Do Dividend Changes have Informational Content to Signal the Market ? Evidence from the Indian Stock Market

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Abstract

This paper analyzed the signalling effect of stand-alone dividend decisions on the market prices of listed companies in the emerging Indian economy ; 158 events pertaining to 103 companies common to Bombay Stock Exchange (BSE) and National Stock Exchange of India Ltd. (NSE) were selected. GARCH (p q) model for the calculation of abnormal returns during the event window of 61 days for the period of 10 years was applied. The findings are indicative of the absence of signalling effect amidst inefficiency of the market for all levels of changes in stand-alone dividend announcements.

Keywords : dividend, signalling theory, market efficiency, event study, GARCH (p q), Indian stock market

JEL Classification : G100, G140, G180

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ividend is one of the important events that companies use to convey information to outsiders. The information content acts as signalling to the market affecting share prices. This concept is associated with Bhattacharya (1979), who systematically presented a theoretical model of signalling or information content hypothesis. Later on, John and Williams (1985) and Miller and Rock (1985) suggested that asymmetric information exists between managers and outsiders and managers use dividend to signal future prospects of a firm. The decision related to dividend pay-out ratio is based on future expectations of managers. The effect of dividend decisions and its impact on firms value remains a puzzle for researchers (Black,1976) with theoretical constructs of signalling theory being questioned, demanding empirical research for any market to hold true (Allen & Michaely,1995 ; Bhattacharyya, 2007).

Effect of dividend change announcement on share prices is widely studied in developed countries like the U.S., UK, Germany, Norway, and Australia. Pettit (1972) ; Lonie, Abeyratna, Power, and Sinclair (1996) ; Aharony, Falk, and Swary (1988) ; Nissim and Ziv (2001) ; and Gunasekarage and Power (2002, 2006) observed that changes in dividend generated abnormal returns. The magnitude of dividend change as a variable affecting abnormal returns was also studied by Brickley (1983) ; Wansley, Sirmans, Shilling, and Lee (1991) ; and Lee and Yan (2003) with varying results in different markets.

Healy and Palepu (1988) ; Benartzi, Michaely, and Thaler (1997) ; Butler, Grullon, and Weston (2005) analyzed dividend reduction events and found increase in future earnings, which runs contrary to the dividend signalling propositions. John and Lang (1991) explained that this is due to insider activism during dividend announcement periods, due to which changes in dividends may not fully reflect share prices and the fact that opposite direction price reaction can also be caused by supply-demand gap.

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The contradictory literature related to dividend signalling motivated this study to test signalling theory. Bombay Stock exchange (BSE) and National Stock exchange (NSE) ranked 11 and 12 respectively in the world on the basis of market capitalization (World Bank, 2016) and number one in terms of volume of trading ("World top stock exchanges, NSE is no. 1.," 2013). Therefore, to examine the signalling theory empirically, I had taken companies listed on the Indian stock market.

Literature Review

Dividend change and effect on future earnings have been an important issue in the field of valuation of the firms. In this direction, Nissim and Ziv (2001) analyzed the association of level of dividend changes to future earnings, finding support in the direction of signalling theory that dividend changes are positively related to future earnings, while the results indicated asymmetric impact of dividend increase and decrease on future earnings. In this direction, Best and Best (2001) also supported signalling effect of dividend announcement, while their results showed that dividend change conveyed future earnings expectations of managers on the basis of past earnings performance. They also used earnings forecast error hypothesis to observe the magnitude of effect of dividend changes, and found that earnings forecast error was a more effective signal than earnings forecast.

Balachandran (2003) analyzed the event interim as well as final dividend reductions. His findings showed that prices reacted positively to the events, while the impact of announcement was not long lasting, and prices reverted to their original position within a month. This study also showed that the intensity of effect depended upon the size of change in dividend, and also observed that changes in interim dividend announcement had more impact on share prices as compared to final dividend announcements. Mougoue and Rao (2003), unlike the preceding studies, applied cointegration and causality test to see the time-based relation between dividends and earnings, and found sufficient evidence in favour of information content of signalling theory, while categorization of firms into signalling and non-signalling did not provide any dissimilarity among these two types of firms.

Kiete and Uloza (2005) and Vega (2006) observed the semi strong form of Lithuanian stock exchange generating profit to investors due to abnormal returns generated by the market in response to the announcement of events. The study of Thailand Stock Exchange - using event study methodology to know the price behaviour of stocks surrounding the dividend announcement day - by Suwanna (2012) confirmed that dividend announcements have a significant impact on share prices. The study for Australian companies to understand the interaction effect of timing of dividend announcements and their informational content by controlling the effect of share repurchase and tax effect for the events' semi-annually smaller interim dividend payments and larger final dividend payments by Balachandran, Krishnamurti, Theobald, and Vidanapathirana (2012) found that events' share repurchases were strongly associated with future abnormal returns. The findings of Balachandran et.al (2012) also showed that the impact of interim dividend announcement was more abrupt than the final dividend announcements. Stankevicience and Akelaitis (2014) observed a signalling impact on the share prices in Lithuanian stock market and how this relation was affected by different categories and types of announcements was in conformity with signalling theory.

The study of Cheng, Fung, and Leung (2007) for Hong Kong market for two types of events earnings forecast and dividend announcement found contradictory results and concluded that unexpected dividend and earnings changes announcements are stronger signals than routine announcements, and in dividend and earnings announcements events, dividend change announcements are stronger signals as compared to earnings change announcements. Analysis to compare the life cycle hypothesis of the organization and signalling hypothesis found that signalling effect is more reflective in case of earnings increases, while maturity hypothesis is more reflective in case of earnings decline.

The study by Bozos, Nikolopoulos, and Ramgandhi (2011) for London Stock exchange (LSE) (where unlike Hong Kong, stock market earnings and dividend news are announced simultaneously) analyzed dividend

signalling hypothesis with the interaction of dividend and earnings under steady and adverse economic conditions. They found significant abnormal returns around dividend /earnings announcements. Their study of exogenous variables like economic condition along with dividend announcements showed asymmetric informational content for the event dividend announcement in the state of stable economic condition and in the recessionary state of economy.

Motives of managers to change dividends and prospects for future earnings as a signal, Braggion and Moore (2011), and later on, Liu and Chen (2015) found that current earnings rather than asset and past earnings affected future prospects to cater clientele's effects, while dividend changes had a negative impact on return on assets. It showed that dividend changes are not effective signals to be used for future prospects of firms, and perhaps, managers will give up using this event as a tool of signalling hypothesis to signal their earnings prospects for a future period. The study by Elfakhani (1998) analyzed accounting information and dividend change announcement effect with structured signal under the category of good, bad, and ambiguous along with the direction of dividend changes. The study supported that signalling propositions as a strong signal may be used to signal future prospects of the firms. Fuller (2003) studied interactive effect of various groups of investors like traders (i.e. liquidity traders and uninformed traders), firms' insiders (i.e. informed traders), and the market. Through interaction of these three groups, Fuller (2003) tried to find why all dividend increases were not viewed by the market as good news. Fuller (2003) used buy and sell forces to find the reason for the negative reaction for dividend increase announcement and found that informed traders strategically defied the effect of positive signals, are were responsible for such type of reactions in the market.

The event dividend reduction was analyzed by Jensen, Lundstrum, and Miller (2010) to find the impact of dividend reduction on firms' performance. They found that firms used such activities to build their financial resources. They claimed that their findings were anomalous to the findings of the past studies. This was reflected in the form of earnings rebound, while the dividend reduction was perceived negatively by investors and caused damage to a firm's competitive position in the market. The study of Chinese stock market by Chen, Liu, and Huang (2009) to ascertain the effect of cash dividend change announcement on share prices showed positive reaction in share prices, while they found partial support for signalling hypothesis because event dividend reduction was also taken positively by investors and was reflected through upward movement in share prices. McCluskey, McBurton, Power, and Sinclair (2006) studied signalling theory for Irish stock market and found significant impact of dividend announcement on share prices. They found that if earnings and dividends are announced simultaneously, earnings are a more powerful signal than dividend announcements and showed partial agreement with dividend signalling hypothesis.

Bali (2003) also studied stock returns around the dividend change announcement period. His findings showed that the magnitude of change in share prices due to response to change in dividend was not symmetric, that is, the impact of increase in dividend was moderate to decrease in dividend. The findings also suggested that adjustments in share prices are not instant when dividend change announcements are made, and prices are gradually adjusted in the post announcement period. Hussainey (2009) categorized all the firms in two segments, that is, profit and loss making, to study the effect of dividend payment on share prices of firms and found that loss-making firms showed a significant change in share prices, while in case of profit making firms, association of change in share prices due to change in dividend was moderate and insignificant. He provided partial evidence in support of the signalling hypothesis.

Peterson (1996) structured his study in such a way that impact of dividend announcement could be fully observed on share prices. The results of this study abruptly rejected signalling hypothesis that dividend is not able to convey information to the market due to noisy signal and earning power of firms are negatively affected. He concluded that either there is no impact or a negative impact is observed on the share prices of such announcements. Lee and Yan (2003) categorized all the dividend events into two parts - forward looking dividend and backward looking dividend. They used Granger causality test to find the effect of these two types of

events and found that forward looking dividend affected share prices and conveyed information to the market, while backward looking dividend was not able to signal future earnings. It was found to be only capable of reflecting current and past earnings. Cohen and Yagil (2009) rejected the signaling hypothesis by analyzing the reason of dividend change announcement by firms and found that firms which were financially distressed changed dividend as compared to financially stable firms to attract investors and influenced the share prices of securities, while the firms whose earnings were stable did not depend on dividend to signal any of the information to the market. Booth and Chang (2011) also grouped all the dividend paying firms into two categories, one which were regular dividend paying and the other which did not pay dividend on a regular basis. The findings suggested that prices of firms that do not pay dividend regularly have more pronounced prices as compared to regularly dividend-paying firms. The authors (Booth & Chang, 2011) agreed with the hypothesis that dividend has signalling power to convey asymmetric information to the market.

