EFFECT OF DIVIDENDS ON STOCK PRICES

Effect of Dividends on Stock Prices—A Case of Chemical and Pharmaceutical Industry of Pakistan

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Abstract

In Pakistan corporate sector is adversely facing competition due to economic downturn in the world and making efforts to survive in a competitive and uncertain economic environment. This study will help to improve dividend decisions of corporate sector through proper implementation of their dividend policies. This paper is an attempt to explain the effect of dividend announcements on stock prices of chemical and pharmaceutical industry of Pakistan. A sample of twenty five companies listed at KSE-100 Index is taken from the period of 2001 to 2010. Results of this study is based on Fixed and Random Effect Model which is applied on Panel data to explain the relationship between dividends and stock prices after controlling the variables like Earnings per Share, Retention Ratio and Return on Equity. Results indicate that Cash Dividend, Retention Ratio and Return on Equity has significant positive relation with stock market prices and significantly explains the variations in the stock prices of chemical and pharmaceutical sector of Pakistan while Earnings per Share and Stock Dividends have negative insignificant relation with stock prices. This paper further shows that Dividend Irrelevance Theory is not applicable in case chemical and pharmaceutical industry of Pakistan.

Keywords: Cash or Stock Dividends, Stock Price, Fixed and Random Effect Model, Dividend Irrelevance Theory
1. Introduction

Dividend policy is one of the most widely researched topics in the field of finance but the question whether dividend policy affects stock prices still remains debatable among managers, policy makers and researchers for many years. Dividend policy is important for investors, managers, lenders and for other stakeholders. It is important for investors because investors consider dividends not only the source of income but also a way to assess company from investment point of view. It is the way of assessing whether the company is cash generative or not. Selecting a suitable dividend policy is an important decision for the company because flexibility to invest in future projects depends on the amount of dividends that they pay to their shareholders. If company pay more dividends then fewer funds available for investment in future projects. Lenders are also interested in the amount of dividend that a company declares, as more amounts is paid as dividend means less amount would be available to the company for servicing and redemption of their claims and finally it is important for other stakeholders especially for claimholders to help them in reducing agency cost.

The basic objective of shareholder is to maximize their return and this return may be in the form of dividends or capital gain. Investors’ decision regarding the return on investment is affected by dividend policy of the company. Arnold (2008) explains the main objective of dividend policy is to maximize shareholders’ wealth by maximizing their purchasing power. So maximizing shareholders’ wealth depends on the dividend policy of the company because of this shareholders would satisfy their purchasing and consumption patterns.

There are certain important factors that companies consider in designing their dividend policies like managerial and behavioral environment, firms’ profitability ratios, willingness of the company etc. Juma'h & Pacheco (2008) explained that management decision of dividend policy
is affected by managerial and behavioral environment in U.S. They explained that sometimes financially strong companies do not pay dividend and financially weak companies pay dividends. According to their opinion dividend paying companies are generally larger in size, profitability, in terms of liquidity ratio and in research and developments as compared to non-dividend paying companies. Ling, Mutalip, Shahrin, & Othman (2008) studied the characteristics of dividend paying companies of Malaysia. Results of their study show that dividend paying companies are more profitable, less risky and more mature in their activities as compared to non-dividend paying companies. Their results further indicate that managers of Malayian companies understand the importance of paying dividends and they pay dividends even if the companies are not earning profit.

The objective of this research is to see the effect of cash dividend and stock dividend on stock prices of chemical and pharmaceutical industry of Pakistan. For this purpose different articles written in Pakistan and abroad are reviewed and dividend theories have been empirically tested and their effect on stock prices has been observed. There are mainly two schools of thoughts available in the field of finance that presented two different opinions about the dividend policy. One school of thought followed the opinion of Miller and Modigliani (1961) and considered dividend policy irrelevant while the second school of thought followed the point of view of Gordon (1963) and considered dividend policy relevant. Since the half century passed, the question still remains i.e. whether dividend policy is relevant or not. This dilemma yet exists, which theory the companies should apply for making their dividend decisions.

