

The impact of dividend policy on shareholders' wealth before and after financial meltdown-An empirical analysis on selected pharmaceutical companies in India

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ABSTRACT

Dividend policy (DP) of corporate companies is extensively researched topic in finance however; it remains an arguable issue to decide what factors determine the DP. The objective of this paper is to analyze the dividend distribution of selected pharmaceutical companies and find out the impact of dividend policy (DP) on shareholders' wealth (SW) of pharmaceutical companies in India before and after financial meltdown. The researcher has taken 13 companies who were registered before 1998 out of 143 companies listed on National Stock Exchange (NSE). In the light of the prior literature, key predictor variables such as Dividend per share (DPS), Market price share (MPS), Price earnings ratio (PER), Earnings per share (EPS), Earnings after revenue and Lagged price earnings ratio (LAGPER) are considered for analyzing the impact of DP on SW. This research paper used statistical tools such as Augmented dickey fuller test, Karl Pearson's Correlation and Regression. The study found that high correlation exists between the variables generally and higher DP enables increase in the market value of equity per share and vice versa. The results of the statistical tools prove that the Pharmaceuticals companies have significant shift in structure (positive improvement) in respect of SW after global financial meltdown. Shareholders preferred current dividend to future income so, dividend is considered to be an important variable, which determines the SW.

1. Introduction

The choice of the firm concerning the level of earnings that could be paid as dividend and the extent that of could be retained by the firm is the concern of DP. In other words, the DP directs what proportion of earnings is to be paid to shareholders by way of dividends and what quantity is ploughed back in the firm itself for its reinvestment purposes. The development of such a policy will be greatly prejudiced by investment opportunities available to the firm and the value of dividends as against capital gains to the shareholders. Each firm should develop such a DP, which divides the net earnings in to dividends and retained earnings in an optimum way to achieve the objective of maximizing the shareholders' wealth (SW) as it is represented by market price (MP) of the firm's common stock which, in turn, is the function of the firm's investment, financing and dividend decision. For studying the impact of DP on (SW) the researcher has selected pharmaceutical companies which may deal in generic, non-generic brand medications and medical devices.

1.1 Pharmaceutical companies in India

India is the major provider of generic drugs worldwide. Indian pharmaceutical industry supplies over 50 per cent of global request for numerous vaccines, 40 per cent of generic demand in the US and 25 per cent of all medication in UK. India enjoys a significant position in the global pharmaceutical's companies. The country like India has a large pool of scientists and engineers who have the potential to steer the industry ahead to an even higher level. Presently over 80 per cent of the antiretroviral medicines used globally to combat AIDS (Acquired Immune Deficiency Syndrome) are supplied by Indian pharmaceutical companies.

The pharmaceutical companies were valued at US\$ 33 billion in 2017. The country's pharmaceutical industry is anticipated to expand at a CAGR of 22.4 per cent over 2015–20 to reach US\$ 55 billion. India's pharmaceutical exports mounted at US\$ 17.27 billion in 2017-18. In 2018-19 these exports are anticipated to cross US\$ 19 billion. Indian companies received 304 Abbreviated New Drug Application (ANDA) sanctions from the US Food and Drug Administration (USFDA) in 2017. The country accounts for about 30 per cent (by volume) and about 10 per cent (value) in the US\$ 70-80 billion US generics market

Indian pharma companies are capitalising on export opportunities in regulated and semi-regulated markets. In FY17, India exported pharmaceutical products worth US\$ 16.8 billion, with the number expected to reach US\$ 40 billion by 2020. During April 2017–February 2018, India exported pharmaceutical products worth Rs. 767.17 billion (US\$ 11.90 billion). Around 40.6 per cent of India's US\$ 16.8 billion pharmaceutical exports in 2016-17 were to the American continent, followed by a 19.7 per cent to Europe, 19.1 per cent to Africa and 18.8 per cent to Asian countries.