The study by Chen and Fu (2011) for the U.S. market for the unexpected dividend change announcement and its impact on abnormal returns showed consistency with the free cash flow hypothesis, while their findings did not support the signalling hypothesis. Hobbs and Schneller (2012) also analyzed signalling effect of dividend sustainability. Their findings were inconsistent with the signalling proposition, while dividend was more associated with future operating performance of a firm. The study found that investors did not differentiate between permanent and temporary payers of dividend, while the differentiation was made on the basis of past performance, earnings volatility, and firm size. Along the same line, the study by Andres, Betzer, Bongard, Haesner, and Theissen (2013), about naive dividend change and analyst forecast dividend change called dividend surprise, found that prices reacted to dividend surprise announcement, not to dividend change announcements. They also observed that dividend surprise was a stronger signal as compared to earnings announcements.

Selvam, Babu, Indhumathi, and Kogila (2010) examined the impact of dividend on share prices in Indian economy and found not much significant impact on the value of shares for the event bonus shares announcements. The study by Ryaly, Kumar, and Urlankula (2014), to test the market efficiency of Asian stock markets, including Indian stock markets, found reasonable evidence of weak-form of efficiency of the Asian stock markets. The study by Mohapatra and Yadav (2014) on the events merger and acquisitions found significant impact on share prices.

The theoretical aspect of dividend signalling hypothesis and literature review related to empirical studies shows mixed results. These studies are based on different parameters associated with different time frames and markets consisting of developed, developing, and growing economies, providing mixed results. From the literature review, it is very clear that without going through empirical analysis, one cannot claim the validation of signalling hypothesis for any market. Therefore, empirical analysis of signalling hypothesis for an emerging market like India became prominent, which is one of the top three economies of the world in terms of purchasing power parity and ninth in terms of nominal GDP (World Bank, 2015a, 2015b) and is one of the top growing economies of the world in terms of growth rate in real GDP (IMF World Economic Outlook (WEO), April 2015). The listed companies, their market capitalization, and trading volume also motivated me to study the Indian stock market to know the signalling effect of dividend announcements.

Objectives of the Study

↳ To examine the signaling effect of dividend change announcement on the market price of companies listed on the Indian stock market.

↳ To determine if any abnormal returns are generated by the market in response to dividend change announcements.

Hypotheses

Based on the objectives of the study, I formed two null hypotheses:

✤ H_{01} : There is no signalling effect of dividend change announcement on the Indian stock market.

✤ H_{02} : No abnormal returns are generated by the market in the period of event window in response to dividend change announcements.

Data and Methodology

For the study of signalling effect of dividend decisions, I used CMIE Prowess 4.1 database to select the companies and events. The events were selected from all the listed companies in two leading stock exchanges of India called National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). The selection of the final companies was done on the basis of the criteria of multistage sampling technique, taking in view the objective of liquidity and transparency for selected companies and events. The time span of 10 years from the financial year 2001-02 to financial year 2010-11 was covered to moderate the impact of macro-economic events occurring simultaneously along with the events announced by the sample companies. The final selection of the companies was based upon the characteristics of regular announcement of dividend and actively daily traded in both the stock exchanges during the period of the study. The procedure to select 103 companies is given in the Table 1. The break-up of 103 selected companies into large cap, mid cap, and small cap, representing respective indices is presented in the Table 2.

(1) Event Selection : Gurgul, Mestel, and Schleicher (2003) and Dasilas and Leventis (2011) defined the events announcement date as the very first official statement on dividends of the executive board of the analyzed company. This study focuses on signalling effect of dividend decisions on companies listed on the Indian stock

Table 1. Sample Selection Procedure

Steps	Procedure and criterion of selection of companies and events	No. of companies selected (as on June 2011)	
		NSE	BSE
Step 1	Start with all the listed companies on NSE and BSE.	1686	5045
Step 2	Identification of companies which have at least 10 dividend events including interim and final dividend over the 10-year period from financial year 2001-2002 to 2010-2011.	816	1147
Step 3	Identify those dividend paying companies which are common to NSE as well as BSE stock exchanges.	627	
Step 4	Categorize companies identified in step 3 into large cap, mid cap, and small cap.	627	
Step 5	Selected only those companies from each category for event selection if they are in respective Indices of BSE as well as NSE.	103	
	Total number of companies selected	**103**	

Source: Computed from Prowess 4.1 data

Table 2. Break-up of Selected Companies Based on Respective Market Capitalization Commonly Representing in Indices of Respective Stock Exchanges

Sensex/Nifty 50 (Large Cap)	BSE- Mid Cap/S&P -NSE Mid Cap	BSE- Small Cap/S&P -NSE Small Cap	TOTAL
24	15	64	103

Source: Computed from Prowess 3.1 data

Table 3. Number of Different Types of Dividend Related Events

Total no. of companies selected	Total no. of dividend related events announced from FY 2001-2002 to 2010-2011	Standalone dividend events	Dividend along with financial results	Dividend announcement along with and other events excluding declaration of financial results	Dividend along with declaration of financial results and other events
103	1259	306	878	21	54

Source: Computed from Prowess 4.1 data

Table 4. Number of Isolated Dividend Alone Events in the Window Period of 61 Days

Total no. of companies selected	Div. alone events announced by large cap companies	Div. alone events announced by mid-cap companies	Div. alone events announced by small companies	Total no. of events relevant for study
103	42	15	101	158

Source: Computed from Prowess 4.1 data

Table 5. Number of Events Selected Based on Percentage Changes in Dividends

S. No.	Dividend change category	Number of isolated dividend events			
		Large Cap Companies	Mid Cap Companies	Small Cap. Companies	Total
1	Increase of minimum 10%	0	0	15	15
2	Decrease of minimum 10%	0	0	0	0
3	Increase of minimum 15%	0	9	14	23
4	Decrease of minimum 15%	0	0	7	7
5	Increase of minimum 20%	11	0	9	20
6	Decrease of minimum 20%	0	0	0	0
7	Increase of minimum 25%	9	0	11	20
8	Decrease of minimum 25%	7	0	16	23
9	Increase of minimum 50% or above	15	6	22	43
10	Decrease of minimum 50% or above	0	0	7	7
	Total number of events	**42**	**15**	**101**	**158**

Source: Computed from Prowess 4.1 data

market. The behavioural aspects of dividend announcement by Indian companies are such that more than 75% of the dividend related events are announced along with some other events. Therefore, dividend related decisions have been categorized into dividend alone, dividend along with financial results, dividend along with other events except financial results, dividend along with financial results, and other events. The description of all these events is given in the Table 3.

Bozos et al. (2011), in their study on signalling theory for London Stock Exchange, analyzed the dividend paying behaviour of UK stock market listed companies along with the U.S. market. The dividend announcing behaviour of companies listed on the Indian stock (Yarram, 2002) is similar to dividend paying behaviour of companies listed on the UK and Hong Kong stock markets.

In order to perform event study analysis, it is necessary to exclude such cases where other events are announced during the window period. On the basis of the above criteria, the number of isolated dividend-related events falling in the window period of 61 days is 158. The break-up is given in the Table 4. The Table 4 shows that the events selected are categorized as large cap, mid cap, and small cap, and are not much in numbers in the time span of 10 years, and all listed companies in the Indian stock market were taken for the study, showing that companies listed on the Indian stock market are reluctant to change dividend (Balasubramanyam & Nayak, 2013), as they

may follow growth strategies to exploit opportunities through retained earnings. Literature also provides input for the study of events, and one must decide the event window. Different researchers defined different time frames for the event window such as 21 days (Dasilas & Leventis, 2011), 41 days (Chen et al., 2009), and 71 days (Brio, Miguel, & Perote, 2002).

Considering all the studies and constraints of an emerging economy with evolving capital market, I chose a 61-day period as the event window for the study of signalling effect of dividend announcement. For the purpose of analyzing changes in dividends for all the selected companies classified as large cap, mid-cap, and small - cap companies, I grouped percentage changes in dividends into 10 categories as shown in the Table 5.

Thus, a total of 158 isolated events from 103 sampled companies constituted our sample frame for the analysis of dividend alone events.

