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## Share Price Behaviour around Dividend Announcements in Pakistan

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## **Share Price Behaviour around Dividend Announcements in Pakistan**

### **ABSTRACT**

This paper investigates the information content (signalling) of dividend announcements by firms listed on the Karachi Stock Exchange (KSE) over the period 2005 to 2009. This sample period was selected in order to avoid contamination of the dividend signal with a capital gains tax effect (Litzenberger and Ramaswamy, 1979; Lasfer, 1995; Bell and Jenkinson, 2002) since a capital gains tax was introduced in Pakistan from 2010 onward; there is some evidence about the impact of capital gains taxation on dividend policy in Pakistan (Hamid et al., 2011; Arif and Akbar, 2013). The paper contributes significantly to literature about the Pakistani market which has a unique institutional background: first, during the sample period, there was no taxation on capital gains but there was 10% taxation on dividends; second, the Pakistani stock market is dominated by family-owned firms; and third, dividends and earnings are announced at the same time following a board of directors meeting.

The findings show that no significant unexpected returns can be earned on the announcement date by trading on dividend news across all 639 announcements for the 202 firms over the period 2005-09; it supports the semi-strong form of the efficient market hypothesis. The results also show that earnings are the dominant signal rather than the dividend announced. Moreover, there is some evidence of information leakage as significant unexpected returns were uncovered two days before the dividend announcements.

**Keywords:** Signalling, Dividend Announcements, Event Study, Semi-Strong Efficiency, Information Leakage, Pakistan.

## **1. Introduction**

This paper outlines the impact of dividend announcements on the share prices of firms listed on the Karachi Stock Exchange (KSE) in order to investigate the information content of the dividend disclosures (Pettit, 1972). The findings reported should therefore add to a literature that has concentrated mainly on the information content of dividend announcements in developed markets. According to the dividend signalling hypothesis, the announcement of an increase (decrease) in dividends should have a positive (negative) impact on share prices. By contrast, news that dividends are to remain unchanged should be associated with normal returns. Moreover, the study ascertains whether any signal involves dividend news on its own or the interaction between the joint announcements of a company's dividend and earnings.

There are a number of reasons why the information content of dividends needs to be studied in an emerging stock market such as the KSE. Firstly, this area of finance is relatively under-explored in Pakistan, a nation which has an idiosyncratic financial environment. In particular, the Pakistani market is characterised by a unique tax system where capital gains were totally exempted from taxation before June 2010 (Khan et al., 2011). An in-depth analysis of the information content of dividends may therefore supply useful insights about the relative importance attached to dividend disbursements by Pakistani investors who might have to pay less tax if cash was retained within the firm. To examine this view, the time period before 2010 was selected in order to avoid any possible contamination of signalling theory with a capital gains taxation effect. Secondly, and more generally, the information content of dividends has been comprehensively studied in developed stock markets throughout the world; relatively little work has been conducted regarding the news conveyed by dividend announcements in emerging stock markets. However, in emerging markets one could argue that dividend announcements may convey more news to outside investors

since firms typically supply less information about their operations or performances (Al-Abdulqader, 2003) while the investor analyst community is often relatively small and their reports not widely disseminated (Tijjani, 2008; Almujaheed, 2011). In addition, the dividend signal is often one of the few pieces of information studied by the sizeable number of relatively unsophisticated investors who tend to dominate emerging market investment (Tijjani, 2008).<sup>1</sup> Thirdly, this research will help investors to decide whether or not to invest around the time of dividend announcements by exploiting any semi-strong form inefficiency in the form of a slow market response to dividend news. Finally, the research should provide some insights for policy makers and legislators concerned with laws about corporate disclosures and the speed at which dividend announcements reach the stock exchanges in Pakistan.

The remainder of the paper is organised as follow. Section 2 outlines the relevant literature. Section 3 provides a brief introduction about the KSE and summarises the findings of previous studies conducted on the Pakistani market. Section 4 supplies details about the sample data and the methods employed for calculating unexpected returns around the dividend announcement dates. The empirical results are discussed in Section 5 while Section 6 concludes the paper.

## **2. Literature Review**

The signalling hypothesis of dividends contradicts the classical work of Miller and Modigliani (MM) (1961) which asserted that dividend policy was irrelevant for firm value as investors were not concerned about whether they received returns in form of the dividends or capital gains under the assumption of a perfect capital market composed of rational investors with no taxation and incurring no transaction costs. Under these conditions, MM proved that a change in dividend should not affect the value of a firm. However, in reality, these assumptions may not be realistic

and news about a dividend payment may affect the share price of a firm (Pettit, 1972; Lonie et al., 1996; McCluskey et al., 2007; Baker and Weigand, 2015). For instance, Baker et al. (2011) have documented support for the signalling hypothesis of dividends among both US and non-US firms. Indeed, the authors stated that “signalling theory appears to have the most support based on the non-US studies reviewed.” (p. 299). Similar findings are also reported by Khan et al. (2013) for the Pakistani market; their interview-based research confirmed that market participants responded to changes in dividend payouts as if they were signals. By contrast, Farre-Mensa et al. (2014) found only weak support for signalling theories. In order to investigate the signalling potential of dividend announcements, several studies have looked at the behaviour of share prices around the time of dividend news. In an early investigation of this topic, Pettit (1972) examined the information content of dividend changes for 625 US firms in order to determine the relationship between dividend announcements and share prices. The author categorised the dividend announcements into seven groups<sup>2</sup> and observed their effects on the abnormal performance of the sample firms’ shares; he found that significant price changes took place during the announcement period and the following period.

Similar studies from the UK (Lonie et al., 1996); Australia (Easton, 1991); Ireland (McCluskey et al., 2006) and India (Thirumalvalavan and Sunitha, 2006; Azhagaiah and Priya, 2008) have arrived at the same conclusion. For example, Lonie et al. (1996) analysed the signalling characteristics of dividend announcements for 620 UK firms from January 1991 to July 1991. The findings showed significant abnormal returns of 0.61% and 1.42% on the announcement date (day t) and the preceding day (day t-1) respectively. Moreover, the results documented a significant positive abnormal return of 2.03% for dividend-increasing firms; a significant negative abnormal

return of -2.35 % for dividend-decreasing firms; and a significant positive abnormal return of 1.44% on the t-1 day for the dividend-no change firms.<sup>3</sup>

In contrast to these studies, Watts (1973) arrived at a different conclusion; he did not support the information content of dividend announcements based on his analysis of data for 310 US firms over the period June 1945 to June 1968. Using a regression model to predict future earnings the author found a positive but insignificant relationship between current dividend changes and future variations in earnings<sup>4</sup>; the mean value of the coefficient of current dividend was 0.35 with a t-value of 0.34. Moreover, the author documented that the abnormal returns from monopolistic access to dividend information were uneconomical after transactions costs. In general, he concluded that “the information content of dividends can only be trivial” (p. 211).<sup>5</sup>

