*Market Response to Behaviour of Cash Dividend in the Colombo Stock Exchange: An Empirical Analysis

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Abstract

This research paper aimed to examine the impact of cash dividend behaviour on stock prices, and investigate whether the Colombo Stock Exchange is semi strong form efficient. To achieve the objectives hypothesis were developed for testing. The sample included cash dividend announcements from 36 companies over a period of eight years from 1995 to 2002. The study has a sample size of only 50 announcements dates for this type of dividend announcement. To investigate the stock market response to cash dividend announcement the standard event study methodology is used. In this study an estimation of 100 days an event window of 21 days are used.

The analysis showed that, the Colombo Stock Exchange is not efficient in the semi strong form sense. The study has found that the sudden changes in dividend behaviour have higher significant impact on stock price than the constant level of dividend behaviour. Since the results of this study indicate that the CSE is informationally inefficient so it has important implications for the investors, management of companies and the stock market regulatory agencies. The investors could make use of the delayed reaction of cash dividend announcements information to make decisions with regard to changes (to buy or sell) they have to make their portfolio in order to make profits or avoid potential losses. The Securities and Exchange Commission of Sri Lanka could increase its monitoring activities on the stock market to ensure that listed companies disseminate important information such as cash dividend timely and regularly. This kind of research can motivate the development of share market activities through an effort of finding ways and means to earn better return by the investors of the Colombo Stock Market.

Keywords: Cash dividend, Stock Prices, Dividend behaviours, Stock Management

Introduction

Maximization of owners' wealth has been accepted as the guiding principle in managing business firms when the owners are not directly involve in running the business. Further this principle ensures efficient allocation of capital within and among business firms. Also it helps to avoid possible agency problems between owners of the firms and managements. For a firm whose stocks are openly traded, this principle simply means that the management of the firm should act in such a manner, so that the current value of the stocks should be appreciated through the market mechanism. Accordingly this principle encompasses all kind of management decisions such as investment decisions and dividend decisions that have bearing on the market price of the share. In this respect of determination of dividend policy as well as different dividend decisions taken by the company from time to time would have significant impact upon the share

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price both the ways that investors interpret and understand dividend decisions and how soon they would respond to it, could influence the price of the share.

Companies must satisfy the current investors. Also they want to attract new investors as the way in which a limited liability company should maintain financial stability of the company by having an appropriate dividend policy which should be appropriate to the situation of the company and the stock market in order to maximize the value of the share.

This research attempt to identify the impact of dividend decisions on share prices. In this regard two important aspects are the type of the information (massage) conveys by dividend decisions and when this content of information conveys to the market (prior to the announcements, on the day of announcements and after the announcements). In this way this research paper is more concerned with the different market responses to sudden increase of dividend, sudden drop of dividend and constant level of dividend.

The studies mentioned above had been conducted using data from world's well-developed markets. Majority of the previous studies have used U.S.market data and therefore in most of the instances researchers have used same set of data and analysed them with different techniques. It is essential to extend or to shift the examinations from the developed markets like U.S. to emerging markets. Therefore it is useful to examine the nature of markets responses to dividend announcements behaviour on emerging stock markets such as Sri Lanka.

Literature Review

The empirical research on the subject has been popular since Fama, Fisher, Jensen and Roll's (1969) titled "The adjustments of stock prices to new information". This research also makes attempts to reconcile the three types of schools of thoughts, (1). Dividend policy is irrelevant to the value of the Company (The Irrelevancy school of thought). (2) An optional dividend policy strengthening the standard of the company policy (High Pay out School of thought) (3) Dividend payments reduce the value of the firm (Low payment school of thoughts).

