meltdown (2001 to 2007) and post financial meltdown (2009 to 2015) and it would cover the entire business cycle of all the selected industries.

To find out the determinants of dividend, the following model was used.

$$DPR = \beta_1 (AGE^2) + \beta_2 (ASG) + \beta_3 (AT) + \beta_4 (CR) + \beta_5 (DER) + \beta_6 (ID) + \beta_7 (ISH) + \beta_8 (LAGDPR) + \beta_9 (LNTA) + \beta_{10} (OD) + \beta_{11} (PER) + \beta_{12} (RONW) + e$$

Where,

DPR = Dividend Payout Ratio

AGE<sup>2</sup> = AGE<sup>2</sup> measure the maturity of the company

ASG = Annual Sales growth measures the Growth opportunities of the company

AT = Audit Type

CR = Current ratio measures the liquidity company

DER = Debt Equity Ratio measures the financial leverage of the company

ID = Investment Demand measures the Investment level of the company

ISH = Institutional shareholding measures the institutional ownership structure

LAGDPR = Lagged Dividend payout ratio measures the past dividend

LNTA = Natural log of Total assets measures the size of the firm

OD = Ownership Dispersion measures the agency cost

PER = Price Earnings Ratio measures the risk level of the firm

RONW = Return on Net worth measures the Profitability of the company

View 7 software was used to identify the determinants of dividend payout and its impact on shareholders wealth. Since 15 years data used with 12 variables, Panel data regression method was used. Before performing panel data regression, the following diagnostic check-up was done.

1. The following conditions for Panel Data Regression to be tested.

- **Normality test** (Jarque–Bera Statistics) – Descriptive statistics provides the basics of mean and standard deviation.
- **Multicollinearity test** - Multicollinearity means the linear relationship between independent variables.
- **Heteroskedasticity Test:** One of the important conditions for classical linear regression model is that there should not be heteroskedasticity between variables. Heteroskedasticity means the variance of the residuals is not constant. If there is heteroskedasticity, then the estimate may not be efficient. Mostly cross sectional data suffers from this than time series data. Generalized Least Squares (GLS) can be used to avoid heteroskedasticity. In this research since  $T < N$  (No. of years is less than No. of Cross sections), Period weights is used both in GLS weights and Coefficient covariance method.
- **Auto Correlation:** Serial correlation refers to the situation in which the residual terms are correlated with one another. It is the correlation of the variable with itself over successive time intervals. Durbin – Watson statistic is used to test the auto correlation
- **Panel unit root test** is used to check whether the data is stationary by the absence of unit root.

**2. Panel Data Regression** was used to analyse the determinants of dividend & its impact on shareholders wealth. The fixed effect model allows for heterogeneity or individuality among variables by allowing to have its own intercept value. The term fixed effect model (FEM) is due to the fact that although the intercept may differ across variables, but the intercept does not vary over time, ie it is the time variant. Random effect model (REM) assumes that all the variables have a common mean value

## 4. Results and Discussion

### A. Diagnostic testing for Panel data Regression

#### 1. Normality

Normality test was conducted for all selected industries together during 2001 to 2015, all selected industries together before financial meltdown (2001 to 2007) and after financial meltdown (2009 to 2015), all the selected industries based on market capitalization (Large cap, Mid cap and Small cap) during 2001 to 2015 and for all selected industries (Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical) during 2001 to 2015. Mean and median of all the variables was close to each other. All the variables were significant at 95% confidence interval since the p value was less than 5% significance level. It was found that the data were normal during the selected years. Since the Jarque–Bera statistics was less than 5% significance level, it was concluded that the error terms were not normally distributed. It was proved in Central limit theorem that if there are large number of observation and if the random variables are independently and identically distributed then there is a normal distribution (Gujarati & Porter (2009)). If the observation is more than 100 then it is considered as a large sample. In this the number of observation is 225 to 1125. It was assumed that there was normal distribution of error terms.

#### 2. Multicollinearity

Multicollinearity means the linear relationship between independent variables. Econometrically multicollinearity can be explained as

$$y = \alpha + \beta x_1 + Cx_2 \text{ where } x_2 = d + ex_1$$

If there is a high pairwise correlation then there is multicollinearity between the variables. If the pair wise correlation exceeds 80%, then there is serious problem of multicollinearity (Gujarati & Porter (2009)). It was found that there was no multicollinearity for all selected industries together during 2001 to 2015, all selected industries together before financial meltdown (2001 to 2007) and after financial meltdown (2009 to 2015), all the selected industries based on market capitalization (Large cap, Mid cap and Small cap) during 2001 to 2015 and for all selected industries (Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical) during 2001 to 2015.