Figure 1. Based on the Calculated Values Shown in Appendix A1 to A5 Using GARCH (p, q) Model for Dividend Alone Increase Announcements, Categorized into 10%, 15%, 20%, 25%, and 50% and above
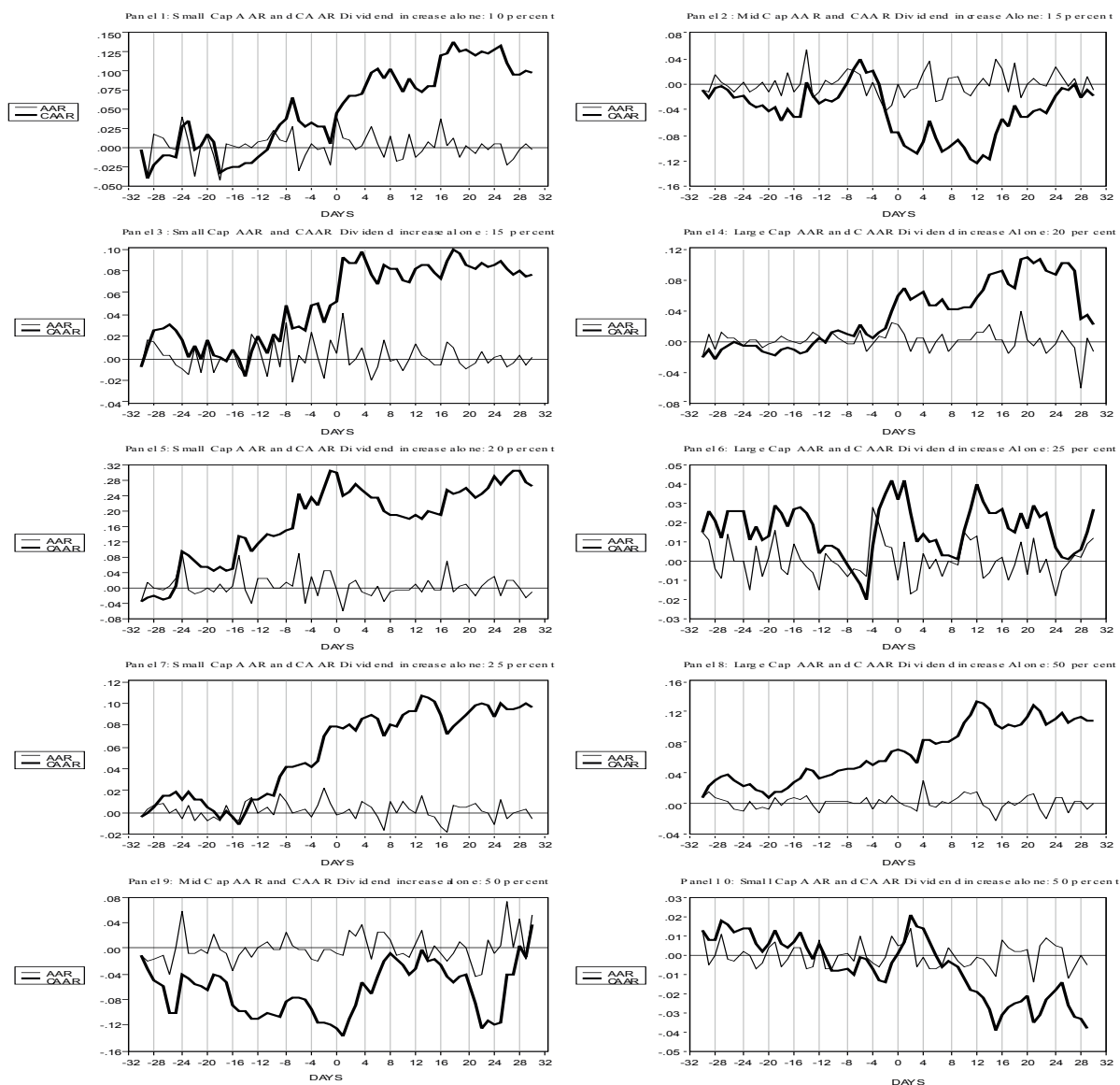
(2) Methodology : GARCH (p, q) market model was applied for the calculation of abnormal returns as proposed by Sharma and Pandey (2014) in their study of event analysis dividend along with financial results and events dividend initiation and omission for companies listed on the Indian stock market. This was originally proposed by Bollerslev (1987). The daily returns of individual scripts and of the market accordingly were calculated using closing BSE share prices for each of the 103 companies and S&P BSE SENSEX closing values for BSE's index returns, respectively.

Analysis and Results

The event analysis has been carried out for each category of dividend alone events as explained in the research methodology. The Table 5 shows the events finally selected for the analysis in the categories of 10% to 50% or above. Events belonging to the categories 10% dividend increase, only small cap; 15% dividend increase, mid and small cap; 20 and 25% dividend increase, large and small cap; and in case of 50% and above, large, mid, and small cap companies' events were studied. In case of dividend decrease announcements, category wise, 15% small cap, 25% large and small cap, 50% and above only events of small cap companies were analyzed.

(1) Events - Dividend Increase Announcements : The calculated *AAR* and *CAAR* values [Appendix A1 to A5 were plotted for the 61 days event window and are given in the Figure 1 depicting trend in *AAR* and *CAAR*. The trends associated in daily *AAR* and *CAAR* for the respective events over the event window shows that change in dividend has no significant effect on the share prices, except in case of small cap companies. A 10% change in

Table 6. Testing of Hypotheses at 5% Significance Level for the Events - Dividend Increase Announcements
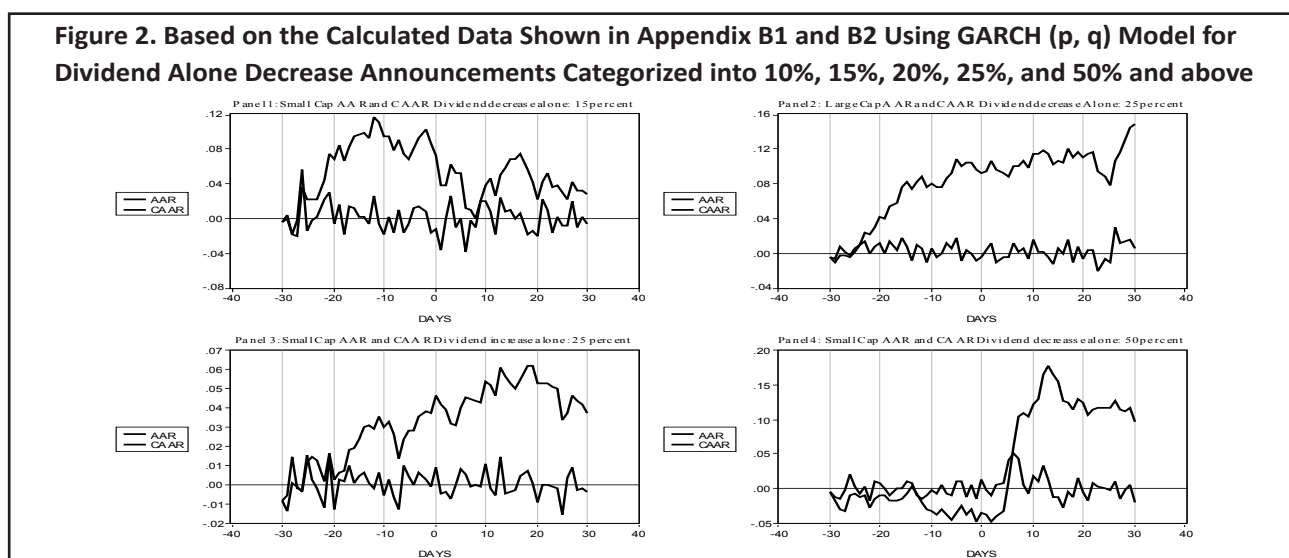
S. No.		Event day statistics			Result
	Null Hypothesis	**ARR[a]**	***t*-stat.[a]**	***p*-stat[a]**	
H:1.1	10% change in dividend increase announcement for the small cap companies is not associated with subsequent change in share price.	0.0395	2.3612	0.0215	Null hypothesis not accepted
H:1.2	15% change in dividend increase announcement for the mid cap companies is not associated with subsequent change in share price.	0.0007	0.0394	0.9687	Null hypothesis accepted
H:1.3	The 15% change in dividend Increase announcement for the small cap companies is not associated with subsequent change in share price.	0.0041	0.3207	0.7496	Null hypothesis accepted
H:1.4	20% change in dividend increase announcement for the large cap companies is not associated with subsequent change in share price.	0.0211	1.5857	0.1181	Null hypothesis accepted
H:1.5	20% change in dividend increase announcement for the small cap companies is not associated with subsequent change in share price.	-0.0066	0.2261	0.8219	Null hypothesis accepted
H:1.6	25% change in dividend increase announcement for the large cap companies is not associated with subsequent change in share price.	-0.0101	1.0391	0.3029	Null hypothesis accepted
H:1.7	The 25% change in dividend increase announcement for the small cap companies is not associated with subsequent change in share price.	-0.0012	0.1605	0.8730	Null hypothesis accepted
H:1.8	The 50% change in dividend increase announcement for the large cap companies is not associated with subsequent change in share price.	0.0024	0.2755	0.7839	Null hypothesis accepted
H:1.9	The 50% change in dividend increase announcement for the mid cap companies is not associated with subsequent change in share price.	-0.0075	0.3299	0.7426	Null hypothesis accepted
H:1.10	The 50% change in dividend increase announcement for the small cap companies is not associated with subsequent change in share price.	0.0049	0.7771	0.4401	Null hypothesis accepted

[a] Calculated values based on Prowess 4.1 database

Table 7. Pronounced Periods of Significant *CAAR* Values at 5% Level of Significance During the 61- Day Event Period for the Event - Dividend Increase Announcements

