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Market Efficiency or Not: A Study of Emerging Market of Colombo Stock Exchange (CSE) in Sri Lanka

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Abstract

Efficient market is one in which prices fully reflect available information. An implication of an efficient market is that no excess returns can be made from this information because current prices already reflect the information. However, excess returns (if any) should not be statistically significant from zero. Market efficiency depends on the ability of traders to devote the time and resources to gather and disseminate information. The objective of the study is to find out the market efficiency of the CSE in Sri Lanka. ôEvent studyô methodology is applied to investigate Market efficiency. The results revealed that there is an evidence of an anticipatotary effect (CAARs = 5.67%) during the pre announcement period (-10,-1) because of information leakage and also large CAAR (5.76%) is observed during the period of (0, 10) due to investors do not adjust quickly to the information and a considerable amount of time passes before the prices fully incorporates relevant information in dividends.

Keywords: Market Efficiency, Emerging Market and Event Study

Background of the Study

In any country, capital market is an important body in contributing economic development. It has traditionally been viewed as an indicator or predictor of the economy. Many believe (CSE Fact Book, 2005) that a decrease in share prices signals a slowdown in the economy, whereas an increase in stock prices is evidence of growth. Share prices are determined on the basis of the expected cash flow to be received from a share and the risk involved. Investorôs securities use all the information in determining the share prices. Therefore, information is the key to the determination of the share prices and the key issue of the efficient capital market (Keane, 1986). An efficient market is one, where the stock prices quickly and fully reflect all available information about the assets.

According to the Fox and Opong (1999) an efficient market is one in which prices fully reflect available information. An implication of an efficient market is that no excess returns can be made from this information because current prices already reflect the information. However, excess returns (if any) should not be statistically significant from zero. Market efficiency depends on the ability of traders to devote time and resources to gather and disseminate information. Markets that are more efficient attract more investors, which translate into increased market liquidity (Osei, 1998). Investors care about market efficiency because stock price movement affects their wealth. More generally, stock market inefficiency may affect consumption and investment spending, and therefore influence the overall performance of the economy. In Sri Lanka CSE plays a major role in contributing much towards economic development. CSE is emerging trend in Sri Lanka. The peace process, relatively stable political environment, foreign aid, low interest rate scenario, improved economic fundamentals and the increased listed company profitability had a positive impact on the performance of the CSE. The greatest amount of research in finance has been devoted to the effect on market efficiency. These studies are known as ‘event studies’. Initially event studies were undertaken to examine whether markets were efficient or not, in particular, how fast the information was incorporated in share price.

Statement of the Problem

One can argue that Sri Lanka is not an ideal setting to study this issue, in light of the limited role of the stock market in the economy. But in this respect Sri Lanka is not too different from many other countries, where the stock market is underdeveloped relative to the scale of the economy. Even European (Korea and Italy) and Indian markets are fairly similar to our market. Most of the works on the impact on earnings announcement on stock prices pertains to the US market. Relatively little is known about other parts of the world, especially on the developing capital markets. Examining the market reaction to dividend announcement or its impact on shareholder’s value in an emerging market like Sri Lanka can be a fruitful empirical work, which may likely to differ from a developed market. From this study, the researchers are able to find out the following research question.

RQ_1: Whether Sri Lankan stock market is a semi strong efficiency or not?.

Objectives

- To identify the efficiently react to dividend announcements in price adjustments.
- To find out the semi-strong form market efficiency of the Sri Lankan stock market.

Literature Review and Hypotheses Development

In finance, the efficient market hypothesis (EMH) asserts that financial markets are "efficient" or that price on traded assets, e.g. stocks, bonds, or property, already reflect all known information and therefore are unbiased in the sense that they reflect the collective beliefs of all investors about future prospects. The EMH implies that it is not possible to consistently outperform the market-appropriately adjusted for risk- by using any information that the market already knows, except through luck or obtaining and trading on inside information. Information or news in the EMH is defined as anything that may affect stock prices that is unknowable in the present and thus appears randomly in the future. This random information will be the cause of future stock price changes.

It is a common misconception that EMH requires that investors behave rationally. This is not in fact the case. EMH allows that when faced with new information, some investors may overreact and some may under react. All that is required by the EMH is that investors' reactions be random enough that the net effect on market prices cannot be reliably exploited to make an abnormal profit. Under EMH, the market may, in fact, behave irrationally for a long period of time. Crashes, bubbles and depressions are all consistent with efficient market hypothesis, so long as this irrational behavior is not predictable or exploitable. There are three common forms in which the efficient market hypothesis is commonly stated (1) Weak form efficiency (The "weak" form states that only historical information pertaining to past stock prices is impounded in the current stock price); (2) Semi-strong form efficiency (The "semi-strong" form states that both past stock price information and publicly available information is impounded in the current stock price); and (3) Strong form efficiency (The "strong" form states that all available information whether public or private is impounded in the current stock price) each of which have different implications for how markets work.