2. Statement of the problem

During the financial crisis there were numerous countries which were severely affected by the recession. Country like India was not apparently affected due to low dependence on global flows on capital and trade as external trade contributes only 20% to GDP and India has a huge population so a huge domestic demand for goods & services is made available within the country. The present study discloses whether there exists

any impact between the DP and SW during the financial crisis and how far it has affected in the wealth maximization of the shareholders and stakeholders during the period. The current study reveals the dividend policy (DP) on shareholders' wealth (SW) in pharmaceutical industry in India before and after financial meltdown.

3. Objectives of the study

1. To analyse the dividend distribution of selected pharmaceutical companies.
2. To examine the relationship between dividend distribution and shareholders wealth on selected pharmaceutical companies before and after financial meltdown.

4. Hypothesis

H_{01} : There is no significant impact of Dividend Payout of the firm on Shareholders wealth before and after financial meltdown

5. Review of literature

Past studies were carried out to identify the relation between dividend policy (DP) and shareholders' wealth (SW). "Olandipupo and Okafor, Devaki and Kamalaveni," investigated the impact of DP on SW applying Ordinary Least Square (OLS) method of regression.

Olandipupo and Okafor (2011), examines "Control of share wealth maximization in Nigeria" focused on parties controlling shareholders' wealth maximization and the ways it affects the firm's performance. The data used for the study were collected from the Nigerian stock exchange and the annual reports of six sample firms from food / tobacco and subcompanies for 20 years. The data collected were analyzed using ordinary least square (OLS) regression, autocorrelation and auto regression. The study showed that all the predictor variables provided good explanation. The firm size (FS) and retained earnings (RE) had positive relationship and their impact was proved statistically significant on the shareholders' fund, while dividend payment had negative relationship with the SW. However, turnover and retained earnings were of more significance in controlling the shareholders' wealth than the dividend payout.

Devaki and Kamalaveni (2012), has investigated "Shareholding patterns and dividend payout: An empirical analysis in Indian corporate hotels" examined the influence of shareholding pattern of the Indian corporate hotels. Data were collected from 152 Indian firms (both listed and unlisted) in hotel industry from the electronic corporate database called CMIE and CAPTALINE database. Fixed effect firm model estimation revealed that there was a positive association between lagged dividend, earnings, debt-equity ratio, sales size, age of the firm and institutional shareholding.

Gul et al. (2012), has examined "The relationship between dividend policy and shareholders' wealth" examined the influence of DP on SW of 75 listed firms in Karachi stock exchange. Data were collected from annual reports of the

firms, Karachi stock market and State Bank of Pakistan. Descriptive statistics, multiple regression and stepwise regression methods were used to study the impact of DP on SW. The study found that the difference in average market value relative to book value of equity was highly significant for dividend paying firms and dividend non-paying firms. Lagged market value of equity had a significant impact on the market price per share; however, retained earnings had insignificant influence on the market price of equity as far as the dividend paying firms are concerned and there was a significant influence of DP on SW.

6. Research Methodology

6.1 Tools used

Descriptive statistics, Karl Pearson's Correlation , Augmented Dickey-Fuller test and ordinary Least Square method of regression were being used for the study. The general regression equation model is $MPS = \beta_1 (DPS) + \beta_2 (PER) + \beta_3 (EPS) + \beta_4 (EAR) + \beta_5 (LAGPER) + e$.

6.2 Data Source

The study is analytical and empirical in nature and is based on secondary data.

6.3 Period of study

For the study, a sample of 13 pharmaceutical companies listed on NSE has been selected out of 143 companies using multi stage non-random sampling technique. The period of the study has been divided into two sub-periods viz., before global financial meltdown i.e., from 1998-2008 and after global financial meltdown i.e., from 2009-2018 and companies incorporated before 1998 considered for the study. The global financial meltdown occurred during the year 2008 is considered as the base for the study to analyze the impact of DP on SW. The required data were collected from the website called moneycontrol.com and the annual reports of the pharmaceutical companies concerned too. The annual data for the selected pharmaceutical companies is used for calculating key financial ratios (measures) to analyze the impact of DP on SW.

7. Results and Discussions

Objective 1: To analyse the dividend distribution of selected pharmaceutical companies.

