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THE IMPACT OF DIVIDEND ANNOUNCEMENT ON STOCK RETURNS AMONG THE TEN TOP COMPANIES IN PAKISTAN

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Abstract

The study tested the response of stock prices around the dividend declaration dates in Pakistan stock exchange. It estimated the data of 1110 dividends announced by 91 firms of the highest ten active sectors of Pakistan Stock Exchange. To empirically investigate the relationship between stock returns and dividend announcement, the panel regression was employed by creating dummy variables for 61 days around the dividend declaration dates. Cumulative average abnormal returns and average abnormal returns were also estimated around the events with the help of event study methodology. Outcomes of the empirical analysis revealed strong evidence of market abuse in the term of insider trading and supported the argument of the information content hypothesis and semi-strong form of efficient market. Moreover, the study also found a robust impact of the probable ex-dividend date. The study recommended that it is a responsibility of stock exchange regulatory authorities, whistleblowers, registered companies, and the investors collectively to detect and punish this white-collar financial crime.

Keywords*: Dividend announcement, dividend irrelevance hypothesis, event study methodology, stock returns.*

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Introduction

The private entities aim to maximise their profits irrespective of their market structure. Public limited companies distribute dividend to its shareholders. Dividend is defined as the cost of equity capital to equity shareholders (Mehndiratta & Gupta, 2010). The dividend policy is the disbursement plan made by the board of directors of the corporation to decide the volume and type of payment given to the investors on their shares. Khan (2012) stated that investors are sensitive regarding dividend as it is a source of income for them and a tool to assess the performance of a corporation. Further, the announcement of dividends has different impact on share price of companies of different sectors wherein insider trading also influences the share prices. In this perspective, it would be important to investigate the impact of dividend announcement and inside trading on share prices of top ten sectors of Pakistan Stock Exchange (PSX).

Miller and Modigliani (1961) presented the policy irrelevance hypothesis which states that, in perfect markets and perfect information, it is the investment decision rather than the dividend which exerts an impact on share values. However, Gordon (1963) argued that dividend has a significant impact on share prices. Lintner (1956) provided the foundation for the dividend signaling theory which states that the behavior of the managers indicates to investors with a signal of increase in dividend which develops positive perception among the investors about forthcoming prospects of the investment. Similarly, the "information content of dividends" theory assumes that managers have more information than investors and dividend is a source of reducing asymmetric information among them. Correspondingly, the tax clientele effect (Baker, 2009) explained that as capital gain faces less tax than the ordinary income tax levied on dividend, it is better for a firm to reduce the dividend to increase the overall value of shares. However, the corporations still announce dividends which has become a puzzle and enigma for financial economists.

There are several factors like bonus issue, stocks split, rights issue and dividends which influence share prices directly and indirectly identified by various studies (Ahmed & Javid, 2008; Chaudhary, Hashmi & Younis,

2016; Mahmood, Sheikh & Ghaffari. 2011; Mehndiratta & Gupta, 2010; Mukora, 2013; Ngoc & Cuong, 2016; Nishat & Irfan, 2004; Rajamohan & Muthukamu, 2014; Rosario & Chavali, 2016).

The first research question of the current study is whether dividend announcements have a significant impact on the prices of the stocks of the top ten active sectors of PSX. The other research query is to check whether insider trading exists on the event of dividend announcement. This investigation would be valuable in financial economics as it will provide practical conclusions on the relationships of dividend policy and the performance of top active sectors of PSX.

Although there are many other studies that have been conducted in Pakistan, however, there is no study that has used the panel regression analysis with dummy variables around the dividend announcement dates and event study methodology by taking daily data with such a large sample size of top ten active sectors of PSX. Moreover, the study has computed short term, medium term and long term event windows as well as also constructed two estimated windows for the analysis which is clearly a novel contribution in the empirical work of this area.