2. Literature Review

Many studies have been conducted on dividend policies earlier which explain the relationship between dividend policy and stock prices. These studies help new researchers to explore the
dividend policy in a new way. Discussion of dividend policy cannot be completed without including the work of Linter (1956). Linter (1956) raised the question, which is still important, “what choices made by managers do affect the size, shape and timing of dividend payments?” After the contribution of Linter (1956), Miller & Modigliani (1961) introduced the concept of Dividend Irrelevance theory in which they explain that dividend policy does not affect the stock prices. Many researchers like Black & Scholes (1974), Chen, Firth, & Gao (2002), Adefila, Oladipo & Adeoti (2004), Uddin & Chowdhury (2005), Denis & Osobov (2008) and Adesola & Okwong (2009) provide the strong evidence in the favor of dividend irrelevance theory and does not consider it relevant to the stock prices.

Gordon (1963) gave another view about the dividend policy by presenting the concept of dividend relevance theory. They said that dividend policy do affect the value of firm and market price of shares. Investors always prefer secure and current income in the form of dividends over capital gains. Studies conducted by Travlos, Trigeorgis, & Vafeas (2001), Baker, Powell & Veit (2002), Myers & Frank (2004), Dong, Robinson & Veld (2005) and Maditinos, Sevic, Theriou, & Tsinani (2007) support dividend relevance theory. Black & Scholes (1974) found no relationship between dividend policy and stock prices. Their results further explain that dividend policy does not affect the stock prices and it depends on investors’ decision to keep either high or low yielding securities; return earned by them in both cases remains the same.

Barclay and Smith (1995) in their article “The Maturity Structure of Corporate Debt” found that high growth companies have lower Dividend Payouts and Debt Ratios than the low growth companies, which have higher Dividend Payouts and Debt Ratios. So investors prefer higher Dividend Payouts and consider it less risky than capital gain. Allen & Rachim (1996) found no relationship between the dividend yield and stock market price even after studying 173
Australian listed stocks but it show positive relation between stock prices and size, earnings and leverage and negative relation stock prices and payout ratio while Baskin (1989) examine 2344 U.S common stocks from the period of 1967 to 1986, and found a significant negative relationship between dividend yield and stock price.

Another study conducted by Ho (2002) relevant to the dividend policy in which he use the panel data approach and fixed effect regression model. Results of his study show the positive relation between dividend policy and size of Australian firm and liquidity of Japanese firms. He found the negative relation between dividend policy and risk in case of only Japanese firms. The overall industrial effect of Australia and Japan is found to be significant. Baker, Powell & Veit (2002) in their article “Reinvesting Managerial Perspectives on Dividend Policy” provided new evidence of managers’ decision about dividend policy. They conducted a survey of managers of NASDAQ firms that are consistently paying cash dividends. Their survey result shows that managers are mostly aware of historical pattern of dividends and earnings. So, they design their dividend policies after considering it.

Pradhan (2003) also explained the effect of dividend payment and retained earnings on stock market price of the Nepalese companies. Results of his study show that dividend payment has strong relation with stock price while retained earning has very weak relation with stock market price. His results further explain that Nepalese stockholders give more importance to dividend income than capital gains. Nishat & Irfan (2003) studied 160 companies listed at Karachi Stock Exchange for the period of 1981-2000. Their results were based on cross sectional regression analysis show that dividend yield and payout ratio is positively related to the share price volatility. Adefila, Oladipo & Adeoti (2004) studied the factors affecting the dividend policy of Nigerian firms. Results of their study show that Nigerian firms prefer regular dividend payouts.
that can be in accordance with the expectations of their shareholders. Their results also conclude that there is no relation between Dividend Payments, Net Earnings and Stock Prices. Nigerian firms pay dividends to their shareholders regardless of their level of profits for satisfaction of their shareholders.

Myers & Frank (2004) conducted a study by using the data of 483 firms from Multex Investor Database concluded that there is a positive relationship between the price Earnings Ratio and Dividend Payout Ratio. Their results further show that there is a significant positive relation between Debt to Equity Ratio and Dividend Payout. Baker, Mukherjee, & Paskelian (2006) explained the behaviour of Norwegian managers who used the survey technique in designing the dividend policy. Results of their survey show that current and future earnings, stability of earnings, current degree of financial leverage, and liquidity are the main determinant that corporate managers consider in designing their dividend policies. Their results provided the mixed opinion about the question: “whether dividend policy affects the firms’ value or not”?