#### 3. Heteroskedasticity

One of the important conditions for regression model is that there should not be heteroskedasticity between variables. Heteroskedasticity means the variance of the residuals is not constant. If there is heteroskedasticity, then the estimate may not be efficient. Mostly cross sectional data suffers from this than time series data. Generalized Least Squares (GLS) can be used to avoid heteroskedasticity. In this research since  $T < N$  (No. of years is less than No. of Cross sections), Period weights is used both in GLS weights and Coefficient covariance method. It was found that there is no heteroskedasticity for all selected industries together during 2001 to 2015, all selected industries together before financial

meltdown (2001 to 2007) and after financial meltdown (2009 to 2015), all the selected industries based on market capitalization (Large cap, Mid cap and Small cap) during 2001 to 2015 and for all selected industries (Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical) during 2001 to 2015.

**4. Auto Correlation**

Serial correlation refers to the situation in which the residual terms are correlated with one another. It is the correlation of the variable with itself over successive time intervals. Durbin – Watson was also in the range of 1.5 to 2.5 proved the absence of autocorrelation.

Table 1: Autocorrelation – Durbin Watson Statistic – All Industries & Market Capitalization

Type	Durbin Watson Statistic
1	1.570
2	2.075
3	1.803
4	1.771
5	1.53
6	2.262
7	1.967
8	2.138
9	2.181
10	2.306
11	1.945

1. All the selected industries: 2001 – 2015, 2. All the selected industries during pre-financial meltdown (2001 to 2007), 3. All the selected industries during post-financial meltdown (2009 to 2015), 4. All the selected industries Large Capitalization companies during 2001 to 2015, 5. All the selected industries Mid-Capitalization companies during 2001 to 2015, 6. All the selected industries Small Capitalization companies during 2001 to 2015, 7. All the selected companies of Automobile industry during 2001 to 2015, 8. All the selected companies of Infrastructure & Construction industry during 2001 to 2015, 9. All the selected companies of Energy industry during 2001 to 2015, 10. All the selected companies of Information Technology industry during 2001 to 2015, 11. All the selected companies of Pharmaceutical industry during 2001 to 2015

**5. Panel Unit Root**

Panel unit root test was used to check whether the data is stationary by the absence of unit root. **Levin, Lin & Chu t\*** assumes the common unit root process. Since the probability was less than 1% significance level for all the variables, there was no unit root which has shown that the data were stationary for all selected industries together during 2001 to 2015, all selected industries together before financial meltdown (2001 to 2007) and after financial meltdown

(2009 to 2015), all the selected industries based on market capitalization (Large cap, Mid cap and Small cap) during 2001 to 2015 and for all selected industries (Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical) during 2001 to 2015.

**6. Panel Data Regression**

Panel data regression was performed to identify dividend determinants for all selected industries together before financial meltdown (2001 to 2007) and after financial meltdown (2009 to 2015), all the selected industries based on market capitalization (Large cap, Mid cap and Small cap) during 2001 to 2015 and for all selected industries (Automobile, Infrastructure & Construction, Energy, Information Technology and Pharmaceutical) during 2001 to 2015.