Instead, Watts (1973) asserted that the current earnings were the dominant signal about future earnings compared to current dividend news; in a regression equation to explain future earnings the mean value of the coefficient of current earnings was 0.65 with a t-value of 2.22.<sup>6</sup> The author asserted that:

“The market is unable to distinguish between the changes in dividends due to information and changes due to noise in the dividend model, so the effect on the price of the firm’s stock of an unexpected change in dividends is small.” (p. 211)

In line with Watts (1973) and contrary to Pettit (1972), Lonie et al. (1996) documented that earning announcements were dominant when both items of news were published together:

“Current earnings constituted the dominant signal to the capital market and the dividend announcement a partial, and often inferior, substitute signalling mechanism for managers to convey to investors their views about the future performance of their firms.” (p. 48)

Other researchers have suggested that both items of information jointly influence share prices; they argue that a change in the share price may be due to the joint announcement of dividends and earnings details. In order to answer this question, Aharony and Swary (1980)

examined the information content of dividends separately from the information content of earnings in the same period. Their results strongly supported the information content hypothesis that “changes in quarterly cash dividends provide useful information beyond that provided by corresponding quarterly earnings numbers” (p. 11). The authors also found that the market response to a decrease in dividends was more pronounced than the reaction to a corresponding increase in quarterly cash dividends (Brav et al., 2005).

Aharony and Swary (1980) analysed the isolated announcements of dividend and earnings in the US. However, in many countries (such as the UK, Ireland, Austria and Pakistan), the dividend and earnings announcements come to the market at same time. So attempting to study the impact of the dividend announcement without considering any confounding earnings signal may be problematic. Studies of the interaction effect between earnings and dividends announcements were conducted by Kane et al. (1984) for the US, Easton (1991) for the Australian market, Lonie et al. (1996) for the UK and McCluskey et al. (2006) for Ireland. For example, Easton (1991) analysed the interaction effect between dividends and earnings using a regression model.<sup>7</sup> The results clearly supported “the existence of an interaction effect” (p. 264) since the F-statistic of 4.07 was significant at the 95% level. All the dummy variables had positive values; indeed, two groups of companies (those which increased earnings without changing dividends and those which increased both earnings and dividends) had values which were significant at the 0.01 level.

In summary, dividend announcements appear to contain information about future earnings but earning news also seems to be an important signal in those cases where the two items of information are announced jointly. In addition, the causes behind any dividend change – especially



a dividend cut – seem to influence investors' attitudes on how to respond to the information (De Angelo and De Angelo, 1990).

### **3. The Pakistani Capital Market and Signalling Theory**

The KSE is the oldest and the largest stock exchange of Pakistan.<sup>8</sup> It is also the second oldest stock exchange of the whole of South Asia (Mirza, 1993). The 1960s witnessed a tremendous growth in the trading of shares on the KSE primarily due to the success of a Five-Year Plan (1960-65) implemented by the government (Hussain and Qasim, 1997; Khan et al., 2011). However, the growth in trading volume on the KSE declined as a result of political unrest in the 1970s leading up to the independence of Bangladesh and the nationalisation of many companies (Iqbal, 2012). In the 1980s, share trading started to increase again as a result of these nationalised companies being privatised and individual investment being encouraged (Hussain and Qasim, 1997). The trading of shares on the KSE has continued to increase in 1990s following the liberalisation policy of 1991 (Kemal et al., 2002; Ahmed and Javid, 2009). However, trading declined again at the end of 2009 after the enactment of a new Code of Corporate Governance whose requirements were not satisfied by some firms (Mir and Nishat, 2004; Shaheen and Nishat, 2005; Iqbal, 2012; Khan et al., 2011). During the last 10 years, the KSE achieved tremendous growth rates despite the deteriorating law and order situation in the country (Husain, 2005, 2008, 2009 and 2010). However, according to KSE statistics, less than 50.0% of listed companies paid dividends during 2005-09.<sup>9</sup> Moreover, a significant percentage (ranging from 15.1 to 20.6%) of companies omitted their dividend despite their businesses being profitable.

Many academics have studied the share price reaction of firms listed on the Pakistani stock exchanges around dividend announcement dates. In Pakistan, announcements about dividend

decisions (as well as earnings announcements) are disclosed to the market after a Board of Directors meeting.<sup>10</sup> By law, companies must notify the stock exchanges of Pakistan about their dividend decisions in order to avoid the leakage of information before formal announcements.<sup>11</sup> A number of researchers have documented unexpected returns around the time of such announcements. For example, Zaman (2007) found that share prices reacted positively around dividend announcements. The authors used various research methods to examine the information content of dividend such as an event study, ANOVA tests and multiple regression analysis.<sup>12</sup> The results of these methods revealed a significant positive impact of dividend and earning announcements on share prices. Khan et al. (2010) took a sample of 55 companies listed on the KSE to analyse relationship between dividend and share prices over the period of 2001-2010. The study found that dividend yield was positively associated with share prices. In support of previous studies, Mahmood et al. (2011) also documented that cash dividend announcements were treated as positive signals using an event study methodology. A positive association of cash dividend and share prices was also noted by Amir and Shah (2011) for a sample of 26 dividend announcements by firms in the cement and oil and gas sectors of Pakistan for the period 2004-2008.

By contrast, Mubarik (2008) and Akbar and Baig (2010) documented negative unexpected returns around dividend announcement dates. For example, Mubarik (2008) stated that “share prices do not respond positively to the dividend announcements” (p. 12) when analysing 32 dividend announcements by firms in the Oil and Gas Marketing sector of Pakistan over the period August 2004 to February 2008. Similarly, Akbar and Baig (2010) found that the cumulative abnormal return for the day before to the day after the dividend announcement was -0.009 with t-value of -2.3.

In contrast to the previous studies, the results of Kaleem and Salahuddin (2006) supported the MM (1961) proposition of dividend irrelevance. The authors documented that “investors in Pakistan seemed to earn no net gain due to [a] dividend payment” (p. 6). The authors analysed data for a sample of 24 firms listed on the LSE over the period 2002-03 using an event study methodology to examine share price behaviour around dividend announcement dates. The empirical results, on average, showed that market adjusted abnormal returns were significantly different from zero (i.e., 0.001 for 2002 and -0.009 for 2003);<sup>13</sup> similarly, the CAR values were insignificant. Further analysis of the results revealed that investors incurred losses of 2.5% in 2002 and 1.7% in 2003 over a period starting 30 days pre-announcement date and ending seven days after the ex-dividend date.