The writer like Ojha (1976) and Miller and Modigliyani (MM 1961) are not concerned about the dividend rate of the shareholders. Black and Scholes (1974) and others have said that "A corporation may want to choose its dividend policy under the assumption that changes in dividend policy will have no permanent effect on stock prices. According to Bigham and Gapenski (1993) Lintner (1956) and Gordon (1959) a company could increase the share price by increasing its payout ratio. Asquith and Mullins (1986) have discovered an increase in shareholders' wealth on the day the dividend was announced. Pettit (1972) Aharony and Swary (1980) Beer (1993) also have arrived at the same result. Pettit (1972) Aharony and Swary (1980) and Asquith and Mullins (1986) have found new and important information through dividend announcements. They have found that when the company announce increased rate of dividend then it implies that it expects better future, so the price of share will go up. If there is a cut in the rate of dividend it is the other way, so the price will decline. According to Woolridge and Ghosh (1985) Johan and Kalay (1982) have concluded that

the dividend deduction is not an encouraging tactics be applied into the shareholders and the dividend cut is not always a discouraging news, if the investors are made to understand about this retentions benefits. As shown in Brigham and Gapenski (1993) under U.S.A. tax laws (1992) have said the returns of "High payout share" are having higher taxation. This will lead to a preference for a small dividend payout or for no payout fully. As the dividends are taxed at higher rate than the capital gains, so investors need more return on shares with high dividend yield which certainly lead reduction in price. Dissa Bandara (2001) investigated the market response differently on dividend increases, dividend decreases and no change in the dividend. The results show that the market reacts the announcement of higher dividend increases and leads to the larger level of positive response and wise versa.

Methodology

The theoretical literature of finance has developed three differing hypotheses to predict the price effects of new additional information on outstanding shares (Asquith and Mullins 1986). These three hypotheses can be classified into three groups as no price effect, negative-price effect, and positive-price effect. In this research the researcher will test the hypothesis that the dividend behaviour of sudden changes has more effect on stock prices than constant level of dividend behaviour.

To investigate the stock market response to cash dividend announcements the well known event study methodology is employed. In carrying out this methodology one has to first select an estimation period and an event window. In this study an estimation period of 100 days and an event window of 21 (test period) days are used. Returns data during the estimation period are used to predict the expected returns during both estimation period and event window. In previous studies, researchers have used several benchmarks to calculate abnormal returns. In this study the well-known market model is used. Before using the market model to estimate abnormal returns during both estimation period and event window, time series of returns for each company under consideration is calculated as follows;

$$R_{it} = I_n (P_{it} / P_{it-1}) \qquad\qquad (1)$$

Where I_n = natural logarithm, R_{it} = Return for company i for day t, P_{it} = Share price for company i for day t, P_{it-1} = Share price for company i day t −1.

Theoretically returns from a share should include dividend received as well. However the return of this study has not included dividends since daily share prices have been used to calculate return in this study. This will not affect the results seriously. Because during the estimation period of 100 days there might be only one dividend payment or more possible to no dividend payment.

Since market model is used in predicting returns, market returns are calculated by using the following formula;

$$R_{mt} = \ln (ASPI_t / ASPI_{t-1}) \qquad (2)$$

Where l_n = natural logarithm, R_{mt} = Market return for day t, $ASPI_t$ = all share prics index for day t, $ASPI_{t-1}$ = all shares index for day t-1.

The market model benchmark was used to generate expected return. This model assumes that the company return is depended on market returns. Therefore, the market return exists as the independent variable while company return plays the role of depended variable. This relationship can be expressed by using a regression model.

The returns for the estimation period calculated using equations (1) and (2) are used to estimate the market model for each company as follows;
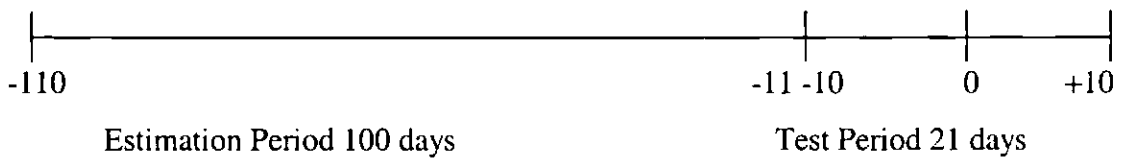
$$R_{it} = \alpha_i + \beta_i R_{mt} + e_r \qquad (3)$$

Where R_{it} = return for share i for day t, α_i = intercept of the model for company i, β_i = slope coefficient of the model for company i, R_{mt} = market return for day t, e_r = Random error.

