THE RELATIONSHIP BETWEEN DIVIDEND POLICY AND SHAREHOLDERS’ WEALTH: EVIDENCE FROM FMCG SECTOR IN INDIA

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ABSTRACT

Dividend policy (DP) of corporate sector is widely researched topic in finance however; it remains a debatable issue to study what factors determine the DP. The objective of the paper is to analyze the relationship between dividend policy (DP) and shareholders’ wealth (SW) of Fast Moving Consumer Goods (FMCG) sector in India. Out of 16 firms listed on National Stock Exchange (NSE) 13 firms that have been paying dividend consecutively for the recent past ten years are considered for analysis. In the light of the prior literature, key predictor variables such as earnings per share (EPS), dividends per share (DPS), and retained earnings per share (RPS) are considered for analyzing the relationship between DP and SW.

The descriptive statistics reveals that the data form in to normal. The data are found to be homoskedastic and are free of autocorrelation. Augmented Dickey Fuller Test (ADF), White - Heteroskedasticity Test, Auto Correlation, Breuch-Godfrey Serial correlation LM test, Lagrange Multiplier (LM) for Autoregressive conditional heteroskedasticity (ARCH-LM), Johansen Co-integration and VAR Granger causality test / Block Exogeneity Wald Test are applied using Eviews 7 Econometrics software package for analysis. The Johansen Co-Integration test sets out that there exists a stationary; there is a long – run relationship between dividend per share (DPS) as well as...
retained earnings per share (RPS) and earnings per share (EPS). The VAR Granger causality test / Block Exogeneity Wald test shows a significant causality between dividend per share (DPS) and earnings per share (EPS); retained earnings per share (RPS) and earnings per share (EPS); retained earnings per share (RPS) and dividend per share (DPS); and earnings per share (EPS) and retained earnings per share (RPS).

**Keywords:** Dividend pay-out, Dividend per share (DPS), Dividend policy (DP), Shareholders’ wealth (SW), Wealth.

**JEL CLASSIFICATION:** G 35, L 25

**INTRODUCTION**

Dividend policy (DP) is one of the three major decisions of financial management. The decision of the firm regarding the extent 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 determines what proportion of earnings is to be paid to shareholders by way of dividends and what proportion is ploughed back in the firm itself for its reinvestment purposes. The development of such a policy will be greatly influenced 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 relationship between (DP) and (SW), we have selected firms of Fast Moving Consumer Goods (FMCG) sector which is popularly known as consumer packaged goods sector. Firms in this sector include all consumables (other than groceries / pulses) that people buy. The most common products in the list are toilet soaps, detergents, shampoos, toothpaste, shaving products, shoe polish, packaged foodstuff, and household accessories and the list extends to certain electronic goods also.

**FMCG SECTOR IN INDIA**

The Indian FMCG sector is the fourth largest sector in the country with a total market size in excess of US$ 13.1 billion. It has a strong multinational companies (MNC) presence and is characterized by a well established distribution network, intense competition between the organized and unorganized segments and low operational cost. Availability of key raw materials, cheaper labour costs and presence across the entire value chain gives India a competitive advantage. The FMCG sector is flooded by firms from India and abroad and in future, the level of competition would increase at a higher rate. Moreover, the GDP of Indian economy is increasing every year therefore per capita income also increases and hence there is a scope for further development in the sector. At present small and large firms are operating in Indian FMCG sector. For the purpose of the study13 firms are selected which are listed on NSE. (Source: Building business leadership / Confederation of Indian industry).
REVIEW OF LITERATURE


Researchers have used regression, independent sample t-test, correlation, Johansen co-integration test, Granger Causality Test, ADF, and White - Heteroskedasticity Test to study the relationship between DP and SW.

Azhagaiah and Sabaripriya (2008), in their study titled “The impact of dividend policy on shareholders’ wealth” analyzed the impact of DP on shareholders’ wealth in organic and in-organic chemical firms in India with a sample of 28 firms selected from 114 listed firms on BSE using multi stage non - random sampling technique. They used mean, standard deviation multiple regression and stepwise regression techniques to ascertain the best fitted model for predicting the DP and studying its impact on SW. The study proved that the wealth of the shareholders’ was greatly influenced mainly by five variables viz., growth in sales, improvement of profit margin, capital investment decision, capital structure decision and cost of capital. There was a significant impact of DP on SW in organic chemical firms, while the SW was not influenced by DP as far as the organic chemical firms are concerned.

Azhagaiah and Veeramuthu (2010) examined the association between corporate leverage and DP of the firms across sectors in India on panel data of 73 firms for a period 1996-2007. The study proved that there was a significant impact of selected predictor variables on dividend behavior; the DP of small size, medium size and large size firms and overall corporate firms across sectors in India was dependent on the debt – equity ratio (financial leverage).