Table 2: Panel data Regression–All industries & Market capitalization

Dependent Variable = DPR

S.No / Variables	1 REM	2 FEM	3 FEM	4 REM	5 REM	6 REM	7 FEM	8 REM	9 REM	10 FEM	11 REM
C	0.067*	0.000***	0.000***	0.357	0.000***	0.000***	0.198	0.338	0.003***	0.069*	0.525
AGE2	0.197	0.041**	0.908	0.509	0.000***	0.505	0.334	0.110	0.466	0.837	0.565
ASG	0.826	0.012**	0.023**	0.000***	0.015**	0.928	0.000***	0.021**	0.864	0.750	0.280
AT	0.504	0.538	0.974	0.774	0.492	0.656	0.008**	0.611	0.274	0.520	0.948
CR	0.323	0.361	0.000***	0.135	0.789	0.021**	0.188	0.746	0.647	0.269	0.920
DER	0.000***	0.009**	0.013**	0.772	0.948	0.648	0.002***	0.002***	0.019**	0.130	0.158
ID	0.183	0.000***	0.120	0.360	0.337	0.060*	0.008**	0.991	0.887	0.064*	0.007**
ISH	0.774	0.488	0.884	0.551	0.000***	0.921	0.671	0.092*	0.308	0.643	0.007**
LAGDPR	0.777	0.000***	0.670	0.000***	0.894	0.000***	0.000***	0.000***	0.000***	0.000***	0.916
LNTA	0.090*	0.000***	0.000***	0.018**	0.000***	0.122	0.651	0.202	0.471	0.297	0.330
OD	0.698	0.000***	0.006**	0.250	0.092*	0.596	0.009**	0.978	0.022**	0.965	0.123
PER	0.000***	0.735	0.000***	0.000***	0.000***	0.111	0.000***	0.528	0.071*	0.005**	0.000***
RONW	0.907	0.000***	0.001***	0.000***	0.372	0.000***	0.007**	0.164	0.525	0.002***	0.025**
R Sq	0.657	0.826	0.803	0.451	0.969	0.361	0.492	0.376	0.518	0.886	0.982
Adj R Sq	0.653	0.792	0.770	0.433	0.968	0.340	0.426	0.341	0.490	0.871	0.981
F Stat	177.215	24.256	24.354	24.822	937.872	17.057	7.389	10.649	18.951	59.256	955.820
P (F Stat)	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
*****	183.709 (0.000***)	118.748 (0.000***)	589.521 (0.000***)	51.406 (0.000***)	954.814 (0.000***)	62.582 (0.000***)	18.272 (0.000***)	26.327 (0.000***)	110.315 (0.000***)	76.182 (0.000***)	963.167 (0.000***)
*****	3.473 (0.991)	96.020 (0.000***)	203.252 (0.000***)	11.291 (0.504)	14.739 (0.256)	9.681 (0.644***)	24.022 (0.020**)	16.765 (0.159)	16.623 (0.164)	22.633 (0.031**)	20.633 (0.056)

1. All the selected industries: 2001 – 2015, 2. All the selected industries during pre-financial meltdown (2001 to 2007), 3. All the selected industries during post-financial meltdown (2009 to 2015), 4. All the selected industries Large Capitalization companies during 2001 to 2015, 5. All the selected industries Mid-Capitalization companies during 2001 to 2015, 6. All the selected industries Small Capitalization companies during 2001 to 2015, 7. All the selected companies of Automobile industry during 2001 to 2015, 8. All the selected companies of Infrastructure & Construction industry during 2001 to 2015, 9. All the selected companies of Energy industry during 2001 to 2015, 10. All the selected companies of Information Technology industry during 2001 to 2015, 11. All the selected companies of Pharmaceutical industry during 2001 to 2015, \*\*\*\*\* Poolability Hypothesis test – F statistic, \*\*\*\*\* Hausman Test – Chi – Sq. Statistic, \*\*\* Significant at 1% level \*\* Significant at 5% level \* Significant at 10%, REM = Random Effect Model, FEM = Fixed Effect Model, DPR = Dividend payout ratio , AGE2 = Square of AGE measuring maturity of the company, ASG = Annual sales growth measuring growth opportunities, CR = Current ratio measuring liquidity, DER = Debt Equity ratio measuring leverage , ID = Investment demand, ISH = Institutional shareholding percentage, LAGDPR = Lagged dividend payout ratio measuring past dividend, LNTA = Natural log total assets measuring size of the company, OD =

Ownership dispersion measuring agency cost, PER = Price earnings ratio measuring firm risk, RONW = Return on Networth measuring profitability

Poolability hypothesis test probability was less than 1% significance level which proved that Hausman test could be done to identify the best model between Fixed Effect Model (FEM) and Random Effect Model (REM). If the probability of Hausman test was less than 1% level of significance (0.000) Fixed Effect Model (FEM) was used otherwise Random Effect Model (REM).

Maturity of the companies (AGE2) was positively significant with Dividend Payout Ratio (DPR) for all the selected industries during pre-financial meltdown (2001 to 2007) and all the selected industries Mid-Capitalization companies during 2001 to 2015.

Growth opportunities (ASG) was positively significant with Dividend Payout Ratio (DPR) for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries during post-financial meltdown (2009 to 2015), all the selected industries Large Capitalization companies during 2001 to 2015, all the selected industries Mid-Capitalization companies during 2001 to 2015, all the selected companies of Automobile industry during 2001 to 2015 and for all the selected companies of Infrastructure & Construction industry during 2001 to 2015. Growth opportunities (ASG) was positively significant with Dividend pay-out ratio (DPR). Sometimes high growth firms pay larger dividend because payment of dividend communicates the growth opportunities in the future. This supports the signalling theory of dividend.