The estimation of α and β used in the market model is based on previous share return data. In estimating the parameters of the market model the number of observation used varies widely in the literature. For example on daily data, Lambert and Lurker (1985) used as few as 60 observations while Dodd teal (1984) have used as many as 600 values and Guneratne Bandara (1997) have used as 99 values.CLaudio and David (1992) used market model. This was estimated by using the data from the 150 day interval starting 169 trading days and ending 20 trading days before the announcement day (day 0). Alisabri (1999) has calculated Abnormal returns from daily share returns by using the market model benchmark. The most popular benchmark employed in event studies for this purpose altogether 127 announcements of rights and bonus issues made by Sri Lankan companies between January 1984 to December 1996 were considered. In this study an estimation period of 180 days and test period of 21 days are used. Dissa Bandara (2000) has used the standard event study methodology. He has used an overall sample of 123 events relating to 37 companies covering the period from 1993 to 1998 inclusive of both years. In this study an estimation period of 200 days and test period of 121 days are used.

In practice there is a trade off between increasing the number of observation to improve statistical accuracy of the estimated α and β and not going too far back from the test period incise the parameters of the model change through fine. For the purpose of this study 100 observations were used to estimate α and β by using the regression. That is from day 110 to day 11 is used as the estimation period for calculation of α and β.

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|———————————————————————————————|——— —|———|
-110                                      -11 -10        0      +10
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Estimation Period 100 days   Test Period 21 days

$$R_{it} = \alpha + \beta\ R_{mt} \qquad\text{————————}\qquad (4)$$

Since $\alpha = 0$ and $\beta = 1$, the abnormal return of the company in time t can be calculated. Abnormal returns for each company during the estimation period are calculated as follows;

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i\ R_{mt}) \qquad\text{————————}\qquad (5)$$

Where AR_{it} = abnormal return for company i for day t, $^\wedge$ above αi and βi indicate that they are estimated values.

Daily abnormal share returns are averaged for all firms for the test period and t-statistic was employed to examine whether abnormal returns for the cash divided announcements are statistically and significantly different from Zero. If the share market is efficient in semi-strong form, then announcement day normal return should be significantly different from Zero.

In calculating daily returns for both individual companies and market logarithmic returns were considered. Empirically logarithmic returns are more likely to be normally distributed and so confirm to the assumptions of standard satisfied techniques.

After calculating abnormal returns for each company, the next step is to calculate the average abnormal return for the portfolio of securities carder consideration as follows;

$$AAR_t = \frac{\Sigma AR_{it}}{n} \qquad\text{————————}\qquad (6)$$

Where AAR_t = average abnormal return for day t, n = number of shares in the portfolio.

After calculating AAR_t for the event window, the t-statistics is used to test the significance of AAR_t s during the event window as follows;

$$t = \frac{AAR_t}{\sigma AAR} \qquad\text{————————————}\qquad (7)$$

Where σAAR is the standard deviation of portfolio returns during the estimation period.

Significance of cumulative average abnormal returns for selected windows $(CAAR_t)$ during the event window is tested using the following t-statistic.

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$$t = \frac{CAAR_t}{\sigma AAR_i \sqrt{N}} \quad\text{————————————}\quad (8)$$

Where $CAAR_t$ = Cumulative average abnormal returns, N = number of days used in calculating CAAR.

To test the significance of abnormal returns calculated using equation (5) for each company, the following t-statistic is used;

$$t = \frac{AR_{it}}{\sigma AR_i} \quad\text{————————————————}\quad (9)$$

Where AR_{it} = Abnormal Return for company i for day t of the event window, σAR_i = standard deviation of abnormal returns of company i during the estimation period .

The significance of cumulative abnormal returns (CARs) for selected event windows is tested using the following t-statistic;

$$t = \frac{CAR_i}{\sigma AR_i \sqrt{N}} \quad\text{————————————}\quad (10)$$

where CAR_i = cumulative abnormal return for company i for the selected event window, σAR_i = standard deviation of abnormal returns of company i, during the estimation period, N = Number of days used in calculating the CAR_i

Empirical Results

With a view to study the impact of cash dividend announcements on share price at dividend behavioural level, the study analysed at different dividend behavioural level such as sudden increase of dividend behaviour, sudden drop of dividend behaviour and constant dividend behaviour. The dividend behaviour is identified based on the companies' dividend behaviour of past three years.

