The dividend decision, one of the widely researched topics, yet named as dividend puzzle, has been a center of attraction for the past number of decades. The outcome of the past researches has resulted in development of number of models trying to explain the dividend behavior of the companies. Some of the well-known dividend models are: Lintner’s model, Brittain’s model, Pettit’s model, Watt’s model, Charest’s model and Aharony’s and Swary’s model. The testing of these models has extensively been undertaken in foreign researches. Considering the importance of the models, an attempt has been made to study the applicability of well-known dividend models in Indian conditions. The present chapter deals with four important models of dividend viz., Lintner’s model, Brittain’s model, Watt’s model and Aharony and Swary’s model. For this purpose, the following null hypothesis have been framed and tested.

**Hypothesis (H02):** Known dividend models do not fit into Indian conditions.

The hypothesis was tested using Multiple Regression analysis. The variance inflation factor (VIF) was used to assess the multi-collinearity. Threshold values of tolerance above .10 (Hair et al., 1998)¹ and VIF scores of less than 10 suggest minimal multi-collinearity and stability of the parameter estimates (Neter et al., 1985²; Dielman, 1991³).
6.1 VARIOUS KNOWN DIVIDEND MODELS

6.1.1 Lintner's Dividend Model
Lintner (1956) conducted a classic series of interviews with corporate managers about their dividend policy. He then proceeded to formulate a seemingly logical model of how companies decide on dividend payments. The findings of Lintner’s survey can be summarised in four “stylised facts”:

1. Firms have long-term target dividend payout ratios.
2. Managers focus more on dividend changes than on absolute levels.
3. Dividend changes follow shifts in long-term, sustainable earnings. This trend implies that managers tend to “smooth” dividends so that changes in transitory earnings are unlikely to affect dividend payments over the short term.
4. Managers are reluctant to make changes to dividends that might have to be reversed. They are particularly concerned about having to rescind a dividend increase.

Lintner’s model is consistent with these facts and provides a good intuitive explanation of dividend payments. As per the model, the historical rate of dividend is generally considered for the determination of current dividends by many companies. In addition current earnings are invariably the starting point in considering the change in dividend policy. Thus, dividend payout is a function of net current earnings after tax and dividend paid in the previous year (lagged dividend). This can be expressed as:

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + u_t \]
Where,

\[ D_t = \text{total equity dividend in period} \, t' \]

\[ D_{t-1} = \text{total equity dividend in period} \, t'-1' \]

\[ P_t = \text{net current earnings after tax in period} \, t' \]

\[ u_t = \text{error term} \]

The net current earnings after tax, \( P_t \), represent the capacity of a firm to pay dividends. Lagged dividend, as the second explanatory variable, indicates a possible reluctance on the part of the management to reduce the dividends already declared. The rationale of this dividend function is that firms try to achieve a certain desired pay-out norm in the long run. It is this preference for stability in the rate of dividend; that the firms make only a partial adjustment to the rate of dividend each year in response to any change in net current earnings. The rate of dividend is thus stabilized with reference to the target level of dividends. The absolute amount of dividend in a given year is changed by a function known as speed-of-adjustment coefficient. It is the difference between the target amount and actual dividend payment. Thus, the model suggests that the dividend policy is related to a target level of dividends and to the speed of adjustment of change in dividends.

Lintner’s model till date is considered as widely acknowledged and suitable model to study the dividend decision. It is also well accepted by various researchers. In the words of Myers (1984)\(^5\)

“John Lintner’s model of how firms set dividends dates back to 1956 and it still seems to work...”
Further, Benartzi, Michaely, and Thaler (1997, p. 1032) concluded that

“. . . Lintner’s model of dividends remains the best description of the dividend setting process available.”

The regression results of Lintner’s model in the industries under study have been presented in the following sections.

A) Engineering Industry

The variance inflation factor (VIF) scores, as shown in Table 6.1 ranged between 1.082 and 1.191.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Per Share</td>
<td>2005</td>
<td>.868</td>
<td>1.153</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.839</td>
<td>1.191</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.872</td>
<td>1.146</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.924</td>
<td>1.082</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.868</td>
<td>1.153</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.839</td>
<td>1.191</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.872</td>
<td>1.146</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.924</td>
<td>1.082</td>
</tr>
</tbody>
</table>

Dependent Variable: Dividend Per Share
H02 indicated that the Lintner model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.2. In all the years under study, i.e. 2005-08, the dividend per share was best explained by both of the variables: lagged dividend and Earnings per share under study except for earnings per share in the year 2007.

Table 6.2: Regression Results of Lintner’s Model for Engineering Industry

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>b1</th>
<th>b2</th>
<th>( R^2 )</th>
<th>( \bar{R}^2 )</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.009)</td>
<td>(2.106)</td>
<td>(26.55)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>2.687</td>
<td>.112</td>
<td>.109</td>
<td>.205</td>
<td>.179</td>
<td>7.752</td>
</tr>
<tr>
<td></td>
<td>(2.563)</td>
<td>(1.959)</td>
<td>(2.344)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.883</td>
<td>.654</td>
<td>.064</td>
<td>.086</td>
<td>.055</td>
<td>2.818</td>
</tr>
<tr>
<td></td>
<td>(.6553)</td>
<td>(1.926)</td>
<td>(.609)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>.683</td>
<td>.055</td>
<td>.186</td>
<td>.676</td>
<td>.665</td>
<td>62.652</td>
</tr>
<tr>
<td></td>
<td>(1.227)</td>
<td>(1.980)</td>
<td>(10.045)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

The analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \bar{R}^2 \) (adjusted coefficient of determination) and F value of the
coefficients, all signified the influence of explanatory variables $P_t$ (Earnings per share) and $D_{t-1}$ (lagged dividend per share) on the dependent variable $DPS_t$ in all the years under study. The values of $P_t$ in all the years were significant at 1% in the year 2005 and 2008 and 5% level in the year 2006. In the year 2007, it showed insignificant results and hence, did not offer much variation in the dependent variable. The values of $D_{t-1}$ in all the years were significant at 5% level except in 2007. This shows that Lintner’s model fits well in Indian Engineering industry.

**B) FMCG Industry**

The variance inflation factor (VIF) scores, as shown in Table 6.3 ranged between 1.197 and 2.248.

**Table 6.3: Collinearity Diagnostics for Lintner’s Model for FMCG Industry**

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Per Share</td>
<td>2005</td>
<td>.445</td>
<td>2.248</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.835</td>
<td>1.197</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.715</td>
<td>1.398</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.424</td>
<td>2.356</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.445</td>
<td>2.248</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.835</td>
<td>1.197</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.715</td>
<td>1.398</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.424</td>
<td>2.356</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Lintner model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.4. In all the years under
study, i.e. 2005-08, the dividend per share was best explained by both of the variables: Lagged dividend and Earnings per share under study except for earnings per share in the year 2008.

Table 6.4: Regression Results of Lintner's Model for FMCG Industry

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MODEL</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>R²</th>
<th>( \overline{R^2} )</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
<td>-0.727</td>
<td>1.112</td>
<td>0.079</td>
<td>0.931</td>
<td>0.927</td>
<td>241.460</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-1.498)</td>
<td>(12.484)</td>
<td>(2.760)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>-3.19</td>
<td>0.450</td>
<td>0.178</td>
<td>0.710</td>
<td>0.693</td>
<td>43.971</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-0.368)</td>
<td>(5.618)</td>
<td>(4.582)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>-0.790</td>
<td>0.923</td>
<td>0.080</td>
<td>0.873</td>
<td>0.866</td>
<td>124.281</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-1.284)</td>
<td>(11.408)</td>
<td>(3.117)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>-0.302</td>
<td>1.336</td>
<td>-0.038</td>
<td>0.872</td>
<td>0.864</td>
<td>122.092</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-0.387)</td>
<td>(10.888)</td>
<td>(-0.959)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient
*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Further analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \overline{R^2} \) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variables \( P_t \) (Earnings per share) and \( D_{t-1} \) (lagged dividend per share) on the dependent variable \( DPS_t \) in all the years under study. The values of \( P_t \) in all the years were significant at 10% in the year 2004,
1% level in the year 2006 and 5% in the year 2007. In the year 2008, it showed insignificant results and hence, did not offer much variation in the dependent variable. The values of $D_{t-1}$ in all the years were significant at 1% level. This shows that Lintner’s model fits in Indian FMCG industry.