Matome (1998) stated the behaviour of the Namibian stock market. Overall there is more evidence of inefficiency from studies on the African capital market. An attempt at the semi strong test by Emenuga (1989) using money supply information found that the structural efficiency of the stock market could not be determined using monetary data since there is no empirical relationship between money supply and stock prices.

Abeyaratna, Bandara and Colombage (1999) examined the semi-strong form efficiency of the CSE using Granger causality test and a modified version of the market model on weekly indices of fourteen sectors for the period January 1993 to December 1997. Only three sectors (i.e., bank, finance and insurance; hotels and travels and manufacturing) are found to be semi-strong form efficient when the overall period is considered. A majority of the sectors lag the market indicating the possibility of predicting market movements of the EMH. When the sample is divided into three subs-periods and tests are carried out, consistent results are obtained.

H_1: Colombo Stock Exchange is a semi-strong form efficient market.

Samarakoon (2005) investigated autocorrelations of market and industry return in both short and long term holding period in the CSE using a long sample period to test the efficiency of stock prices. Daily stock market returns are reliably positively auto correlated in the order of forty three percent. Daily returns are more predictable in rising markets and for large industries such as Banks, Finance and Insurance, Manufacturing, Diversified, Plantations, Beverages, Food and Tobacco, hotels, and Travels. Monthly stock market returns have a reliable positively autocorrelation of 21 percent, and for most industries monthly autocorrelation are larger than daily auto-correlation. Monthly returns are also more predictable in rising markets. Consistent with observed price reversals in the Sri Lankan market the long-horizon returns exhibit large negative autocorrelations suggesting not only that they are predictable but also that they contain a large mean-reverting component. The average predictable variation in 1-4 years return is 56 percent of market returns and 49 percentages for industry returns. These results reliably reject the random-walk behaviour of prices and the weak form market efficiency in the Sri Lankan stock market. Dissa Bandara and Samarakoon (2002) investigated the informational content of dividend announcement and analyze the impact of dividend announcement by firm size and dividend growth using a sample from the CSE in Sri Lanka. They found that dividend have a

significant information content in Sri Lankan Stock Market. On average, market reacts positively to dividend announcements. The information content is stronger for the smaller firms and for firms announcing high dividend growth. They also found a considerable anticipatory effect for smaller firms, the largest firms and for firms announcing lowest dividend growth. The market takes considerable time to fully incorporate information contained in dividend announcement by the smallest firms, the largest firms, and by firms announcing the highest dividend growth. Overall, the results are inconsistent with an informationally efficient stock market.

H_2: The Sri Lankan stock market efficiently reacts to dividend announcements in price adjustments.

Methodology

This section is divided into four sub-sections. The first sub-section presents the research approach. The sub-second section discusses the sampling design. In the sub-third section, data source is discussed. The fourth sub-section describes the design of reliability and validity of the data whereas the last sub-section highlights the mode of analyses.

Research Approach

As this study is a business and management research, it has a characteristic of positivist and interpretive and also involves in deductive approach as well as inductive approach. Combining these two research approaches in same piece of research is perfectly possible and advantageous for a research.

Sampling Design

An overall sample two hundred and forty events (40 companies) listed in the CSE is selected which covers during the period of 2003 to 2007 which were selected by using judgmental sampling. Reasonable care has been exercised in order to select a large sample to derive more valid findings. The final selection criterion is the availability daily closing price data in a manner that is necessary for the application of the "event study method". Daily closing price should be available for at least 200 days out of the total period of 221 days that include the 200 days estimation period (-11, -211) and the window period 21 days. Therefore, to be precise on testing

the market efficiency, this study considers daily data which is important to measure the impact of the dividend announcements using the smallest feasible interval.

Data Sources

In the present study we used only secondary data which is the CSEôs C-D. The study computes daily returns for individual securities on the basis of daily closing stock prices. In cases where price for the non-traded on a given date, the following traded price is taken as the price for the non-trading date. The market return is calculated as the change in the ó*All Share Price Index'* (ASPI), which is the value-weighted price index of the entire share listed in the CSE.

Reliability and Validity of the Data

Primary information and data were collected from CSE which is found that all information are accurate and realistic. Therefore researchers are highly satisfied with the data. Validation procedures involved initial consultation with expert researchers. The experts also judged the face and content validity of the data which were collected from CSE.