Table-1 presents on three behaviours. Behaviour one presents the event study results for the companies, which announces sudden increase of dividend at portfolio level. This sub sample-1 consists of 17 companies. The table show significant positive price reaction on day 0 and statistically significant negative price impact on day –8 which indicates that there is a leak in information in the stock market. Behaviour two presents the event study results for the companies, which announces sudden drop of dividends at portfolio level. The sub sample-2 consists of 8 companies. The table show positive significant price reaction on day 0 and also statistically significant price impact on day +2, which indicates that there is a delay in information in the stock market. Behaviour three presents the event study results for the companies, which announces constant dividend at portfolio level. The sub sample-3 consists of 25 companies. The table show positive significant price reaction on day 0, and also statistically significant price impact on day –10, and day –7, which indicates that there is a leak in information in the Sri Lanka stock market.

Table 1 : Even Study Results of Cash Dividend Announcements For The Sudden Increase, Sudden Drop & Constant Level of Dividend Behaviour

DAY	Sub Sample-1 Sudden Increase of Dividend Behaviour				Sub Sample-2 Sudden drop of Dividend Behaviour				Sub Sample-3 Constant Level of Dividend Behaviour			
	AAR	T-STAT	CAAR	T-STAT	AAR	T-STAT	CAAR	T-STAT	AAR	T-STAT	CAAR	T-STAT
-10	0.0039	0.63	0.0039	0.63	0.0017	0.24	0.0017	0.24	0.0205	3.26**	0.0205	3.26**
-9	0.0051	0.81	0.0090	1.02	0.0005	0.06	0.0022	0.21	-0.0018	-0.28	0.0188	2.10*
-8	-0.0217	-3.48**	-0.0127	-1.18	0.0034	0.47	0.0056	0.45	-0.0012	-0.19	0.0176	1.61
-7	-0.0009	-0.14	-0.0135	-1.09	-0.0033	-0.45	0.0023	0.16	-0.0142	-2.25*	0.0034	0.27
-6	-0.0021	-0.33	-0.0156	-1.12	0.0074	1.02	0.0097	0.60	-0.0009	-0.15	0.0024	0.17
-5	0.0000	-0.01	-0.0156	-1.03	0.0024	0.33	0.0121	0.68	0.0004	0.06	0.0028	0.18
-4	-0.0007	-0.11	-0.0163	-0.99	0.0007	0.09	0.0127	0.67	-0.0042	-0.67	-0.0014	-0.08
-3	-0.0010	-0.15	-0.0172	-0.98	-0.0005	-0.07	0.0122	0.60	0.0012	0.18	-0.0002	-0.01
-2	0.0046	0.74	-0.0126	-0.68	0.0065	0.91	0.0187	0.86	0.0024	0.38	0.0022	0.11
-1	-0.0034	-0.55	-0.0161	-0.82	-0.0026	-0.37	0.0161	0.70	0.0025	0.39	0.0047	0.23
0	0.0235	3.78**	0.0074	0.36	0.0172	2.38*	0.0333	1.39	0.0213	3.37**	0.0259	1.24
1	-0.0005	-0.08	0.0069	0.32	-0.0018	-0.24	0.0315	1.26	-0.0029	-0.47	0.0230	1.05
2	-0.0011	-0.17	0.0058	0.26	0.0181	2.51*	0.0496	1.91	-0.0019	-0.31	0.0210	0.92
3	-0.0071	-1.14	-0.0012	-0.05	0.0053	0.74	0.0550	2.03*	-0.0080	-1.27	0.0130	0.55
4	-0.0023	-0.37	-0.0035	-0.15	0.0099	1.37	0.0649	2.32*	0.0022	0.36	0.0153	0.63
5	0.0021	0.34	-0.0014	-0.06	0.0102	1.41	0.0750	2.60**	0.0012	0.19	0.0165	0.65
6	-0.0084	-1.36	-0.0099	-0.38	-0.0113	-1.57	0.0637	2.14*	0.0024	0.38	0.0189	0.73
7	0.0079	1.27	-0.0020	-0.07	0.0120	1.66	0.0758	2.47*	0.0016	0.25	0.0204	0.76
8	-0.0008	-0.13	-0.0028	-0.10	0.0105	1.45	0.0862	2.74**	-0.0048	-0.77	0.0156	0.57
9	-0.0011	-0.17	-0.0038	-0.14	0.0014	0.20	0.0877	2.71**	-0.0029	-0.45	0.0127	0.45
10	0.0021	0.34	-0.0017	-0.06	-0.0015	-0.20	0.0862	2.61**	-0.0014	-0.22	0.0114	0.39

