

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry

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The present research contribution makes a serious attempt to explore the dynamics of dividend determinants expressively affecting the dividend policy in emerging economies like India with special reference to Indian Automobile Industry. Based on the scholarly work of the last six decades, six predictors have been identified along with the dividend payout as dependent variable. The study comprises the dataset of 14 years (2001-14) meticulously planned, keeping in view the inherent characteristics of the Industry. Based on Multivariate Regression, the analysis exposed that the identified predictors significantly explained the dividend policy over and above 55%.

Keywords: Dividend Policy, Dividend Determinants, Multivariate Regression, Automobile Industry

1. INTRODUCTION

Despite being analyzed from more than six decades, dividend 'Puzzle' (As described by Black, 1976) remains unsolved with explaining no universally accepted justification in this regard. Regardless of plentiful scholarly work and empirical evidences, dividend policy decisions are one of the most complex and unsolved problems in the field of Financial Economics (Brealey & Myers, 2005). The dividend decision became more challenging in developing and emerging economies because of lots of consideration involves from the end of the company as well as stakeholder's side. Moreover, if we look closely into much-admired empirical evidences, most of them have discussed dividend policy based on developed market conditions. Here, we must understand the fact that market condition, efficiency and investors sentiments in emerging economies like India, are fairly different from developed countries. Hence, dividend policy in emerging economies like India, needs to be assessed from a separately.

The present research contribution makes an attempt to fill the absolute dearth of empirical evidences from this standpoint especially focusing to Indian Automobile Industry Automotive/Automobile industry being a subset of the Indian Engineering sector is involved with the inherent characteristics of the larger operating cycle, huge investment, lower operating leverage, lower receivable turnover and high capital gearing. Thus, it is noteworthy to evaluate the determinant of the dividend in this industry as a whole.

2. REVIEW OF LITERATURE

2.1 Conceptual Framework & Theoretical Background:

In the last six decades, researchers enrich the study of dividend decision with dozens of theories, which we can broadly classify into three categories. On one hand, school propounding the **Relevancy Approach** of dividend (Durant, 1956), recognizes the effect of dividend on share price. On the other hand, followers of the **Irrelevancy Approach** of dividend, having a contradictory viewpoint (Miller & Modigliani, 1961). Apart from these two we also have a classification of Compromising approach which recognize the effect of dividend on share price but only restricted a level. The financial researchers and practitioners cornered the **Irrelevancy Approach** based on its assumption of perfect market condition, which actually don't exist in the real world. Predating to M&M approach, the **Bird in Hand Theory**, attempt to explain that dividend do matters in imperfect condition of capital markets. The theory says that investors prefer to have cash dividend at present rather than depending only on future expectations of capital gain to shield their risk exposure (Gordon & Walter, 1963). Later in 70's the empirical evidence under the **Theory of Tax Preference** suggests that dividends are directly taxed and hence investors prefer retention of profit over its distribution as a cash dividend (Brennan, 1970; Litzenberger & Ramaswamy, 1979; Miller & Rock, 1985; Ambarish et al., 1987). Further Jansen & Meckling (1976) highlighted the **Agency Cost Theory** which constructed on conflicts between shareholders and managers due to

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

insider ownership. In 80's Bhattacharya provides *Signaling Theory* of dividend underlined that proper dividend payout indicates the financial soundness of the firm.

Lease et al. (2000) and Fama & French (2001) provide explanation through *Life Cycle Theory* concluded that the quantum of dividend payout depends on the life cycle stage of the firm. The theory further explains that matures firms are able to pay high ratio of dividend while younger and high growth firms are more likely to use it as retained earnings, meeting the fund requirement for future growth opportunity and growth purposes. In 2004, Baker & Wurgler comes with *Catering Theory of dividend* which suggests that firms should pay smooth dividend to give incentives to its investors.