Literature Review

Some studies such as Aharony and Swary (1980), Asquith and Mullins (1983), Venkatesh (1989) and Mukora (2013) found a direct association between dividends and stock returns. Moreover, the results of Below and Johnson (1996) supported the doctrine of information content hypothesis (ICH) that dividend conveys useful information to the investors. Habibullah and Baharumshah, (1999) and Abdullah, Rashid and Ibrahim (2002) also examined the efficient market hypothesis and ICH in Kuala Lumpur Stock Market (KLSE). Similarly, Sanda, Shafie and Gupta (2002) used a random walk hypothesis to investigate the behaviour of stock prices in KLSE. Saleh (2007) also provided evidence for the insider trading and leakages of information.

Rajamohan and Muthukamu (2014), Majanga (2015), and Sharif, Purohit and Pillai (2015) proved that the dividends had the strongest impact on stock prices. Rosario and Chavali (2016) narrated that the post-event average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) had a significant pattern in Oman stock exchange. Jahfer (2016) and Ngoc and Cuong (2016) also provided evidence for dividend signaling

theory in Vietnam and Colombo Stock Exchange, respectively. Similarly, the outcome of Swarnalatha and Babu's (2017) and Ozo and Arun's (2019) studies confirmed the signaling hypothesis as well. However, the results of the studies by Uddin and Uddin (2014) and Khurana and Warne (2018) were in favour of the dividend irrelevant hypothesis. Likewise, in the Dhaka Stock Market, Khan (2019) did not find the relationship between dividend announcements and stock returns. On the other hand, Kadıoğlu, Telçeken and Öcal (2015) analysed the tax-clientele effect in the Turkish Stock Exchange and stated that dividend announcements negatively related to stock price due to the higher tax rates on cash dividend relative to the capital gain. Nevertheless, Poornima, Morudkar, and Reddy (2019) found positive and negative impacts of dividend announcements on returns of private and public banks respectively with the help of event study methodology and panel regression model.

In the stock markets of Pakistan, Nishat and Irfan (2004), Nazir, Nawaz, Anwar and Ahmed (2010), Khan (2012) as well as Chaudhary et al. (2016) examined the behavior of share price volatility around the dividend announcements. Ahmed and Javid (2008) documented that current earnings and past dividends played a key role in smoothing the dividend strategy, and other variables like the concentration of investors, liquidity, size, leverage, profitability and investment prospects had a significant impact on dividend plan. The outcome of the Akbar and Baig (2010) revealed efficiency in semi-strong form, as well as Mahmood *et al*. (2011), documented the prevalence of insider trading in the Karachi Stock Exchange (KSE), Pakistan.

Methodology

There are many techniques available in the literature to estimate the impact of a specific event on stock prices. Authors like Chaudhary et al. (2016), Mahmood *et al*. (2011), Mehndiratta and Gupta (2010), Mukora (2013), and Rosario and Chavali (2016) applied event study methodology (ESM) to examine the responsiveness of a stock's value relative to the event. Similarly, Nazir et al. (2010), Kadıoğlu et al. (2015) and Sharif et al. (2015) calculated the reaction of share prices regarding different market variables using the random effects and fixed effects models. The present study has used both the ESM and panel regression analysis. Under the rationality of the market, the ESM is very much appreciated to capture the sensitivity of the share prices because Campbell and MacKinlay (1997) declared that event studies offer an idyllic instrument for investigating the information content of the disclosures and this methodology in extensively used for the empirical analysis.

Steps of Event Study Methodology

The initial step of the ESM is to identify the event. In our study, we treat the dividend announcement date as an event. After choosing the event, the ESM has the following steps:

Specify the Estimation Window

The estimation window is the time that is chosen before the event date to estimate the coefficients through Ordinary Least Squares (OLS) and these coefficients are then used to calculate the excess or abnormal return during the event window. Campbell and MacKinlay (1997) and Mahmood et al. (2011) recommended that the estimation window for each event can be 250 days and -21 to -270 days before an event, respectively. Peterson (1989) stated that for studies comprise daily data, the ideal length for the estimation window is from 100 to 300 days. However, Pynnoonen (2005) was in favour of a 120-days estimation window. The present study has used two estimation windows, the first is for 100 days and the second is for 300 days before the announcement. The logic behind using these two estimation windows is to estimate the parameters based on the minimum and maximum length[1].