C) IT Industry

The variance inflation factor (VIF) scores, as shown in Table 6.5 ranged between 1.159 and 2.138.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2005</td>
<td>.468</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.548</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.863</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.835</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.468</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.548</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.863</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.835</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Lintner model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.6. In all the years under study, i.e. 2005-08, the dividend per share was best explained by both of the variables: lagged dividend and Earnings per share under study.
Table 6.6: Regression Results of Lintner’s Model for IT Industry

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>YEAR</th>
<th>( a )</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( R^2 )</th>
<th>( \bar{R}^2 )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>( P_t )</td>
<td>( D_{t-1} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>2.299</td>
<td>0.046</td>
<td>0.072</td>
<td>0.447</td>
<td>0.413</td>
<td>13.332</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(3.696)</td>
<td>(2.033)</td>
<td>(1.763)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>-3.640</td>
<td>0.849</td>
<td>0.353</td>
<td>0.812</td>
<td>0.801</td>
<td>79.654</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-3.840)</td>
<td>(3.308)</td>
<td>(6.788)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>1.113</td>
<td>0.147</td>
<td>0.155</td>
<td>0.778</td>
<td>0.766</td>
<td>64.824</td>
</tr>
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<td></td>
<td></td>
<td>(2.112)</td>
<td>(2.720)</td>
<td>(9.265)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>-2.026</td>
<td>0.563</td>
<td>0.231</td>
<td>0.723</td>
<td>0.708</td>
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</tr>
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<td>(-2.234)</td>
<td>(4.649)</td>
<td>(6.033)</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Further analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \bar{R}^2 \) (adjusted coefficient of determination) and \( F \) value of the coefficients, all signified the influence of explanatory variables \( P_t \) (Earnings per share) and \( D_{t-1} \) (lagged dividend per share) on the dependent variable \( \text{DPS}_t \) in all the years under study. The values of \( P_t \) in all the years were significant at 10% in the year 2005 and 1% level in the year 2006, 2007 and 2008. The values of \( D_{t-1} \) in all the years were significant at 5% level in the year 2005 and 2006, 10% level in the year 2007 and at 1% in the year 2008. This shows that Lintner’s model fits well in Indian IT industry.
D) Textile Industry

The variance inflation factor (VIF) scores, as shown in Table 6.7 ranged between 1.236 and 2.090.

Table 6.7: Collinearity Diagnostics for Lintner’s Model for Textile Industry

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tolerance</td>
<td>VIF</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2005</td>
<td>.604</td>
<td>1.656</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.622</td>
<td>1.609</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.809</td>
<td>1.236</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.479</td>
<td>2.090</td>
<td></td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.604</td>
<td>1.656</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.622</td>
<td>1.609</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.809</td>
<td>1.236</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.479</td>
<td>2.090</td>
<td></td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Lintner model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.8. In all the years under study, i.e. 2005-08, the dividend per share was best explained by both of the variables: lagged dividend and Earnings per share under study.
Table 6.8 : Regression Results of Lintner’s Model for Textile Industry

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>(R^2)</th>
<th>(\overline{R}^2)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
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<td>231.989</td>
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<td>(12.732)</td>
<td>(5.490)</td>
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<td>2006</td>
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<td>(1.232)</td>
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<td>(4.138)</td>
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</tr>
<tr>
<td>2007</td>
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<td>.091</td>
<td>.690</td>
<td>.667</td>
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<td>(4.176)</td>
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<td>2008</td>
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<td>.646</td>
<td>.092</td>
<td>.905</td>
<td>.898</td>
<td>129.034</td>
</tr>
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<td></td>
<td>(-1.263)</td>
<td>(7.094)</td>
<td>(4.848)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Figures in the bracket show t-values of the coefficient

*Sig. at 1% level  
**Sig. at 5% level  
***Sig. at 10% level

Further analysis of the regression coefficients indicates that values of \(R^2\) (coefficient of multiple determination), \(\overline{R}^2\) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variables \(P_t\) (Earnings per share) and \(D_{t-1}\) (lagged dividend per share) on the dependent variable \(DPS_t\) in all the years under study. The values of \(P_t\) in all the years were significant at 1% in all the years from 2005 to 2008. The values of \(D_{t-1}\) in all the years were also significant at 1% level in all the years under study. This shows that Lintner’s model fits well in Indian Textile industry.
6.1.2 Brittain’s Model

Brittain (1966) suggested that cash flow (net current earnings after tax plus depreciation) is a better measure of a company’s capacity to pay dividends. Dividend payment is considered a charge prior to depreciation and, hence should be related to earnings gross of depreciation. The regulation and accounting practices with respect to depreciation allowance keep on changing, thus net current earnings would fail to reflect the movement of true earnings that is the ultimate basis of ability to pay dividends. He used the cash flow version of Lintner’s model in his study entitled ‘Corporate Dividend Policy’. This model can be algebraically expressed as:

\[ D_t = a + b_1 C_t + b_2 D_{t-1} + u_t \]

Where,
- \( D_t \) = total equity dividend in period ‘t’.
- \( C_t \) = cash flow in period ‘t’
- \( D_{t-1} \) = total equity dividend in period ‘t-1’.
- \( u_t \) = error term

Brittain also used depreciation, \( A_t \) as separate explanatory variable along with net current earnings after tax and lagged dividends. Thus, one of his regression equations was of the form:

\[ D_t = a + b_1 P_t + b_2 D_{t-1} + b_3 A_t + u_t \]
Where,

\[ D_t = \text{total equity dividend in period 't'.} \]

\[ P_t = \text{net current earnings after tax in period 't'} \]

\[ D_{t-1} = \text{total equity dividend in period 't-1'.} \]

\[ C_t = \text{cash flow in period 't'} \]

\[ A_t = \text{depreciation charged in period 't'} \]

\[ u_t = \text{error term} \]

The regression results of Brittain’s model in the industries under study have been presented in tables 6.1.2-A to 6.1.2-D.

A) Engineering Industry

The variance inflation factor (VIF) scores, as shown in Table 6.9 ranged between 1.082 and 1.191.

Table 6.9: Collinearity Diagnostics for Brittain’s Model for Engineering Industry

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Flow</td>
<td>2005</td>
<td>.880</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.995</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.969</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.999</td>
</tr>
</tbody>
</table>

| Lagged Dividend| 2005 | .880| 1.136 |
|                | 2006 | .995| 1.005 |
|                | 2007 | .969| 1.032 |
|                | 2008 | .999| 1.001 |

*Dependent Variable: Dividend Per Share*
H02 indicated that the Brittain’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.10. In all the years under study, i.e. 2005-08, the dividend per share was best explained by both of the variables: lagged dividend and Earnings per share under study except for earnings per share in the year 2007.

Table 6.10: Regression Results of Brittain’s Model for Engineering Industry

\[ D_t = a + b_1 C_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td>a</td>
<td>b_1</td>
<td>b_2</td>
<td>R^2</td>
<td>R^2</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td>C_t</td>
<td>D_{t-1}</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>4.993</td>
<td>-.070</td>
<td>.421</td>
<td>.180</td>
<td>.152</td>
<td>6.571</td>
</tr>
<tr>
<td></td>
<td>(2.151)</td>
<td>(-.719)</td>
<td>(3.582)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>5.685</td>
<td>-7.299</td>
<td>.173</td>
<td>.171</td>
<td>.144</td>
<td>6.207</td>
</tr>
<tr>
<td></td>
<td>(5.130)</td>
<td>(-1.677)</td>
<td>(3.211)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.343)</td>
<td>(-.900)</td>
<td>(2.425)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>2.711</td>
<td>7.381</td>
<td>.129</td>
<td>.170</td>
<td>.143</td>
<td>6.161</td>
</tr>
<tr>
<td></td>
<td>(2.583)</td>
<td>(1.674)</td>
<td>(3.021)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level  
**Sig at 5% level  
***Sig at 10% level
Further analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R^2_\text{adj}$ (adjusted coefficient of determination) and $F$ value of the coefficients, all signified the influence of explanatory variables $P_t$ (Earnings per share) and $D_{t-1}$ (lagged dividend per share) on the dependent variable $DPS_t$ in all the years under study. The values of $P_t$ in all the years were significant at 1% in the year 2005 and 2008 and 5% level in the year 2006. In the year 2007, it showed insignificant results and hence, did not offer much variation in the dependent variable. The values of $D_{t-1}$ in all the years were significant at 5% level except in 2007. This shows that Brittain’s model fits partially in Indian Engineering industry.