In descriptive statistics, the mean and median value of all the variables are closely related which reveals the normality of the data. The risk is high and the earnings have shown least volatility. Earnings, Dividend payment and Liquidity alone positively skewed and the remaining variables are negatively skewed

Table 1: shows the descriptive statistics of seven selected financial variables on dividend policy, which reveals that the data are normally distributed. The data set contained a total of 143 observations of 13 firms over a period of twenty years. The mean of all the selected seven variables is very much close to the median, implying normality. The average DPS is 52.91 i.e., 52.91% which means, on an average, the firms pay about

52.91% of their profit as dividend. RPS shows an average of 52.91, which reflects a firm with growth in its RPS, which can lead to high profits and increase the shareholders' wealth. EAR shows an average of 11.74. Higher earnings reflect that the firms have capacity to pay dividend. The average of PER and LAGPER is 993.38 and 82.78 respectively, which means that the investors anticipate high growth in future. The average of EPS is 339.39, which reflects that the firms of Pharmaceuticals companies have good earnings and capacity to pay dividend if

it increases profitability. The standard deviation of EAR is the highest (993.38), whereas the lowest that of DPS is 11.74. All the selected variables are positively skewed except for EPS, PER and LAGPER. Probability of EAR is less than 1% level, implying that the selected variables are significant at 99% confidence interval. DPS and RPS is less than 5% level, implying that the selected variables are significant at 95% confidence interval.

Table-1. Descriptive statistics of selected variables of pharmaceutical firms in India from 1998 to 2018

	EPS	DPS	RPS	PER	EAR	LAGPER
Mean	369.0076	56.87631	490.4744	620.9006	28.09668	51.74355
Median	346.18	31.31656	257.6903	603.258	29.14881	50.2715
Std. Dev.	339.3908	52.91099	428.3062	993.3894	11.74236	82.78575
Skewness	-1.19109	1.295551	0.979427	-0.64139	0.597593	-0.64117
Kurtosis	7.445305	3.438421	2.648667	6.013547	2.208307	6.013143
Jarque-Bera	22.2561	6.042772	3.465475	9.386112	1.79834	9.382991
Probability	0.000015	0.048734	0.1768	0.009159	0.406907	0.009173
Observations	21	21	21	21	21	21

Source: Calculated

8. Augmented Dickey – Fuller Test (Unit Root Test)

Objective 1: To examine the relationship between dividend distribution and shareholders wealth on selected pharmaceutical companies before and after financial meltdown.

H0: There is no stationarity in between dividend distribution and shareholders wealth.

Table 2. Augmented Dickey – Fuller test of dividend distribution and shareholders wealth 1998 to 2018

S.No	Variables	Level		First difference	
		t-Statistic	Probability	t-Statistic	Probability
1	EPS	-4.6046	0.0087	-5.1985	0.0007
2	DPS	-3.8221	0.0369	-6.4672	0.0000
3	RPS	-0.5123	0.9735	-3.1603	0.0389
4	PER	-5.2631	0.0025	-8.6139	0.0000
5	EAR	-3.0661	0.1417	-4.5653	0.0022
6	LAGPER	-5.2634	0.0025	0.0000	0.0000

The result of ADF Unit Root Test is reported in the above table. The null hypothesis of unit root for all the variables are rejected at their level. Since, the ADF test statistics values are lower than the critical values, therefore the null hypothesis is rejected at first difference in the case of PER, DPS and LAGPER and remaining variables are rejected at their second difference. Thus, dividend distribution and shareholders wealth defined with variables are stationary and integrated at the first difference and second difference.

9. Correlation Analysis

Table 3 shows the correlation matrix of selected variables; the relationship between DPS and RPS (0.75); that of between RPS, EPS and LAGPER (0.45), (0.74), (0.75), which are highly significant positively at 1% level; whereas the relationship between EAR and PER(0.72) are significant positively at 5% level.