Results of the study conducted by Amidu (2007) studied the effect of dividend policy on performance of the companies listed at Ghana Stock exchange. Results of his study showed that there is positive relation between Return on Assets, Dividend Policy and Growth in Sales and there is a negative relation between Return on Assets, Dividend Payout Ratio and Leverage. His results also support the results of previous studies that provide the strong evidence for the relevance of dividend policy to the firms’ performance. Pani (2008) took the sample of 500 companies from the six sectors of Bombay Stock Exchange in order to study the relationship between dividend policy and stock market prices. Results of his study show that the dividend retention ratio is positively related to stock returns in case of individual sector but there is no statistically significant relation between these variables. These results further show that debt
equity ratio has negative relation with stock return while size of the firm has positive relation with stock return. Another study conducted by Raballe & Hedensted (2008) in Denmark during 1988-2004 identified the positive relationship between cash dividends and net earnings of the company, return on equity, retained earnings, size and last year profit but fail to find out any relation between debt equity ratio and dividend decision in Denmark.

Denis & Osobov (2008) empirically tested the trends of companies for designing their dividend policy. Results of their study show that general trend in US, Canada, UK, Germany, France, and Japan is that the companies having higher profitability ratio and higher fraction of retained earnings to total equity pay dividends to their investors. On the other hand, the companies that have lower profitability ratio and lower fraction of retained earnings to total equity do not either pay dividend or pay at a low rate but still this all depends on the managerial and behavioral environment of the countries to decide whether they want to pay dividends or not.

Ahmed & Javaid (2009) conducted a study to analyze the determinants of dividend policy in the emerging economy of Pakistan by taking the sample of 320 companies listed at Karachi Stock Exchange from the period of 2001 to 2006. Results of their study show that most of the Pakistani companies decide their dividend payment on the basis of profits i.e. current year or previous year profits. So the companies having high net profits pay larger amount of dividends to their shareholders. Furthermore, their results showed that market liquidity is positively related to the dividend payout ratio and negative relationship was found between the firm size and payouts while there is no relationship between growth opportunities and dividend payment. Results of the study conducted by Adesola & Okwong (2009) in which they empirically tested the factors affecting the dividend decisions of Nigerian companies show that dividend policy is significantly
associated with earnings, earnings per share and previous year dividends but firms’ growth and size have no effect on dividend policy.

Akbar & Baig (2010) took the sample of 79 companies listed at Karachi Stock Exchange for the period of 2004 to 2007 to study the effect of dividend announcement on stock prices. Results of their study show that announcement of dividends either Cash Dividend or Stock Dividend or both have positive effect on Stock Prices. Nazir, Nawaz, Anwar, & Ahmed (2010) also study the effect of dividend policy on stock prices. Results of their study show that dividend payout and dividend yield have significant affect on stock prices while size and leverage have negative insignificant affect and earning and growth have positive significant affect on stock prices. Khan, Aamir, Qayyum, Nasir, & Khan (2011) studied the effect of dividend payment on stock prices by taking the sample of fifty five companies listed at Karachi Stock Exchange. Results their study show that dividend yield, earnings per share, return on equity and profit after tax are positively related to stock prices while Retention Ratio has negative relation with Stock Prices.

Hussainey, Mgbame, & Chijoke-Mgbame (2011) studied the impact of Dividend Policy on Stock Prices. Results of their study show the positive relation between Dividend Yield and Stock Price Changes and negative relation between Dividend Payout Ratio and Stock Price Changes. Their results further indicate that the Firms’ Earnings, Growth Rate, Level of Debt and Size also cause the change in Stock Price of UK. Baker & Powell (2012) has used survey technique to take the opinion of Indonesian managers about the factors influencing dividend policy, dividend issues, and explanations for paying dividends. Results of their survey show that Indonesian managers consider stability of earnings and level of current and expected future earnings are the most important determinants of dividend policy. Their results further indicate that dividend policy
affects firm value and Indonesian managers consider different dividend theories like signaling, catering, and life cycle theories in designing their dividend policies.

Friend & Puckett (1964), John & Williams (1985), Asquith & Mullins (1986), Richardson, Sefcik, & Thompson (1986), Ambarish, Williams, & John (1987) and Liaonly (2009) also found the positive association between dividends and stock market prices while Baskin (1989) found an inverse relationship between dividends and stock market prices whereas Black & Scholes (1974) and Allen & Rachim (1996) failed to find out any type of relationship between the dividend and stock price.