B) FMCG Industry

The variance inflation factor (VIF) scores, as shown in Table 6.11 ranged between 1.021 and 1.389.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow</td>
<td>2005</td>
<td>.947</td>
<td>1.056</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.979</td>
<td>1.021</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.720</td>
<td>1.389</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.968</td>
<td>1.034</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.947</td>
<td>1.056</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.979</td>
<td>1.021</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.720</td>
<td>1.389</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.968</td>
<td>1.034</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*
H02 indicated that the Brittain’s model do not well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.12. In all the years under study, i.e. 2005-08, the dividend per share was best explained by lagged dividend only.

Table 6.12: Regression Results of Brittain’s Model for FMCG Industry

\[ D_t = a + b_1 C_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MODEL</th>
<th>( a )</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( R^2 )</th>
<th>( \bar{R}^2 )</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td></td>
<td>-.046</td>
<td>-1.541</td>
<td>1.307</td>
<td>.917</td>
<td>.913</td>
<td>199.524</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-.076)</td>
<td>(-.754)</td>
<td>(19.597)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td>1.845</td>
<td>-.531</td>
<td>.601</td>
<td>.540</td>
<td>.515</td>
<td>21.165</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.569)</td>
<td>(-.145)</td>
<td>(6.457)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>-.199</td>
<td>.494</td>
<td>1.049</td>
<td>.839</td>
<td>.830</td>
<td>91.378</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(-.257)</td>
<td>(.168)</td>
<td>(11.382)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td>.385</td>
<td>-6.196</td>
<td>1.274</td>
<td>.881</td>
<td>.874</td>
<td>128.997</td>
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<tr>
<td></td>
<td></td>
<td>(.436)</td>
<td>(-1.895)</td>
<td>(16.030)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Further analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \bar{R}^2 \) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable \( D_{t-1} \) (lagged dividend per
share) on the dependent variable $DPS_t$ in all the years under study. The values of $R^2$ and $R^2$ remained higher except in the year 2006. Of the two explanatory variables, lagged dividend emerged as dominant variable. The values of $D_{t-1}$ in all the years were significant at 1% level, thus, offering best explanation for dependent variable: dividend per share. However, another explanatory variable $C_t$ (cash flow) failed to offer any significant explanation for the dependent variable. The values of $C_t$ in all the years were insignificant except in the year 2008, where it was significant at 10% level. Thus, it showed insignificant results and hence, did not offer much variation in the dependent variable.

C) IT Industry

The variance inflation factor (VIF) scores, as shown in Table 6.13 ranged between 0.987 and 1.000.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>Cash Flow</td>
<td></td>
<td></td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2008</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td></td>
<td></td>
<td>2005</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2006</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2008</td>
</tr>
</tbody>
</table>

**Dependent Variable**: Dividend Per Share
H02 indicated that the Brittain’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.14. In all the years under study, i.e. 2005-08, the dividend per share was best explained by explanatory variable lagged dividend in all the years.

Table 6.14: Regression Results of Brittain’s Model for IT Industry

\[ D_t = a + b_1 C_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>b_1</th>
<th>b_2</th>
<th>R^2</th>
<th>R^2_adj</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>3.342</td>
<td>-.682</td>
<td>.076</td>
<td>.398</td>
<td>.361</td>
<td>10.900</td>
</tr>
<tr>
<td></td>
<td>(5.394)</td>
<td>(-.406)</td>
<td>(4.667)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>-3.082</td>
<td>.228</td>
<td>2.021</td>
<td>.577</td>
<td>.554</td>
<td>25.221</td>
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<tr>
<td></td>
<td>(2.563)</td>
<td>(.051)</td>
<td>(7.098)</td>
<td></td>
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</tr>
<tr>
<td>2007</td>
<td>5.302</td>
<td>-7.947</td>
<td>.337</td>
<td>.446</td>
<td>.416</td>
<td>14.894</td>
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<tr>
<td></td>
<td>(5.390)</td>
<td>(-3.497)</td>
<td>(4.249)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-1.323</td>
<td>7.933</td>
<td>.861</td>
<td>.495</td>
<td>.468</td>
<td>18.135</td>
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<tr>
<td></td>
<td>(-.861)</td>
<td>(1.793)</td>
<td>(5.759)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( R^2_{adj} \) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable \( D_{t-1} \) (lagged dividend per
share) on the dependent variable DPSₜ in all the years under study. Of the two explanatory variables, lagged dividend emerged as dominant variable. The values of Dₜ₋₁ in all the years were significant at 1% level, thus, offering best explanation for dependent variable: dividend per share. However, another explanatory variable Cₜ (cash flow) failed to offer any significant explanation for the dependent variable. The values of Cₜ in all the years were insignificant except in the year 2007 and 2008, where it was significant at 1% level and 10% level respectively. Thus, it showed insignificant results and hence, did not offer much variation in the dependent variable. This shows that Brittain’s model do not fits into Indian IT industry and hence, do not explains the dividend decision of the same.

D) Textile Industry

The variance inflation factor (VIF) scores, as shown in Table 6.15 ranged between 0.956 and 1.000.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Flow</td>
<td>2005</td>
<td>.993</td>
<td>1.007</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.984</td>
<td>1.017</td>
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<td>2007</td>
<td>.956</td>
<td>1.046</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.993</td>
<td>1.007</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.984</td>
<td>1.017</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.956</td>
<td>1.046</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>1.000</td>
<td>1.000</td>
</tr>
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</table>

*Dependent Variable: Dividend Per Share*
H02 indicated that the Brittain’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.16. In all the years under study, i.e. 2005-08, the dividend per share was best explained only by lagged dividend.

Table 6.16: Regression Results of Brittain’s Model for Textile Industry

\[ D_t = a + b_1 C_t + b_2 D_{t-1} + u_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
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<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( R^2 )</th>
<th>( \bar{R}^2 )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
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<td>.889</td>
<td>.881</td>
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<td>(14.722)</td>
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<td>2006</td>
<td>.368</td>
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<td>(6.429)</td>
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<tr>
<td>2007</td>
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<td>2008</td>
<td>-1.710</td>
<td>1.349</td>
<td>.965</td>
<td>.825</td>
<td>.813</td>
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<td></td>
<td>(-1.506)</td>
<td>(.637)</td>
<td>(11.84)</td>
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<td></td>
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</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Further analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \bar{R}^2 \) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable \( D_{t-1} \) (lagged dividend per
share) on the dependent variable $DPS_t$ in all the years under study. The values of $R^2$ and $R^2$ remained higher than 0.8 except in the year 2006 and 2007. Of the two explanatory variables, lagged dividend emerged as dominant variable. The values of $D_{t-1}$ in all the years were significant at 1% level, thus, offering best explanation for dependent variable: dividend per share. However, another explanatory variable $C_t$ (cash flow) failed to offer any significant explanation for the dependent variable. The values of $C_t$ in all the years were insignificant. Thus, it showed insignificant results and hence, did not offer much variation in the dependent variable. Hence, Brittain’s model fails to offer significant explanation for dividend decision in Indian Textile industry.

6.1.3 Watt’s Asymmetric Information Signaling and Earnings Expectation Model

Asymmetric information models of dividend payments have generally been termed as Signaling Models. In these models, it is assumed that managers know more about the true value of the firm’s stream of earnings than investors do. Managers of undervalued firms are thus eager to convey information about the quality of the firm to investors, using all the tools available to them. For these signals to be credible, they need to represent a higher cost for firms with poor earnings than to firms that actually have very optimistic earnings forecasts.

Bhattacharya (1979)\(^8\) presented the first dividend signaling model, in which dividends reduce the amount of free cash flow available to the firm, thus increasing the probability that the firm will need outside financing to cover all the projects it wish to undertake. He assumed the existence of an exogenous transaction cost of outside financing that makes
dividends costly for firms. In the resulting equilibrium, firms with better earnings prospects are those that increase dividends the most, and this relationship is monotonic.