Olandipupo and Okafor (2011), in their research work titled “Control of shareholders’ 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 subsector 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 with each other and their impact on the shareholders’ fund was proved statistically significant, 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.

Atiyet (2012), in a study titled “The impact of financing decision on the shareholder value creation” covered 88 firms listed on French stock exchange. Shareholders’ wealth creation was considered as a response variable while equity issue, debt, growth rate, profitability, investment opportunities, and size were considered as predictor variables. Statistical tools like correlation and regression were used to ascertain the best fitted model for studying the impact of financing decision
on shareholders’ value creation. The result showed that growth, profitability, financial debt and size of the firm had significant impact on \( SW \).

Devaki and Kamalaveni (2012), in their paper titled “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 relationship between lagged dividend, earnings, debt-equity ratio, size of sales, age of the firm and institutional shareholding.

Gul Collins et al. (2012), in their study titled “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.

Onwumere et al. (2012), in a research paper titled “Does the use of outsiders fund enhance shareholders’ wealth: Evidence from Nigeria” attempted to study the link between the firms’ financial structure and the objective of the firms in maximizing shareholders’ wealth. The study relied on historic accounting data obtained from the financial statements and accounts of 28 firms in the Nigerian stock exchange. The study examined the impact of outsiders’ fund on the firms’ SW maximization using three value maximization indicators viz., net profit margin, dividend per share and current ratio. The study revealed that outsiders’ fund was positive and did not have significant impact on the dividend per share and current ratio; outsiders’ fund had negative and significant impact on the net profit margin.

Rafique (2012) examined the “Factors affecting the dividend payout of listed non-financial firms of Karachi Stock Exchange” with a sample of 53 firms listed as non – financial firms on the Karachi stock exchange for the period 2005-2010. The data were found to be Homoskedastic and free of auto correlation and the regression results revealed that corporate tax (CT) and firms’ size (FS) had significant co-efficient on DP of the firms.

Uwuigbe et al. (2012) studied the relationship between financial performance and dividend payout among the listed firms in Nigeria for a period of five years i.e. 2005-2010 and found that there was a significant positive co-efficient of the performance of firms and the dividend payout; ownership structure and firm’s size on dividend payout of the firms.

Bawa and Kaur (2013), in a research work titled “Impact of dividend policy on shareholders’ wealth: An empirical analysis of Indian information technology sector” selected 308 firms, which have listing flag in National stock exchange and Bombay stock exchange with the objective to study the impact of DP on SW. Variables viz., dividend per share (DPS), retained earnings per share (REPS), lagged price earnings ratio (LAGPER) and lagged market price per share (LAGMPS) were considered as predictor variables and market price per share (MPS) was considered as response variable. Panel data methodology was applied to study the impact of DP on market value of equity. The results showed that in the long run, shareholders’ wealth of dividend
paying IT firms had been increased significantly when compared to the increase in SW of non-dividend paying IT firms.

Chidinma et al. (2013), in their study titled “Shareholders’ value and firms’ dividend policy: Evidence from public firms on Nigeria stock exchange” used secondary data of 216 public limited firms listed on Nigerian stock exchange for the period of 2000-2011. Dividend per share (DPS) was considered as response variable, while earnings per share (EPS) and market price per share (MPS) were considered as predictor variables. The study found that earnings per share and market price per share had significant impact on SW; a high dividend payout increases the market value of shares and thereby the SW.

Dewet and Mpinda (2013) studied the impact of dividend payments on SW with a sample of 46 firms listed on the Johannesburg securities exchange (JSE) for the period from 1995 to 2010. The Johansen co-integration and Granger causality test was used to describe the short - run and long - run dynamics of the variables viz., market price per share (MPS), earnings per share (EPS) and dividend per share (DPS). The results showed that in the long run, dividend per share (DPS) was positively related to market price per share (MPS), while earnings per share (EPS) do not have a significant impact on the market price per share (MPS).

Salman (2013) examined the “Effect of DP on SW of sugar industry in Pakistan” considering a sample of 33 listed firms of sugar industry listed on Karachi Stock Exchange. The data were collected for a period of six years ranging from 2006 to 2011. Descriptive statistics and regression analysis were applied for analysis considering dividend per share (DPS), earnings per share (EPS), lagged market price per share (MPS), price earnings ratio (PER), and retained earnings (RE) as predictor variables and market price per share (MPS) as response variable. The study showed that DPS, EPS, Lagged MPS, and Lagged PER had significant positive co-efficient on the SW.

Kumaresan (2014), in a study titled “Impact of dividend policy on shareholders’ wealth: A study of listed firms in hotels and travels sector of Sri Lanka” focused on top ten firms under hotel and travel sectors in Sri Lanka during the period from 2008 to 2012. Shareholders’ wealth (EPS) was considered as response variable while predictor variables were: return on equity (ROE), dividend payout ratio (DPR), dividend per share (DPS) and retention ratio (RR). The study used correlation and regression to analyse the data and found that there was a positive relationship between return on equity (ROE), dividend per share (DPS) and dividend payout ratio (DPO) and shareholders’ wealth (SW) of the selected firms under hotel and travel sectors in Sri Lanka; and there was a negative relationship between retention ratio and SW.