Calculating Normal Returns for Stock and Market

The study takes daily data of closing price for the top ten active[2] sectors of PSX from 3rd January 2000 to 11th September 2017. The formula to calculate the normal return is given by Equation (1).

$$R_{it} = ln\left(\frac{P_{it}}{P_{it-1}}\right) \quad (1)$$

where R_{it} symbolises the normal return for the firm i during time t, P_{it} indicates the closed prices of the company i during time t and P_{it-1} represents the lagged value of the stock. For the calculation of market return, KSE-100 index is used as a benchmark using Equation (2).

$$R_{mt} = ln\left(\frac{P_{mt}}{P_{mt-1}}\right) \quad (2)$$

where R_{mt} represents market returns for the period t, P_{mt} indicates the closing price of the KSE-100 index during time t, and P_{mt-1} denotes its lagged value.

Estimating Abnormal Returns

Abnormal Returns (AR) are the deviation of the actual return from its expected or mean value. So, AR for the event windows have also been estimated. The

event windows are constructed around events like the declaration of dividend dates. Peterson (1989) declared that for daily data, the researchers may use 21 to 121 days as event windows. Rosario and Chavali (2016) created 39 days event window (±19), Chaudhary et al. (2016) made event window for ±7 days (15 days) and Mahmood et al. (2011) generated an event window for 51 days (-20, +30) to analyse the behaviour of stock prices. Some studies like Mukora (2013), and Rajamohan and Muthukuma (2014) created an event window for 61 days (±30).

The present study has constructed 15 (±7), 31 (±15) and 61 days (±30) event windows to investigate the short, medium and long term impact of dividend announcement on stock returns, respectively. Gunasekarage and Power (2006) used three trading days for the short run and 20 trading days in the long run. Similarly, Mehndiratta and Gupta (2010) constructed (±30) days for long-run analysis.

So, to calculate estimated returns, OLS technique on Equation (3) has been applied.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (3)$$

where R_{it} means normal returns of a firm i during time t and R_{mt} denotes returns of the KSE-100 index for time t. The parameters α_i and β_i are calculated using the OLS technique. In the given model, the assumption is that the disturbance term is independently and identically distributed having zero mean and constant variance. The period for this regression is the length of the estimation window. The estimated normal returns $(\hat{R}_{it})$ are then used to get abnormal returns shown by Equation (4).

$$AR_{it} = R_{it} - \hat{R}_{it} \quad (4)$$

AR_{it} in Equation (4) represents abnormal returns of i stock for time t, $\hat{R}_{it}$ and R_{it} are expected and actual returns respectively. Campbell and MacKinlay (1997) stated that the market model is an efficient model to extract the influence of an event because it eliminates the proportion of the variation in the stock prices which relates to the variation in the market index. Therefore, the difference of actual normal returns to expected returns is pure, which may help to notice the impact of the event on the share price.

Measuring the Average Abnormal Return

To clarify whether the dividend announcement has a significant impact on the stock returns, we must generate cumulative average abnormal returns

(CAAR) as well as average abnormal returns (AAR). The formula for AAR is given in Equation (5).

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \quad (5)$$

where shows abnormal returns and *N* is the number of the events. This AAR is generated for event windows, i.e. for 15 days event window (±7 days) where is the event date. Similarly, other event windows consist of 31 days (±15) and 61 days (±30 days).

Measuring Cumulative Average Abnormal Returns

CAAR is calculated for every given event window (15, 31 and 61 days) to analyse the behaviour of returns around the event. The method of computing of CAAR is as follows.

$$CAAR_t = \sum_{t=1}^{N} AAR_t \quad (6)$$

where *N* is the time span of event window.