Event	Period of Positive *CAAR* values [a]			Pronounced period of significant *CAAR* values[a]		
	Pre event Period	Event Day	Post event Period	Pre event Period	Event Day	Post event period
Small Cap dividend increase 10%	-24 to-23, -21 to -19, -10 to -01	00	+01 to +30	No	No	+16 to +30
Mid Cap dividend increase 15 %	-08 to -04	No	No	No	No	+01 to +04, +06 to +15
Small Cap dividend increase 15 %	-29 to-22, -20 to -18, -13 to -01	00	+01 to +30	No	00	+01 to +30
Large Cap Dividend increase 20%	-10 to -01	00	+01to +30	No	No	+14 to +16, +19 to +26
Small Cap dividend increase 20%	-25 to-01	0	+01 to +30	-06 to -10	00	+01 to +08, +17 to +30
Large Cap Dividend increase 25%	-30 to -09, -04 to -01	00	+01to +30	- 26 to - 24, -16 to-14, -03 to-01	00	+11 to +16
Small Cap dividend increase 25%	-28 to-19, -13 to-01	00	+01 to +30	-01to-01	0	+01 to +30
Large Cap Dividend increase 50% and above	-30 to -01	00	+01to +30	No	No	+04 to +30
Mid Cap dividend increase 5 % and above	No.	No.	No	-16 to -01	00	+01 to +03, +21 to +25
Small Cap dividend increase 50% and above	-30 to-14	0	+01 to +05	No	No	+15, +20, +28 to +29

[a] Observed period of calculated values based on Prowess 4.1 database

Figure 2. Based on the Calculated Data Shown in Appendix B1 and B2 Using GARCH (p, q) Model for Dividend Alone Decrease Announcements Categorized into 10%, 15%, 20%, 25%, and 50% and above

dividend indicating no signalling effect has been observed as statistical results shown in the Table 6 indicate insignificant reactions in share prices due to response to dividend change announcements.

To examine the efficiency of the Indian stock market, analysis of daily movements in *AAR* and *CAAR* to capture relative pronounced movements in abnormal returns is shown in the Table 7 showing the positive and pronounced periods of significant values of CAAR. From the Table 7 we can observe that the pronounced period for all the events are in post announcement period which are quite away from the event announcement date. Some events such as small cap 20% and 25%, mid and large cap 50% and above show pronounced period just after the announcement date. This type of behavioural movement in share prices depicts no clear indication, showing inefficient nature of the market.

(2) Event - Dividend Decrease Announcements : The calculated *AAR* and *CAAR* values (See Appendix B1 and B2) have been plotted for the 61 - day event window shown in the Figure 2, depicting trend in *AAR* and *CAAR*. The Figure 2 shows the plotted data of *AAR* and *CAAR* for the event dividend decrease announcements based on calculated values of *AAR* and *CAAR*.

The Table 8 shows that the policy of dividend decrease announcement is adopted by very few firms, no company and event is found in the category of 10% ; in the category of 15%, change in dividend in case of only small cap companies' events is observed ; in the category of 20%, no event is observed ; while in the category of 25%, only large and small cap ; and in category of 50% and above, only small cap companies were selected for the final study. The results show that none of the categories of dividend change is making any significant impact on share prices. Hence, it can be interpreted that no signaling exists for the events' dividend decrease announcement

Table 8. Test of Hypotheses at the 5% Significance Level for the Events - Dividend Decrease Announcements

S. No.	Null Hypothesis	Event day statistics			Result
		ARR[a]	*t*-stat.[a]	*p*-stat[a]	
H:1.1	The 15% change in dividend decrease announcement for the small cap companies is not associated with subsequent change in share price.	-0.0128	0.7659	0.4467	Null hypothesis accepted
H:1.2	The 25% change in dividend decrease announcement for the large cap companies is not associated with subsequent change in share price.	-0.0040	0.4262	0.6715	Null hypothesis accepted
H:1.3	The 25% change in dividend decrease announcement for the small cap companies is not associated with subsequent change in share price.	0.0096	1.3678	0.1765	Null hypothesis accepted
H:1.4	The 50% change in dividend decrease announcement for the small cap companies is not associated with subsequent change in share price.	0.0120	0.8004	0.4267	Null hypothesis accepted

[a] Calculated values based on Prowess 4.1 databases

Table 9. Pronounced Periods of Significant *CAAR* Values at the 5% Level of Significance During the 61- Day Event Period for the Event - Dividend Decrease Announcements

Event	Period of Positive *CAAR* values[a]			Pronounced period of significant *CAAR* values[a]		
	Pre event Period	Event Day	Post event Period	Pre event Period	Event day	Post event Period
Small cap dividend decrease 15%	-26 to -01	00	+01 to+ 30,	-21 to -01	00	+15 to+ 17
Large cap dividend decrease 25%	-25 to -01	00	+01 to +30	-13 to -01	00	+01 to +30
Small cap dividend decrease 25%	-25 to -01	00	+01 to+ 30	-02 to -01	00	+01 to+ 02,
						+05 to +30
Small cap dividend decrease 50%	No	No	+05 to +30	No	No	+12 to+ 15

[a] Observed period of calculated values based on Prowess 4.1 database

also. The results of the study associated with pronounced period analysis to find the efficiency of the market is given in the Table 9.

The Table 9 depicts that except for 25% change in dividend event, the other category events' pronounced period is quite away from the event announcement date, which indicates that prices are adjusted during the period instead of at once, which is indicative of inefficient nature of the market.

Discussion and Conclusion

Analysis of the events of stand alone dividend are categorized on the basis of various levels of changes in dividend and respective market capitalization of companies in large cap, mid cap, and small cap to find the attractiveness of the amount of changes in dividend and its impact on share prices. Except for only one event - 10% increase in dividend for small cap companies, none of the events affected the market price significantly, which is indicative of no signaling effect in the Indian stock market. The characteristics associated with pronounced period, findings during event window indicate that the Indian stock market is still in the phase of transition, thereby showing inefficiency. The findings are similar to the findings of Liu and Chen (2015), who found that dividend changes had a negative impact on return on assets, and that dividend increase (decrease) was not an effective signal to be used for signaling firms' earnings prospects for the future period. Chen et al. (2009) and Hussainey (2009) also observed a partial support for signaling hypothesis because events dividend reduction is positively taken by investors, as in this case, share prices have shown a positive trend. Peterson (1996) also completely rejected signaling hypothesis that dividend is not able to convey information to the market due to noisy signal and earnings power of the firms are negatively affected ; he also found that no impact or a negative impact was observed on the share prices of such announcements. Cohen and Yagil (2009) rejected the signaling hypothesis. The findings of Ryaly et al. (2014), and Selvam et al. (2010) for the Indian stock market also observed similar results. Hence, it can be concluded that the consistency for signaling theory cannot be ascertained due to uncertainty and ambiguity existing in the stock markets.

Limitations of the Study and Scope for Further Research

Though this study covered a 10 year span, including both the national stock exchanges (NSE and BSE) for sample selection ; still, a sufficient number of events could not be selected for the study. This research work covers a 61 - day event window, and tried its best that no other events are announced during these periods, but still, there is possibility that the exogenous events such as industry related events, economy related events, and international events announced during the event window may have affected the impact of dividend related events announcements.

This study used the GARCH (p q) model for the calculation of expected returns. Future studies can use other econometric models and make comparisons among the outcomes to know model intensity and effectiveness in the calculation of impacts of event announcements on share prices.

References

Aharony, J., Falk, H., & Swary, I. (1988). Information content of dividend increases : The case of regulated utilities. *Journal of Business Finance & Accounting, 15* (3), 401 - 414. DOI: 10.1111/j.1468-5957.1988.tb00143.x

Allen, F., & Michaely, R. (1995). Dividend policy. In R. A. Jarrow, V. Maksimovic, & W. T. Ziemba (Eds.). *Handbook in operations research and management science* (Vol. 9, pp. 793 - 837). Amsterdam : Elsevier.

Andres, C., Betzer, A., Bongard, I. V. D, Haesner, C., & Theissen, E. (2013). The information content of dividend surprises : Evidence from Germany. *Journal of Business Finance & Accounting, 40* (5-6), 620 - 645. DOI: 10.1111/jbfa.12036

Balachandran, B. (2003). UK interim and final dividend reductions : A note on price reaction. *The European Journal of Finance, 9* (4), 379 - 390. DOI: 10.1080/1351847022000028430

Balachandran, B., Krishnamurti, C., Theobald, M., &Vidanapathirana, B. (2012). Dividend reductions, the timing of dividend payments and information content. *Journal of Corporate Finance, 18* (5), 1232 - 1247. DOI:10.1016/j.jcorpfin.2012.08.002

Balasubramanyam, K. R., & Nayak, M. (2013, September 29). Caring and sharing. *Business Today.* Retrieved from http://www.businesstoday.in/magazine/features/best-dividend-paying-companies/story/197087.html

Bali, R. (2003). An empirical analysis of stock returns around dividend changes. *Applied Economics, 35* (1), 51-61. DOI:10.1080/0003684020158930

Benartzi, S., Michaely, R., & Thaler, R. (1997). Do changes in dividends signal the future or the past? *The Journal of Finance, 52* (3), 1007-1034. DOI: 10.1111/j.1540-6261.1997.tb02723.x

Best, R. J., & Best, R. W. (2001). Prior information and the market reaction to dividend changes. *Review of Quantitative Finance and Accounting, 17* (4), 361 - 376. DOI: 10.1023/A:1012735730713