3. RATIONALIZATION OF THE STUDY

The miraculous growth of India in the last one and half decade empowered it today as the world fastest growing economy. Opening its doors to globalization in the nineties, led to the incredible growth story of India. The confidence of investors in the economy creates a history as reflected in the stock exchange as Sensex take a jump of 11000 points in just 19 months (from 10000 to 21000 in 8 Jan. 2008). The last decade global economy witness most tumultuous and un-happening incidents and Indian economy is not an exception of it. Despite that, India as an emerging economy continued to stand firm and unfazed exhibited its growth potential. However, there has been the availability of plentiful literature on dividend policy, but still very limited empirical evidence available on determinant of dividend especially in context of India. The present study helps to examine the factor influencing the dividend decision with special reference to Indian Automotive Industry. Furthermore, it contributes to fill the absolute dearth of availability of literature available in this regard.

Under the basic framework of *signaling theory of dividend* the present study makes an attempt to explore the determinants of dividend policy in Indian Automobile/Automotive Industry. The Indian Auto Industry is one of the largest in the world with an annual production of million vehicles in FY 2013-14. Today, automotive sector is one of the growing industry to boost the economy. The Two-Wheelers Industry constitutes an annual production of 16.9 million and accounts 22% of Country's Manufacturing GDP. India stands today as the third largest producer in automobile industry and its' share in the global passenger market is expected to be double by 2020. Government of India also takes key initiative like 100% FDI, 'Make In India' plan etc. to encourage the Industry. The AMP (Automotive Mission Plan 2006-16) also aimed at accelerating growth and ensures sustainable development in the Industry. Low labour cost, government's initiative to promote industry & commerce, skilled labour force and strong consumer base etc. are attracting global market players to invest in India. India is growing faster than ever before and it is just behind of China, in terms of growth of GDP.

4. RESEARCH METHODOLOGY

4.1 Data Collection

The data have been collected with a renowned source of CAPITALINE database and accessed through library of IIM Ahmedabad. Therefore, the dataset is quite transparent, in the context of its authenticity. The data consists the fact sheet and industry overview of Indian Automotive Industry during the period of 14 years (2001-14). Usually the life cycle of a firm completed in 5 to 7 years, whereas, 12 to 15-year period is usually recommended in case of an Industry. The study includes a time frame of 14 years fairly explains and justifies the determinant and fulfil the purpose.

4.2 Methodology

The study is meticulously planned and satisfy the basic statistical condition before applying any parametric test. Since We have one dependent variable and more than one independent variable 'Multiple Regression Analysis' identified as most suitable statistical technique.

The researcher made an attempt to develop a model using multiple regression equation. For the purpose, Dividend Payout (%) has been taken as the dependent variable (Y) and all other variable, namely Market Capitalization (x_1), Cash flow from Financing Activity (x_2), Fixed Assets Ratio (x_3), Inventory Ratio (x_4), Interest Coverage Ratio (x_5) and Long Term Debt-Equity Ratio (x_6) are taken as Independent Variable, please see figure 01.

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

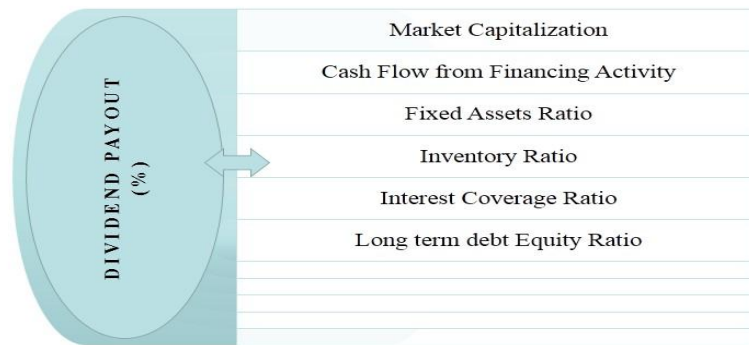


Figure 01 Dividend Payout and Independent Variable

Based on this, the multiple regression equation state as:

$$Y = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + \beta_6x_6$$

Here, 'α' denotes regression constant or intercept and β₁, β₂,..., β₆ as a regression coefficient for x₁, x₂,..., x₆ respectively. Multiple Regression Analysis is the most suitable technique in such cases. But at the same time, it is important to keep a check on the basic assumption before applying this. The main assumption/ condition which needs to be satisfy are:

- Test of Normality
- Test of Heteroscedasticity
- Problem of Auto-correlation
- Problem of Multicollinearity

After satisfying above mentioned necessary conditions/assumption, the researcher applied the model. The detailed test results are discussed in *Data Analysis & Interpretation* section.