Statistical Tests

The last step of the ESM is to check whether the estimated values of AAR and CAAR are statistically significant or not. For this purpose, the researchers use different tools like Z-test and t-test. The popular t-statistic was used by Brown and Warner (1980), Kadıoğlu *et al*. (2015), Mahmood, *et al*. (2011), Mukora (2013), Ngoc and Cuong (2016), Rosario and Chavali (2016), and Uddin and Uddin (2014). The null hypothesis $(H_0(H_0)$ is that is there no significant change occurring in stock prices around the dividend announcement date.

The formula for -test is written as:

$$t = \frac{AAR_t \text{ or } CAAR_t}{Standard\ Deviation} \quad (7)$$

Estimated t-test's value would be compared with. If H_0 *t*-value is larger then, is rejected.

Panel Data Analysis

The core advantage of the panel data technique is the investigation of the heterogeneity in cross sections and time units. This analysis has more freedom

and reliability because of the combined observations of each cross section. The present study used fixed effects and random effects models. Pynnonen (2005) suggested the following models for the event analysis.

$$R_{it} = \alpha + \beta_1 DBA_{it} + \beta_2 DAA_{it} + \mu_{it} \quad (8)$$

$$R_{it} = \alpha + \beta_1 DBA_{it} + \beta_2 DAA_{it} + \beta_3 Ti \quad (9)$$

where R_{it} is daily returns of stock *i* during period *t*, *DBA* and *DAA* are dummies for before and after the dividend announcement, respectively. The time variable is used for trend, α and β_1 are coefficients, and μ_{it} is the error term.

Data and Variables

For this study, top ten active sectors out of 35 sectors of PSX have been considered for the analysis. These sectors were nominated at the PSX's website on 26th October 2017. These sectors include Engineering (ENGR), Commercial Banks (BANK), Textile Composite (TEXT), Cable and Electrical Products (CAEP), Food and Personal Care Products (FPCP), Technology and Communication (TECH), Cement (CMNT), Fertiliser (FRTZ), Chemical (CHEM) and Oil & Gas Marketing Companies (OGMC).

The rationale behind the selection of top active sectors based on their turnover rate is that the top active sectors announce dividends frequently. Another criterion is the selection based on the capitalisation. However, there might be the problem of activeness (profit) of the stocks as it could be possible that with a massive capital, the sector may not be acting well, and resultantly, incapable of giving a dividend to its shareholders.

Table 1

Top Ten Active Sectors of the Pakistan Stock Exchange Limited

Sectors	Turnover (%)	Capital (Billion RS.)	Total companies	Number of companies[3]	Number of announcements
ENGR	14.4	167.060	8	8	76
BANK	12.0	1414.769	23	8	147
TEXT	11.2	220.211	56	24	180

(continued)

Sectors	Turnover (%)	Capital (Billion RS.)	Total companies	Number of companies[3]	Number of announcements
CAEG	7.9	53.102	8	3	36
FPCP	7.0	829.551	12	11	153
TECH	6.8	103.767	4	2	50
CMNT	6.8	530.374	21	11	109
FRTZ	5.1	515.574	7	5	104
CHEM	4.4	294.141	21	15	190
OGMC	3.9	362.551	8	4	65

For this study, the data on the closed prices of each stock, KSE-100, and dates of dividend declaration are taken from the business recorder's and PSX's website for the period between January 2000 and September 2017. The descriptive statistics of each sector are given in Table 1.

Results and Discussion

Results Based on the Panel Regression Model

For the econometric analysis, the study divides the panel regression into two models based on Equations (8) and Equation (9)[4]. The results of the random effects and fixed effects models for both equations are presented in Table 2. The results reveal that the dividend declaration has no substantial impact on the stock prices in both models for all sectors.