Bhattacharya, S. (1979). Imperfect information, dividend policy, and "The Bird in the Hand" fallacy. *The Bell Journal of Economics, 10* (1), 259 - 270. DOI: 10.2307/3003330

Bhattacharyya, N. (2007). Dividend policy: A review. *Managerial Finance, 33*(1), 4 - 13. DOI: http://dx.doi.org/10.2469/dig.v27.n1.3

Black, F. (1976). The dividend puzzle. *The Journal of Portfolio Management, 2* (2), 5-8. DOI: 10.3905/jpm.1976.408558

Bollerslev, T. (1987). A conditionally heteroskedastic time series model for speculative prices and rates of return. *The Review of Economics and Statistics, 69* (3), 542-547. DOI: 10.2307/1925546

Booth, L., & Chang, B. (2011). Information asymmetry, dividend status, and SEO announcement-day returns. *The Journal of Financial Research, 34* (1), 155 - 177. DOI: 10.1111/j.1475-6803.2010.01287.x

Bozos, K., Nikolopoulos, K., & Ramgandhi G. (2011). Dividend signaling under economic adversity: Evidence from the London Stock Exchange. *International Review of Financial Analysis, 20* (5), 364 - 374. DOI:10.1016/j.irfa.2011.07.003

Braggion, F., & Moore, L. (2011). Dividend policies in an unregulated market: The London Stock Exchange, 1895 - 1905. *Review of Financial Studies, 24* (9), 2935 - 2973. DOI: http://dx.doi.org/10.1093/rfs/hhr026

Brickley, J. A. (1983). Shareholder wealth, information signaling and the specially designated dividend: An empirical study. *Journal of Financial Economics, 12* (2), 187 -209. DOI: 10.1016/0304-405X(83)90035-1

Brio, E. B. D., Miguel, A., & Perote, J. (2002). An investigation of insider trading profits in the Spanish stock market. *The Quarterly Review of Economics and Finance, 42*(1), 73-94. DOI: http://dx.doi.org/10.1016/S1062-9769(01)00103-X

Butler, A. W., Grullon, G., & Weston, J. P. (2005). Can managers forecast aggregate market returns? *The Journal of Finance, 60* (2), 963 - 986. DOI: 10.1111/j.1540-6261.2005.00752.x

Chen, D.-H., Liu, H.-H., & Huang, C.-T. (2009). The announcement effect of cash dividend changes on share prices: An empirical analysis of China. *The Chinese Economy, 42* (1), 62 - 85. DOI: 10.2753/CES1097-1475420103

Chen, S.-S., & Fu, K.-C. (2011). An examination of the free cash flow and information/signaling hypotheses using unexpected dividend changes inferred from option and stock prices : The case of regular dividend increases. *Review of Pacific Basin Financial Markets and Policies, 14* (3), 563 - 600. DOI: 10.1142/S0219091511002329

Cheng, L. T. W., Fung, H. G., & Leung, T. Y. (2007). Information effects of dividends: Evidence from the Hong Kong market. *Review of Quantitative Finance and Accounts, 28*(1), 23 - 54. DOI: 10.1007/s11156-006-0002-y

Cohen, G., & Yagil, J. (2009). Why do financially distressed firms pay dividends? *Applied Economics Letters, 16* (12), 1201 - 1204. DOI: 10.1080/17446540802389057

Dasilas, A., & Leventis, S. (2011). Stock market reaction to dividend announcements: Evidence from the Greek stock market. *International Review of Economics & Finance, 20* (2), 302-311. DOI: http://dx.doi.org/10.1016/j.iref.2010.06.003

Elfakhani, S. (1998). The expected favourableness of dividend signals, the direction of dividend change and the signalling role of dividend announcements. *Applied Financial Economics, 8* (3), 221- 230. DOI: 10.1080/096031098332989

Fuller, K. P. (2003). The impact of informed trading on dividend signaling : A theoretical and empirical examination. *Journal of Corporate Finance, 9* (4), 385 - 407. DOI:10.1016/S0929-1199(02)00052-4

Gunasekarage, A., & Power, D. M. (2002). The post-announcement performance of dividend changing companies: The dividend-signalling hypothesis revisited. *Accounting & Finance, 42* (2), 131 - 151. DOI: 10.1111/1467-629X.00071

Gunasekarage, A., & Power, D. M. (2006). Anomalous evidence in dividend announcement effect. *Managerial Finance, 32* (3), 209 - 226. DOI: http://dx.doi.org/10.1108/03074350610646726

Gurgul, H., Mestel, R., & Schleicher, C. (2003). Stock market reactions to dividend announcements : Empirical evidence from the Austrian stock market. *Financial Markets and Portfolio Management, 17* (3), 332 - 350. DOI: 10.1007/s11408-003-0304-1

Healy, P. M., & Palepu, K. G. (1988). Earnings information conveyed by dividend initiations and omissions. *Journal of Finance and Economics, 21*(2), 149-175. DOI:10.1016/0304-405X(88)90059-1

Hobbs, J., & Schneller, M. I. (2012). Dividend signalling and sustainability. *Applied Financial Economics, 22*(17), 1395 - 1408. DOI:10.1080/09603107.2012.654909

Hussainey, K. (2009). Do dividends signal information about future earnings? *Applied Economics Letters, 16* (12), 1285 - 1288. DOI:10.1080/17446540802403635

Jensen, G. R., Lundstrum, L. L., & Miller, R. E. (2010). What do dividend reductions signal? *Journal of Corporate Finance, 16* (5), 736 - 747. DOI: doi:10.1016/j.jcorpfin.2010.06.009

John, K., & Lang, L. H. P. (1991). Insider trading dividend announcements : Theory and evidence. *The Journal of Finance, 46*(4), 1361-1389. DOI: 10.2307/2328862

John, K., & Williams, J. (1985). Dividends, dilution, and taxes: A signalling equilibrium. *The Journal of Finance, 40*(4), 1053 - 1070. DOI: 10.2307/2328394

Kiete, K., & Uloza, G. (2005). *The information efficiency of the stock markets in Lithuania and Latvia.* SSE Riga Working Papers: 75(7), 1-53. Retrieved from http://www.sseriga.edu/en/

Lee, B. S., & Yan, N. A. (2003). The market's differential reactions to forward-looking and backward-looking dividend changes. *The Journal of Financial Research, 26* (4), 449 - 468. DOI: 10.1111/1475-6803.00068

Liu, C., & Chen, A. (2015). Do firms use dividend changes to signal future profitability? A simultaneous equation analysis. *International Review of Financial Analysis, 37,* 194 -207. DOI:10.1016/j.irfa.2014.12.001

Lonie, A. A. Abeyratna, G., Power, D. M., & Sinclair, C. D. (1996). The stock market reaction to dividend announcements : A UK study of complex market signals. *Journal of Economic Studies, 23*(1), 32-52. DOI: http://dx.doi.org/10.1108/01443589610106534

McCluskey, T., McBurton, B. M., Power, D. M., & Sinclair, C. D. (2006). Evidence on the Irish stock market's reaction to dividend announcements. *Applied Financial Economics, 16* (8), 617 - 628. DOI: 10.1080/09603100600639058

Miller, M. H., & Rock, K. (1985). Dividend policy under asymmetric information. *The Journal of Finance, 40* (4), 1031- 1051. DOI: 10.2307/2328393

Mohapatra, J. K., & Yadav, M. (2014). Returns to acquirs in Indian aviation mergers: A study. *Indian Journal of Finance, 8* (11), 44-53. doi: 10.17010/ijf/2014/v8i11/71843

Mougoue, M., & Rao, R. P. (2003). The information signaling hypothesis of dividends: Evidence from cointegration and causality tests. *The Journal of Business Finance & Accounting, 30* (3 & 4), 441- 478. DOI: 10.1111/1468-5957.t01-1-00004

Nissim, D., & Ziv, A. (2001). Dividend changes and future profitability. *The Journal of Finance, 56* (6), 2111- 2133. DOI: 10.1111/0022-1082.00400

Peterson, S. P. (1996). Some experimental evidence on the efficiency of dividend signalling in resolving information asymmetries. *Journal of Economic Behavior and Organization, 29* (3), 373-388. DOI:10.1016/0167-2681(95)00078-X

Pettit, R. R. (1972). Dividend announcements, security performance, and capital market efficiency. *The Journal of Finance, 27* (5), 993 - 1007. DOI: 10.2307/2978844

Ryaly, V. R., Kumar, R. S. R. K. K., & Urlankula, B. (2014). A study on weak-form of market efficiency in selected Asian stock markets. *Indian Journal of Finance, 8* (11), 34 - 43. DOI: 10.17010/ijf/2014/v8i11/71842

Selvam, M., Babu, M., Indhumathi, G., & Kogila, N. (2010). Impact of dividend announcements on share price: An evaluation study. *Indian Journal of Finance, 4* (4), 3-16. DOI : 10.17010/ijf/2010/v4i4/72619

Sharma, J. K., & Pandey, V. S. (2014). Dividend signalling and market efficiency in emerging economy: A study of Indian stock market. *International Journal of Finance and Accounting Studies, 2* (2), 8-18. DOI:10.7575/aiac.ijfas.v.2n.2p.8

Stankeviciene, J., & Akelaitis, S. (2014). Impact of public announcements on stock prices: Relation between values of stock prices and the price changes in Lithuanian stock market. *Procedia - Social and Behavioral Sciences, 156,* 538-542. DOI:10.1016/j.sbspro.2014.11.236

Suwanna, T. (2012). Impacts of dividend announcement on stock return. *Procedia - Social and Behavioral Sciences, 40,* 721 - 725. DOI:10.1016/j.sbspro.2012.03.255

Vega, C. (2006). Stock price reaction to public and private information. *Journal of Financial Economics, 82* (1), 103-133. DOI:10.1016/j.jfineco.2005.07.011

Wansley, J. W., Sirmans, C. F., Shilling, J. D., & Lee, Y. (1991). Dividend change announcement effects and earnings volatility and timing. *Journal of Financial Research, 14* (1), 33 - 49. DOI: 10.1111/j.1475-6803.1991.tb00643.x

World Bank. (2015a). *Gross domestic product ranking table based on purchasing power parity* (PPP). Retrieved from http://data.worldbank.org/data-catalog/GDP-PPP-based-table.