5. DATA ANALYSIS & INTERPRETATION

The dataset has been retrieved from the reliable source of CAITALINE Database on yearly basis from Factsheet of Automotive Industry. The dataset comprises Industry specific information as a whole for each year. Multiple Regression analysis was performed to develop a model for predicting the effect of predictors (Long Term Debt Equity Ratio, Fixed Assets Ratio, Inventory Ratio, Cash Flow from Financing Activity, Market Capitalization, Interest Coverage Ratio) on the criteria variable (Dividend Payout).

The Descriptive Statistics as shown in table no. 01, indicate average trend prevailing in this Industry over the period of study (14 years, 2001-14) with respect to criteria variable as Dividend Payout and all others as Predictors. Table also contains the Standard deviation existing for the period of study for the all variables.

6. SPSS OUTPUT: AUTOMOBILE INDUSTRY

The correlation table explains the correlation between each pair of variable. Here N concerned with dataset of 14 years referring to the period between 2001- 2014. The test and confirms that data set is not affected by the typical problem of autocorrelation among the predictors and values are acceptable. None of them is affecting each other significantly. The Test of Autocorrelation is one of the significant tests needed to perform before applying Multiple Regression as it is a precondition of Multiple Regression Analysis. (please see Table no. 02)

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

Table No. 1 Descriptive Statistics

| | Mean | Std. Deviation | N |
|-----------------------------------|------------|----------------|----|
| Dividend Payout | 218.4307 | 105.83516 | 14 |
| Market Capitalization | 48583.4179 | 48076.53253 | 14 |
| Cash Flow from Financing Activity | 276.9736 | 3585.91399 | 14 |
| Fixed Assets Ratio | 32.2243 | 11.07890 | 14 |
| Inventory Ratio | 162.0871 | 271.47960 | 14 |
| Interest Coverage Ratio | 303.0707 | 412.88172 | 14 |
| Long Term Debt Equity Ratio | 5.3757 | 7.04109 | 14 |

Table No. 2 Correlations

| | | Dividend Payout | Market Capitalization | Cash Flow from Financing Activity | Fixed Assets Ratio | Inventory Ratio | Interest Coverage Ratio | Long Term Debt Equity Ratio | |
|-----------------------------------|-----------------------------------|-----------------------|-----------------------|-----------------------------------|--------------------|-----------------|-------------------------|-----------------------------|------|
| Pearson Correlation | Dividend Payout | 1.000 | .770 | -.301 | .585 | -.057 | .792 | .625 | |
| | Market Capitalization | .770 | 1.000 | -.421 | .560 | .028 | .660 | .826 | |
| | Cash Flow from Financing Activity | -.301 | -.421 | 1.000 | -.299 | .071 | -.426 | -.391 | |
| | Fixed Assets Ratio | .585 | .560 | -.299 | 1.000 | .202 | .789 | .164 | |
| | Inventory Ratio | -.057 | .028 | .071 | .202 | 1.000 | -.096 | .016 | |
| | Interest Coverage Ratio | .792 | .660 | -.426 | .789 | -.096 | 1.000 | .434 | |
| | Long Term Debt Equity Ratio | .625 | .826 | -.391 | .164 | .016 | .434 | 1.000 | |
| | Sig. (1-Tailed) | Dividend Payout | . | .001 | .148 | .014 | .423 | .000 | .008 |
| | | Market Capitalization | .001 | . | .067 | .019 | .462 | .005 | .000 |
| Cash Flow from Financing Activity | | .148 | .067 | . | .150 | .405 | .064 | .083 | |
| Fixed Assets Ratio | | .014 | .019 | .150 | . | .244 | .000 | .287 | |
| Inventory Ratio | | .423 | .462 | .405 | .244 | . | .372 | .478 | |
| Interest Coverage Ratio | | .000 | .005 | .064 | .000 | .372 | . | .060 | |
| Long Term Debt Equity Ratio | | .008 | .000 | .083 | .287 | .478 | .060 | . | |
| N | | Dividend Payout | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| | | Market Capitalization | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| | Cash Flow from Financing Activity | 14 | 14 | 14 | 14 | 14 | 14 | 14 | |
| | Fixed Assets Ratio | 14 | 14 | 14 | 14 | 14 | 14 | 14 | |
| | Inventory Ratio | 14 | 14 | 14 | 14 | 14 | 14 | 14 | |
| | Interest Coverage Ratio | 14 | 14 | 14 | 14 | 14 | 14 | 14 | |