Many researchers have analysed the relationship between dividends and share prices using regression analysis. Using this method, Nishat (1992) found that dividends and retained earnings had a substantial effect on the share prices of ten industries listed on the KSE over the period 1980-86. In line with Nishat (1992), the signalling effect of dividends was supported by Kanwer (2002) who studied the dividend policy of 317 companies listed on the KSE over the period 1992-98. The author used a regression model<sup>14</sup> with dividend yield measure as the dependent variable; a dummy variable was used as a proxy for the signalling effect based on whether earnings increased or decreased in the future. The results of the regression model showed that the dummy variable was positively correlated with dividend yield which supported the signalling theory that future earnings tended to be associated with increased current dividend yield (Pettit, 1972; Lonie et al., 1996; McCluskey et al., 2006).

Such conflicting results from prior Pakistani studies are not surprising as these investigations have typically used tiny samples to study the effect of dividend announcements on

share prices (Rafique et al., 2012). In order to address this issue in a comprehensive fashion, the current research uses a relatively large sample to analyse the signalling impact of dividend announcements on share prices of Pakistani firms over the period from 2005 to 2009.

As already mentioned, the reason behind choosing a sample period before 2010 is because capital gains taxation was imposed from July 2010 for the first time in Pakistan. The literature suggests that this taxation is likely to have had an impact on dividend payouts (and the market response to news of company disbursements) especially in the Pakistani context (Hamid et al., 2011; Gul et al., 2012; Arif and Akbar, 2013; Hassan et al., 2013). For example, Hamid et al. (2011) analysed the impact of taxes on dividend policy for a sample of 21 banking companies listed on the KSE for a period 2006-2010. The results of regression and correlation analysis showed a significant positive correlation of 0.736 between taxation and dividend. In line with this study, Arif and Akbar (2013) also documented that taxation was an important variable in dividend decisions.<sup>15</sup> In addition, they found that the relationship between taxation and dividend policy was negatively significant. In contrast to the previous studies, Gul et al. (2012) found an insignificant positive association between taxation and DPS for a sample of 120 companies listed on the KSE from 2000-2011. Whereas Hassan et al. (2013) documented an insignificant negative relationship between taxation and dividend policy for a sample of 33 companies listed on the KSE over the period 2005-2010.

#### **4. Sample Selection and Method Used**

##### **4.1 Data and Sample**

The sample selected for the analysis was drawn from all firms listed on the KSE. The selection of listed companies for inclusion in the final sample was based on availability of the adjusted share price data from Datastream. There were 597 such firms listed on the KSE whose data were available from this data source at the end of 2009. From the population of 597 firms, adjusted prices were not available for 360 companies; therefore, the sample was reduced to 237 companies whose price data were adjusted for stock splits and share issues. The dividend

announcements were taken from the official website of KSE over the period 2005-09.<sup>16</sup> Twelve of the firms did not have complete data over this timeframe; so these companies were excluded reducing the sample to 225. However, 23 of these firms did not declare any dividend over the sample period and so the final sample size was 202 firms. The DPS, EPS and adjusted prices data were extracted from Datastream for this group of companies. As already discussed capital gains tax is levied from July 2010, so the sample before this date (i.e., January 2005- December, 2009) was considered for analysis to avoid the contaminated effect of capital gains taxation on dividend policy, if any.

Not all the firms declared their dividend on a quarterly or semi-annual basis;<sup>17</sup> however each made at least one announcement per year. So, annual dividend announcements were selected for testing the information content hypothesis (De Angelo and De Angelo, 1990). As noted above, in Pakistan, most firms publish their earnings and dividend announcements simultaneously and so the annual earnings announcements were also selected for investigation.<sup>18</sup> An inspection of the data showed that the announcement dates were spread over different months and occurred on different working days of the calendar year; thus, event date clustering and its attendant issues were not likely to be an issue (Strong, 1992). An analysis of the data showed that 71 of the sample firms declared dividends in each of the five years; 26 in four of the years; 22 in three of the years; 31 in two of the years; with 52 firms declaring a dividend only once in the five years period. The final sample therefore comprised 639 dividend announcements made by 202 firms listed on the KSE over a period 2005-09.<sup>19</sup>

## **4.2 Method**

This ‘information content’ hypothesis suggests that in a world of information asymmetry, where managers know more about their company’s future prospects than outsider stakeholders, a change in dividend may convey information about the future performance of the firm (Bhattacharya, 1979; Bhattacharya, 1980). There are a number of reasons why dividend changes may act as a signal. In his seminal work, Lintner (1956) argued that firms tended to increase their dividends once they were certain about the future earnings. So a dividend increase may be viewed as a signal because it reduces uncertainty about future earnings and the market value of a firm (Baker et al., 1985; Baker and Powell, 1999). In addition, dividend changes are visible and freely communicated in the financial press. Further, because cash is being paid out, managers are “putting the firms’ money” behind the signal. The logic behind this assumption is that outside investors perceive an increase in dividends as “good news” and a dividend cut as a “bad signal” about the future profitability of the firm (Pettit, 1972; Aharony and Swary, 1980; Lonie et al., 1996; McCluskey et al., 2006). A conventional event study analysis based upon the market model (as per Pettit, 1972) and the market adjusted returns model is used to detect the presence of any abnormal or excess returns around the dividend announcement dates. From an inspection of the announcement data it appears that most listed Pakistani firms declare their earnings and dividend announcements simultaneously. As noted by Lonie et al. (1996), these joint announcements make it difficult to differentiate between the impacts of dividend and earnings announcements on share returns. In these cases, an interaction effect between dividend and earnings is usually studied. Therefore, two main hypotheses are tested in the current paper:

**H1:** An announcement of a change in dividend conveys information which affects the share prices of the firm.<sup>20</sup>

**H2:** The interaction between dividend and earnings signals jointly influence share prices at the time when the joint announcements are published.

As the paper examines the impact of dividend disclosures on the share prices for Pakistani listed firms, an event study was therefore used to calculate any unexpected returns around the announcements dates (Pettit, 1972; Brown and Warner, 1980; Strong, 1992). Unexpected (or abnormal) returns around the event are calculated as the difference between the actual return that a share earned and expected returns that it would have earned if no dividend news been disclosed. Abnormal returns ( $AR_{it}$ ) were calculated over a 21-day period from day  $t-10$  to day  $t+10$  centered on the dividend announcement dates<sup>21</sup> according to the formula<sup>22</sup>:

$$AR_{it} = R_{it} - E(R_{it}) \quad [1]$$

Where  $R_{it}$  is the actual return on share  $i$  on day  $t$  and  $E(R_{it})$  is the expected return for this security on the same day. If the signalling hypothesis is correct, the unexpected returns on the announcement date (day  $t_0$ ) should be significantly different from zero. The actual share returns were calculated as:

$$R_{it} = \ln(P_{it}/P_{it-1}) \quad [2]$$

where  $R_{it}$  is the daily return of firm  $i$  on day  $t$ ;  $\ln$  is the natural log;  $P_{it}$  represents the share price of firm  $i$  on day  $t$ ; and  $P_{it-1}$  is the share price of firm  $i$  on the previous day.