3. Data Collection and Variable Definition

Sample of twenty five companies are taken from chemical and pharmaceutical industry of Pakistan for the period of ten years from 2001 to 2010. The data has been collected from the audited annual reports of the companies listed at Karachi Stock Exchange for the period of 2001 to 2010. The purpose of this article is to see the relation between Dividends either Cash Dividend or Stock Dividend with Stock Prices after controlling Earnings per Share, Retention Ratio and Return on Equity.

Market Price of share is calculated by taking the average of high and low market prices of the shares. It is expected that Cash Dividends are positively related to Stock Prices. In the absence of clientele effect, if the company pay larger amount of cash Dividends then it will result in high market value of shares. Akbar & Baig (2010) also found positive relation between Cash Dividends and Stock Prices. Stock Dividend is an important type of dividends. Its effect on Stock Prices will depend on the perception of investors. So it can positively or negatively affect the Stock Prices. Kuhlemeyer (2004) explain the effect of Stock Dividend by saying that it results in increasing the number of shares but decreases the price of share and Earnings per Share while the
value of firm does not change. Akbar & Baig (2010) and Travlos, Trigeorgis, & Vafeas (2001) found positive relation between stock dividends and stock prices.

Earnings per Share is calculated by subtracting preferred stock from net income and by dividing the resulting amount with the number of outstanding shares. It is considered as an indicator for measuring the profitability of the companies. Howton & Peterson (1999) have also analyzed the “effects of Betas, Size, Book-to-Market Equity, and Price Earnings Ratios on Stock Returns”. Baskin (1989), Allen & Rachim (1996), Liu & Hu (2005), Adefila, Oladipo & Adeoti (2004), Adesola & Okwong (2009) and Chen, Huang, & Cheng (2009), Khan, Aamir, Qayyum, Nasir, & Khan (2011) also used Earnings per Share as a control variable in their study and report the positive relation between Earnings per Share and Stock Prices while Adefila, Oladipo & Adeoti (2004) does not find any relation between Stock Prices and Earnings.

Return on Equity is also considered as important variables in this study. Return on Equity is calculated by dividing profit after tax with shareholders’ equity. It is expected that Return on Equity is positively associated with Stock market Prices. Liu & Hu (2005), Raballe & Hedensted (2008), Ling, Mutalip, Shahrin, & Othman (2008) and Khan, Aamir, Qayyum, Nasir, & Khan (2011) found positive relation between Return on Equity and Stock Prices.

Retention Ratio is calculated by subtracting Total Dividend from Total Earnings and then divided the resulting amount by Earnings. Negative or positive relation between Retention Ratio and Stock market Prices will depend on perception of investors. If investors think that company has more profitable opportunities than outside than it will positively affect the Stock market Prices otherwise it will negatively affect the Stock market Prices. Pani (2008) found positive relation between dividend to Retention Ratio and Stock Prices while Khan, Aamir, Qayyum, Nasir, & Khan (2011) found negative relation between dividends and stock prices.
4. Research Methodology

This paper has used the Panel data approach to measure the relation between Dividends and Stock Prices. Fixed and Random Effect Models are applied on the panel data. Fixed Effect method is used to control all the stable characteristics of the companies included in the study over a fixed period of time. This method provides statistically better results by removing the biasness from the data and explains only within the sample variations. Random Effect method is applied when characteristics of sample differs. As characteristics of companies are different in terms of size, amount of capital, no. of shareholders, nature of business, earnings etc. so this method is suitable to explain variations between the companies. These methods are also adopted by Ho (2002), Pani (2008), Rashid & Rahman (2009), Nazir, Nawaz, Anwar, & Ahmed (2010), Hussainey, Mgbame, & Chijoke-Mgbame (2011) and Khan, Aamir, Qayyum, Nasir, & Khan (2011) in their studies.

The objective of this study is to see the effect of Cash Dividend and Stock Dividends on Stock Market Prices after controlling the variables like Retention Ratio, Earnings per Share and Return on Equity.