World Bank. (2015b). *Gross domestic product ranking table.* Retrieved from http://data.worldbank.org/data-catalog/GDP-ranking-table

World Bank. (2016). *States and Markets 5.4 world development indicators: Stock markets.* Retrieved from http://wdi.worldbank.org/table/5.4

World top stock exchanges, NSE is no. 1. (2013, April 20). *Rediff Business News.* Retrieved from http://www.rediff.com/business/slide-show/slide-show-1-worlds-top-bourses-nse-is-no-1/20130420.htm

Yarram, S. (2002). *Dividend policy of Indian corporate firms: An analysis of trends and determinants.* DOI: http://dx.doi.org/10.2139/ssrn.377180

Appendix A1. Calculated *AAR, CAAR*, and Corresponding *t*-Values and *p*- Values Associated with 10% Dividend Increase/Decrease Decisions Alone Based on GARCH Model

	Small Cap. Dividend Increase alone@10%						Mid. Cap. Dividend Increase alone@15%					
Days	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0024	-0.0024	-0.1436	-0.0451	0.8863	0.9642	-0.0077	-0.0077	-0.4229	-0.1922	0.6739	0.8482
-25	-0.0028	-0.0123	-0.1675	-0.2302	0.8675	0.8187	-0.0134	-0.0214	-0.7397	-0.5347	0.4624	0.5949
-20	0.0148	0.0177	0.8844	0.3317	0.3800	0.7413	-0.0113	-0.0435	-0.6242	-1.0891	0.5349	0.2805
-15	0.0012	-0.0241	0.0704	-0.4518	0.9441	0.6530	0.0007	-0.0519	0.0373	-1.2978	0.9704	0.1993
-10	0.0224	0.0191	1.3369	0.3578	0.1863	0.7218	-0.0010	-0.0258	-0.0535	-0.6445	0.9575	0.5217
-5	-0.0100	0.0268	-0.5942	0.5019	0.5546	0.6175	-0.0190	0.0191	-1.0485	0.4790	0.2986	0.6337
-4	0.0051	0.0319	0.3038	0.5973	0.7623	0.5525	0.0020	0.0211	0.1073	0.5278	0.9149	0.5996
-3	-0.0028	0.0291	-0.1670	0.5449	0.8679	0.5878	-0.0213	-0.0002	-1.1706	-0.0044	0.2464	0.9965
-2	-0.0001	0.0289	-0.0084	0.5423	0.9934	0.5896	-0.0433	-0.0435	-2.3845	-1.0885	0.0203	0.2807
-1	-0.0233	0.0056	-1.3940	0.1046	0.1684	0.9170	-0.0327	-0.0762	-1.7993	-1.9065	0.0770	0.0614
0	**0.0395**	**0.0451**	**2.3612**	**0.8459**	**0.0215**	**0.4010**	**0.0007**	**-0.0755**	**0.0394**	**-1.8886**	**0.9687**	**0.0638**
1	0.0135	0.0586	0.8046	1.0985	0.4242	0.2764	-0.0204	-0.0958	-1.1202	-2.3979	0.2671	0.0196
2	0.0101	0.0687	0.6013	1.2873	0.5499	0.2029	-0.0077	-0.1036	-0.4250	-2.5911	0.6724	0.0120
3	-0.0012	0.0674	-0.0732	1.2643	0.9419	0.2110	-0.0066	-0.1101	-0.3615	-2.7554	0.7190	0.0078
4	0.0028	0.0702	0.1642	1.3159	0.8701	0.1932	0.0184	-0.0918	1.0104	-2.2961	0.3163	0.0252
5	0.0271	0.0973	1.6159	1.8232	0.1114	0.0733	0.0346	-0.0571	1.9066	-1.4293	0.0614	0.1581
10	-0.0141	0.0738	-0.8415	1.3841	0.4034	0.1714	-0.0132	-0.0994	-0.7257	-2.4882	0.4709	0.0156
15	0.0011	0.0811	0.0679	1.5198	0.9461	0.1338	0.0378	-0.0785	2.0793	-1.9633	0.0419	0.0543
20	0.0026	0.1279	0.1536	2.3983	0.8785	0.0196	0.0015	-0.0512	0.0800	-1.2817	0.9365	0.2049
25	0.0054	0.1332	0.3210	2.4968	0.7493	0.0153	0.0126	-0.0054	0.6933	-0.1359	0.4908	0.8924
30	-0.0012	0.0984	-0.0740	1.8446	0.9412	0.0700	-0.0094	-0.0179	-0.5148	-0.4485	0.6086	0.6554

Source: Calculated by the Author using EVIEWS- 7

Appendix A2. Calculated *AAR, CAAR*, and Corresponding *t* - Values and *p*- Values Associated with 10% Dividend Increase/Decrease Decisions Alone Based on GARCH Model

	Small Cap. Dividend Increase alone@15%						Large Cap. Dividend Increase alone@20%					
Days	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0082	-0.0082	-0.6416	-0.2310	0.5236	0.8181	-0.0200	-0.0200	-1.5060	-0.4850	0.1373	0.6295
-25	-0.0054	0.0251	-0.4235	0.7085	0.6735	0.4814	0.0038	-0.0021	0.2886	-0.0506	0.7739	0.9599
-20	0.0172	0.0160	1.3444	0.4520	0.1839	0.6529	-0.0030	-0.0174	-0.2262	-0.4203	0.8218	0.6758
-15	-0.0080	-0.0006	-0.6242	-0.0162	0.5348	0.9871	-0.0043	-0.0152	-0.3251	-0.3678	0.7463	0.7144
-10	0.0180	0.0219	1.4134	0.6185	0.1627	0.5386	0.0105	0.0104	0.7910	0.2519	0.4321	0.8020
-5	-0.0040	0.0257	-0.3143	0.7248	0.7544	0.4714	-0.0125	0.0084	-0.9407	0.2034	0.3506	0.8395
-4	0.0231	0.0488	1.8081	1.3757	0.0756	0.1740	-0.0040	0.0044	-0.3039	0.1056	0.7623	0.9163
-3	0.0018	0.0505	0.1381	1.4254	0.8906	0.1592	0.0065	0.0108	0.4878	0.2626	0.6275	0.7937
-2	-0.0187	0.0319	-1.4618	0.8992	0.1490	0.3722	0.0044	0.0153	0.3341	0.3702	0.7394	0.7125
-1	0.0164	0.0483	1.2878	1.3628	0.2028	0.1780	0.0231	0.0384	1.7379	0.9299	0.0874	0.3562
0	**0.0041**	**0.0524**	**0.3207**	**1.4782**	**0.7496**	**0.1446**	**0.0211**	**0.0595**	**1.5857**	**1.4405**	**0.1181**	**0.1549**
1	0.0408	0.0932	3.1958	2.6287	0.0022	0.0109	0.0089	0.0684	0.6710	1.6566	0.5048	0.1028
2	-0.0062	0.0870	-0.4840	2.4545	0.6301	0.0170	-0.0131	0.0553	-0.9868	1.3388	0.3278	0.1857
3	-0.0003	0.0867	-0.0236	2.4460	0.9812	0.0174	0.0041	0.0594	0.3120	1.4393	0.7561	0.1553
4	0.0104	0.0971	0.8149	2.7394	0.4183	0.0081	0.0037	0.0632	0.2817	1.5300	0.7791	0.1313
5	-0.0204	0.0767	-1.5970	2.1645	0.1155	0.0344	-0.0164	0.0467	-1.2370	1.1317	0.2209	0.2623
10	-0.0117	0.0706	-0.9139	1.9913	0.3644	0.0510	0.0023	0.0435	0.1734	1.0545	0.8630	0.2959
15	-0.0060	0.0791	-0.4690	2.2320	0.6408	0.0294	0.0024	0.0898	0.1781	2.1741	0.8592	0.0337
20	-0.0094	0.0861	-0.7360	2.4278	0.4646	0.0182	0.0021	0.1089	0.1605	2.6387	0.8730	0.0106
25	0.0034	0.0893	0.2660	2.5182	0.7912	0.0145	0.0134	0.1006	1.0081	2.4379	0.3174	0.0178
30	0.0010	0.0767	0.0808	2.1628	0.9359	0.0346	-0.0143	0.0202	-1.0736	0.4898	0.2873	0.6261

Source: Calculated by the Author using EVIEWS- 7

Appendix A3. Calculated *AAR, CAAR*, and Corresponding *t*-values and *p* - values Associated with 20% Dividend Increase/Decrease Decisions Alone Based on GARCH Model