Watts (1973) was the first to test directly the relationship between future changes in profitability and current and past dividend policy. The model proposed is:

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 E_{t-1} + e_t \]

Where,

- \( D_t \) = total equity dividend in period ‘t’.
- \( D_{t-1} \) = total equity dividend in period ‘t-1’.
- \( E_t \) = Earnings per Share in period ‘t’
- \( E_{t-1} \) = Earnings per Share in period ‘t-1’
- \( e_t \) = error term

The regression results of Watt’s model in the industries under study have been presented in the following sections.

A) Engineering Industry

The variance inflation factor (VIF) scores, as shown in Table 6.17 ranged between 0.065 and 0.924.
### Table 6.17: Collinearity Diagnostics for Watt’s Model for Engineering Industry

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.610</td>
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<tr>
<td></td>
<td>2006</td>
<td>.068</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.841</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.924</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.160</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.786</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2007</td>
<td>.347</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.511</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.129</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.065</td>
</tr>
<tr>
<td>Lagged Earnings</td>
<td>2007</td>
<td>.336</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.537</td>
</tr>
</tbody>
</table>

**Dependent Variable:** Dividend Per Share

H02 indicated that the Watt’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.18. In all the years under study, i.e. 2005-08, the dividend per share was satisfactorily explained only by one explanatory variable, that is, Earnings per share.

The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R_{adj}^2$ (adjusted coefficient of determination) and $F$ value of the coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the years under study.
Table 6.18: Regression Results of Watt’s Model for Engineering Industry

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 E_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>( a )</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( b_3 )</th>
<th>( R^2 )</th>
<th>( \overline{R^2} )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1.082</td>
<td>.050</td>
<td>.187</td>
<td>.053</td>
<td>.936</td>
<td>.933</td>
<td>288.044</td>
</tr>
<tr>
<td></td>
<td>(1.749)</td>
<td>(1.250)</td>
<td>(10.539)</td>
<td>(.945)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.164</td>
<td>.739</td>
<td>.149</td>
<td>-.144</td>
<td>.345</td>
<td>.312</td>
<td>10.377</td>
</tr>
<tr>
<td></td>
<td>(1.108)</td>
<td>(4.016)</td>
<td>(3.374)</td>
<td>(-3.553)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>-.605</td>
<td>.486</td>
<td>-.267</td>
<td>.521</td>
<td>.186</td>
<td>.144</td>
<td>4.487</td>
</tr>
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<td>(-.209)</td>
<td>(1.475)</td>
<td>(-1.686)</td>
<td>(2.691)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>.658</td>
<td>.055</td>
<td>.184</td>
<td>.003</td>
<td>.676</td>
<td>.660</td>
<td>41.086</td>
</tr>
<tr>
<td></td>
<td>(1.100)</td>
<td>(1.965)</td>
<td>(7.329)</td>
<td>(.118)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Of the three explanatory variables, earnings per share emerged as dominant variable. The values of \( E_t \) in all the years were significant at 1% level, except in the year 2007 where it was significant at 10% level, thus, offering a good explanation for dependent variable: dividend per share. Another explanatory variable \( D_{t-1} \) (lagged dividend) and \( E_{t-1} \) (lagged earnings) failed to offer any significant explanation for the dependent variable. The values of \( D_{t-1} \) were significant in the year 2006 at 1% level and at 10% level in the year 2008. Same is the case for \( E_{t-1} \), whose value was significant in the years 2006 and 2007 at 1% and 5% level. In remaining years, the values of \( D_{t-1} \) and \( E_{t-1} \) were insignificant.
Hence, Watt’s model fails to offer significant explanation for dividend decision in Indian Engineering industry and is only partially applicable.

**B) FMCG Industry**

The variance inflation factor (VIF) scores, as shown in Table 6.19 ranged between 0.180 and 0.537.

<table>
<thead>
<tr>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>.387</td>
<td>2.586</td>
</tr>
<tr>
<td>2006</td>
<td>.342</td>
<td>2.925</td>
</tr>
<tr>
<td>2007</td>
<td>.517</td>
<td>1.936</td>
</tr>
<tr>
<td>2008</td>
<td>.378</td>
<td>2.643</td>
</tr>
</tbody>
</table>

**Table 6.19: Collinearity Diagnostics for Watt’s Model for FMCG Industry**

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.261</td>
<td>3.829</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2006</td>
<td>.513</td>
<td>1.951</td>
</tr>
<tr>
<td>2007</td>
<td>.180</td>
<td>5.568</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>.390</td>
<td>2.564</td>
<td></td>
</tr>
<tr>
<td>Lagged Earnings</td>
<td>2005</td>
<td>.250</td>
<td>4.008</td>
</tr>
<tr>
<td>2006</td>
<td>.227</td>
<td>4.408</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>.137</td>
<td>7.306</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>.537</td>
<td>1.864</td>
<td></td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Watt’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.20. In all the years under study, i.e. 2005-08, the dividend per share was best explained only by one explanatory variable, i.e., lagged dividend.
Table 6.20: Regression Results of Watt’s Model for FMCG Industry

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 E_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>( R^2 )</th>
<th>( \overline{R^2} )</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>-.591</td>
<td>1.161</td>
<td>.113</td>
<td>-.065</td>
<td>.934</td>
<td>.929</td>
<td>166.212</td>
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<tr>
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<td>(-1.209)</td>
<td>(12.318)</td>
<td>(3.058)</td>
<td>(-1.422)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>-.248</td>
<td>.712</td>
<td>.262</td>
<td>-.182</td>
<td>.769</td>
<td>.749</td>
<td>38.831</td>
</tr>
<tr>
<td></td>
<td>(-.316)</td>
<td>(6.280)</td>
<td>(5.833)</td>
<td>(-3.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>-.558</td>
<td>.983</td>
<td>.132</td>
<td>-.086</td>
<td>.878</td>
<td>.868</td>
<td>84.269</td>
</tr>
<tr>
<td></td>
<td>(-.868)</td>
<td>(10.376)</td>
<td>(2.598)</td>
<td>(-1.188)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-.052</td>
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<td>-.025</td>
<td>-.045</td>
<td>.876</td>
<td>.865</td>
<td>82.490</td>
</tr>
<tr>
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<td>(-.064)</td>
<td>(10.698)</td>
<td>(-.599)</td>
<td>(-1.137)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Figures in the bracket show t-values of the coefficient

*Sig at 1% level  
**Sig at 5% level  
***Sig at 10% level

The analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \overline{R^2} \) (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable \( D_{t-1} \) (lagged dividend) on the dependent variable \( D_{PS_t} \) in all the 5 years under study. The values of \( R^2 \) and \( \overline{R^2} \) remained higher than 0.8 in all the years except in the year 2006 where it was satisfactory at the level of 0.769. Of the three explanatory variables, lagged dividend emerged as dominant variable. The values of \( D_{t-1} \) all the years were significant at 1% level, thus, offering best explanation for dependent variable: dividend per share. Another explanatory variable \( E_t \) (earnings per share) and \( E_{t-1} \) (lagged earnings) failed to offer any significant
explanation for the dependent variable. The values of $E_t$ were significant in the years 2005, 2006 and 2007 at 5% level, 1% level and at 10% level respectively. In case of $E_{t-1}$, the value was significant only in the years 2006 at 1% level. In remaining years, the values $E_{t-1}$ were insignificant. Thus, $E_{t-1}$ did not offer much variation in the dependent variable. Thus, Watt’s model fails to offer good explanation for dividend decision in Indian FMCG industry and is only partially applicable.

C) IT Industry

The variance inflation factor (VIF) scores, as shown in Table 6.21 ranged between 0.042 and 0.861.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.492</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.231</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.258</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.315</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.365</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2007</td>
<td>.861</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.832</td>
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<td>.042</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.369</td>
</tr>
<tr>
<td>Lagged Earnings</td>
<td>2007</td>
<td>.244</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.265</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*
H02 indicated that the Watt's model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.22. In all the years under study, i.e. 2005-08, the dividend per share was best explained only by earnings per share. The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R^2$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the years under study.