Tahir and Raja (2014), in their study titled “Impact of dividend policy on shareholders’ wealth” of oil and gas exploration firms of Pakistan during the years from 1999 to 2006 used regression and correlation to ascertain the best fitted model for the DP and to study its impact on SW. The variables viz., dividend payout ratio (DPR), price earnings ratio (PER) and book value to market value of equity (BV/MV) ratio were considered as predictor variables and holding period yield as response variable. The result showed a correlation between predictor variables and response variable for all the firms. Oil and gas industry of Pakistan paid dividend on regular basis but there was uncertainty in stock market due to which holding period returns were not efficient because share price of firms were not stable and therefore fluctuation took place in firms and the study proved that dividend payout ratio had insignificant relationship with holding period yield.
OBJECTIVES AND HYPOTHESES DEVELOPMENT FOR THE STUDY

The main objective of the study is to empirically analyze the relationship between dividend policy and shareholders’ wealth. The following are the specific objectives of the study:

To study the relationship between dividend policy and shareholders’ wealth of FMCG sector in India, To determine the existence of co-integrating vectors between earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS) of FMCG sector in India, To check whether there exist a causality between earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS).

THE FOLLOWING ARE THE HYPOTHESES DEVELOPED FOR THE STUDY

H₀¹: “There is no co-integration relationship between earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS)”.
H₀²: “There is no co-integration relationship between dividend per share (DPS) and earnings per share (EPS)”.
H₀³: “There is no co-integration relationship between earnings per share (EPS) and retained earnings per share (RPS)”.
H₀⁴: “There is no causal association between dividend per share (DPS) and earnings per share (EPS)”.
H₀⁵: “There is no causal association between retained earnings per share (RPS) and earnings per share (EPS)”.
H₀⁶: “There is no causal association between dividends per share (DPS), retained earnings per share (EPS).
H₀⁷: “There is no causal association between retained earnings per share (RPS) and dividend per share (DPS)”.
H₀⁸: “There is no causal association between earnings per share (EPS), retained earnings per share (RPS) and dividend per share (DPS)”.
H₀⁹: “There is no causal association between earnings per share (EPS) and retained earnings per share (RPS)”.

RESEARCH METHODOLOGY

DATA SOURCE

The study is analytical and empirical in nature and is based on secondary data. For the study, a sample of 13 FMCG firms listed on NSE has been selected using multi stage non-random sampling technique for the period from 2004 to 2014. The required data were collected from the website called moneycontrol.com and the annual reports of the FMCG firms concerned too. The annual data for the selected FMCG firms are used for calculating key financial ratios (measures) to analyze the relationship between the DP and SW.
RESEARCH METHODS

Various statistical methods like Augmented Dickey Fuller Test, White - Heteroskedasticity Test, Auto Correlation, Breuch-Godfrey Serial correlation LM test, Lagrange Multiplier (LM) for Autoregressive conditional heteroskedasticity, Johansen Co-integration, and Granger causality test are applied for analysis of data using Eviews 7 Econometrics software package.

For the analysis of pooled data for ten years i.e. from 2004 – 2014 the following research methods are used.

- Descriptive Statistics (Jarque-Bera test)
- Augmented Dickey Fuller Test, White - Heteroskedasticity Test, Auto correlation, Breuch-Godfrey Serial correlation LM test, and ARCH-LM test
- Johansen Co-integration test and
- Granger causality test

JOHANSEN CO-INTEGRATION

Johansen Co-integration test (1990) provides a mean to determine whether a set of endogenous variables share a common long-run stochastic trend. A finding of co-integration indicates interdependence of the endogenous variables, which may be the result of economic linkages between the markets or arbitrage activity between the investors.

Hypothesis is tested with Johansen co-integration test

H₀: There is no co-integration relationship between the selected variables

H₁: There is co-integration relationship between the selected variables

Johansen and Juselius (1990) stated that the approach to testing for co-integration relies on the relationship between the rank of a matrix and its characteristic roots, or eigen-values. Let $X_t$ be a vector of $n$ time series variables, each of which is integrated of order (1), and assume that $X_t$ can be modeled by a Vector Auto Regression (VAR):

$$X_t = A_1x_{t-1} + ... + A_px_{t-p} + \varepsilon_t \quad (1)$$

Rewriting the VAR as

$$\Delta x_t = \Pi x_{t-1} + \Sigma \Delta x_{t-i} + \varepsilon_t \quad (2)$$

Where, $\Pi = \Sigma A_i - I$, $\Gamma_i = - \Sigma A_i$. If the coefficient matrix $\Pi$ has a reduced rank $r < k$, there exists $k \times r$ matrices $\alpha$ and $\beta$ each with rank $r$ such that $\Pi = \alpha \beta'$ and $\beta' x_t$ are stationary. The number of co-integrating relations is given by $r$, and each column of $\beta$ is a co-integrating vector. There exists three possibilities, according to Johansen’s (1991) co-integrated Vector Autoregressive Model: (i) if $\Pi$ is of full rank, all elements of $X$ become stationary and none of the series has a unit root, (ii) if the
rank of $\Pi = 0$, there are no combinations which are stationary and there are no co-integrating vectors