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

| | | | | | | | | |
|--|------------------------------------|----|----|----|----|----|----|----|
| | Long Term Debt Equity Ratio | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
|--|------------------------------------|----|----|----|----|----|----|----|

| Table No. 3 Model Summary ^b | | | | | |
|--|-------------------|----------|-------------------|----------------------------|--------------|
| Model | R | R Square | Adjusted R Square | Std. Error of The Estimate | Dubin-Watson |
| 1 | .872 ^a | .760 | .555 | 70.59781 | 1.738 |
| A. Predictors: (Constant), Long Term Debt Equity Ratio, Inventory Ratio, Fixed Assets Ratio, Cash Flow from Financing Activity, Interest Coverage Ratio, Market Capitalization | | | | | |
| B. Dependent Variable: Dividend Payout | | | | | |

The model summary contains some notable information about the model. It indicates the value of R is 87.2% whereas proportion of variance in criteria variable as explained by R² is 76%. Furthermore, the adjusted R² value as 55.5% indicated fairly good and ensure success of the model for explaining the variance. Further the p-value signifies that model is valid and good fit for Automobile/Automotive Industry. It further explains that dividend payout can be explained with the help of the predictors (viz., Debt-Equity Ratio, Fixed Assets Ratio, Inventory Ratio, Cash Flow from Financing Activity, Market Capitalization and Interest Coverage Ratio;) by 55.5% and the rest of the other variable constitute the remaining 44.5%. (please see Table no. 03)

| Table No. 04 Anova ^a | | | | | | | |
|--|-------------------|------------|-------------|-----------|-------|-------------------|--|
| Model | Sum of Squares | Df | Mean Square | F | Sig. | | |
| 1 | Regression | 110725.690 | 6 | 18454.282 | 4.703 | .035 ^b | |
| | Residual | 34888.353 | 7 | 4984.050 | | | |
| | Total | 145614.043 | 13 | | | | |
| A. Dependent Variable: Dividend Payout | | | | | | | |
| B. Predictors: (Constant), Long Term Debt Equity Ratio, Inventory Ratio, Fixed Assets Ratio, Cash Flow from Financing Activity, Interest Coverage Ratio, Market Capitalization | | | | | | | |

The model explained in Anova table indicates the predictors explained ($f(6,7) = 4.703, p < 0.035$). It further confirms that model is significant. (please see Table no. 4). The coefficient table reported by SPSS, indicates β (unstandardized coefficient) for each predictor variable. It implied the predicted increase in the value of dependent variable for 1-unit increase in the predictors while controlling all other predictors. Furthermore, the standardized coefficient, Beta (β) gives a measures of the contribution of the variable to the model in terms of standard deviation. As here, if Interest Coverage Ratio is increased by 1 SD, then we can predict that dividend payout would be increased by 0.648 SD (please see Table no. 05).

| Table No. 05 Coefficients ^a | | | | | | | | |
|--|--|-----------------------------|------------|---------------------------|-------|------|-------------------------|-------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 153.384 | 110.536 | | 1.388 | .048 | | |
| | Market Capitalization | .001 | .001 | .386 | .729 | .038 | .222 | 4.505 |
| | Cash Flow from Financing Activity | .004 | .006 | .141 | .666 | .027 | .231 | 4.329 |
| | Fixed Assets Ratio | -1.119 | 4.525 | -.117 | -.247 | .012 | .253 | 3.953 |
| | Inventory Ratio | .002 | .087 | .006 | .027 | .009 | .405 | 2.469 |