The expected returns were calculated using the conventional market model (Pettit, 1972; Aharony and Swary, 1980; Easton, 1991; Strong, 1992; Lonie et al., 1996; McCluskey et al., 2006) which assumes a linear relationship between the expected return of an individual security and the market index:

$$E(R_{it}) = \alpha_i + \beta_i(R_{mt}) + e_{it} \quad [3]$$

where  $R_{mt}$  is the return on market index;  $\alpha_i$  is the intercept of the regression equation;  $\beta_i$  is the measure of systematic risk and  $e_{it}$  is the unsystematic (firm-specific) risk.  $R_{mt}$  was proxied for by the KSE-100 index in the current study. Equation [3] was estimated for a period of 100 trading days i.e.,  $day_{t-11}$  to  $day_{t-111}$  prior to the event period for each dividend announcement.<sup>23</sup> For comparison purposes, the dividend announcements were divided into three categories and unexpected returns (excess and abnormal returns) were computed for each group. The total of 639 dividend announcements were split into 273 increases in dividend per share (DI), 184 decreases in dividend per share (DD) and 182 cases where no change occurred in the dividend (DnC).<sup>24</sup> The signalling hypothesis asserts that a dividend increase will be associated with positive unexpected returns, a dividend decrease will be associated with negative unexpected returns while only normal returns are anticipated when no dividend change is announced (Pettit, 1972).

As discussed, both dividend and earnings details are announced to the Pakistani market at same time after the Board of Directors' meeting. So attempting to study the impact of the dividend announcement without considering any confounding earnings signal may be problematic (Kane et al., 1984; Easton, 1991; Lonie et al., 1996; McCluskey et al., 2006). In order to disentangle these confounding signals, previous studies have focused on: (i) identifying the unexpected returns earned by different dividend-earnings change groups and (ii) using regression analysis in order to analyse the interaction between earnings and dividend signals. Following the first method of calculating the interaction effect between dividends and earnings, the sample was split into different groups on the basis of the nature of the dividend and earnings change. In this analysis, which is consistent with that used in previous studies (Lonie et al., 1996), the three dividend change groups combined with two groups of earnings change in earnings namely: earnings-increase (EI) and earnings-decrease (ED). Thus, the sample was split into six groups (DIEI, DIED, DDEI,



DDED, DnCEI, DnCED).<sup>25</sup> After constructing the dividend-earnings change groups, the abnormal and excess returns were calculated for all the six groups (Lonie et al., 1996; McCluskey et al., 2006).

In the second method of examining the interaction effect, a more formal test was conducted using regression analysis. The method first proposed by Kane et al. (1984) for the US data and subsequently employed by Easton (1991) and Lonie et al. (1996). According to this method the cumulative abnormal returns for different periods are regressed against changes in DPS and EPS without [or along with] dummy variables for each dividend-earnings group. Therefore, the following regression models were constructed:

$$AR_{it0} = \gamma_0 + \gamma_1 \Delta DPS_{it} + \gamma_2 \Delta EPS_{it} + U_i \quad [9]$$

$$AR_{it0} = \delta_0 + \delta_1 \Delta DPS_{it} + \delta_2 \Delta EPS_{it} + \delta_3 (+, +) + \delta_4 (+, -) + \delta_5 (-, +) + \delta_6 (0, +) + \delta_7 (0, -) \quad [10]$$

Where,  $\Delta DPS_{it}$  and  $\Delta EPS_{it}$  is the percentage change<sup>26</sup> in dividend and earnings of firm  $i$  respectively. (+, -) is the interaction dummy variable for the dividend increase and earning decrease (DIED) group while (0, +) represent the DnCEI group. The remaining dummy variables are defined in a similar manner.<sup>27</sup> Three types of F-tests were used to determine whether any interaction was present and which of the two-signals appeared to be the more important. The F-statistic (derived from Equation [9]) is initially used to determine the significance of  $\gamma_1$  and  $\gamma_2$  in Equation [9]. The 'first-order' F-statistic is then used to test for the joint significance of  $\delta_1$  and  $\delta_2$  in Equation [10]. Finally, the 'interaction' F-statistic is calculated to test for interaction as proxied for by the dummy variables in Equation [10].

The actual test of interaction is given by an F-Statistic (Kane et al., 1984; Easton, 1991; Lonie et al., 1996; Abeyratna, 1994); this shows the joint significance of the dummy variables and

“assesses the increase in power of the unrestricted model over the restricted model in explaining the abnormal returns” (Abeyratna, 1994, pp. 54-55). This F-test is calculated as:

$$\text{Interaction F-statistic} = \frac{[\text{SSE}(\text{restricted}) - \text{SSE}(\text{unrestricted})]/R}{[\text{SSE}(\text{unrestricted})]/(N - K)} \quad [11]$$

where  $\text{SSE}_{(\text{restricted})}$  denotes the error sum of squares in the restricted model (Equation [9]),  $\text{SSE}_{(\text{unrestricted})}$  is the error sum of squares in the unrestricted model (Equation [10]), R shows the number of restrictions, N is the number of observations and K is the number of regressors (parameters) in the unrestricted model. In this study, R is 5, N is 548 and K is 7.

In addition, ‘first-order’ F-Statistics was calculated to test the significance of dividend and earnings changes in Equation [10]. According to the information content hypothesis, both dividend and earnings’ co-efficients should be positive and significantly associated with the abnormal returns. According to Easton (1991), for the calculation of the first-order F-statistic, “the restricted model is a model which includes only a constant and the interaction dummy variables” (p. 264). Therefore, the unrestricted model is the same Equation [10] and the restricted model for calculation of ‘first-order’ F-statistic is as:

$$\text{AR}_{t0} = b_0 + \delta_1 (+, +) + \delta_2 (+, -) + \delta_3 (-, +) + \delta_4 (0, +) + \delta_5 (0, -) \quad [12]$$

So, the ‘first-order’ F-statistic is calculated as:

$$\text{First-order F-statistic} = \frac{[\text{SSE}(\text{restricted}) - \text{SSE}(\text{unrestricted})]/R}{[\text{SSE}(\text{unrestricted})]/(N - K)} \quad [13]$$

where  $\text{SSE}_{(\text{restricted})}$  is the error of sum squares in Equation [12],  $\text{SSE}_{(\text{unrestricted})}$  is the sum of error squares in Equation [10], R is number of number of restrictions, N is the number of observations and K is the number of regressors in the unrestricted model. In the study, R is 2, N is 548 and K is 7. If the earnings support the dividend signals, then the coefficients of dummies should be significantly different from zero and interaction F-statistics should be higher than their critical values at the 5% level.

## 5. Empirical Findings

### 5.1 Share Price Behaviour Around the 21-day Event Window

Table 1 documents the abnormal and excess returns for the 21-day event period around the dividend announcement dates. The median as well as mean abnormal return was computed in case any outliers in the data biased the average values reported. The standard deviations are provided in order to supply some insight into the spread of abnormal and excess returns around the mean values. A t-test was used to determine the statistical significance of mean values while a non-parametric Wilcoxon signed rank test<sup>28</sup> was employed to investigate whether median measures were different from zero.