The value of the coefficient of the post-announcement dummy in Table 3 depicts that the BANK, TEXT, CAEP, TECH, and CMNT sectors have a substantial impact of the announcement on their prices. However, ENGR, FPCP, FRTZ, CHEM and OGMC sectors are in favour of the dividend irrelevance hypothesis due to insignificant values of the dummies. In contrast to the post event dummy, the value of the parameter of the pre-announcement dummy is only significant for commercial and chemical sectors which is an evidence of insider trading in these sectors.

Moreover, for the suitability of the models, the study indicates that the outcomes of the Hausman test with the null hypothesis is that the random effects model is more fitting than fixed effects model. If the value of X^2 is significant or probability, given in parenthesis, is less than 5 percent then we can reject. RE model in favor of FE model. The estimated statistics of the Hausman test, in Table 2 and Table 3, reveals that fixed effects model is suitable for almost all the given regression analysis.

Table 2

Results of Panel Regression Model for Overall Data

Variables	Model Without Trend		Model with Trend	
	FE	RE	FE	RE
Constant	0.03*** (3.03)	0.03*** (2.96)	0.01 (0.84)	0.01 (0.81)
DBA	0.02 (0.65)	0.03 (0.84)	0.02 (0.53)	0.02 (0.72)
DAA	-0.03 (-0.84)	0.02 (-0.69)	-0.03 (-0.96)	-0.02 (-0.80)
Time	-	-	0.00 (1.03)	0.00 (1.00)
F-Stats	0.66	1.31	0.79	2.30
p value	0.51	0.51	0.49	0.51
N	307762		307762	
n	91		91	
T	3382		3382	
Hausman	0.60 (0.74)		0.67 (0.71)	

Note: *, **, and *** indicate significance at 10%, 5%, and 1% level of significance, respectively. FE and RE are Fixed Effects and Random effects models respectively.

Table 3

Results of Panel Regression for Each Sector

Sectors	Engineering	Commercial banks			Textile composition		Cable & electrical good		Food & personal care products	
Variables	FE		FE	RE	FE	RE	FE	RE	FE	RE
Constant	0.03 (0.60)	RE	0.03* (1.94)	0.02 (1.57)	0.00 (0.01)	-0.00 (-0.02)	0.04 (1.38)	0.04 (1.32)	0.10* (1.82)	0.10* (1.76)
DBA	0.18 (1.06)	0.03 (0.64)	0.049 (0.97)	0.082* (1.67)	0.08 (0. 91)	0.09 (0.97)	0.101 (0.96)	0.11 (1.10)	-0.26 (-1.53)	-0.24 (-1.45)
DAA	-0.03 (-0.22)	0.17 (1.02)	-0.30*** (-5.86)	-0.26*** (-5.39)	0.37*** (4.00)	0.37*** (4.09)	-0.18* (-1.73)	-0.17* (-1.65)	-0.22 (-1.30)	-0.20 (-1.22)
F-Stats	0.63	-0.04 (-0.29)	19.10	34.28	8.17	17.22	2.25	4.38	1.78	3.22
p value	0.53	1.20	0.00	0.00	0.00	0.00	0.105	0.11	0.17	0.20
N	27056	0.54	27056		81168		10146		37202	
N	8		8		24		3		11	
T	3382		3382		3382		3382		3382	
Hausman	0.06 (0.96)		6.48 (0.04)		0.13 (0.93)		0.41 (0.814)		0.47 (0.790)	

(continued)