(iii) if the rank of $\Pi$ is $r$ such that $0 < r < k$, then the $X$ variables are co-integrated and there exists $r$ co-integrating vectors. Equation (4) can be modified to allow for an intercept and a linear trend.

The number of distinct co-integrating vectors can be obtained by determining the significance of the characteristic roots of $\Pi$. To identify the number of characteristic roots that are not different from unity we have used two statistics, the trace test and the maximum Eigen value test:

$$
\lambda_{\text{trace}}(r) = -T \sum \ln(1 - \lambda_i) \quad (3)
$$

and

$$
\lambda_{\text{max}}(r, r+1) = -T \ln(1 - \lambda_{r+1}) \quad (4)
$$

Where, $\lambda_i$ = the estimated values of the characteristic roots (eigen values) obtained from the estimated $\Pi$ matrix, $r$ is the number of co-integrating vectors, and $T =$ number of usable observations. The trace test evaluates the null hypothesis that the number of distinct co-integrating vectors is less than or equal to $r$ against a general alternative hypothesis (the number of distinct co-integrating vectors is more than or equal to $r$). The maximum eigen-value test examines the number of co-integrating vectors versus that number plus one. If the variables in $X_t$ are not co-integrated, the rank of $\Pi$ is zero and all the characteristic roots are zero. Since $\ln (1) = 0$, each of the expressions $\ln (1 - \lambda_i)$ will equal zero in that case. Critical values for the test are provided by Johansen and Juselius (1990) and by Osterwald-Lenum (1992).

**Granger causality Tests**

The study tested the Granger causality by estimating the following VAR model:

$$Y_t = a_0 + a_1 Y_{t-1} + \ldots + a_p Y_{t-p} + b_1 X_{t-1} + \ldots + b_p X_{t-p} + U_t \quad (5)$$

$$X_t = c_0 + c_1 X_{t-1} + \ldots + c_p X_{t-p} + d_1 Y_{t-1} + \ldots + d_p Y_{t-p} + V_t \quad (6)$$

$H_0: b_1 = b_2 = \ldots = b_p = 0$ against $H_1$: Not $H_0$ is a test that $X_t$ does not Granger-cause $Y_t$.

Similarly, testing $H_0: d_1 = d_2 = \ldots = d_p = 0$ against $H_1$: Not $H_0$ is a test that $Y_t$ does not Granger cause $X_t$.

In case of Granger causality between the two variables, null hypothesis is rejected if the probability value is less than alpha (0.05).

**SAMPLING TECHNIQUE**

The study used *multistage non-random sampling technique* to select the ultimate sample units. Out of 16 firms having listing flag on NSE, 13 firms are selected based on adequacy of data for the study period.
Table 1: List of Measures (ratios) Used in the Study for Analysis

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variable / Measure</th>
<th>Formula</th>
<th>Inference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earnings per share (EPS)</td>
<td>Net income / Number of equity shares</td>
<td>It represents the capacity of firm to pay dividends. Firm is willing to pay high dividend if it increases profitability.</td>
</tr>
<tr>
<td>2</td>
<td>Dividend per share (DPS)</td>
<td>Total dividend / No. of equity shares outstanding</td>
<td>The dividend per share reveals how well earnings support the dividend payout.</td>
</tr>
<tr>
<td>3</td>
<td>Retained earnings per share (REPS)</td>
<td>Retained earnings / No. of equity shares outstanding</td>
<td>A firm with growth in its retained earnings can use the additional earnings to expand its business, which can potentially lead to high profits and increase the firm’s value.</td>
</tr>
</tbody>
</table>


Table 1 depicts the variables which are used to study the relationship between DP and SW of the FMCG firms listed on BSE. Earnings per share (EPS) is considered as response variable, while dividend per share (DPS) and retained earnings per share (REPS) are considered as predictor variables.

Table 2 shows the descriptive statistics of three selected financial variables on DP, which reveals that the data are normally distributed. The data set contained a total of 130 observations of 13 firms over a period of ten years. The mean of all the selected seven variables is very much close to the median, implying normality. The average DPS is 0.09 i.e., 9% which means, on an average, the firms pay about 9% of their profit as dividend. RPS shows an average of 2.09, which reflects a firm with growth in its RPS, and which can lead to high profits and thereby increase the shareholders’ wealth. The average of EPS is 22.35, which reflects that the firms of FMCG sector have good earnings and have capacity to pay dividend if they increase profitability.