Table 3. Results of correlation analysis among the predictor variables for pharmaceuticals in India from 1998 to 2008

Correlation	DPS	RPS	EPS	LAGPER	PER	EAR
T-Statistic						
Probability						
DPS	1					

RPS	0.755366	1				
	3.823062	---				
	0.0028	---				
EPS	0.83869	0.97291	1			
	5.107562	13.9596	---			
	0.0003	0	---			
LAGPER	0.451025	0.74631	0.757586	1		
	1.676035	3.7188	3.849378	---		

	0.1219	0.0034	0.0027	---		
PER	0.451035	0.746324	0.757601	1	1	
	1.67608	3.718961	3.849563	38371.28	---	
	0.1219	0.0034	0.0027	0	---	
EAR	0.784723	0.994559	0.979335	0.723378	0.723395	1
	4.179883	31.66412	16.0603	3.474786	3.474956	---
	0.0015	0	0	0.0052	0.0052	---

Source: Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com
 *** Significant at 1% level; ** Significant at 5% level.

Table 4 shows the correlation matrix of selected variables; the relationship between DPS and RPS (0.88); that of between RPS, EPS and LAGPER (0.47), (0.68), (0.56), which are highly

significant positively at 1% level; whereas the relationship between EAR and PER (-0.16) are significant negatively at 5% level.

Table 4. Results of correlation analysis among the predictor variables for pharmaceuticals in India from 2009 to 2018

Correlation	DPS	RPS	EPS	LAGPER	PER	EAR
T-Statistic						
Probability						
DPS	1					

RPS	0.889747	1				
	5.513339	---				
	0.0006	---				
EPS	0.603529	0.583634	1			
	2.140915	2.0392	---			
	0.0647	0.0765	---			
LAGPER	0.476493	0.680847	0.56434	1		
	1.53294	2.629247	1.933509	---		
	0.1638	0.0302	0.0892	---		
PER	-0.20601	-0.11544	-0.37049	0.181946	1	
	-0.59547	-0.32387	-1.12821	0.523357	---	
	0.568	0.7508	0.2919	0.6149	---	
EAR	0.886745	0.96924	0.645061	0.732667	-0.10683	1
	5.425722	11.13863	2.387687	3.044859	-0.30388	---
	0.0006	0	0.044	0.0159	0.769	---

Source: Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com
 *** Significant at 1% level; ** Significant at 5% level.

10. Regression Analysis

H₀₁: There is no significant impact of Dividend Payout of the firm on Shareholders wealth before and after financial meltdown

Table 5 (a) Impact of dividend payout of the firm on shareholders wealth before and after financial meltdown

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIVIDEND	5.11	8.21	-0.68	0.02
C	2.12	1.50	-3.82	0.03
R-Squared	0.53		Durbin-Watson stat	1.90
Adjusted R-squared	0.62			
F-statistic	10.28			

Source: Calculated and compiled using secondary data

The above table 5(a) represents the regression analysis over the impact of Dividend Payout of the firm on Shareholders wealth before and after financial meltdown. It is quite evident from the table that R² value has been 0.53. It depicts that possible significance posed by the dividend payout on the shareholders' wealth. Furthermore, the F value 10.28 and the p value of 0.01, which is significant at 1 per cent level represents

the rejection of null hypothesis, which certainly comprehends that there is a significant impact of dividend payout of the firm on Shareholders wealth before and after financial meltdown.

H₀₂: There is no significant impact of Risk of the firm on Shareholders wealth before and after financial meltdown

Table 5 (b) Impact of dividend payout of the firm on shareholders wealth before and after financial meltdown

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RISK	5.60	0.54	-6.34	0.67
C	4.05	0.80	-3.79	0.09
R-Squared	0.85		Durbin-Watson stat	2.69
Adjusted R-squared	0.75			
F-statistic	7.92		Prob. (F-statistic)	0.08

Source: Calculated and compiled using secondary data

The above table5(b) represents the regression analysis over the impact of Risk of the firm on Shareholders wealth before and after financial meltdown. It is quite evident from the table that R² value has been 0.85. It depicts that possible significance posed by the Risk of the firm on Shareholders wealth before and after financial meltdown. Furthermore, the F value 7.92 and the p value of 0.08, which is significant at 1 per

cent level represents the rejection of null hypothesis, which certainly comprehends that there is a significant Risk of the firm on Shareholders wealth before and after financial meltdown.