Mode of Analyzes

This study uses the óStandard Event Study Methodô [(Brown & Warner,1980, 1985as cited in Dissa Bandara & Lalith (2002)] to estimate the abnormal returns (AR), average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) around the dividend announcement day (the event-day). In the study, researchers have taken 21 days around the event (dividend announcement date), and study has designated -10,-9,-8 é é é é é ,-1 as the 10 days prior to the event, 0 as the event day, and +1, +2, +3é é é é ..,+10 days after the event and AAR and CAAR were computed for 21 days surrounding (lead and lag 10 days) the event-day.

Data Analyses and Findings

Average Abnormal Returns and Cumulative Average Abnormal Returns Surround the Dividend Announcements					
Window Period	**AAR%**	**T(AAR)**	**CAAR%**	**T(CAAR)**	**CAAR1%**
-10	0.42	0.61	0.42	0.12	0.42
-9	0.80	1.16	1.23	0.34	1.23
-8	0.43	0.63	1.66	0.46	1.66
-7	0.21	0.30	1.87	0.51	1.87
-6	0.69	1.00	2.56	0.70	2.56
-5	0.45	0.65	3.02	0.83	3.02
-4	0.22	0.32	3.24	0.89	3.24
-3	0.68	0.98	3.92	1.08	3.92
-2	0.95	1.37	4.87	1.34	4.87
-1	0.81	1.16	5.67	1.56	5.67
0	**3.02**	**4.35****	**8.69**	**2.39***	**3.00**
1	-0.66	-0.96	8.03	2.20*	2.34
2	0.11	0.16	8.14	2.23*	2.45
3	0.91	1.31	9.05	2.48*	3.36
4	0.34	0.49	9.39	2.58**	3.70
5	0.13	0.19	9.52	2.61**	3.83
6	0.42	0.60	9.94	2.73**	4.25
7	-0.26	-0.37	9.68	2.66**	3.99
8	0.31	0.45	9.99	2.74**	4.30
9	0.46	0.66	10.45	2.87**	4.76
10	1.00	1.44	11.45	3.14**	5.76

Table 1: Abnormal Returns of the Sample

**Significant at 1% level * Significant at 5% level

Average Abnormal Returns (AARs)

In table-1 the AAR shows the average deviation of the returns of the i^{th} security from their normal returns with the market index. The CAAR is the cumulative deviations of the securitiesô returns from their normal relationship with the market over the periods surrounding the event-day (from ï 10^{th} day to $+10^{th}$ day). This shows the cumulative effects of the residuals of all securities. The AAR can be either positive or negative. However, the AAR can be positive for some time immediately preceding the event-day if the market expects good news from the dividend announcement and negative if the market expects bad news.

As per the table-1 shows that the returns are positive throughout the 100% (All 10 days) Before the announcement and 80% (8 days) after the dividend announcement. However, there is no negative AAR before the event day and 20% (2 days) after the event day. During the 21 days window period, the AARs are positive for 90% (19 days) and negative for only 10% (2 days). This indicates that these returns are positive for most of the days than they are negative. Therefore, the figure indicates that these are greater positive returns on majority of the days (90%) surrounding the event-day. Results of the t-test presents that the returns are significant only on day 0 other than other days. In this regard one important aspect of pattern of average abnormal returns prior to the announcement day can come from four sources:

(1) The fact that the important announcement will take place is often released to the public prior to the announcement (Information leakage) ;
(2) If the announcement is at the discretion of the firm, an event study of this announcement will show ex-dividend period average abnormal return ;
(3) Average abnormal returns prior to the announcement day reflect leakage of the information (Insider information) by those with access to it (Insiders);
(4) Investorsô expect the share price reaction toward positive: - i.e., Selected companies will announce dividend regularly without any break. This is good information to investors and leads to buy the more shares of particular company.

In this study, magnitude of the share price reaction of AAR on day 0 is positive of 3 %, this is statistically highly significant at 1% level. This implies that the market absorbs very quickly the favorable signal released by the announcement of the dividend made by the companies. Therefore, this evidence suggests that on the dividend announcement day 0 provide stronger signal to the market than other days. In addition, for the period, day -10 to day -1 and day +10 to +1 the price reaction to dividend announcement is almost positive returns (except day +1 and day +7) but they are not statistically significant since there is a less information leakage or slow market response to dividend announcement. This may be a result of the inefficiencies of the information dissemination process. The dividend announcements are contained in the stock market daily, which is published by the CSE on the following day. It takes several days for the subscribers to receive this publication by mail. Also electronic media do not provide adequate coverage of company announcements. The results also point to possible herding where the less informed investors tend to follow the more informed investorsôtrading behaviour.