A number of findings emerge from a visual inspection of Table 1. First, there appeared to be no significant share price reaction to the news of the dividend announcement on day  $t_0$  (Watts, 1973; Mollah, 2001; Uddin, 2003; Rishma et al., 2007; Kaleem and Salahuddin, 2006; Mubarik, 2008). The mean (median) abnormal return was small at 0.3% (-0.051%) and the p-value was higher than the 5.0% critical value. Thus, in terms of the signalling hypothesis, the null that dividend announcements have no information content in Pakistan cannot be rejected. Instead, the results in the current study suggest that on the announcement day, dividends do not appear to signal any news to investors which causes them to revise their beliefs about the worth of the sample companies' shares; such a lack of impact is consistent with the semi-strong form of the efficient market hypothesis.<sup>29</sup> Second, the results in Table 1 suggest that one reason why there is no significant abnormal return on day  $t_0$  might be information leakage to the market before the publication of the dividend news. For example, the second largest mean abnormal return documented in Table 1 is reported for day  $t-2$ ; this mean value of 0.5% is statistically significant. The result is similar to Kaleem and Salahuddin's (2006) findings for Pakistani firms; these

**Table 1: Share Price Performance around the Dividend Announcement Date**

DAY	ABNORMAL RETURNS		
	Mean	Median	SD
t-10	-0.00236 (0.039)*	-0.00029 (0.132)	0.02875
t-9	0.00290 (0.138)	-0.00033 (0.581)	0.04939
t-8	0.00044 (0.738)	-0.00033 (0.953)	0.03308
t-7	-0.00234 (0.334)	-0.00011 (0.884)	0.06112
t-6	0.00110 (0.254)	0.00000 (0.295)	0.02440
t-5	0.00198 (0.083)	0.00000 (0.225)	0.02886
t-4	0.00451 (0.194)	0.00000 (0.180)	0.08768
t-3	0.00261 (0.334)	-0.00017 (0.321)	0.06832
t-2	0.00476 (0.006)*	0.00000 (0.075)	0.04393
t-1	0.00219 (0.081)	0.00000 (0.345)	0.03176
t <sub>0</sub>	0.00260 (0.139)	-0.00051 (0.787)	0.04430
t+1	0.00408 (0.126)	-0.00054 (0.671)	0.06735
t+2	0.00277 (0.307)	-0.00043 (0.266)	0.06846
t+3	0.00349 (0.180)	-0.00056 (0.133)	0.06581
t+4	0.00090 (0.724)	-0.00049 (0.030)*	0.06420
t+5	0.00135 (0.592)	-0.00066 (0.007)*	0.06638
t+6	0.0056 (0.025)*	0.00000 (0.430)	0.06376
t+7	0.0032 (0.244)	-0.00030 (0.899)	0.07202
t+8	0.00286 (0.239)	-0.00050 (0.184)	0.06129
t+9	0.00358 (0.161)	-0.00024 (0.630)	0.06437
t+10	0.00162 (0.533)	-0.00033 (0.118)	0.06574

Note: An \* indicates significance at the 5% level on a two-tailed basis. The figures in parentheses are p-values. The p-values for the means are based on a one-sample t-test and for the medians are based on the Wilcoxon Signed Rank test. SD is the standard deviation around the mean values.

authors found significant returns a few days before the announcement date. This is not surprising as the KSE (like other emerging stock markets) is characterised by poor information disclosures, insider trading and market manipulation (Mustafa and Nishat, 2007). However, on day t-10, another statistically significant abnormal return is documented; however, in this instance, the mean value is negative (-0.2%) suggesting that if the price movement does indeed reflect the forthcoming payout signal, the market anticipated that the news would be negative, on average.

Third, there is also some support for the argument that the market took time to fully assimilate the news contained in the dividend announcement; the largest mean abnormal return of 0.6% during the event window is recorded for day t+6 implying that investors responded favourably to the dividend signal, on average, about one week after the information was first disclosed (Thirumalvalavan and Sunitha, 2006). Fourth, the median abnormal results suggest that the mean findings may be influenced by a few large values. The median abnormal return values are generally very small in absolute terms, ranging from a low of -0.06% on day t+5 to a high of 0.0% (day t-6, day t-5, day t-4, day t-2, day t-1 and day t+6). In general, the figures tend to be zero before the dividend announcement date and negative afterwards (except day t+6) indicating that the market responded to the change in DPS as if it were a poor signal. In fact, two of the negative median abnormal returns found after day  $t_0$  are statistically significant, supporting the view that the Pakistan market takes time to respond to the dividend information (Thirumalvalavan and Sunitha, 2006). Specifically, on day t+4 (median = -0.05%) and day t+5 (median = -0.07%) the p-values for the median statistics were less than the critical value of 0.05.

Finally, it is apparent from Table 1 that the standard deviation values are large relative to their mean abnormal and excess return counterparts. For the abnormal returns, they range from 2.4% on day t-6 to 8.7% on day t-4. The variability in the returns earned may explain why none

## 5.2 Share Performance Around Changes in Dividends and Earnings Levels

**Table 2: Share Price Performance around the Dividend-change Announcements**

	ABNORMAL RETURNS		
DAY	Mean	Median	SD
<b>PANEL A: Share Price Performance around the Dividend-Increase Events</b>			
t-2	0.00093 (0.267)	0.00024 (0.312)	0.02455
t-1	0.00236 (0.072)	0.00000 (0.151)	0.02666
t <sub>0</sub>	0.00342 (0.091)	-0.00082 (0.367)	0.04221
t+1	0.00325 (0.044)*	-0.00033 (0.161)	0.03139
t+2	-0.00127 (0.721)	-0.00089 (0.842)	0.03580
<b>PANEL B: Share Price Performance around the Dividend-Decrease Events</b>			
t-2	0.00349 (0.983)	0.00000 (0.884)	0.02217
t-1	0.00318 (0.974)	0.00000 (0.867)	0.02203
t <sub>0</sub>	-0.00001 (0.499)	-0.00046 (0.287)	0.03632
t+1	0.00555 (0.760)	-0.00095 (0.109)	0.10637
<b>PANEL C: Share Price Performance around the Dividend-no-Change Events</b>			
t+2	0.00535 (0.758)	-0.00109 (0.064)	0.10359
t-2	0.01180 (0.030)*	0.00000 (0.150)	0.07298
t-1	0.00094 (0.778)	-0.00027 (0.572)	0.04466
t <sub>0</sub>	0.00398 (0.319)	-0.00046 (0.659)	0.05382
t+1	0.00383 (0.352)	-0.00046 (0.485)	0.05536
t+2	0.00623 (0.169)	0.00028 (0.467)	0.06085