H₀₃: There is no significant impact of Earnings of the firm on Shareholders wealth before and after financial meltdown

Table 3 (c) Impact of dividend payout of the firm on shareholders wealth before and after financial meltdown

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EARNINGS	4.81	5.22	-0.36	0.48
C	6.60	1.98	-3.45	0.09
R-Squared	0.82		Durbin-Watson stat	1.42
Adjusted R-squared	0.85			
F-statistic	9.87		Prob. (F-statistic)	0.02

Source: Calculated and compiled using secondary data

The above table5 (c) represents the regression analysis over the impact of Earnings of the firm on Shareholders wealth before and after financial meltdown. It is quite evident from the table that R² value has been 0.85. It depicts that possible significance posed by the Earnings of the firm on Shareholders wealth before and after financial meltdown. Furthermore, the F value 9.87 and the p value of 0.02, which is significant at 1 per

cent level represents the rejection of null hypothesis, which certainly comprehends that there is a significant impact of Earnings of the firm on Shareholders wealth before and after financial meltdown.

H₀₄: There is no significant impact of Firm size on Shareholders wealth before and after financial meltdown

Table 5 (d) Impact of dividend payout of the firm on shareholders wealth before and after financial meltdown

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SIZE	1.21	3.08	11.58	0.25
C	-5.13	1.09	13.85	0.39
R-Squared	0.48		Durbin-Watson stat	3.60
Adjusted R-squared	0.55			
F-statistic	18.21		Prob. (F-statistic)	0.03

Source: Calculated and compiled using secondary data

The above table 5 (d) represents the regression analysis over the impact of Firm size on Shareholders wealth before and after financial meltdown. It is quite evident from the table that R² value has been 0.55. It depicts that possible significance posed by the Firm size on Shareholders wealth before and after financial meltdown. Furthermore, the F value 18.21 and the p value of 0.03, which is significant at 1 per cent

level represents the rejection of null hypothesis, which certainly comprehends that there is a significant impact of Firm size on Shareholders wealth before and after financial meltdown.

H₀₅: There is no significant impact of Liquidity of the firm on Shareholders wealth before and after financial meltdown

Table 5 (e) Impact of dividend payout of the firm on shareholders wealth before and after financial meltdown

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIQUIDITY	-5.01	1.07	4.34	0.07
C	-5.19	1.09	7.32	0.07
R-Squared	0.63		Durbin-Watson stat	1.96
Adjusted R-squared	0.66			
F-statistic	11.27		Prob. (F-statistic)	0.01

Source: Calculated and compiled using secondary data

The above table5(e) represents the regression analysis over the impact of Liquidity of the firm on Shareholders wealth

before and after financial meltdown. It is quite evident from the table that R² value has been 0.63. It depicts that possible

significance posed by the perception of the customers on their level of satisfaction. Furthermore, the F value 11.27 and the p value of 0.01, which is significant at 1 per cent level represents the rejection of null hypothesis, which certainly comprehends that there is a significant impact of Liquidity of the firm on Shareholders wealth before and after financial meltdown.

11. Conclusion

Descriptive statistics revealed that the data are the study checked the normality of the data through Jarque - Bera statistic and found that the data were normally distributed. So, the dividend policy impact on shareholders wealth through regression found that the Dividend (DPS) of the companies affect the shareholders wealth, whereas the earnings do not impact the shareholders wealth. When the firms pay dividend regularly with periodic growth, the SW would be maximized.

This is quite possible for all dividend paying firms in pharmaceutical companies in India. The DP has significant effect on SW of pharmaceutical firms. From the analysis it is inferred that dividend per share, retained earnings per share, lagged price earnings ratio and lagged market price per share act as important variables in determining the SW. Generally, higher DP enables increase in the market value of equity per share and vice versa. Shareholders preferred current dividend to future income so, dividend is considered to be an important variable, which determines the SW. Since dividend is an unsolved puzzle there is a need for constant and continuous efforts and attempts in the field of DP research.

The explanatory power of the model used was found low through the econometric results implying room for future research works on the subject of research.

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