** Significant at 1% level

* Significant at 5% level

Figure-1 presents three behaviours. Behaviour one presents the behaviour of cumulative abnormal return for the companies which give sudden increase of cash dividend. The figure shows, prices are starting to drop on day –8 and prices are raised sharply on day 0 at significant level and thereafter continue to fluctuate. If we consider the individual company level in this sample for 6 of the companies show significant price reaction before the announcement day for 4 of the companies show significant price reaction after the event day, significant price impact is observed for 5 of the companies on day 0. For 7 of the companies show no price reaction at significant level. According to the annual reports of these companies do not maintained a dividend policy and they give increased dividend suddenly. Therefore, investors are not attracted by this nature, because most of the part of the earned profits are given as cash dividends which indicates that they do not have any future reinvestments projects which could generates more profits in future. Therefore, the sudden increase of dividend impacted negatively among investors after the announcement day.

Behaviour two shows the behaviour of cumulative abnormal returns for the companies which give sudden drop of cash dividends. The figure shows positive price reaction from day –9 and share prices and dropped on day 0 and from the day +2 share prices are increasing continuously. If we consider individual company level for only one company shows significant price reaction before the event day. But four of the companies show significant price changes after the event day. But, any one of company shows significant price reaction on day 0. For four companies show no price reaction significant level. This analysis reveals that although these companies provide sudden drop of cash dividend investors show positive reaction to this announcements because investors are well informed about the behaviour of the companies that even these companies earn higher profit and provide cash less dividend they will reinvest the rest of the profits which will generate higher return in future contrary to the results shown in the analysis of even study results for the companies which gives sudden increase of dividends.
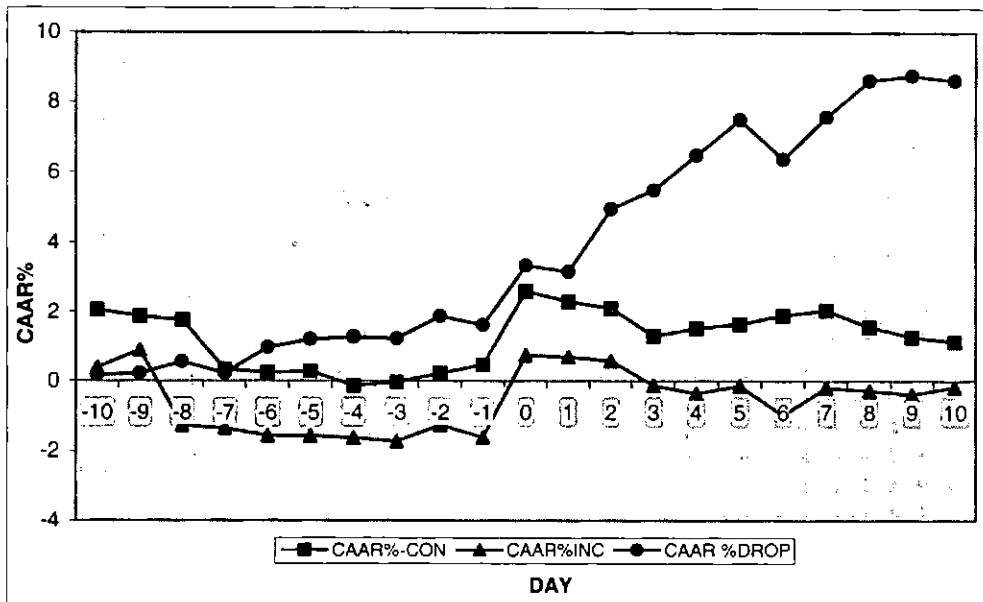
Figure - 1 Comparison of Different Dividend Behaviour of CAAR's of Cash Dividend Announcements during the Test Period.