Table 6.22: Regression Results of Watt’s Model for IT Industry

$$D_t = a + b_1D_{t-1} + b_2E_t + b_3E_{t-1} + e_t$$

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>$R^2$</th>
<th>$R^2$</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1.989</td>
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<td>.031</td>
<td>.087</td>
<td>.428</td>
<td>.433</td>
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</tr>
<tr>
<td></td>
<td>(3.076)</td>
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<td>(.663)</td>
<td>(1.470)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>**</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2006</td>
<td>3.446</td>
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<td>.799</td>
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<tr>
<td></td>
<td>(3.494)</td>
<td>(3.363)</td>
<td>(5.956)</td>
<td>(-.770)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.156</td>
<td>.157</td>
<td>.155</td>
<td>-.006</td>
<td>.778</td>
<td>.760</td>
<td>42.066</td>
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<tr>
<td></td>
<td>(1.743)</td>
<td>(1.481)</td>
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<td>(-.109)</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-2.240</td>
<td>.994</td>
<td>.236</td>
<td>-.103</td>
<td>.766</td>
<td>.746</td>
<td>39.202</td>
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<tr>
<td></td>
<td>(-2.634)</td>
<td>(4.890)</td>
<td>(6.609)</td>
<td>(-2.550)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level
Of the three explanatory variables, earnings per share emerged as dominant variable. The values of $E_t$ in all the years were significant at 1% level, except in the year 2005, thus, offering a good explanation for dependent variable: dividend per share.

Another explanatory variable $D_{t-1}$ (lagged dividend) and $E_{t-1}$ (lagged earnings) failed to offer any significant explanation for the dependent variable. The values of $D_{t-1}$ were significant in the year 2006 at 5% level and at 1% level in the year 2008. While in case for $E_{t-1}$, the value was significant in the year 2008 at 10% level. In remaining years, the values of $D_{t-1}$ and $E_{t-1}$ were insignificant. Thus, it did not offer much variation in the dependent variable.

Hence, Watt’s model fails to offer significant explanation for dividend decision in Indian IT industry and is only partially applicable.

D) Textile Industry
The variance inflation factor (VIF) scores, as shown in Table 6.23 ranged between 0.097 and 0.551.
Table 6.23: Collinearity Diagnostics for Watt’s Model for Textile Industry

<table>
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<tr>
<th>Model</th>
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<th>Collinearity Statistics</th>
</tr>
</thead>
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<td></td>
<td>Tolerance</td>
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<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.209</td>
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<tr>
<td></td>
<td>2006</td>
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<td>Earnings Per Share</td>
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<td>.551</td>
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<td></td>
<td>2008</td>
<td>.263</td>
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<td>Lagged Earnings</td>
<td>2005</td>
<td>.097</td>
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<td></td>
<td>2006</td>
<td>.192</td>
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<td></td>
<td>2007</td>
<td>.259</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.274</td>
</tr>
</tbody>
</table>

*Dependent Variable:* Dividend Per Share

H02 indicated that the Watt’s model fits well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.24. In all the years under study, i.e. 2005-08, the dividend per share was best explained by all the three explanatory variables viz. lagged dividend, earnings per share and lagged earnings.

The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R^2$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable $D_{t-1}$ (lagged dividend), $E_t$ (earnings per share) and $E_{t-1}$ (lagged earnings) on the dependent variable $DPS_t$ in all the
years under study. The values of $R^2$ and $R^2$ remained higher than 0.8 in all the years under study.

**Table 6.24: Regression Results of Watt’s Model for Textile Industry**

\[
D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 E_{t-1} + e_t
\]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>a</th>
<th>$b_1$</th>
<th>$b_2$</th>
<th>$b_3$</th>
<th>$R^2$</th>
<th>$R^2$</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
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<td>-.080</td>
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<td>.961</td>
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<td>(.411)</td>
<td>(.993)</td>
<td>(7.314)</td>
<td>(-3.927)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>.008</td>
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<td>.173</td>
<td>-.178</td>
<td>.927</td>
<td>.919</td>
<td>110.082</td>
</tr>
<tr>
<td></td>
<td>(.390)</td>
<td>(10.347)</td>
<td>(10.604)</td>
<td>(-7.665)</td>
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<td></td>
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</tr>
<tr>
<td>2007</td>
<td>-.065</td>
<td>.839</td>
<td>.140</td>
<td>-.110</td>
<td>.817</td>
<td>.795</td>
<td>38.579</td>
</tr>
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<td></td>
<td>(-.193)</td>
<td>(6.611)</td>
<td>(6.786)</td>
<td>(-4.233)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-.200</td>
<td>.684</td>
<td>.118</td>
<td>-.033</td>
<td>.913</td>
<td>.903</td>
<td>91.015</td>
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<td></td>
<td>(-.859)</td>
<td>(7.406)</td>
<td>(4.705)</td>
<td>(-1.524)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

The values of $D_{t-1}$, $E_t$, and $E_{t-1}$ in all the years were significant at 1% level, except the latter in the year 2008 where it was insignificant, thus, offering a good explanation for dependent variable: dividend per share. Hence, Watt’s model offers significant explanation for dividend decision in Indian Textile industry.
6.1.4 Aharony and Swary’s Dividend Expectation Model

Aharony and Swary (1980)\(^{10}\) forecasted that abnormal stock performance can be very well predicted by a simple dividend forecasting model. The model is well applicable in the situation where managers are reluctant to make changes in dividend unless they firmly believe in the firm’s position. This model was assumed by them to be more successful and reliable in predicting abnormal performance as compared to Fama and Babiak (1968)\(^{11}\) model.

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 P_{t-1} + e_t \]

Where,
- \(D_t\) = total equity dividend in period ‘t’.
- \(D_{t-1}\) = total equity dividend in period ‘t-1’.
- \(E_t\) = Earnings per Share in period ‘t’
- \(P_{t-1}\) = Share Price in period ‘t-1’
- \(e_t\) = error term

The regression results of Aharony and Swary’s model in the industries under study have been presented in the following sections.

A) Engineering Industry

The variance inflation factor (VIF) scores, as shown in Table 6.25 ranged between 0.091 and 0.895.
Table 6.25: Collinearity Diagnostics for Aharony and Swary’s Model for Engineering Industry

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>2005</td>
<td>.622</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.110</td>
</tr>
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<td></td>
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<td>.847</td>
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<td>2008</td>
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<td>2005</td>
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<td></td>
<td>2006</td>
<td>.589</td>
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<td></td>
<td>2007</td>
<td>.384</td>
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<td></td>
<td>2008</td>
<td>.791</td>
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<tr>
<td>Lagged Share Price</td>
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<td>2006</td>
<td>.091</td>
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<tr>
<td></td>
<td>2007</td>
<td>.377</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.793</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Aharony and Swary’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.26. In all the years under study, i.e. 2005-08, the dividend per share was modestly explained by two explanatory variables viz. lagged dividend and earnings per share.

The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R^2$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the years under study. The values of $R^2$ and $R^2$ remained higher than 0.9 only in the year 2005.
Of the three explanatory variables, lagged dividend and earnings per share emerged as dominant variable. The values of $D_{t-1}$ (lagged dividend) and $E_t$ (earnings per share) were significant at 1% level in the year 2005 and 2008 and at 10% level in the year 2007 and 2008 respectively. And in the other years, these two variables showed insignificant results. $P_{t-1}$ (lagged share price) failed to offer any significant explanation for the dependent variable in any of the years under study. Thus, it did not offer variation in the dependent variable at all. Hence, Aharony and Swary’s model fails to offer significant
explanation for dividend decision in Indian Engineering industry and is only partially applicable.

B) FMCG Industry
The variance inflation factor (VIF) scores, as shown in Table 6.27 ranged between 0.186 and 0.708.

**Table 6.27: Collinearity Diagnostics for Aharony and Swary’s Model for FMCG Industry**

<table>
<thead>
<tr>
<th></th>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagged Dividend</td>
<td>2005</td>
<td>.263</td>
<td>3.807</td>
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<tr>
<td></td>
<td>2006</td>
<td>.214</td>
<td>4.665</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>.403</td>
<td>2.480</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.351</td>
<td>2.850</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.418</td>
<td>2.395</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.708</td>
<td>1.412</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2007</td>
<td>.404</td>
<td>2.473</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.316</td>
<td>3.164</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.292</td>
<td>3.419</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.186</td>
<td>5.382</td>
<td></td>
</tr>
<tr>
<td>Lagged Share Price</td>
<td>2007</td>
<td>.232</td>
<td>4.308</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.307</td>
<td>3.259</td>
<td></td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*

H02 indicated that the Aharony and Swary’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.28. In all the years under study, i.e. 2005-08, the dividend per share was best explained by two
explanatory variables viz. lagged dividend and earnings per share. The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $\overline{R^2}$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the years under study.