The maximum and minimum values of the selected dividend predictor variables have more volatility. The standard deviation of EPS is the highest (3.94), whereas the lowest that of DPS is 0.02. All the selected dividend variables are positively skewed except for EPS. Probability of the selected variables is less than 5% level, implying that the selected dividend variables are significant at 95% confidence interval.

Table 2: Descriptive Statistics of Selected Variables of FMCG firms in India from 2008 to 2012

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dividend per share</th>
<th>Retained earnings per share</th>
<th>Earnings per share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.09</td>
<td>2.09</td>
<td>22.71</td>
</tr>
<tr>
<td>Median</td>
<td>0.09</td>
<td>1.97</td>
<td>23.23</td>
</tr>
<tr>
<td>Maximum</td>
<td>0.13</td>
<td>2.72</td>
<td>29.31</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.06</td>
<td>1.59</td>
<td>15.41</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>0.02</td>
<td>0.37</td>
<td>3.94</td>
</tr>
<tr>
<td>Skewness</td>
<td>0.19</td>
<td>0.39</td>
<td>-0.25</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.10</td>
<td>1.85</td>
<td>2.67</td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>0.39</td>
<td>0.80</td>
<td>0.15</td>
</tr>
<tr>
<td>Probability</td>
<td>0.04**</td>
<td>0.03**</td>
<td>0.05**</td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Dividend per share (DPS), Retained earnings per share (RPS), Earnings per share (EPS).

Source: Computed results based on compiled data from the Annual Financial Reports of selected corporate firms from moneycontrol.com ** Significant at 5% level.
Figure – A Jarque-Bera Test of Selected Variables of FMCG firms in India from 2008 to 2012 (₹ in crore)

Normality Test

<table>
<thead>
<tr>
<th>Series: Residuals</th>
<th>Sample 2004-2013</th>
<th>Observations 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.096090</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>-0.093458</td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>2.556914</td>
<td></td>
</tr>
<tr>
<td>Minimum</td>
<td>-1.529878</td>
<td></td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>1.370542</td>
<td></td>
</tr>
<tr>
<td>Skewness</td>
<td>0.560010</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>2.112666</td>
<td></td>
</tr>
<tr>
<td>Jarque-Bera</td>
<td>0.850752</td>
<td></td>
</tr>
<tr>
<td>Probability</td>
<td>0.653524</td>
<td></td>
</tr>
</tbody>
</table>

Source: Computed results based on compiled data from the Annual Financial Reports of the selected corporate firms moneycontrol.com

Figure – A depicts normality test, which reveals that the data form normal distribution. Jarque-Bera test (0.85) is a goodness of fit, which is a measure of departure from normality, based on the sample of kurtosis and skewness. So, the samples from a normal distribution have expected skewness of 0.56 and expected kurtosis of 2.11.

\[ JB = \frac{\mu - k}{6} \left( S^2 + \frac{1}{4}(K - 3)^2 \right) \]

Table 3: Results of Unit Root Test (Augmented Dickey-Fuller Test)

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF(t-Statistic)</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings per share (EPS)</td>
<td>-5.439594***</td>
<td>0.0038</td>
</tr>
<tr>
<td>Dividend per share (DPS)</td>
<td>-4.088493**</td>
<td>0.0185</td>
</tr>
<tr>
<td>Retained earnings per share (REPS)</td>
<td>-2.859230**</td>
<td>0.0438</td>
</tr>
</tbody>
</table>

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

Table 3 shows the presence of unit root in the series using Augmented Dickey-Fuller Test (ADF). The results show that there is a need for verifying whether the data are stationary by unit root test, hence it is conducted by Augmented Dickey-Fuller (ADF).

\[ \Delta Y_t = \alpha + \beta T + \delta Y_{t-1} + \mu_t \]

\[ H_0: \delta = 0 \quad (\text{Unit Root}) \]

\[ H_1: \delta \neq 0 \]
The \( p \) values of ADF are less than 0.05, which infer that the data of the time series for the whole study period are stationary. The ADF test statistics report that hypothesis of a unit root in the series is rejected at 1% level for \( \text{EPS} \) (critical value of -5.43) and at 5% for \( \text{DPS} \) and \( \text{RPS} \) (critical values -4.088, -2.85 respectively) for the ADF test. Therefore, the result of the test confirms that the data of the series are stationary.