Sectors	Technology & communication		Cement		Fertilizer		Chemical		Oil and gas marketing companies	
Variables	FE	RE	FE	RE	FE	RE	FE	RE	FE	RE
Constant	0.04	0.03	0.06**	0.06***	0.003	-0.00	0.03**	0.03**	0.02	0.10*
	(1.25)	(1.11)	(3.80)	(3.77)	(0.11)	(-0.07)	(2.41)	(2.38)	(1.11)	(1.76)
DBA	-0.09	-0.07	-0.04	0.04	0.04	0.054	0.09**	0.10**	0.008	-0.24
	(-1.05)	(-0.86)	(-0.83)	(-0.74)	(0. 68)	(0.94)	(2.27)	(2.41)	(0.12)	(-1.45)
DAA	-0.16*	-0.14*	-0.11**	-0.11**	0.08	-0.07	-0.027	-0.024	-0.10	-0.20
	(-1.94)	(-1.75)	(-2.05)	(-1.98)	(-1.51)	(-1.31)	(-0.64)	(-0.58)	(-1.30)	(-1.22)
F-Stats	2.12	3.37	2.28	4.27	1.75	3.28	3.13	6.63	1.30	3.22
p value	0.12	0.18	0.10	0.11	0.17	0.19	0.04	0.03	0.27	0.20
N	6764		37202		16910		50730			13528
N	2		11		5		15			4
T	3382		3382		3382		3382			3382
Hausman	2.27		0.41		1.01		0.13			0.00
	(0.32)		(0.81)		(0.60)		(0.93)			(0.99)

Note: *, **, and *** indicate significance at 10%, 5%, and 1% level of significance, respectively.

Results of Event Study Methodology

Table 4 depicts that the values of AAR are significant not only on the event day but also around the event in TEXT, FPCP and for the data of all sectors which disapproves the dividend irrelevance hypothesis and reveals the dominance of insider trading in PSX. Moreover, BANK, CAEG, and CMNT sectors have statistical meaningful values of AAR after the event date, which also proves that dividend announcements influence substantially to the stock returns. However, on the basis of AAR, it can be concluded that ENGR, TECH, FRTZ, and OGMC support dividend irrelevance theory.

Table

Results of Event Study Methodology for All Sectors

Sectors	AAR			CAAR 61 days		
	Before event	Event Dday	After event	Before event	Event day	After event
EMGR	No	No	No	Yes***	Yes***	Yes***
BANK	No	No	Yes*	No	No	No
TEXT	Yes*	Yes**	Yes*	Yes*	No	Yes***
CAEG	No	No	Yes*	Yes**	Yes**	Yes**
FPCP	Yes**	Yes**	Yes*	Yes**	No	No
TECH	No	No	No	No	No	No
CMNT	No	No	Yes*	No	No	Yes**
FRTZ	No	No	No	Yes**	Yes*	Yes*
CHEM	Yes*	No	No	Yes*	Yes*	Yes***
OGMC	No	No	No	No	No	No
All Sectors	Yes**	Yes**	Yes*	No	No	Yes**
	CAAR 31 Days			CAAR 15 Days		
EMGR	No	No	Yes***	Yes***	No	No
BANK	No	Yes*	Yes***	No	Yes*	Yes***
TEXT	No	Yes*	Yes*	Yes**	Yes**	Yes**
CAEG	No	Yes**	Yes**	Yes**	Yes**	Yes*
FPCP	Yes**	No	No	Yes**	No	No
TECH	Yes*	Yes**	Yes**	Yes*	No	No
CMNT	No	No	Yes**	Yes*	Yes*	No
FRTZ	Yes**	Yes***	Yes***	Yes**	No	No
CHEM	No	No	Yes***	No	No	Yes***
OGMC	Yes**	Yes***	Yes***	No	Yes*	Yes***
All Sectors	No	No	Yes*	Yes*	No	Yes*

Note: *, **, and *** indicate significance at 10%, 5%, and 1% level of significance, respectively

The Short Run and Long Run Analysis of AARs

The values of AAR for 61 days' window can be used for the short term and long-term analysis. Table 5 shows the signs of AAR in the given time span around the events. Most of the calculated values of AAR before the event are positive and remain positive after the announcement until day 10. Similarly, the table also reveals that AAR turns to negative by the tenth day (t = 10) to onward days because of the possible ex-dividend or book closure date.