Table 6.28: Regression Results of Aharony and Swary’s Model for FMCG Industry

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 P_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>$a$</th>
<th>$b_1$</th>
<th>$b_2$</th>
<th>$b_3$</th>
<th>$R^2$</th>
<th>$\overline{R^2}$</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>-0.681</td>
<td>1.031</td>
<td>0.071</td>
<td>0.003</td>
<td>0.933</td>
<td>0.927</td>
<td>162.328</td>
</tr>
<tr>
<td></td>
<td>(-1.400)</td>
<td>(8.197)</td>
<td>(2.409)</td>
<td>(1.101)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>-0.564</td>
<td>0.951</td>
<td>0.239</td>
<td>-0.018</td>
<td>0.818</td>
<td>0.803</td>
<td>52.566</td>
</tr>
<tr>
<td></td>
<td>(-0.809)</td>
<td>(7.497)</td>
<td>(7.046)</td>
<td>(-4.579)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>-0.779</td>
<td>0.963</td>
<td>0.092</td>
<td>-0.001</td>
<td>0.875</td>
<td>0.864</td>
<td>81.343</td>
</tr>
<tr>
<td></td>
<td>(-1.253)</td>
<td>(8.843)</td>
<td>(2.682)</td>
<td>(-0.548)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-0.375</td>
<td>1.314</td>
<td>-0.474</td>
<td>0.001</td>
<td>0.872</td>
<td>0.861</td>
<td>79.493</td>
</tr>
<tr>
<td></td>
<td>(-0.460)</td>
<td>(9.626)</td>
<td>(-1.005)</td>
<td>(0.372)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Of the three explanatory variables, lagged dividend and earnings per share emerged as dominant variable where it was significant at 1% level in all the years while the values of $E_t$ (earnings per share) were significant at 1% level in the year 2006 and at 5% level in the
year 2005 and 2008. In the year 2008, it showed insignificant results. $P_{t-1}$ (lagged share price) showed significant results only in 2006 where its value was significant at 1% level but failed to offer any significant explanation for the dependent variable in other years under study. Thus, it did not offer variation in the dependent variable at all. Hence, Aharony and Swary’s model fails to offer significant explanation.

C) IT Industry

The variance inflation factor (VIF) scores, as shown in Table 6.29 ranged between 0.026 and 0.860.

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>.028</td>
<td>35.604</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.385</td>
<td>2.600</td>
</tr>
<tr>
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<td>2007</td>
<td>.160</td>
<td>6.255</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.680</td>
<td>1.471</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.436</td>
<td>2.292</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.297</td>
<td>3.369</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>2007</td>
<td>.860</td>
<td>1.163</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.485</td>
<td>2.060</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>.026</td>
<td>37.930</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.209</td>
<td>4.785</td>
</tr>
<tr>
<td>Lagged Share Price</td>
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<td>.161</td>
<td>6.206</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.395</td>
<td>2.531</td>
</tr>
</tbody>
</table>

*Dependent Variable: Dividend Per Share*
H02 indicated that the Aharony and Swary’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.30. In all the years under study, i.e. 2005-08, the dividend per share was best explained by two explanatory variables viz. lagged dividend and earnings per share.

Table 6.30: Regression Results of Aharony and Swary’s Model for IT Industry

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 P_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MODEL</th>
<th>a</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( b_3 )</th>
<th>( R^2 )</th>
<th>( \bar{R}^2 )</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>a</td>
<td>2.285</td>
<td>-0.010</td>
<td>0.066</td>
<td>0.002</td>
<td>0.453</td>
<td>0.402</td>
<td>8.846</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>(3.637)</td>
<td>(.102)</td>
<td>(1.528)</td>
<td>(.614)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( b_2 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( b_3 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>a</td>
<td>-3.149</td>
<td>0.635</td>
<td>0.292</td>
<td>0.004</td>
<td>0.820</td>
<td>0.805</td>
<td>54.635</td>
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<tr>
<td></td>
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<td>(-3.108)</td>
<td>(2.091)</td>
<td>(4.167)</td>
<td>(1.295)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( b_2 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( b_3 )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2007</td>
<td>a</td>
<td>1.158</td>
<td>0.186</td>
<td>0.156</td>
<td>-0.001</td>
<td>0.779</td>
<td>0.760</td>
<td>42.218</td>
</tr>
<tr>
<td></td>
<td>b</td>
<td>(2.106)</td>
<td>(1.460)</td>
<td>(9.157)</td>
<td>(-.337)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>( b_2 )</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>2008</td>
<td>a</td>
<td>-1.935</td>
<td>0.381</td>
<td>0.129</td>
<td>0.007</td>
<td>0.797</td>
<td>0.780</td>
<td>47.176</td>
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<tr>
<td></td>
<td>b</td>
<td>(-2.457)</td>
<td>(3.271)</td>
<td>(2.956)</td>
<td>(3.622)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

The analysis of the regression coefficients indicates that values of \( R^2 \) (coefficient of multiple determination), \( \bar{R}^2 \) (adjusted coefficient of determination) and F value of the
coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the 5 years under study.

Of the three explanatory variables, lagged dividend and earnings per share emerged as dominant variable. The values of $D_{t-1}$ (lagged dividend) were significant at 5% level in the years 2006 and 2008 while in other years it showed insignificant results. In case of the other explanatory variable $E_t$ (earnings per share), the values were significant at 1% level in the years 2006 and 2007 and at 5% level in the year 2008. In the year 2005, it showed insignificant results. However, another explanatory variable $P_{t-1}$ (lagged share price) showed significant results only in the year 2008 where its value was significant at 1% level but failed to offer any significant explanation for the dependent variable in other years under study. Thus, it did not offer variation in the dependent variable at all.

Hence, Aharony and Swary’s model fails to offer significant explanation for dividend decision in Indian IT industry and is only partially applicable.

D) Textile Industry

The variance inflation factor (VIF) scores, as shown in Table 6.31 ranged between 0.175 and 0.749.
Table 6.31: Collinearity Diagnostics for Aharony and Swary’s Model for Textile Industry

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
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</tr>
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<td>.428</td>
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<td></td>
<td>2008</td>
<td>.313</td>
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<td>2005</td>
<td>.604</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>.551</td>
</tr>
<tr>
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<td>.749</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.466</td>
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<td>.498</td>
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<td></td>
<td>2007</td>
<td>.401</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>.555</td>
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</table>

Dependent Variable: Dividend Per Share

H02 indicated that the Aharony and Swary’s model do not fit well in Indian companies. The hypothesis (H02) was tested using regression analysis as shown in Table 6.32. In all the years under study, i.e. 2005-08, the dividend per share was best explained by all two explanatory variables viz. lagged dividend and earnings per share.

The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $R^2$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variable $E_t$ (earnings per share) on the dependent variable $DPS_t$ in all the years under study.
Table 6.32: Regression Results of Aharony and Swary’s Model for Textile Industry

\[ D_t = a + b_1 D_{t-1} + b_2 E_t + b_3 P_{t-1} + e_t \]