Days	Small Cap. Dividend Increase alone@20%						Large Cap. Dividend Increase alone@25%					
	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0374	-0.0374	-1.2857	-0.3782	0.2035	0.7066	0.0152	0.0152	1.5687	1.5687	0.1220	0.2390
-25	0.0264	0.0021	0.9091	0.0215	0.3669	0.9829	-0.0001	0.0261	-0.0057	0.0057	0.9955	0.0451
-20	-0.0003	0.0555	-0.0115	0.5607	0.9909	0.5771	0.0024	0.0129	0.2506	0.2506	0.8030	0.3156
-15	0.0851	0.1350	2.9237	1.3652	0.0049	0.1773	0.0010	0.0281	0.0995	0.0995	0.9211	0.0316
-10	-0.0017	0.1367	-0.0596	1.3821	0.9527	0.1721	0.0004	0.0082	0.0447	0.0447	0.9645	0.5252
-5	-0.0411	0.2036	-1.4123	2.0585	0.1630	0.0439	-0.0080	-0.0197	-0.8260	0.8260	0.4121	0.1271
-4	0.0313	0.2348	1.0743	2.3746	0.2870	0.0208	0.0277	0.0079	2.8576	2.8576	0.0059	0.5381
-3	-0.0191	0.2157	-0.6560	2.1816	0.5143	0.0331	0.0194	0.0273	2.0026	2.0026	0.0497	0.0367
-2	0.0433	0.2591	1.4888	2.6195	0.1418	0.0111	0.0080	0.0352	0.8233	0.8233	0.4136	0.0076
-1	0.0462	0.3053	1.5894	3.0870	0.1172	0.0031	0.0073	0.0425	0.7514	0.7514	0.4553	0.0015
0	**-0.0066**	**0.2987**	**-0.2261**	**3.0205**	**0.8219**	**0.0037**	**-0.0101**	**0.0325**	**-1.0391**	**1.0391**	**0.3029**	**0.0136**
1	-0.0601	0.2386	-2.0656	2.4129	0.0432	0.0189	0.0097	0.0421	0.9973	0.9973	0.3226	0.0016
2	0.0108	0.2495	0.3725	2.5225	0.7109	0.0143	-0.0172	0.0249	-1.7780	1.7780	0.0805	0.0557
3	0.0199	0.2694	0.6855	2.7241	0.4957	0.0084	-0.0152	0.0097	-1.5706	1.5706	0.1215	0.4496
4	-0.0128	0.2566	-0.4394	2.5949	0.6619	0.0119	0.0042	0.0139	0.4377	0.4377	0.6632	0.2788
5	-0.0224	0.2342	-0.7703	2.3683	0.4441	0.0211	-0.0041	0.0098	-0.4279	0.4279	0.6702	0.4453
10	-0.0033	0.1850	-0.1142	1.8702	0.9094	0.0663	0.0150	0.0164	1.5525	1.5525	0.1258	0.2050
15	-0.0070	0.1946	-0.2400	1.9674	0.8111	0.0538	0.0002	0.0254	0.0180	0.0180	0.9857	0.0516
20	0.0090	0.2606	0.3081	2.6355	0.7591	0.0107	-0.0075	0.0172	-0.7776	0.7776	0.4399	0.1832
25	-0.0201	0.2705	-0.6923	2.7356	0.4914	0.0082	-0.0051	0.0017	-0.5231	0.5231	0.6028	0.8928
30	-0.0096	0.2666	-0.3308	2.6960	0.7420	0.0091	0.0118	0.0270	1.2201	1.2201	0.2272	0.0388

Source: Calculated by the Author using EVIEWS- 7

Appendix A4. Calculated *AAR, CAAR*, and Corresponding *t*-Values and *p*- Values Associated with Dividend Increase/Decrease Decisions Alone Based on GARCH Model

Days	Small Cap. Dividend Increase alone@25%						Large Cap. Dividend Increase alone@50%					
	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0031	-0.0031	-0.4002	-0.0788	0.6904	0.9374	0.0072	0.0072	0.8188	0.1899	0.4161	0.8501
-25	0.0033	0.0183	0.4236	0.4684	0.6734	0.6412	-0.0065	0.0316	-0.7420	0.8339	0.4610	0.4076
-20	-0.0071	0.0043	-0.9170	0.1114	0.3628	0.9117	-0.0070	0.0075	-0.7971	0.1994	0.4285	0.8426
-15	-0.0069	-0.0112	-0.9021	-0.2866	0.3706	0.7754	0.0054	0.0343	0.6103	0.9070	0.5440	0.3680
-10	-0.0017	0.0158	-0.2202	0.4045	0.8265	0.6873	0.0029	0.0396	0.3330	1.0450	0.7403	0.3002
-5	0.0025	0.0462	0.3298	1.1843	0.7427	0.2410	0.0081	0.0560	0.9265	1.4795	0.3579	0.1442
-4	-0.0045	0.0417	-0.5848	1.0691	0.5609	0.2893	-0.0059	0.0501	-0.6774	1.3225	0.5008	0.1910
-3	0.0063	0.0480	0.8163	1.2299	0.4175	0.2235	0.0049	0.0550	0.5586	1.4520	0.5785	0.1517
-2	0.0222	0.0702	2.8824	1.7977	0.0055	0.0773	0.0016	0.0566	0.1819	1.4942	0.8563	0.1404
-1	0.0093	0.0795	1.2100	2.0361	0.2310	0.0462	0.0109	0.0675	1.2441	1.7827	0.2183	0.0797
0	**-0.0012**	**0.0782**	**-0.1605**	**2.0045**	**0.8730**	**0.0495**	**0.0024**	**0.0699**	**0.2755**	**1.8466**	**0.7839**	**0.0697**
1	-0.0007	0.0776	-0.0862	1.9875	0.9316	0.0514	-0.0021	0.0678	-0.2405	1.7908	0.8108	0.0784
2	0.0030	0.0805	0.3869	2.0637	0.7002	0.0434	-0.0055	0.0623	-0.6213	1.6467	0.5367	0.1048
3	-0.0060	0.0745	-0.7842	1.9092	0.4360	0.0610	-0.0085	0.0539	-0.9649	1.4230	0.3385	0.1599
4	0.0109	0.0854	1.4187	2.1887	0.1612	0.0325	0.0308	0.0847	3.5128	2.2375	0.0008	0.0290
5	0.0041	0.0895	0.5326	2.2937	0.5962	0.0253	-0.0016	0.0831	-0.1768	2.1965	0.8603	0.0319
10	0.0105	0.0898	1.3677	2.3005	0.1765	0.0249	0.0165	0.1050	1.8752	2.7752	0.0656	0.0073
15	-0.0035	0.1016	-0.4519	2.6042	0.6530	0.0116	-0.0220	0.1023	-2.5093	2.7028	0.0148	0.0089
20	0.0054	0.0890	0.7021	2.2809	0.4853	0.0261	0.0110	0.1145	1.2572	3.0244	0.2135	0.0037
25	0.0118	0.0998	1.5368	2.5572	0.1296	0.0131	0.0082	0.1180	0.9306	3.1185	0.3558	0.0028
30	-0.0050	0.0955	-0.6539	2.4473	0.5156	0.0173	0.0003	0.1082	0.0368	2.8597	0.9708	0.0058

Source: Calculated by the Author using EVIEWS- 7

Appendix A5. Calculated *AAR, CAAR,* and Corresponding *t*-Values and *p*- Values Associated with Dividend Increase/Decrease Decisions Alone Based on GARCH Model

	Mid Cap. Dividend Increase alone@50%						Small Cap. Dividend Increase alone@50%					
Days	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0112	-0.0112	-0.4930	-0.2808	0.6238	0.7798	0.0126	0.0126	1.9964	0.7671	0.0504	0.4460
-25	-0.0002	-0.1002	-0.0080	-2.5038	0.9936	0.0150	-0.0034	0.0121	-0.5300	0.7337	0.5980	0.4660
-20	-0.0076	-0.0659	-0.3323	-1.6465	0.7408	0.1049	0.0041	0.0060	0.6470	0.3668	0.5201	0.7151
-15	-0.0103	-0.0981	-0.4501	-2.4518	0.6542	0.0171	0.0042	0.0113	0.6619	0.6883	0.5106	0.4939
-10	-0.0025	-0.1037	-0.1109	-2.5894	0.9120	0.0120	-0.0069	-0.0085	-1.0899	-0.5152	0.2801	0.6083
-5	-0.0006	-0.0786	-0.0266	-1.9643	0.9789	0.0541	-0.0008	-0.0023	-0.1249	-0.1383	0.9010	0.8905
-4	-0.0164	-0.0951	-0.7210	-2.3750	0.4737	0.0208	-0.0046	-0.0069	-0.7232	-0.4162	0.4724	0.6788
-3	-0.0209	-0.1159	-0.9154	-2.8964	0.3637	0.0053	-0.0065	-0.0133	-1.0227	-0.8091	0.3106	0.4216
-2	-0.0010	-0.1170	-0.0458	-2.9225	0.9636	0.0049	-0.0009	-0.0142	-0.1403	-0.8630	0.8889	0.3916
-1	-0.0014	-0.1184	-0.0599	-2.9566	0.9524	0.0044	0.0099	-0.0043	1.5669	-0.2609	0.1224	0.7951
0	**-0.0075**	**-0.1259**	**-0.3299**	**-3.1445**	**0.7426**	**0.0026**	**0.0049**	**0.0006**	**0.7771**	**0.0377**	**0.4401**	**0.9701**
1	-0.0113	-0.1372	-0.4957	-3.4268	0.6219	0.0011	0.0060	0.0066	0.9493	0.4025	0.3463	0.6888
2	0.0283	-0.1089	1.2394	-2.7208	0.2200	0.0085	0.0142	0.0209	2.2482	1.2663	0.0282	0.2103
3	0.0182	-0.0907	0.7983	-2.2662	0.4279	0.0271	-0.0060	0.0149	-0.9434	0.9038	0.3493	0.3697
4	0.0375	-0.0532	1.6463	-1.3284	0.1049	0.1891	-0.0013	0.0136	-0.2027	0.8259	0.8400	0.4121
5	-0.0181	-0.0713	-0.7947	-1.7811	0.4299	0.0800	-0.0072	0.0064	-1.1332	0.3905	0.2616	0.6975
10	-0.0085	-0.0254	-0.3722	-0.6356	0.7110	0.5275	-0.0062	-0.0126	-0.9787	-0.7660	0.3317	0.4467
15	0.0029	-0.0175	0.1288	-0.4378	0.8979	0.6631	-0.0112	-0.0395	-1.7748	-2.4017	0.0810	0.0194
20	0.0027	-0.0409	0.1175	-1.0208	0.9069	0.3114	0.0030	-0.0213	0.4798	-1.2964	0.6331	0.1998
25	0.0052	-0.1152	0.2262	-2.8772	0.8218	0.0055	0.0036	-0.0146	0.5748	-0.8840	0.5675	0.3802
30	0.0512	0.0384	2.2455	0.9591	0.0284	0.3414	0.0126	0.0126	1.9964	0.7671	0.0504	0.4460