**Table 4: Results of White - Heteroskedasticity Test**

<table>
<thead>
<tr>
<th>F-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.247</td>
<td>0.427</td>
</tr>
</tbody>
</table>

**Obs* R-Squared** 6.093

**Probability** 0.297

**Source:** Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com

The condition of classic linear regression model (vide table 4) shows that there should be homoskedasticity between variables, which means that the spread should be constant and same. Variance of residuals should be constant otherwise, the condition for existence of regression, homoskedasticity would be violated and the data would be heteroskedastic. To check, white heteroskedasticity test is applied for the residuals, which reveals that the probability is greater than 5%. Hence, it implies that there is absence of heteroskedasticity and the data have uniform spread.

**Table 5: Results of Breuch-Godfrey Serial correlation LM test**

<table>
<thead>
<tr>
<th>F-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.132</td>
<td>0.879</td>
</tr>
</tbody>
</table>

**Obs* R-Squared** 0.501

**Probability** 0.778

**Source:** Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com

It is evident that there is no serial correlation (vide table 5). Hence, the null hypothesis is accepted, which infers that if an estimated regression line fulfills all the requirements of a good regression model it invites to proceed further for hypothesis testing or forecasting. The estimated regression has neither heteroskedascity nor serial correlation hence it leads to go for testing hypothesis by use of \( ARCH-LM \) model.

**Table 6: Results of ARCH-LM test**

<table>
<thead>
<tr>
<th>F-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>108.85</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**Obs* R-Squared** 5.98

**Probability** 0.20

**Source:** Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com
Table 6 shows the ARCH-LM test, \( p < 0.05 \) and the null hypothesis is rejected at 5% level, which reveals that there is presence of ARCH effect in the residuals of simple time series models.

Table 7 shows the results of Johansen Co-Integration test. The Johansen Co-Integration test sets out the long run relationship between the earnings per share (\( \text{EPS} \)), dividend per share (\( \text{DPS} \)), and retained earnings per share (\( \text{RPS} \)). Consequently, Johansen co-integration test is used to determine whether there is co-integration as well as the number of co-integration relationships, that is, whether there is any long – term co-integration relationship exists between earnings per share (\( \text{EPS} \)), dividend per share (\( \text{DPS} \)), and retained earnings per share (\( \text{RPS} \)).

Further, two likelihood ratio tests are used viz., the Trace test and the Maximum Eigen Value test to determine the number of co-integrating vectors. The estimation for each series assumes linear deterministic trend unrestricted with intercepts and no trends. A lag of 1 to 1 (in 1st differences) is used for each series, based on the Swartz Information Criterion (\( \text{SIC} \)).

### Table 7: Results of Johansen Co-Integration test

**Unrestricted Co-integration Rank test (Trace)**

<table>
<thead>
<tr>
<th>Hypothesized No. of CE (s)</th>
<th>Eigen value</th>
<th>Max-Eigen statistic</th>
<th>Critical value</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.980872</td>
<td>35.609</td>
<td>21.13</td>
<td>0.0003***</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.456924</td>
<td>5.494</td>
<td>14.26</td>
<td>0.6785</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.329084</td>
<td>3.591</td>
<td>3.241</td>
<td>0.0441**</td>
</tr>
</tbody>
</table>

Trace Test Indicates 2 Co-Integrating eqn (S) at the 0.05 level;*** Denotes rejection of the hypothesis at 1% level; ** Denotes rejection of the hypothesis at 5% level; Mackinnon-Haug-Michelis (1999) P-Values

<table>
<thead>
<tr>
<th>Hypothesized No. of CE (s)</th>
<th>Eigen value</th>
<th>Trace statistic</th>
<th>Critical value</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0.980872</td>
<td>44.696</td>
<td>29.797</td>
<td>0.0005***</td>
</tr>
<tr>
<td>At most 1</td>
<td>0.456924</td>
<td>9.0865</td>
<td>15.494</td>
<td>0.3574</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.329084</td>
<td>3.591</td>
<td>3.241</td>
<td>0.0441**</td>
</tr>
</tbody>
</table>

**Source:** Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com

Max-eigenvalue test Indicates 2 Co-Integrating eqn (S) at the 0.05 level;*** Denotes rejection of the hypothesis at 1% level; ** Denotes rejection of the hypothesis at 5% level Mackinnon-Haug-Michelis (1999) P-Values

Table 7 demonstrates the Johansen Co-Integration results. It assures the long –term relationship among the selected dividend variables. The results show that the series is co-integrated
as both the Trace test and the Maximum Eigen-value test reject the null hypothesis of no co-integration, and suggesting that there are two significant co-integrating vectors in the model. This implies that there are two common stochastic trends, indicating a degree of market integration.

Earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS) have long run association proved by trace rank test and maximum eigen value test with value (44.696), critical value (29.797) at 1% level; maximum eigen value (35.609), critical value (21.13) at 1% level. The trace statistic value and maximum eigen statistic are more than the critical value hence we reject null hypothesis. \( H_0^1 \): “there is no co-integration relationship between earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS)” at 1% level. Therefore, the co-integration results prove that there exists a stationary, long – run relationship among the selected dividend variables. For dividend per share, trace statistic test shows the value of 9.0865, critical value of 15.494 with p-value of 0.357 and the maximum eigen statistic shows the value of 5.494, critical value of 14.26 with p-value 0.678 which is more than the 5% level hence, the critical value is more than the trace statistic and maximum eigen value means we can’t reject null hypotheses. Hence, \( H_0^2 \): “there is no co-integration relationship between dividend per share (DPS) and earnings per share (EPS)” is accepted.

Retained earnings per share shows the value in trace statistic test (3.591, critical value of 3.241) with p-value of 0.041; maximum eigen statistic of 3.591; critical value of 3.241 with p-value of 0.041, which is less than the 5% level hence the trace statistic and maximum eigen value are more than the critical value which implies we may reject the null hypothesis. Hence, \( H_0^3 \): “there is no co-integration relationship between earnings per share (EPS) and retained earnings per share (RPS)” is rejected at 5% level. Therefore, it may be concluded that there is a long - run relationship between earnings per share (EPS) and retained earnings per share (RPS).

The results of the co-integration shows that in the long run, DP is significantly and positively related to retained earnings per share and earnings per share (SW). This result is consistent with the findings of Gull Collins et al. (2012), Salman (2013), Bawa and Kaur (2013), Azhagaiah and Sabaripriya (2008), Chindinma et al. (2013), who found a significant and positive relationship between DP and SW.

The VAR lag order selection criteria

In order to obtain the optimal lag length for co-integration analysis, the VAR lag order of integration is performed. Table 7 shows the lag order selection statistics that indicate lag order at 1.

<table>
<thead>
<tr>
<th>Lag</th>
<th>Lag L</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>17.36</td>
<td>NA</td>
<td>8.28</td>
<td>-3.19</td>
<td>-3.13</td>
<td>-3.33</td>
</tr>
<tr>
<td>1</td>
<td>32.25</td>
<td>16.55</td>
<td>2.72</td>
<td>-4.5</td>
<td>-4.23</td>
<td>-5.07</td>
</tr>
</tbody>
</table>

Source: Computed results based on compiled data from the Annual Financial Reports from moneycontrol.com *indicates Lag order selected by the criteria
LR: Sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criteria
SC: Schwarz information criteria; HQ: Hannan-Quinn information criteria
GRANGER CAUSALITY TEST

Table 9: VAR Granger Causality Test
VAR Granger Causality Test/ Block Exogeneity Wald Tests
Sample 2004 2013

<table>
<thead>
<tr>
<th>Dependent variable - EPS</th>
<th>Excluded</th>
<th>Chi-Sq</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPS</td>
<td></td>
<td>4.012</td>
<td>1</td>
<td>0.04**</td>
</tr>
<tr>
<td>RPS</td>
<td></td>
<td>4.334</td>
<td>1</td>
<td>0.03**</td>
</tr>
<tr>
<td>ALL</td>
<td></td>
<td>5.62</td>
<td>2</td>
<td>0.05**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent variable - DPS</th>
<th>Excluded</th>
<th>Chi-Sq</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td></td>
<td>0.077</td>
<td>1</td>
<td>0.78</td>
</tr>
<tr>
<td>RPS</td>
<td></td>
<td>1.574</td>
<td>1</td>
<td>0.02**</td>
</tr>
<tr>
<td>ALL</td>
<td></td>
<td>1.974</td>
<td>2</td>
<td>0.03**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependent variable - RPS</th>
<th>Excluded</th>
<th>Chi-Sq</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPS</td>
<td></td>
<td>0.66</td>
<td>1</td>
<td>0.04</td>
</tr>
<tr>
<td>DPS</td>
<td></td>
<td>1.23</td>
<td>1</td>
<td>0.26</td>
</tr>
<tr>
<td>ALL</td>
<td></td>
<td>1.24</td>
<td>2</td>
<td>0.53</td>
</tr>
</tbody>
</table>

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

The Granger Causality test is a statistical proposition test for determining whether one time series is helpful in forecasting another. The test has been performed in the study in search of direction of causation among the selected financial variables.

Table 8 reveals that dividend per share (DPS) does cause earnings per share (EPS) significantly at 5% level with value of 4.012. Hence, $H_0^4$: “there is no causal association between dividend per share (DPS) and earnings per share (EPS)” is rejected. Retained earnings per share (RPS) does cause earnings per share (EPS) significantly at 5% level with value of 4.33. Hence, $H_0^5$: “there is no causal association between retained earnings per share (RPS) and earnings per share (EPS)” is rejected. From the whole, both dividend per share (DPS) and retained earnings per share (RPS) cause earnings per share (EPS) significantly at 5% level with value of 5.62. Hence, $H_0^6$: “there is no causal association between dividend per share (DPS), retained earnings per share (RPS) and earnings per share (EPS)” is rejected.