Moreover, on the dividend announcement date (t = 10), numerous sectors portray a positive sign with the values of average abnormal returns. This demonstrates that there are abundant chances for excess returns around the announcement date. This confirms the notion of semi-strong form of efficient market that the stock prices reflect all available information as well as the information which is not readily available to the public and can help the investors to surge their returns from the market average.

Table 5

Signs of Maximum Values of AARs for Short Run and Long Run Analysis

Sectors	*-30 to -10*	*-10 to 0*	*t = 0*	*0 to 10*	*10 to 20*	*20 to 30*
ENGR	*positive*	*positive*	*positive*	*positive*	*negative*	*negative*
BANK	*positive*	*positive*	*positive*	*positive*	*negative*	*negative*
TEXT	*positive*	*negative*	*negative*	*positive*	*negative*	*positive*
CAEP	*positive*	*positive*	*positive*	*positive*	*negative*	*negative*
FPCP	*positive*	*positive*	*positive*	*positive*	*negative*	*negative*
TECH	*positive*	*negative*	*negative*	*positive*	*negative*	*positive*
CMNT	*negative*	*positive*	*positive*	*negative*	*negative*	*negative*
FRTZ	*positive*	*positive*	*negative*	*positive*	*negative*	*negative*
CHEM	*positive*	*negative*	*positive*	*positive*	*negative*	*negative*
OGMC	*positive*	*positive*	*positive*	*positive*	*negative*	*positive*
Overall	*positive*	*negative*	*positive*	*positive*	*negative*	*negative*

Conclusion

The dividend plan has found a significant place in the financial economics literature, however, the findings of literature are contrary to each other. The

results of panel regression analysis reveal that some sectors have significant evidence of the market abuse in term of insider trading and have substantial relationships between the dividend declaration and stock prices. Similarly, the positive significant values of AAR, calculated from ESM, before the event indicate the notion of insider trade, whereas positive significant values of AAR after the event show that the stock market is a semi-strong efficient market and has arbitrage opportunities for high profit.

The results support information content hypothesis that assumes managers have more information than investors, which causes insider trading in Pakistan, and the dividend is a source of reducing asymmetric information among them. Moreover, the significant values of AAR around the event support semi-strong efficient hypothesis as the stock prices reflect currently available information like dividend announcements and information leakages.

By generalising the results, it clearly reveals that almost all sectors of PSX are facing the problem of insider trading. We should eliminate this white-collar financial crime that is considered rampant in PSX. Investors are shy to take part in PSX and lose confidence due to this market abuse. It is a legal obligation of The Securities and Exchange Commission of Pakistan (SECP) to abolish the market abuse through proper regulations and their implementation. Section 15 of Securities and Exchange Ordinance 1969, which deals with this pecuniary misconduct, should be rationalised.

Moreover, to overcome this market abuse, SECP should create efficient surveillance wing through software with a huge database, provide exclusive recognising code for every client[5], rationalise group accounts of stocks in the Central Depository System, eliminate off-system trades by stockbrokers and use the broad information-connection[6]. Additionally, in the meeting of the board of directors, when they decide for the dividend payments, they should announce the dividends on the meeting day rather than on the upcoming days. In this way, there is no asymmetric information that boosts the insider trading. Precisely, it is a teamwork of the stock exchange, whistleblowers, registered companies, and the SECP collectively detecting and punishing this white-collar financial crime.

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Endnotes

[1] The results of both estimated windows are identical. So, the study only discusses the outcomes of 300 days estimated windows.

[2] Authors selected the top ten active sectors on 26-Oct-2017 from the website Pakistan Stock Exchange.

[3] Only includes companies which announce the dividends in given date.

[4] The results of panel regression analysis are only presented here for equation (8) because there is no significant difference between the results of equation (8) and equation (9).

[5] This system has already been implemented in India.

[6] This is used in Australia.