The following regression line is used for this purpose:

\[ MP_i = \alpha_0 + \alpha_1 CD_i - \alpha_2 SD_i + \alpha_3 RR_i + \alpha_4 EPS_i + \alpha_5 ROE_i + \varepsilon_i \]

It is expected that Cash Dividend, Earnings per Share, Retention Ratio and Return on Equity will be positively associated to Stock Market Prices i.e. increases in Cash Dividend, Earnings per Share, Retention Ratio and Return on Equity will result in increasing the stock market price of the companies while Stock Dividends has negative effect on Stock Price.
5. Results And Discussions

Table 5.1 shows the descriptive statistics including means and standard deviations of all the variables. The mean value of Retention Ratio variable is the highest i.e. 156.4 while mean value of Market Price is 2750.9. The lowest mean value is 0.25 which is the mean of the Return on Equity. Standard Deviation shows the variation in the data. The highest value Standard Deviation is 788.7 which show that the great variation in the Market Prices of chemical and pharmaceutical sector of Pakistan is due to Retention Ratio. The Earnings per Share has minimum variance i.e. 7.67 which shows that Earnings per Share causes minimum variation in the Stock Market prices of Chemical and pharmaceutical sector of Pakistan.

Table 5.1: Descriptive Statistics

| Variable | Mean   | Median | Maximum | Minimum | Std. Dev. |
|----------|--------|--------|---------|---------|-----------|
| MP       | 2750.864 | 1371.000 | 33923.19 | -3774.7 | 4936.999 |
| CD       | 30.55740  | 16.12000 | 182.9500 | 0.230000 | 32.39432 |
| SD       | 5.041412  | 0.000000 | 56.70000 | 0.000000 | 10.58539 |
| RR       | 156.4204  | 46.65200 | 4597.000 | -4335   | 788.7319 |
| ROE      | 0.245525  | 0.550000 | 20.69000 | -116.76 | 10.28037 |
| EPS      | 2.299492  | 0.000000 | 50.00000 | 0.000000 | 7.674365 |

Table 5.2 shows the correlation among the different explanatory variables and with dependent variable i.e. Stock Market Prices. This correlation is tested at 1%, 5% and 10% level of significance. Stock Market Prices of chemical and pharmaceutical sector of Pakistan have significant relation with Cash Dividend, Return on Equity and Retention Ratio. This relationship is significant at 1%, 5% and 10% level of significance. Stock Dividend has significant relation with Stock Market Prices at 5% and 10% level of significance while Earnings per Share has
insignificant relation with Stock Market Prices. Return on Equity has significant relation with Retention Ratio, Stock Dividend and Cash Dividend has insignificant relation with Earnings per Share. Relation between Return on Equity and Retention Ratio is significant at 1%, 5% and 10% level of significance while this relation is significant at 5% and 10% level of significance with Stock Dividend and Cash Dividend. Retention Ratio has significant relation with Earnings per Share and Cash Dividend at 1%, 5% and 10% level of significance and insignificant relation with Stock Dividend at same level of significance. Earnings per Share have significant positive relation Cash Dividend and insignificant relation with Stock Dividend. Stock Dividend has significant positive relation with Cash Dividend at 1%, 5% and 10% level of significance.

Table 5.2: Correlations

| Variables | MP | ROE | RR | EPS | SD | CD |
|-----------|----|-----|----|-----|----|----|
| MP        | 1  |     |    |     |    |    |
| ROE       | .010*** | 1   |    |     |    |    |
| RR        | .000*** | .000*** | 1 |     |    |    |
| EPS       | .188 | .084 | .000*** | 1   |    |    |
| SD        | .003** | .014** | .109 | .033** | 1   |    |
| CD        | .000*** | .003** | .000*** | .000*** | .000*** | 1 |

***. Correlation is significant at the 0.01 level

**. Correlation is significant at the 0.05 level

*. Correlation is significant at the 0.10 level

Table 5.3 showing the results of Fixed Effect Model and Table 5.4 showing the results of Random Effect Model that further validates the results of Table 5.2.
Table 5.3: Fixed Effect Model

\[ \text{MP} = 1833.7 + 27.4\text{CD} - 7.5\text{SD} + 1.3\text{RR} - 45.9\text{EPS} + 70.8\text{ROE} \]