Earnings per share (EPS) does not cause dividend per share (DPS) significantly with value of 0.077. Retained earnings per share (RPS) does cause significantly dividend per share (DPS) at 5% level with value of 1.574. Hence, $H_0^7$: “there is no causal association between retained earnings per share (RPS) and dividend per share (DPS)” is rejected. From the whole, both earnings per share (EPS), and retained earnings per share (RPS) does cause dividend per share (DPS) significantly at 5% level with value of (1.974). Hence, $H_0^8$: “there is no causal association between earnings per share (EPS), retained earnings per share (RPS) and dividend per share (DPS)” is rejected.

Earnings per share (EPS) does cause significantly the retained earnings per share (RPS) at 5% level with value of 0.66. Hence, $H_0^9$: “there is no causal association between earnings per share (EPS) and retained earnings per share (RPS)” is rejected. Dividend per share (DPS) does not
Granger cause significantly retained earnings per share (RPS) is accepted with the value of 1.23. From the whole, both earnings per share (EPS), and dividend per share (DPS) do not cause significantly retained earnings per share (RPS) hence H₀ is accepted with value of 1.24. The VAR Granger causality test – Block exogeneity Wald test (at lag 1) show that there is a significant relationship between DP and SW and the result is consistent with the findings of Dewet and Mpinda (2013).

CONCLUDING REMARKS

This paper is an effort to reveal the insight dynamics for the relationship between dividend policy and shareholders’ wealth: Evidence from FMCG sector in India. In the light of the previous literature, key explanatory variables were found to disclose the relationship between DP and SW. The response variable i.e. earnings per share (EPS) is considered as proxy for measuring the (SW). Dividends per share (DPS), and retained earnings per share (RPS) are considered as predictor variables. Out of 16 listed firms on NSE, only 13 firms are selected using multi stage non-random sampling technique based on the availability of data.

In the unit root test of the first differences, only the intercept without the time trend is included. As a result, in levels using the earnings per share, dividend per share, and retained earnings per share, the probability of results suggested that three variables were stationary viz., earnings per share (EPS), dividend per share (DPS) and retained earnings per share (RPS) of order 1(1). The model defined a long run relationship between the co-integrated variables. Therefore, a co-integration test is conducted, which indicates the presence of two co-integrating equations at 5% level of significance thereby confirming the existence of long run equilibrium relationship between the selected dividend variables. Thus, one linear combination of the variables is stationary. The Granger causality tests show a significant causality between dividend per share (DPS) and earnings per share (EPS); retained earnings per share (RPS) and earnings per share (EPS); retained earnings per share (RPS) and dividend per share (DPS); and earnings per share (EPS) and retained earnings per share (RPS).

When the firms pay dividend regularly with periodic growth, the SW would be maximized. This is quite possible for all dividend paying firms in FMCG sector in India. The DP has significant effect on SW of FMCG firms. From the analysis it is inferred that earnings per share, dividend per share, and retained earnings per share act as important variables in determining the DP and SW. Generally, higher DP enables increase in the market value of equity share and vice versa. Shareholders preferred current dividend to future income so, dividend is considered to be an important variable, which determines the SW.

LIMITATIONS AND SCOPE FOR FURTHER STUDIES

The study is based on secondary data collected from the money control data source, and websites of various firms concerned. Therefore, the quality of the study depends upon the accuracy, reliability, and quality of secondary data source. The analysis has produced some meaningful inferences and results, and one avenue for future research is to extend the investigation to other sectors and cross sectors.
In the study, a sample of 13 FMCG firms has been considered for analyzing the relationship between DP and SW. In future, researchers can consider inclusion of more firms to take up a study with large sample units to explore more possible results. In the study, Johansen Co-integration and Granger causality test are used for analysis, with the help of Eviews 7 Econometrics software package. Therefore, inclusion of some more appropriate methods of analysis viz., variance decomposition if used for analysis, will enable further step in exploring new and further inference in the area of research.

POLICY PRESCRIPTION

The DP has significant effect on SW in FMCG sector in India. When the FMCG firms pay dividend regularly with periodic enhancements, the SW would be higher. Hence, the selected 13 FMCG firms should have the policy of paying the dividend rather than retention.

Retained earnings per share (RPS) act as an important factor in determining the SW in FMCG sector in India. Since, increase in RPS lead to increase in net-worth of the shareholders, and there would be a large number of shareholders inflow for which they would be ready to purchase the shares by paying premiums, the firm should concentrate more on that aspect.

Past performance of the firm plays a vital role in the concept of SW. Whenever the shareholders are interested for investing in shares, the past performance is well scrutinized by the shareholders. The increase in dividend payment, large amount of retained earnings and past performance in almost all the firms in the sample significantly increase the SW in FMCG sector in India. So, the firms which failed to have the above should concentrate on all the above said factors.

REFERENCES