Cumulative Average Abnormal Returns (CAARs)

In table-1, the values of CAARs are calculated in two series. In the first series, the values of AARs are cumulated separately from day -10 to -1 and day 0 to 10. In the second series, AARs are cumulated continuously from day -10 to 10. CAAR and CAAR 1 are positive for the whole event window (from day -10 to day+10) from the share price response to the dividend announcement. A continuous upward movement of CAARs during the event period which indicates that market is expecting good news from dividend. That is an increase trend can be observed CAARs in pre and post period of dividend announcement.

In addition results in table-1 shows that share holders could be earn from dividend announcement. Evidence depicts the CAAR during the (-10, -1) period is 5.7%. Which may be due to potential leakage of information and the CAAR for the (0, +10) period is 5.8% due to information taking time to be reflected in share price. Therefore, this slow response has the potential of generating abnormal returns based on publicly available information, which runs

counter to the efficient market hypothesis. Finally it will increase to 11.5% over the period of 21 days. The following dividend announcement days CAAR are statistically significant. This scenario implies that investors are able to maximize their profit if they sell them at a higher price after the event day. Findings also show that investorsô gain more value in the post announcement period, owing to the reasons might be the dividend announcement carries information about the future earnings and cash flow of the companies in CSE.

Direction of the Abnormal Returns on Event Day

Table 2: Direction of the Abnormal Returns on Event Day

Direction of Abnormal Returns on Day 0		
Direction	**Number of Events**	**Percentage of Events (%)**
Positive	154	64
Negative	86	36
Total	**240**	**100**

The direction of the abnormal returns on the dividend announcement date is presented in table-2 for the two hundred and forty events. As shown in table-2, 64% of the events have positive ARs on the dividend announcement date while 36% of the events have negative ARs. This reveals that positive ARs are more than the negative ARs on the dividend announcement date. Therefore, the overall market reaction is positive and AARs are 3 % on the dividend announcement date.

Direction of the Abnormal Returns of the Total Observation

Table 3: Direction of the Abnormal Returns on Event Day

Direction of the Abnormal Returns of the Window Period of Total Observation		
Direction	**Number of Observations**	**Percentage of Observations (%)**
Positive	2712	54
Negative	2328	46
Total Observations	**5,040**	**100**

Table-3 represents the direction of ARs of the window period of total observation of 5,040 of the study. 54% of the trading days earn positive ARs of the total observations and 46% of the trading days earn negative abnormal returns of the total observations. It indicates that while positive and negative observations are fairly evenly distributed.

Hypotheses Testing

H_1: Colombo Stock Exchange is a semi-strong form efficient market.

According to the result of the study of AARs and CAARs gives, enough evidence to show that dividend content is not incorporated into the security prices as fast as the EMH envisages. As dividend announcement is one of the most important and recurring publicly available information, the analysis in this study has shown that the Colombo Stock Exchange is slow in reflecting this in the share prices. The price adjustments continue even follow after the event day and the excess abnormal return illustrates before the announcements and event day. Therefore H_1 is rejected since market is not quickly response to price adjustments with publicly available information and market exhibits learning lags in incorporating value-changing information contained in dividend announcement.

H_2: The Sri Lankan stock market efficiently reacts to dividend announcements in price adjustments.

There is a significant AARs on the announcement day 0 of 3% which is highly significant (t-value = 4.35) at the 1% level presents in table-1. This is clearly shown that dividend announcement provide stronger positive information to the firms. In addition CAARs is strongly significant at 5% level on the day 0. CAAR will increase to 11.5% over the period of 21 days. The following dividend announcement days (i.e, CAAR) which are statistically significant. Therefore, H_2 should be rejected.

Conclusion

It is evident from the empirical results for the event day that provide strong significant average abnormal returns to the dividend announcement. This findings support the signaling hypothesis, thus, dividend announcement give positive information to the Colombo Stock Exchange (CSE). However, there is a evidence of an anticipatotary effect (CAARs = 5.67%) during the pre announcement period (-10,-1) because of information leakage and also large CAAR(5.76%) is observed during the period of (0, 10) due to investors do not adjust quickly to the information and a considerable amount of time passes before the prices fully incorporates relevant information in dividends. Therefore, the abnormal returns are generated after the public information is available. Above findings reveal that Colombo Stock Exchange is not a semi strong form efficient market. However, capital market efficiency not only depends on information such as historical price, public and private information but also on the implementation of the existing rules and regulations of the stock market and administrative efficiency of the same.

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