<table>
<thead>
<tr>
<th>MODEL</th>
<th>( a )</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( b_3 )</th>
<th>( R^2 )</th>
<th>( R^2 )</th>
<th>( F )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( D_{t-1} )</td>
<td>( E_t )</td>
<td>( P_{t-1} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>.287</td>
<td>.799</td>
<td>.060</td>
<td>-.004</td>
<td>.947</td>
<td>.941</td>
<td>154.350</td>
</tr>
<tr>
<td></td>
<td>(1.640)</td>
<td>(7.632)</td>
<td>(5.476)</td>
<td>(-.946)</td>
<td></td>
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<td>2006</td>
<td>.370</td>
<td>.415</td>
<td>.076</td>
<td>.004</td>
<td>.774</td>
<td>.748</td>
<td>29.709</td>
</tr>
<tr>
<td></td>
<td>(.934)</td>
<td>(3.051)</td>
<td>(3.528)</td>
<td>(1.178)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>.279</td>
<td>.419</td>
<td>.089</td>
<td>.001</td>
<td>.691</td>
<td>.655</td>
<td>19.359</td>
</tr>
<tr>
<td></td>
<td>(.662)</td>
<td>(2.736)</td>
<td>(3.883)</td>
<td>(.229)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>-.280</td>
<td>.733</td>
<td>.088</td>
<td>-.002</td>
<td>.911</td>
<td>.901</td>
<td>89.066</td>
</tr>
<tr>
<td></td>
<td>(-1.228)</td>
<td>(6.599)</td>
<td>(4.633)</td>
<td>(-1.330)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Of the three explanatory variables, lagged dividend and earnings per share emerged as dominant variable. The values of \( D_{t-1} \) (lagged dividend) were significant at 1% level in the years 2005 and 2007 while in other years it was significant at 5% level. In case of other explanatory variable \( E_t \) (earnings per share), the values were significant at 1% level in the years 2005, 2007 and 2008 and at 5% level in the year 2006. Another explanatory variable \( P_{t-1} \) (lagged share price) showed failed to offer any significant explanation for the dependent variable in all the years under study. Thus, it did not offer variation in the
dependent variable at all. Hence, Aharony and Swary’s model fails to offer significant explanation for dividend decision in Indian IT industry and is only partially applicable.

6.1.5 Regression Results of Various Models for Grouped Data

The validity of known dividend models in India has also been studied on grouped data basis where different models have been applied to grouped data of different industries for all the four years, that is, 2005-08. The regression results have been given in the following sections.

A) Year 2005

The variance inflation factor (VIF) scores, as shown in Table 6.33 and the VIF ranged between 0.193 and 0.963.

<table>
<thead>
<tr>
<th>Model</th>
<th>Independent Variables</th>
<th>Collinearity Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tolerance</td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>.888</td>
<td></td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>.888</td>
<td></td>
</tr>
<tr>
<td>Cash Flow</td>
<td>.963</td>
<td></td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>.963</td>
<td></td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>.340</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>.408</td>
<td></td>
</tr>
<tr>
<td>Lagged Earnings</td>
<td>.193</td>
<td></td>
</tr>
<tr>
<td>Lagged Dividend</td>
<td>.266</td>
<td></td>
</tr>
<tr>
<td>Earnings Per Share</td>
<td>.888</td>
<td></td>
</tr>
<tr>
<td>Lagged Share Price</td>
<td>.276</td>
<td></td>
</tr>
</tbody>
</table>

*Dependent Variable*: Dividend Per Share

Table 6.33: Collinearity Diagnostics for Grouped Data for the year 2005
The regression results of various models for the year 2005 are presented in table 6.34. The table shows that in 2005, only Lintner’s model significantly explained the dividend decision of the companies under study. Further analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $\overline{R^2}$ (adjusted coefficient of determination) and F value of the coefficients, all signified the influence of explanatory variables on the dependent variable $DPS_t$ in all the 4 years under study.

The values of $R^2$ and $\overline{R^2}$ remained higher than 0.8 for all the three models. The t-values of regression coefficients of two explanatory variables in Lintner’s model, $P_t$ and $D_{t-1}$ were significant at 10% and 1% level of significance respectively. However, another well-known model of dividend, Brittain’s model, deemed to be inapplicable in Indian companies as only one explanatory variable $D_{t-1}$ was significant at 1% level.

In case of Watt’s model, it offered only partial explanation for the dividend decision of Indian companies as only two explanatory variables viz. $D_{t-1}$ and $E_t$ were significant at 10% and 1% level of significance respectively. The t-value of the third explanatory variable of Watt’s model, $E_{t-1}$, showed insignificant results.

Similar was the case with Aharony and Swary’s model of dividend as in this case also significant influence was exerted by two explanatory variables $D_{t-1}$ and $E_t$ that were significant at 10% and 1% level of significance. The third variable $P_{t-1}$ showed insignificant results.
It can, thus, be concluded that of all the models, Lintner’s model showed best validity in explaining the dividend decision of Indian companies in terms of dividend per share in the year 2005 while other three models were only partially applicable.

Table 6.34: Regression Results for Grouped Data for the Year 2005

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<th>MODEL</th>
<th>( a )</th>
<th>( b_1 )</th>
<th>( b_2 )</th>
<th>( b_3 )</th>
<th>( R^2 )</th>
<th>( R_{adj}^2 )</th>
<th>( F )</th>
</tr>
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<tr>
<td>Lintner's Model</td>
<td>( Pa )</td>
<td>( P_t )</td>
<td>( D_{t-1} )</td>
<td>( D_{t-1} )</td>
<td>( * )</td>
<td>( - )</td>
<td>.840</td>
</tr>
<tr>
<td></td>
<td>1.269</td>
<td>.004</td>
<td>.207</td>
<td>--------</td>
<td>.840</td>
<td>.838</td>
<td>434.482</td>
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<td>(3.951)</td>
<td>(2.358)</td>
<td>(26.904)</td>
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<td>( b_2 )</td>
<td>( b_3 )</td>
<td>( R^2 )</td>
<td>( R_{adj}^2 )</td>
<td>( F )</td>
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<tr>
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<td>( C_t )</td>
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<td>-1.456</td>
<td>.242</td>
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<td>.141</td>
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<td>(5.172)</td>
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<tr>
<td>Watt's Model</td>
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<td>( b_2 )</td>
<td>( b_3 )</td>
<td>( R^2 )</td>
<td>( R_{adj}^2 )</td>
<td>( F )</td>
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<td></td>
<td>( D_{t-1} )</td>
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<td>.210</td>
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<td>.841</td>
<td>.838</td>
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<td>(3.657)</td>
<td>(1.770)</td>
<td>(18.485)</td>
<td>(.401)</td>
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<tr>
<td>Aharony and Swary's</td>
<td>( a )</td>
<td>( b_1 )</td>
<td>( b_2 )</td>
<td>( b_3 )</td>
<td>( R^2 )</td>
<td>( R_{adj}^2 )</td>
<td>( F )</td>
</tr>
<tr>
<td>Model</td>
<td>( D_{t-1} )</td>
<td>( E_t )</td>
<td>( E_{t-1} )</td>
<td>( P_{t-1} )</td>
<td>( * )</td>
<td>( * )</td>
<td>.841</td>
</tr>
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<td></td>
<td>1.291</td>
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<td>.207</td>
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<td>.841</td>
<td>.838</td>
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<td>(1.795)</td>
<td>(26.835)</td>
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</tbody>
</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level
B) Year 2006

The variance inflation factor (VIF) scores, as shown in Table 6.35 ranged between 0.156 and 0.998.

<table>
<thead>
<tr>
<th>Model</th>
<th>Independent Variables</th>
<th>Collinearity Statistics</th>
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<td>Lintner’s Model</td>
<td>Earnings Per Share</td>
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</tr>
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<td>Lagged Dividend</td>
<td>.845</td>
</tr>
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<td></td>
<td>Cash Flow</td>
<td>.998</td>
</tr>
<tr>
<td>Brittain’s Model</td>
<td>Lagged Dividend</td>
<td>.998</td>
</tr>
<tr>
<td></td>
<td>Lagged Dividend</td>
<td>.165</td>
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<tr>
<td>Watt’s Model</td>
<td>Earnings Per Share</td>
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<tr>
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<td>Lagged Earnings</td>
<td>.156</td>
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<tr>
<td></td>
<td>Lagged Dividend</td>
<td>.289</td>
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<td>Aharony and Swary’s Model</td>
<td>Earnings Per Share</td>
<td>.642</td>
</tr>
<tr>
<td></td>
<td>Lagged Share Price</td>
<td>.229</td>
</tr>
</tbody>
</table>

Dependent Variable: Dividend Per Share

The regression results of various models for the year 2006 are presented in table 6.36. The table shows that in 2006, only Lintner’s and Watt’s model significantly explained the dividend decision of the companies under study. The analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $\bar{R}^2$ (adjusted coefficient of determination) and F value of the coefficients were moderately significant.
Table 6.36: Regression Results for Grouped Data for the Year 2006