Note: An \* indicates significance at the 5% level on the basis of one-tailed analysis for DI and DD sub-groups and two-tailed analysis for DnC sub-group. The figures in parenthesis are p-values. The p-values for the means are based on a one-sample t-test and for the medians are based on the Wilcoxon Signed Rank test. SD is the standard deviation of respective mean values.

of the abnormal returns on day  $t_0$  are significant. This issue is addressed in the next section where disaggregated findings are presented for dividend increase, dividend decrease and dividend-no-

change sub-samples. Table 1 reported the share price performances for all dividend announcements irrespective of the changes in DPS being published. However, the dividend signalling hypothesis argues that the impact on share price will differ according to the nature of the announcement. Therefore, Table 2 examines the share price performance of the sample firms around a 2-day event window for DI events in Panel A, DD announcements in Panel B and DnC sub-group in Panel C. The analysis of the results in Table 2 for the three sub-groups shows a picture similar to Table 1; abnormal returns are insignificant on the announcement day for the three sub-groups – DI, DD and DnC. These results suggest that, in general, the behaviour of share prices for Pakistani firms is different from the findings for other international studies (Pettit, 1972; Lonie et al., 1996; McCluskey et al., 2006); the signalling hypothesis for DI (DD) announcements which predicted positive (negative) unexpected returns was rejected. For example, on day  $t_0$ , the mean abnormal return for DI sub-group (Panel A) was large and positive at 0.3% but the p-value of 0.09 was higher than the critical number of 0.05. However, the findings for the DnC sub-group (Panel C), suggest that there is some support for the signalling hypothesis as only normal returns were documented by the event study (McCluskey et al., 2006). A more detailed investigation of Table 2 reveals that the significant abnormal returns on day  $t-2$  (first documented in Table 1) were driven by the changes relating to the DnC sub-group.

### **5.3 The Joint Announcements of Changes in Dividend and Earnings**

Table 3 documents the joint effect of the announcements of dividends and earnings on share returns around 2-day event window for the six dividend-earnings change groups. A number of results are evident from the table. First, inspection of the findings confirms the impression from the earlier analysis of a lack of market response to the news as no group earns significant mean or median abnormal returns on the announcement date. Furthermore, abnormal returns are not just

associated with the news about dividends; announcements of earnings also influenced the results; in fact, the significant mean abnormal return (Panel A) on day t-2 (first documented in Table 1) was due to the performances of firms in the DDEI group. More generally, Tables 3 documents significant values before and after, but not on, the announcement date for most groups, implying that investors seem to both anticipate and react to dividend and earnings in a specific fashion; the KSE appears, therefore, not to be weak-form efficient with regard to dividend news despite the lack of price movement on the formal announcement day.

**Table 3: The Unexpected Returns for All Dividend-Earnings Groups**

Day	DIEI	DIED	DDEI	DDED	DnCEI	DnCED
<b>PANEL A: Mean Abnormal Returns</b>						
t-2	0.00284 (0.102)	-0.00496 (0.082)	0.00536 (0.010)*	0.00141 (0.586)	0.01269 (0.129)	0.01048 (0.057)
t-1	0.00257 (0.179)	0.00175 (0.566)	0.00520 (0.017)	0.00093 (0.707)	0.00248 (0.447)	-0.00137 (0.838)
t <sub>0</sub>	0.00535 (0.076)	-0.00251 (0.600)	0.00148 (0.641)	-0.00167 (0.707)	0.00459 (0.375)	0.00307 (0.629)
t+1	0.00390 (0.074)	0.00127 (0.750)	0.0130 (0.376)	-0.00275 (0.374)	0.00093 (0.830)	0.00816 (0.308)
t+2	-0.00074 (0.780)	-0.00292 (0.418)	0.0149 (0.297)	-0.00529 (0.075)	0.00658 (0.347)	0.00570 (0.192)
<b>PANEL B: Median Abnormal Returns</b>						
t-2	0.00048 (0.230)	0.00000 (0.219)	0.00113 (0.032)*	-0.00088 (0.621)	-0.00015 (0.453)	0.00001 (0.177)
t-1	0.00005 (0.359)	0.00000 (0.652)	0.00000 (0.137)	0.00000 (0.934)	0.00000 (0.497)	-0.00038 (0.102)
t <sub>0</sub>	0.00005 (0.302)	-0.00473 (0.337)	-0.00077 (0.654)	0.00000 (0.674)	-0.00049 (0.640)	-0.00035 (0.834)
t+1	-0.00050 (0.332)	0.00000 (0.845)	-0.0009 (0.498)	-0.00121 (0.297)	-0.00076 (0.322)	0.00000 (0.938)
t+2	-0.00088 (0.636)	-0.00091 (0.269)	-0.0009 (0.530)	-0.00160 (0.104)	0.00087 (0.392)	-0.00005 (0.993)

Note: An \* indicates significance at the 5% level on the basis of two-tailed analysis. The figures in parenthesis are p-values. The p-values for the means are based on a one-sample t-test and for the medians are based on the Wilcoxon Signed Rank test



#### 5.4 Interaction Effect

Table 4 reports the regression results using the ARs on day  $t_0$  as the dependent variable. A number of interesting results emerge from Table 4 using the regression model for Equations [9] and [10] on the announcement date. For example, with Equation [9], the  $\Delta$ DPS and  $\Delta$ EPS are negatively (although insignificantly) related to the abnormal returns, contrary to the normal expectation of a positive association between these variables and returns. The lack of significance for the  $\Delta$ EPS coefficient suggests that the evidence of earnings dominance in certain aspects of the analysis thus far is not robust to this broader form of investigation, and such a conclusion should be tempered. This finding also contradicts the previous evidence in Kane et al. (1984) for the US data, and subsequent results in Easton (1991) for Australia, Lonie et al. (1996) for the UK and McCluskey et al. (2006) for Ireland; all of which found at least one significant coefficient for the equivalent of Equation [9]. Moreover, the F-statistics for Equation [9] also show a value of 0.12 having a p-value of 0.8 suggesting that the equation explains very little of the variability in abnormal returns. Similarly, Equation [10] in Table 4 reveals a number of findings. First, like Equation [9],  $\Delta$ DPS and  $\Delta$ EPS are negatively (although insignificantly) associated with abnormal returns. This conflicts with the expectation from prior studies but is similar to the findings of the Equation [9] where insignificant coefficients were documented on the announcement date. Second, Table 4 shows an insignificant value of the interaction F-statistic which reveals that the dummies did not jointly explain the variability in abnormal returns on the announcement date. The interaction F-statistic of 0.44 is insignificant at 5.0% level, thus accepting the null hypothesis of no interaction effect for the dividend and earnings signals. This result contradicted to those reported in previous studies such as Kane et al. (1984); Easton (1991) and Lonie et al. (1996).