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

| | | | | | | | |
|--|-------|-------|------|-------|------|------|-------|
| Interest Coverage Ratio | .166 | .104 | .648 | 1.594 | .055 | .207 | 4.830 |
| Long Term Debt Equity Ratio | 1.489 | 7.251 | .099 | .205 | .043 | .217 | 4.608 |
| A. Dependent Variable: Dividend Payout | | | | | | | |

The table further indicates the collinearity statistics. To check the *Assumption of Collinearity* we need to look at Tolerance and VIF value under the sub heading of *Collinearity Statistics* in Coefficients Table. Here also we found that VIF value is less than 10 (Myres, 1990) and Tolerance is more than 0.2 (Menard, 1995) which indicates that our data set met the assumption of Collinearity and multicollinearity was not a concern. Furthermore, a detailed collinearity diagnostics consisting the Eigen value and condition index have been reported in next table. (please see Table no. 6)

The above figure no. 02 depicted the standard bell shape indicating the normality of the data. Furthermore, figure no. 03, graph is produced by normal probability plot options. Here, we found that the points are reasonably close to the straight line.

| Table No. 6 Collinearity Diagnostics^a | | | | | | | | | | |
|---|-----------|-------------|-----------------|----------------------|-----------------------|-----------------------------------|--------------------|-----------------|-------------------------|-----------------------------|
| Model | Dimension | Eigen value | Condition Index | Variance Proportions | | | | | | |
| | | | | (Constant) | Market Capitalization | Cash Flow from Financing Activity | Fixed Assets Ratio | Inventory Ratio | Interest Coverage Ratio | Long Term Debt Equity Ratio |
| 1 | 1 | 4.280 | 1.000 | .00 | .00 | .00 | .00 | .01 | .01 | .00 |
| | 2 | 1.286 | 1.824 | .00 | .00 | .34 | .00 | .07 | .01 | .00 |
| | 3 | .642 | 2.582 | .00 | .00 | .30 | .00 | .50 | .01 | .00 |
| | 4 | .437 | 3.128 | .00 | .01 | .11 | .00 | .01 | .04 | .10 |
| | 5 | .278 | 3.925 | .04 | .00 | .23 | .00 | .13 | .21 | .00 |
| | 6 | .067 | 7.966 | .02 | .51 | .00 | .01 | .01 | .21 | .29 |
| | 7 | .009 | 22.335 | .93 | .47 | .01 | .99 | .27 | .52 | .59 |

A. Dependent Variable: Dividend Payout

| Table No. 07 Residuals Statistics^a | | | | | |
|--|-----------|-----------|----------|----------------|----|
| | Minimum | Maximum | Mean | Std. Deviation | N |
| Predicted Value | 135.2516 | 422.3432 | 218.4307 | 92.28955 | 14 |
| Residual | -89.40059 | 120.21295 | .00000 | 51.80463 | 14 |
| Std. Predicted Value | -.901 | 2.209 | .000 | 1.000 | 14 |
| Std. Residual | -1.266 | 1.703 | .000 | .734 | 14 |