<table>
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<th>MODEL</th>
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<th>b₁</th>
<th>b₂</th>
<th>b₃</th>
<th>R²</th>
<th>R²̅</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Lintner’s Model</td>
<td>a</td>
<td>P₁</td>
<td>*</td>
<td>Dₜ₋₁</td>
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</tr>
<tr>
<td></td>
<td>(1.155)</td>
<td>(8.258)</td>
<td>(3.700)</td>
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<tr>
<td>Brittain’s Model</td>
<td>a</td>
<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²̅</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C₁</td>
<td></td>
<td>*</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>3.610</td>
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<td>.196</td>
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<td>(4.198)</td>
<td>(-.568)</td>
<td>(6.410)</td>
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<tr>
<td>Watt’s Model</td>
<td>a</td>
<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²̅</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dₜ₋₁</td>
<td>Eₜ</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-.251</td>
<td>.709</td>
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<td>(10.650)</td>
<td>(-6.810)</td>
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<tr>
<td>Aharony and Swary’s Model</td>
<td>a</td>
<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²̅</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dₜ₋₁</td>
<td>Eₜ</td>
<td>Pₜ₋₁</td>
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<td>(1.599)</td>
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</table>

Note: Figures in the bracket show t-values of the coefficient

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

The t-values of regression coefficients of two explanatory variables in Lintner’s model, P₁ and Dₜ₋₁ were significant at 1% level of significance. Another well-known model of dividend, Brittain’s model, deemed to be inapplicable in Indian companies as only one explanatory variable Dₜ₋₁ was significant at 1% level.
In case of Watt’s model, it offered best explanation for the dividend decision of Indian companies as all the three explanatory variables viz. $D_{t-1}$, $E_t$ and $E_{t-1}$ were significant at 1% level of significance respectively.

In case of Aharony and Swary’s model of dividend, significant influence was exerted by only one explanatory variable $E_t$ that was significant at 1% level of significance. The other two variables $D_{t-1}$ and $P_{t-1}$ showed insignificant results.

It can, thus, be concluded that of all the models, Lintner’s model and Watt’s model showed best validity in explaining the dividend decision of Indian companies in terms of dividend per share in the year 2006 while Brittain’s model was only partially applicable and Aharony and Swary’s model was inapplicable in Indian companies.

**C) Year 2007**

The variance inflation factor (VIF) scores, as shown in Table 6.37 ranged between 0.424 and 0.968.
The regression results of various models for the year 2007 are presented in table 6.38. The table shows that in 2007, only Lintner’s model significantly explained the dividend decision of the companies under study. Further analysis of the regression coefficients indicates that values of $R^2$ (coefficient of multiple determination), $\overline{R^2}$ (adjusted coefficient of determination) and F value of the coefficients were moderately significant. The t-values of regression coefficients of two explanatory variables in Lintner’s model, $P_t$ and $D_{t-1}$ were significant at 5% and 1% level of significance respectively.
### Table 6.38: Regression Results for Grouped Data for the Year 2007

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<th>MODEL</th>
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<th>b₃</th>
<th>R²</th>
<th>R²</th>
<th>F</th>
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</thead>
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<td>Lintner’s Model</td>
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<td>Dₜ₋₁</td>
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<td>(4.124)</td>
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<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C₁</td>
<td>Dₜ₋₁</td>
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<td>.163</td>
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<td>(5.907)</td>
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<td>Watt’s Model</td>
<td>a</td>
<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²</td>
<td>F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dₜ₋₁</td>
<td>Eₜ</td>
<td>Eₜ₋₁</td>
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<td>.008</td>
<td>.008</td>
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<tr>
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<td>(1.778)</td>
<td>(1.263)</td>
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<td>Aharony and Swary’s Model</td>
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<td>b₂</td>
<td>b₃</td>
<td>R²</td>
<td>R²</td>
<td>F</td>
</tr>
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<td>Eₜ</td>
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**Note:** Figures in the bracket show t-values of the coefficient.

*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

Another well-known model of dividend, Brittain’s model, deemed to be inapplicable in Indian companies as only one explanatory variable Dₜ₋₁ was significant at 1% level. In case of Watt’s model, it offered best explanation for the dividend decision of Indian companies as two explanatory variables viz. Dₜ₋₁ and Eₜ were significant at 5% and 10% level of significance respectively while in case of third variable Eₜ₋₁, the results were
insignificant. In case of Aharony and Swary’s model of dividend, significant influence was exerted by only one explanatory variable $D_{t-1}$ and $E_t$ that were significant at 1% and 10% level of significance. The other variable $P_{t-1}$ showed insignificant results. It can, thus, be concluded that of all the models, Lintner’s model showed best validity in explaining the dividend decision of Indian companies in terms of dividend per share in the year 2007 while Brittain’s model, Watt’s model and Aharony and Swary’s model were partially applicable in Indian companies.

D) Year 2008

The variance inflation factor (VIF) scores, as shown in Table 6.39 ranged between 0.621 and 0.998.

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<th>Independent Variables</th>
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<td>Lagged Dividend</td>
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<td>1.002</td>
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<td>Cash Flow</td>
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<td>1.002</td>
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<td>Lagged Dividend</td>
<td>.998</td>
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<td>Aharony and Swary’s Model</td>
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<td>Lagged Share Price</td>
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</table>

**Dependent Variable:** Dividend Per Share
Table 6.40: Regression Results for Grouped Data for the Year 2008

<table>
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<th>a</th>
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<th>b₃</th>
<th>R²</th>
<th>R²</th>
<th>F</th>
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<td>Lintner’s Model</td>
<td>a</td>
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<td>.567</td>
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<td>.163</td>
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<td></td>
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<td>(11.356)</td>
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</tr>
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<td>Brittain’s Model</td>
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<td>b₁</td>
<td>b₂</td>
<td>b₃</td>
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<td>(1.694)</td>
<td>(7.204)</td>
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<td>Watt’s Model</td>
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<td>b₂</td>
<td>b₃</td>
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<td>.566</td>
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<td>b₃</td>
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<td>(9.115)</td>
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</table>

Note: Figures in the bracket show t-values of the coefficient
*Sig at 1% level
**Sig at 5% level
***Sig at 10% level

The regression results of various models for the year 2008 are presented in table 6.40. The table shows that in 2008, Lintner’s model, Brittain’s model and Aharony and Swary’s model significantly explained the dividend decision of the companies under study. The analysis of the regression coefficients indicates that values of R² (coefficient
of multiple determination), $R^2$ (adjusted coefficient of determination) and F value of the coefficients were moderately significant.

The t-values of regression coefficients of two explanatory variables in Lintner’s model, Pt and Dt-1 were significant at 1% level of significance. Another well-known model of dividend, Brittain’s model, deemed to be applicable in Indian companies as the explanatory variables Ct and Dt-1 were significant at 10% and 1% level respectively.

In case of Watt’s model, it offered best explanation for the dividend decision of Indian companies as the two explanatory variables viz. Dt-1 and Et were significant at 1% while in case of third variable Et-1, the results were insignificant. In case of Aharony and Swary’s model of dividend, significant influence was exerted by all the three explanatory variables Dt-1, Et that were significant at 1% level of significance and Pt-1 that was significant at 10% level of significance. It can, thus, be concluded that of all the models, Lintner’s model, Brittain’s model and Aharony and Swary’s showed best validity in explaining the dividend decision of Indian companies in terms of dividend per share in the year 2008 while Brittain’s model was partially applicable in Indian companies.

6.2 MAIN FINDINGS
Due to lack of research on validity of dividend models in India, an attempt to test the same in Indian industries has been made in this chapter. The analysis brings forth the fact that Lintner’s model of dividend is the best among all the models analysed in this chapter. The dividend behavior of Indian industries under study has well been explained by Lintner’s model for the study period 2004-08. The model states that dividend is governed
by two financial variables viz. current earnings and lagged dividends. The same holds true for all the industries under study. The other three models, viz. Brittain’s model, Watt’s model and Aharony and Swary’s model do not offer satisfactory explanation of dividend behavior of Indian industries in all the four years under study. Further, it was revealed that lagged dividend is considered more important and influential for determining the dividend followed by current earnings. Cash flow and share prices have little influence on the dividend decision of the companies during the period under study.

It can further be concluded that applicability of these models differ on time and industry basis. And out of all the four models considered under study, only Lintner’s model of dividend has emerged as best model having applicability in Indian industries for the time period under study.

REFERENCES