**Table 4: Regression Analysis for Interaction using AR<sub>t0</sub> as Dependent Variable**

Explanatory Variables	Equation [9]	Equation [10]
Constant	0.00147 (0.374)	- 0.00212 (0.610)
% DPS	- 0.000143 (0.846)	- 0.000181 (0.815)
% EPS	- 0.000268 (0.651)	- 0.000512 (0.413)
DIEI		0.00644 (0.211)
DIED		- 0.00121 (0.860)
DDEI		0.00374 (0.516)
DnCEI		0.00538 (0.391)
DnCED		0.00229 (0.730)
N	548	548
F-Statistics	0.12 (0.884)	
R <sup>2</sup>	0.0	0.5
R <sup>2</sup> (Adjusted)	0.0	0.0
F-Statistics “1st order”		0.787
F-Statistics “Interaction”		0.445

Note: An \* indicates significance at the 5% level. The figures in parenthesis are p-values. The degree of freedom for ‘first-order F-statistic is (2, 548) and the degree of freedom for ‘interaction’ F-statistic is (5, 548).

Third, the first-order F-statistic shows the joint significant of magnitude of dividend and earnings changes in Equation [10]. The first-order F-statistic depicts an insignificant value of 0.78 which is below the critical value at the 5.0% level. This result suggests, as in Easton (1991) and Lonie et al. (1996) that when the interaction effect is built into the analysis, the size of earnings and dividend changes have no explanatory power. Moreover, the result corroborates the findings of previous research where inclusion of the dummies in Equation [10] reduces the significance level of the  $\delta_1$  and  $\delta_2$ . Fourth, as expected, the sign of the constant term is negative (although insignificant) which is used to represent the dummy variable where dividends decrease and earnings decrease. Finally, the coefficient of determinants ( $R^2$ ) shows a small value of 0.5 which

indicates that Equation [10] can explain only 0.5% of the variability in abnormal returns with the help of the equation.

## **5. Conclusion**

In conclusion, the results show that returns earned on the announcement date were not significantly different from zero for the all 639 announcements and for the three sub-groups (DI, DD and DnC). It implies that investors cannot earn abnormal profit on the announcement dates. Thus strategies which may provide profitable opportunities in other markets if dividend change is correctly anticipated will not work in Pakistan. Moreover, there is some evidence of information leakage for all 639 announcements on day t-2; further analysis reveals that these significant mean abnormal returns on day t-2 appear to be due to the DnC announcements. Moreover, the significant mean abnormal return on day t-2 is due to DDEI. Therefore, the SECP may wish to investigate whether or not insider trading laws are being broken. Moreover, any insider trading which may be taking place may damage the efficiency of the stock market (Pettit, 1972; Uddin, 2003; Mustafa and Nishat, 2007); investors may become cautious about trading on the KSE because they may feel at a disadvantage relative to “informed” traders who may be present. The results also imply that earnings are dominant as compared to dividend announcements, but these investors also take positively the news of no-change in DPS. There is also evidence of some share price reactions about 3 to 5 days after the dividend announcement. However, this post announcement effect seems to be common to all dividend change sub-groups. The results indicated that there was a statistically insignificant interaction effect influencing the market’s reaction to the joint dividend-earnings signal.

Overall, however, it is evident that the KSE's reaction to dividend announcements differs markedly from most of the earlier (largely developed country-based) evidence, in term of both nature and timing such as Pettit (1972) for the US; Lonie et al. (1996) for the UK and McCluskey et al. (2006) for Ireland. However, the results resemble with the findings of emerging stock markets such as Mollah (2001); Uddin (2003) and Rishma et al. (2007) for Bangladesh sample; the findings suggest that emerging markets behave differently from their developed market counterparts.

The current study considers only cash dividend announcements and ignores stock dividend and contemporaneous stock and cash dividends. This exclusion of such announcements is a major limitation of the study; the share prices may behave differently when such events are included in a sample, as Akbar and Baig (2010) documented for their research. In a country like Pakistan where, at the time of the study, capital gains were not taxed, excluding stock dividends may have altered the findings. Again, however, it is hoped that by not focusing exclusively on the event study, the thesis emerge has allowed these issues to emerge.

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## ENDNOTES

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<sup>1</sup> Of course, an alternative line of argument exists where shares in emerging market are thinly traded (Al-Abdulqader, 2003) and the detection of a stock market response to dividend announcements is unlikely. Furthermore, with many owner-manager firms, the news component of the dividend announcement may be relatively small since any information being conveyed may already be impounded in share prices because of insiders transacting on their privileged knowledge (Hassan and Power, 2009).

<sup>2</sup> Seven mutually exclusive classes of dividend announcements were studied: omissions, reductions (-1% to -99%), no changes, less than 10% increase, 10% to less than 25% increase, 25% or greater increase, and an initial payment. A small unusual return was found for the group having dividend change of over 25%.

<sup>3</sup> By contrast to the theory, the dividend-no-change firms earned a significant positive abnormal return; the authors suggested that this positive abnormal return could be due to the removal of uncertainty when no dividend change was announced.

<sup>4</sup> In order to study the information hypothesis of unexpected dividend change, the author used the Fama and Blasiak (1968) model for predicting future earnings. The result of this model was consistent with the previous regression model of a positive and weak relationship between unexpected changes in dividend and changes in future earnings.

<sup>5</sup> Furthermore, Pettit (1972) documented “virtually no earnings announcement effect” (p. 1002). The F-ratios for earnings announcements had insignificant p-values of 0.98 as compared to a highly significant value of 18.01 for dividends announcements in the announcement month. The results clearly showed that “substantial information is conveyed by announcements of dividend changes...a dividend announcement...may convey significantly more information than the information implicit in an earnings announcement (p. 1002).

<sup>6</sup> Moreover, Watts (1973) conducted sign tests and found no significant change in unexpected earnings associated with an unexpected change in the current dividend level.

<sup>7</sup> The author took a sample of 896 half-yearly dividend and earning announcements for 339 industrial companies over the period 1978-80. The author used abnormal return as his dependent variable and unexpected earnings, unexpected dividends and dummy variables as independent variables to examine interactions between the two signals. The author used the same 6 dummy variables that had been employed by Kane et al. (1984).

<sup>8</sup> The main focus of this research is on the KSE as the data employed has been taken from the Karachi exchange. However, there are two other stock exchanges currently operating in Pakistan: the Lahore Stock Exchange (LSE) and the Islamabad Stock Exchange (ISE). All the three stock exchanges are emerging stock markets (S&P Emerging Market Factbook, 2009). Only 14.0% of the turnover for Pakistani equities occurs on the LSE and about 1.0% relates to ISE equities compared to 85.0% of turnover recorded for the KSE (Iqbal, 2012).

<sup>9</sup> The work of Naeem and Nasr (2007) statistically showed that 38.0% of Pakistani firms paid dividend (which ranged from 0% to 2.5 % of earnings) to shareholders over a period 1999-2004.