Audit Type (AT) was positively significant with Dividend payout ratio (DPR) for all the selected companies of Automobile industry during 2001 to 2015. Liquidity (CR) was negatively significant for all the selected industries during post-financial meltdown (2009 to 2015). The results were consistent with the results of Baker et al (1999), Myers and Bacon (2001), Meher (2002), Kania and Bacon (2005), Fowdar et al (2007), Parau Anupam & Gupta Arindam (2009), Gill et al (2010), Azhagaiah & Veeramuthu (2010). Ali Tariq (2015) found a negative relationship between liquidity and dividend payout. To further increase liquidity and to reduce dependency on external finance for investment opportunities, firms pay lower dividend. Liquidity was positively significant for all the selected industries Small Capitalization companies during 2001 to 2015. The results were consistent with the results of the following researchers. High cash position influence firms to pay high dividend. It has positive relationship with dividend and support signalling theory (Rozeff (1982), Easterbrook (1984), Jensen et al. (1992). Highly liquid firms pay large dividend to reduce agency conflicts supported by agency theory of dividend (La Porta et al., 2000, Henrik & Victor, 2015).

Leverage (DER) was positively significant for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries during post-financial meltdown (2009 to 2015), all the selected companies of Automobile

industry during 2001 to 2015 and for all the selected companies of Infrastructure & Construction industry during 2001 to 2015. Leverage (DER) was positively significant with Dividend pay-out ratio (DPR). There was a positive relationship between Debt equity ratio and dividend payout ratio. When debt equity ratio is more, growth will be less and more dividends would be paid. More dividend payment signals good financial position of the company which would enable companies to raise debt funds easily. Pruitt & Gitman (1991) explained that firms with high growth and high dividend payout use more debt. Leverage was negatively significant for all the selected industries during 2001 – 2015 and for all the selected companies of Energy industry during 2001 to 2015. . High leverage leads due to interest payments and loan covenants, pay low dividend payment. More leverage leads to more risk which entails low dividend payout. According to Transaction cost theory, highly levered firms have low dividend payout in order to avoid transaction costs in external financing and more commitment towards fixed charges. According to Agency theory and Jensen (1986), debt could be a substitute for dividend payout to reduce agency problem.

Investment Demand (ID) was positively significant with DPR for all the selected industries during pre-financial meltdown (2001 to 2007), for all the selected companies of Automobile industry during 2001 to 2015, for all the selected companies of Information Technology industry during 2001 to 2015 and for all the selected companies of Pharmaceutical industry during 2001 to 2015. According to Aivazian et al. (2003), Al-Shubiri (2011), there was positive relation between investment demand and dividend payout. If the investment demand is more, in order to source more fund from investors, companies pay more dividend. This is against the residual theory.

Institutional shareholding (ISH) was negatively significant with DPR for all the selected industries Mid-Capitalization companies during 2001 to 2015, all the selected companies of Infrastructure & Construction industry during 2001 to 2015 and for all the selected companies of Pharmaceutical industry during 2001 to 2015. According to signalling theory, there was negative relationship between institutional ownership and dividend payout.

Past dividend (LAGDPR) was positively significant with DPR for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries Large Capitalization companies during 2001 to 2015, all the selected industries Small Capitalization companies during 2001 to 2015, all the selected companies of Automobile industry during 2001 to 2015, all the selected companies of Infrastructure & Construction industry during 2001 to 2015, all the selected companies of Energy industry during 2001 to 2015 and for all the selected companies of Information Technology industry during 2001 to 2015. Shareholders consider previous year's dividend as the benchmark for current and future dividend payment. Past dividend is highly positively significant for present dividend. Past dividend signals the market about future.

Size of the firm (LNTA) was negatively significant with DPR for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries during post-financial meltdown (2009 to 2015) and all the selected industries Mid-Capitalization companies during 2001 to 2015. Hafeez & Javid (2008) found negative relation between size of the firm and dividend payout as these firms used retained earnings for investment. Bop Sik Kang (2009) found negative relationship for France and Hossian (2012). Naceur et al (2006), Kapoor et al (2010) determined that smaller firms pay more dividend to get more potential investors and to retain the existing ones to avoid risk. Gustav & Gairatjon (2012) also found negative relation between size and dividend. It was positively significant with DPR for all the selected industries Large Capitalization companies during 2001 to 2015. It was observed that Size of the firm (LNTA) was positively significant with Dividend pay-out ratio (DPR). Large size firms pay huge dividends because of their easy access to capital markets with minimum transaction cost supported by life cycle theory of dividend. Large firms have more diverse shareholders. Due to ownership dispersion, information asymmetry increases. In order to reduce agency problem, these companies pay more dividend. This is supported by transaction cost theory of dividend. (Jensen, 1986, Holder et al., 1985, Ghosh and Woolridge, 1988; Eddy and Seifert, 1988; Redding, 1997, Sawicki, 2005). Eriotis (2005) analysed that size of the firm signals the dividend payment (Signalling theory).