Behaviour three Presents the behaviour of cumulative abnormal returns for the companies, which give constant dividend at portfolio level. The figure shows drop in share prices on day -7 and there is a sharp rise in share prices on day 0 and thereafter prices are dropping from the day +1 and again price improvement is observed from the day +3 till day +7 relative to the event day. If we consider individual company level for 8 of the companies show significant price reaction before the event day and for 7 of the companies show significant price reaction after the event day. But, only 4 companies show significant price reaction to the cash dividend announcement on day 0. 10 of the companies show no price reaction at significant level. The analysis reveals that the investors have a confident on constant dividend given by these companies. They believe, they definitely receive certain percentage of dividend constantly, because, these companies maintain a dividend policy, which has

resulted a significant price reaction on announcement day.

Comparison of Different Dividend Behaviour

The figure 1 presents the comparison of the behaviour of cumulative average abnormal returns for the dividend behaviour constant level dividend, sudden increase of dividend and sudden drop of dividend. According to the figure, all these three types of behaviours show positive significant price reaction on the announcement day. Sudden increase of dividend shows, there is a drop in share prices after the event day. Because of that these companies give all profits that they have earned and they do not have any future reinvestment plan and no dividend policy However the high rate of price improvement is observed after the event day for the sudden drop of dividend behaviour, which reveals that the investors know that these companies have future reinvestment plan which will

generate future returns and they show positive reaction to this announcement. This behaviour is contrary to the behaviour of sudden increase of dividend. However, the behaviour of constant level dividend stream shows a significant impact which is seen well after the announcement day which reveals that these companies have a constant dividend policy and investors prefer these dividend policy which they can predict their earnings. Analysed behaviour of CAAR for the dividend behaviour of constant level, behaviour of sudden drop of dividend and the behaviour of sudden increase of dividend, reveals that the behaviour of sudden changes of dividend behaviour has more significant price effect.

Summary And Conclusions

This study investigated the impact of cash dividend announcements on share prices. And tested whether the Colombo Stock Exchange confirms to the semi – strong version of market efficiency hypothesis. In a semi – strong form efficient market all the publicity available information should be reflected instantaneously in share prices. Therefore, if the Colombo Stock Exchange is semi strong form efficient, we should be able to observe a quick and unbiased price reaction to cash dividends announcements by studying price reaction of shares traded in the Colombo Stock Exchange to the specific information of announcement.

This study attempted to examine the market respond to the sudden dividend increase, sudden dividend drop and constant level dividend behaviour. The results showed that sudden increase dividend behaviour has highest positive significant price effect on stock prices. However, sudden drop dividend behaviour

has positive impact on stock prices if the investors are informed about the dividend cut. Since the investors have confidence on dividends. constant level dividend behaviour shows significant response on event day. Therefore the hypothesis dividend behaviour of sudden changes has more effect on stock prices than the constant level dividend behaviour which was not rejected by the results.

Since the investor's perceptions about the political and economic condition of the country were significantly different during these six years, its effects might be absorbed in to the market reaction in general. Therefore. when the impact of cash dividend announcements is analysed the other economical conditions also should be considered.

Therefore the effects of the political and economic condition might be absorbed in to the market reaction during the year between 1995 to 2002. A detail study in this regard is open to future researches.

Since the results of this study indicate that the CSE is informationally inefficient, so it has important implications for the investors, management of companies and the stock market regulating agencies. The investors could make use of the delayed reaction of cash dividend and stock dividend announcement information to make decisions with regard to changes (to buy or sell) they have to make to their portfolios in order to make profits or avoid potential losses. This delayed reaction of the market to cash dividend and stock dividend announcements information can occur due to the management of companies not disclosing all the important information to the market participants on a timely and regular basis. Therefore, management of

companies should make attempts to communicate important information to the market on a timely and regular basis.

Stock market regulatory agencies such as the Securities and Exchange Commission (SEC) of Sri Lanka could increase its monitoring activities on the stock market to ensure that listed companies disseminate important information such as cash dividend and stock dividend announcements timely and regularly. This kind of research can motivate the development of a share market through an effort of findings ways and means to earn better return to the investors of the Colombo Share Market.

A research can be done using a reasonable sample of securities spread over several accounting years and examining the reaction of cash dividend after adjusting for possible thin trading bias in future. And also the price reaction could be analysed based on the dividend yield, which will show the actual behaviour of the investors. The results are not merely due to the impact of cash dividend. The factors other than announcements such as economical and other market conditions also have impact on share prices. Therefore, if the future researches are interrelated with the economical, market and regional environment the results would be more accurate, information could be obtained.

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