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C        | 1833.716    | 432.3686   | 4.241096    | 0.0000|
| CD       | 27.37536    | 10.93129   | 2.504313    | 0.0133|
| SD       | -7.525925   | 34.19699   | -0.220076   | 0.8261|
| EPS      | -45.94582   | 41.71479   | -1.101428   | 0.2725|
| RR       | 1.322341    | 0.479954   | 2.755142    | 0.0066|
| ROE      | 70.78471    | 30.77133   | 2.300346    | 0.0228|

Effects Specification

|        |             |             |             |       |
|--------|-------------|-------------|-------------|-------|
| R-squared | 0.565844   | Adjusted R-squared | 0.497293 |
| F-statistic | 8.254352   | Prob(F-statistic)  | 0.000000 |
Table 5.4: Random Effect Model

\[ MP = 1658.4 + 33.7CD - 6.9SD + 1.4RR - 57.7EPS + 80.3ROE \]

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C        | 1658.382    | 435.9113   | 3.804403    | 0.0002|
| CD       | 33.65884    | 11.10960   | 3.029707    | 0.0029|
| SD       | -6.955636   | 33.97843   | -0.204707   | 0.8381|
| EPS      | -57.72156   | 42.53841   | -1.356928   | 0.1769|
| RR       | 1.355573    | 0.480534   | 2.820975    | 0.0055|
| ROE      | 80.28472    | 31.63164   | 2.538115    | 0.0122|

Effects Specification

| R-squared | 0.601816 | Adjusted R-squared | 0.513331 |
| F-statistic | 6.801307 | Prob(F-statistic) | 0.000000 |

Cash Dividend, Retention Ratio and Return on Equity has positive significant relation with Stock Market Prices while Stock Dividend and Earnings per Share has negative insignificant relation with Stock Market Prices in case of both models. These results confirm that if companies pay Cash Dividend, it will positively affect its Stock Market Prices while Earnings per Share has negative and statistically insignificant relation with Stock Market Prices. This shows that Earnings per Share does not significantly explains the variations in Stock Market Prices because shareholders are only concerned with the amount of profits which is paid to them as dividends whether that amount is paid out of current profit or from previous year profit. The insignificant
relationship between the Earnings per Share and Stock Market Prices shows that if the companies increase their Earnings per Share Ratio, Market Prices decreases and has insignificant affect on Market Prices of shares. Although Earnings per Share has an insignificant relation with the Stock Market Prices but still it is important to be considered. As according to Ohlson model (1995) “stock value is a function of two financial statement variables (book value and earnings)”. Nishat & Irfan (2003) and Rashid & Rahman (2009) also found negative insignificant relation between Earnings per Share and Stock Prices in their studies. These results are similar to the results of the studies conducted by Pradhan (2003) that show dividend payment has positive strong relation with Market Prices of share while retained earnings has the very weak relation with the stock market prices. Another study conducted by Dong, Robinson & Veld (2004) also shows the positive relation between the Cash Dividend and Stock Market Prices.

Retention Ratio has positive relation with Stock Market Prices only when shareholders found profitable investment opportunities in the firm. This shows that shareholders either prefer Cash Dividends but company started new projects and shareholders consider these projects more beneficial than this will positively affect the stock prices. These results are consistent with the results of the study conducted by Pani (2008). Stock Dividend is negatively related to Stock Prices. This shows that when company announces stock dividends than market prices of share go down and shareholders do not like the announcement of Stock Dividends. Finally Return on Equity has positive effect on Stock Market Prices. This shows that management is efficiently using the shareholders’ funds. Liu & Hu (2005), Raballe & Hedensted (2008) and Ling, Mutalip, Shahrin, & Othman (2008), Khan, Aamir, Qayyum, Nasir, & Khan (2011) also found positive relation between Return on Equity and Stock Prices.

6. Conclusions
The objective of this study is to analysis the relationship between Dividends and Stock market Prices after controlling the variables like Retention Ratio, Earnings per Share and Return on Equity. Sample of twenty five companies are taken listed at KSE-100 Index form 2001 to 2010. The empirical estimation based on the Fixed and Random Effect Model show the significant positive relation between Cash Dividend, Retention Ratio and Return on Equity with Stock Market Prices while Earnings per Share and Stock Dividend have negative and statistically insignificant relationship with Stock Market Prices. This paper further shows that the Dividend Irrelevance theories are not applicable in case chemical and pharmaceutical companies of Pakistan.
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