A. Dependent Variable: Dividend Payout

illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

Charts

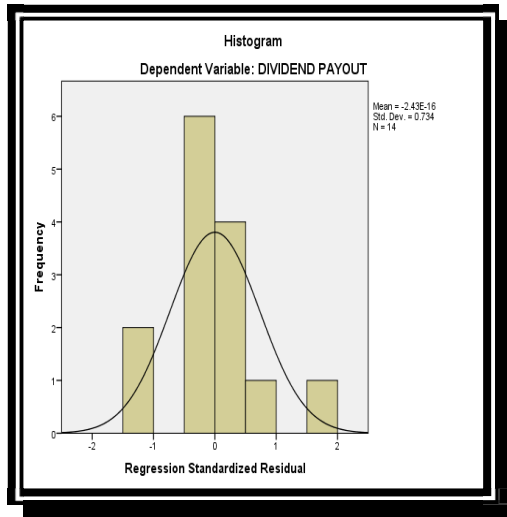


Figure 02 Normality Distribution

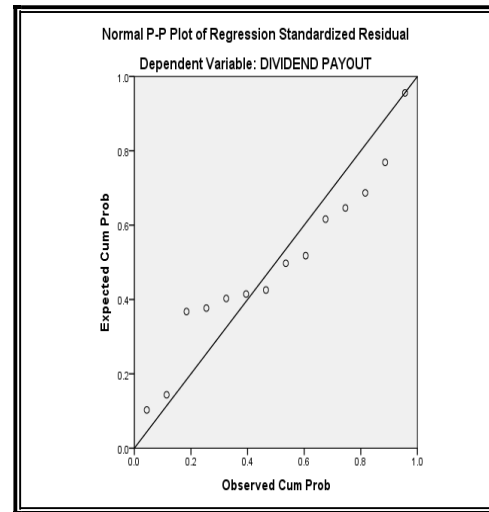


Figure 03 Normal P-P Plot Automotive Industry

7. STATISTICAL CRITERIA AND INFERENCE-

The results of standard residual show that data set of Automobile Industry contained no outlier as *Standard Residual* Minimum value is above -3.29 and Maximum value is below than 3.29. To check the *Assumption of Collinearity* we need to look at Tolerance and VIF value under the sub heading of *Collinearity Statistics* in Coefficients Table. Here also we found that VIF value is less than 10 (Myres, 1990) and Tolerance is more than 0.2 (Menard, 1995) which indicates that our data set met the assumption of Collinearity and multicollinearity was not a concern. Further, we conducted *Test of Independence Error*, which is again one of the important assumption of Multiple Regression which test whether residual terms are uncorrelated or not. For this purpose, we are referring the *Model Summary* table and *Durbin-Watson Value*. The Value of Durbin-Watson can be anywhere between 0 and 4 however value near to 2 is most appropriate in order to meet the assumption of independent errors. Here again we found that the data set met the assumption of independent error. Furthermore, the statistical test performed to check the assumption of *Normal Distribution, Homoscedasticity and Linearity* and figure 02 & 03 confirms the same. So, it can be concluded that the it satisfying all the important assumption required for performing Multiple Regression.

Multiple Regression analysis was performed to develop a model for predicting the effect of Independent (Predictor) Variables (Long Term Debt Equity Ratio, Fixed Assets Ratio, Inventory Ratio, Cash Flow from Financing Activity, Market Capitalization, Interest Coverage Ratio) on the Criteria/Dependent Variable (Dividend Payout). The analysis and statistical procedures reveal the R value is 0.872, R Square value is 0.76 and Adjusted R Square value is 0.555 which confirms that the model explain the dependent variable at least of 55.5%. Further the p-value signifies that model is valid and good fit for Automobile/Automotive Industry. It further explains that dividend payout can be explained with the help of the said Independent variable (viz., Debt-Equity Ratio, Fixed Assets Ratio, Inventory Ratio, Cash Flow from Financing Activity, Market Capitalization and Interest Coverage Ratio;) by 55.5% and the rest of the other variable constitute the remaining 44.5%.

Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

8. CONCLUSION

The research work makes a noteworthy attempt to reveal the dynamics and determinant of dividend payout policies with special reference to Indian Automobile/Automotive Industry. The study reveals that dividend policy of a firm by at large depends upon 6 variables viz. Long Term Debt Equity Ratio, Fixed Assets Ratio, Inventory Ratio, Cash Flow from Financing Activity, Market Capitalization and Interest Coverage Ratio, especially in the case of Automotive Industry of India. The explanatory power of the model is quite good and hence, provides a good basis for future research in this area. The model may derive different results unlike to the automobile industry of India due to the inherent characteristics of the industry itself.

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Illuminating the Enigma of Dividend Determinants for Emerging Economy: An Empirical Evidence from Indian Automobile Industry Analysis [1-9]

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Prof. (Dr) S V Pathak is serving in Deen Dayal Upadhyay Gorakhpur University, Gorakhpur as a Professor in Department of Commerce. Prof. Pathak has a wide range of experience and having expertise in area of Marketing & Organizational Behaviour. He has more than 20 research paper and a book on his credit