Agency Cost (OD) was negatively significant with DPR for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries Mid-Capitalization companies during 2001 to 2015, the selected companies of Automobile industry during 2001 to 2015 and for all the selected companies of Energy industry during 2001 to 2015. Agency cost was negatively significant with dividend (Matthias et al, 2013). This is supported by Agency theory. It was positively significant for all the selected industries during post-financial meltdown (2009 to 2015). Agency cost measured as Ownership Dispersion will have positive relationship with dividend payout ratio

Firm Risk (PER) was positively significant for all the selected industries: 2001 – 2015, all the selected industries during post-financial meltdown (2009 to 2015), all the selected industries Large Capitalization companies during 2001 to 2015, all the selected industries Mid-Capitalization companies during 2001 to 2015, all the selected companies of Automobile industry during 2001 to 2015, all the selected companies of Energy industry during 2001 to 2015, all the selected companies of Information Technology industry during 2001 to 2015 and for all the selected companies of Pharmaceutical industry during 2001 to 2015. Firm risk is positively significant with dividend payout ratio. High risk firms pay low dividend (Michel and Shaked, 1986 and Bar – Yosef and Huffman, 1986) because they prefer internal financial as per pecking order theory. Lintner (1956), Brav et al. (2005) found the impact of risk on dividend. Anupam Mehta (2012) used Price earnings ratio to measure firm risk. More the

P/E ratio, lower the risk and more the payout ratio. During higher P/E ratio, predicting future earnings or returns as per the investors' expectation would be easy which would reduce the risks and more dividend would be paid. Lower the P/E ratio, more difficult to predict the future earnings and return which would decrease the payout ratio (Henrik & Victor, 2015, Banerjee, 2016).

Profitability (RONW) was positively significant with DPR for all the selected industries during post-financial meltdown (2009 to 2015), all the selected industries Large Capitalization companies during 2001 to 2015, all the selected companies of Automobile industry during 2001 to 2015 and for all the selected companies of Pharmaceutical industry during 2001 to 2015. Firms with higher profits are expected to pay higher dividend. It is expected to have positive relationship with dividend. Firms with higher profits are expected to pay higher dividend. It is expected to have positive relationship with dividend. This supports the signalling theory of dividend policy ie profitable firms pay more dividends which indicates companies' good financial position.. Mature and profitable firms pay more dividends which is in line with life cycle theory. Pecking order hypothesis explains the relationship between dividend and profitability. Low profitable firms pay fewer dividends and retain more for investments and vice versa. It was negatively significant for all the selected industries during pre-financial meltdown (2001 to 2007), all the selected industries Small Capitalization companies during 2001 to 2015 and for all the selected companies of Information Technology industry during 2001 to 2015. It was concluded that Profitability (RONW) was negatively significant with Dividend pay-out ratio (DPR). Sometimes firms profit was negatively significant with dividend because of more investment demand (Okpara & Chigozie, 2010). Low profitable companies expect highest future growth by low dividend. Pecking order hypothesis explains the relationship between dividend and profitability. Low profitable firms pay fewer dividends and retain more for investments. These firms to avoid transaction cost and information asymmetry in equity, firms prefer to retain more and pay fewer dividends (Myers 1984 and Myers and Majlif, 1984).

## 5. Conclusion

The main focus of this research was to identify the determinants of dividend payout in five Indian industries viz., automobile, infrastructure & construction, energy, information technology and pharmaceutical industry. 75 companies in total have been used which comprised of 15 companies from each industry. In each industry, 5 companies from large capitalization, 5 from mid-capitalization and 5 from small capitalization were selected for the period 2001 to 2015. Panel data regression was used to find out the dividend policy determinants. Leverage, past dividend, Size of the company, Firm risk and profitability were the major determinants of dividend for majority of selected industries and market capitalizations. Investors who prefer current income in the form of dividend could use these to identify better companies for investment. Management and

investors preferred more retention than payout. Different industries, different variables with long years and different method of analysis could be used in the future research.

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