Source: Calculated by the Author using EVIEWS- 7

Appendix B1. Calculated *AAR, CAAR*, and Corresponding *t*-Values and *p*- Values Associated with Decrease Decisions Alone Based on GARCH Model

	Small Cap. Dividend Decrease alone@15%						Large Cap. Dividend Decrease alone@25%					
Days	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	0.8181	-0.0041	-0.0041	-0.2467	-0.1248	0.8060	-0.0037	-0.0037	-0.3929	-0.0923	0.6958	0.9268
-25	0.4814	-0.0133	0.0225	-0.7964	0.6805	0.4289	0.0064	0.0010	0.6860	0.0244	0.4954	0.9806
-20	0.6529	-0.0064	0.0683	-0.3854	2.0682	0.7013	0.0113	0.0417	1.2113	1.0463	0.2305	0.2996
-15	0.9871	0.0021	0.0968	0.1253	2.9332	0.9007	0.0068	0.0825	0.7235	2.0732	0.4722	0.0425
-10	0.5386	-0.0175	0.0944	-1.0497	2.8595	0.2981	0.0045	0.0812	0.4799	2.0398	0.6331	0.0458
-5	0.4714	-0.0054	0.0686	-0.3243	2.0774	0.7468	0.0173	0.1091	1.8481	2.7410	0.0695	0.0081
-4	0.1740	0.0120	0.0806	0.7206	2.4420	0.4740	-0.0090	0.1001	-0.9626	2.5149	0.3396	0.0146
-3	0.1592	0.0132	0.0938	0.7905	2.8419	0.4324	0.0042	0.1044	0.4533	2.6214	0.6519	0.0111
-2	0.3722	0.0088	0.1025	0.5241	3.1071	0.6021	0.0003	0.1047	0.0363	2.6299	0.9711	0.0108
-1	0.1780	-0.0162	0.0863	-0.9705	2.6161	0.3357	-0.0090	0.0957	-0.9659	2.4030	0.3380	0.0194
0	**0.1446**	**-0.0128**	**0.0736**	**-0.7659**	**2.2286**	**0.4467**	**-0.0040**	**0.0917**	**-0.4262**	**2.3028**	**0.6715**	**0.0248**
1	0.0109	-0.0362	0.0374	-2.1662	1.1325	0.0343	0.0038	0.0954	0.4021	2.3973	0.6891	0.0196
2	0.0170	0.0001	0.0374	0.0037	1.1344	0.9971	0.0109	0.1064	1.1689	2.6719	0.2471	0.0097
3	0.0174	0.0253	0.0627	1.5136	1.9002	0.1354	-0.0100	0.0964	-1.0652	2.4217	0.2911	0.0185
4	0.0081	-0.0102	0.0525	-0.6089	1.5921	0.5449	-0.0039	0.0925	-0.4166	2.3238	0.6785	0.0235
5	0.0344	0.0000	0.0526	0.0017	1.5930	0.9987	-0.0042	0.0883	-0.4460	2.2190	0.6572	0.0303
10	0.0510	0.0191	0.0385	1.1460	1.1653	0.2563	0.0153	0.1142	1.6376	2.8676	0.1067	0.0057
15	0.0294	0.0092	0.0677	0.5520	2.0501	0.5830	0.0050	0.1067	0.5332	2.6796	0.5958	0.0095
20	0.0182	-0.0206	0.0214	-1.2341	0.6486	0.2220	-0.0075	0.1098	-0.8028	2.7575	0.4252	0.0077
25	0.0145	-0.0081	0.0298	-0.4869	0.9028	0.6281	-0.0111	0.0776	-1.1919	1.9490	0.2380	0.0560
30	0.0346	-0.0058	0.0274	-0.3448	0.8301	0.7315	0.0047	0.1500	0.5070	3.7685	0.6140	0.0004

Source: Calculated by the Author using EVIEWS- 7

Appendix B2. Calculated *AAR, CAAR*, and Corresponding *t* - Values and *p*- Values Associated with Decrease Decisions Alone Based on GARCH Model

	Small Cap. Dividend Decrease alone@25%						Small Cap. Dividend Decrease alone@50%					
Days	AAR	CAAR	t-stat. (AAR)	t-stat. (CAAR)	p-stat (AAR)	p-stat (CAAR)	AAR	CAAR	t-stat. (AAR)	t-stat (CAAR)	p-stat (AAR)	p-stat (CAAR)
-30	-0.0080	-0.0080	-1.1473	-0.4260	0.2558	0.6717	-0.0042	-0.0042	-0.2791	-0.0563	0.7812	0.9553
-25	0.0152	0.0115	2.1715	0.6111	0.0339	0.5435	0.0033	-0.0070	0.2182	-0.0935	0.8280	0.9259
-20	-0.0131	0.0032	-1.8705	0.1708	0.0663	0.8650	0.0074	-0.0083	0.4902	-0.1118	0.6258	0.9114
-10	-0.0057	0.0298	-0.8065	1.5776	0.4231	0.1199	-0.0019	-0.0312	-0.1287	-0.4194	0.8980	0.6764
-5	0.0045	0.0282	0.6424	1.4925	0.5230	0.1408	0.0101	-0.0359	0.6739	-0.4825	0.5029	0.6312
-4	0.0005	0.0286	0.0680	1.5178	0.9460	0.1343	0.0112	-0.0247	0.7464	-0.3320	0.4583	0.7411
-3	0.0069	0.0355	0.9808	1.8819	0.3306	0.0647	-0.0124	-0.0371	-0.8277	-0.4989	0.4111	0.6197
-2	0.0024	0.0379	0.3429	2.0092	0.7329	0.0490	0.0064	-0.0307	0.4269	-0.4128	0.6710	0.6812
-1	-0.0010	0.0369	-0.1394	1.9575	0.8896	0.0549	-0.0155	-0.0462	-1.0353	-0.6215	0.3047	0.5366
0	**0.0096**	**0.0465**	**1.3678**	**2.4653**	**0.1765**	**0.0166**	**0.0120**	**-0.0342**	**0.8004**	**-0.4601**	**0.4267**	**0.6471**
1	-0.0042	0.0423	-0.5981	2.2432	0.5520	0.0286	-0.0031	-0.0373	-0.2046	-0.5014	0.8386	0.6179
2	-0.0035	0.0388	-0.4993	2.0578	0.6194	0.0440	-0.0096	-0.0469	-0.6387	-0.6302	0.5254	0.5310
3	-0.0072	0.0317	-1.0206	1.6789	0.3116	0.0984	0.0064	-0.0405	0.4274	-0.5440	0.6706	0.5885
4	-0.0003	0.0314	-0.0411	1.6637	0.9674	0.1014	0.0090	-0.0315	0.5979	-0.4234	0.5522	0.6735
5	0.0084	0.0398	1.2027	2.1102	0.2338	0.0390	0.0414	0.0099	2.7610	0.1333	0.0076	0.8944
10	0.0110	0.0537	1.5748	2.8447	0.1206	0.0061	0.0174	0.1211	1.1584	1.6273	0.2513	0.1089
15	-0.0037	0.0524	-0.5324	2.7762	0.5964	0.0073	-0.0109	0.1542	-0.7253	2.0734	0.4711	0.0424
20	-0.0095	0.0529	-1.3592	2.8022	0.1792	0.0068	-0.0044	0.1246	-0.2921	1.6754	0.7712	0.0991
25	-0.0158	0.0339	-2.2528	1.7942	0.0279	0.0778	-0.0007	0.1173	-0.0480	1.5768	0.9618	0.1201
30	-0.0040	0.0377	-0.5639	1.9982	0.5749	0.0502	-0.0196	0.0966	-1.3050	1.2992	0.1969	0.1988

Source: Calculated by the Author using EVIEWS- 7

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