<sup>10</sup> Companies Ordinance 1984, Section 248.

<sup>11</sup> The Securities and Exchange Ordinance 1969, Section 15D (1) and 15E.

<sup>12</sup> Zaman (2007) analysed the impact of different events (such as: issue of share, dividends, earnings, change in accounting policy, change in board of directors and bonus shares etc.) for the six companies belong to different sectors: National bank of Pakistan (NBP); Oil and gas development company limited (OGDCL); Dera Ghazi Khan cement company (D.G.Khan cement); Pakistan telecommunication company limited (PTCL); Pakistan tobacco company (PTC); and Unilever Pakistan limited. These firms were listed on the three stock exchanges of Pakistan - the KSE, the LSE and the ISE - from June 2000 to June 2005.

<sup>13</sup> The MAAR value of three and four days before the dividend announcement were higher than the MAAR value of announcement date; it may be due to leakage of information before the announcement date (Pettit, 1972; Uddin, 2003).

<sup>14</sup> The explanatory variables were used: sales for size of a firm, surplus for retained earnings, and market to book value for investment opportunities

<sup>15</sup> In addition, the study also found that profitability, size, and investment opportunities are significantly positively associated with dividend policy. The authors took a sample of 174 non-financial firms listed on the KSE from 2005-10.

<sup>16</sup> The data were only available from the KSE website from 2005 onward. The KSE also issues a daily newsletter about the market performance which includes dividend and earnings announcements; however, it was difficult to obtain all of these newsletters due to time constraints and missing issues in the different libraries that were checked.

<sup>17</sup> For example, in 2009, 18 firms declared semi-annual dividend while 7 companies paid quarter dividends besides the annual dividend disbursements.

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<sup>18</sup> The Securities and Exchange Commission of Pakistan (SECP) made it compulsory for listed firms to publish their financial statements on a quarterly basis (Code of Corporate Governance, 2002, Section (xx)). The quarterly reports include the earnings per share (EPS) details as well as whether the dividend was announced or not. All announcements about earnings and dividends must be disclosed via the stock exchange after a firm's BoD meeting so the dividend and earnings announcements are made usually on the same day.

<sup>19</sup> The sectoral classification of the firms were: 34 firms of Cotton and Other Textiles industry; 22 of Chemical and Pharmacy; 11 of Engineering; 10 of Auto and Allied; 12 of Sugar and Allied; 2 of Paper and Board; 2 Cables and Electric Goods; 19 of Cement; 17 of Fuel and Energy; 4 of Transport and Communication; 51 of Bank and Financial Institutions and 18 firms included Miscellaneous industries. The total market capitalisation (Rs. 2,228.0) of the 202 sample firms constitutes about 80.0% of the total market capitalisation of the KSE (Rs. 2,716.0 billion) in 2009 (KSE' website).

<sup>20</sup> H1 is split into many sub-hypotheses once the different changes in dividend are analysed separately.

<sup>21</sup> Day  $t_0$  is the announcement date as per the KSE website.

<sup>22</sup> Share Returns can be computed as dividend plus capital gain instead of only in terms of share price. i.e.,  $R_{it} = \ln(P_{it} + D_{it}) / P_{it-1}$  (Black and Scholes, 1974). Where,  $D_{it}$  is the dividend amount for the current year. However, the research concentrated only on share prices for share returns because (i) of non-availability of reliable dividend amounts; (ii) the method of calculating the share prices was adopted by other studies (Lonie et al., 1996; McCluskey et al., 2006), so it facilitates comparability.

<sup>23</sup> Many different estimation periods have been employed in the literature when calculating the market model parameters using Ordinary Least Square (OLS). For example, McCluskey et al. (2006) and Lonie et al. (1996) used 180 days while Abeyratna (1994) included 300 observations. The decision to estimate Equation [3] over 100 days was a pragmatic one based on the need for a time span sufficiently long to generate accurate estimates of  $\alpha_i$  and  $\beta_i$  without going back too far in case the estimates change over time (Strong, 1992; McCluskey et al., 2006).

<sup>24</sup> The change in DPS and EPS was measured as the absolute difference between the DPS and EPS of the current year with its counterparts in the previous year.

<sup>25</sup> The literature also showed the same six groups for the dividend-earning changes (Kane et al., 1984; Easton, 1991; Lonie et al., 1996 and McCluskey et al., 2006). The six groups are: Dividend-Increase Earnings-Increase (DIEI); Dividend-Increase Earnings-Decrease (DIED); Dividend-Decrease Earnings-Increase (DDEI); Dividend-Decrease Earnings-Decrease (DDED); Dividend-no-Change Earnings-Increase (DnCEI) and Dividend-no-Change Earnings-Decrease (DnCED). The number of observations in each group was: 206 in DIEI, 67 in DIED, 97 in DDEI, 87 in DDED, 109 in DnCEI and 73 in DnCED.

<sup>26</sup> For the regression analysis, the percentage change was calculated for all 639 DPS and EPS observations. The percentage change in EPS was calculated as:  $\Delta EPS = (EPS_{it} - EPS_{it-1}) / EPS_{it-1}$ . Here  $\Delta EPS$  is the change in the earning per share.  $EPS_{it}$  is the current year's earnings and  $EPS_{it-1}$  indicates the earning per share of the previous year. The percentage change in DPS was calculated by using the following formula:  $\Delta DPS = (DPS_{it} - DPS_{it-1}) / DPS_{it-1}$ . Here  $\Delta DPS$  is the change in the dividend per share.  $DPS_{it}$  is the current year's dividend and  $DPS_{it-1}$  indicates the dividend per share of the previous year. During the calculation, some percentage differences of DPS took infinite values due to having zero values in denominators; such values were excluded from further analysis. There were 91 cases with missing values, and so the remaining 548 observations constituted the sample. The number of events in each group was: 188 in DIEI, 52 in DIED, 98 in DDEI, 86 in DDED, 69 in DnCEI and 55 in DnCED.

<sup>27</sup> A variable (-, -) representing the DDED group was excluded from the analysis to avoid multicollinearity; it was incorporated into the intercept term of the regression equation (Kane et al., 1984). Therefore, the research assumed a negative value for the intercept to represent the joint bad news of DDED firms.

<sup>28</sup> The suggestion of Brown and Warner (1980) is worth acknowledging that: "t-tests...are reasonably well-specified...on the other hand, certain non-parametric tests used in event studies are not correctly specified...unless asymmetry in the distribution" (pp. 248-249).

<sup>29</sup> One reason for these insignificant unexpected returns is that insiders (owner-managers) are the major shareholders; some 40.0% of the equity shares in the Pakistani market are owned by directors and promoters (Lukman, 2010). Therefore, such information may be impounded in the share prices before the formal announcements and do not surprise many shareholders who can guess about the likely dividend news based upon their "inside" knowledge of the company's performance (Mollah, 2001).