Journal of Management & Public Policy
Vol. 1 No. 1 July-December 2009 pp 43- 56

Stock Price Reactions to Dividend Announcements

T. Mallikarjunappa[*] & T . Manjunatha[**]

Stock market efficiency has been of considerable importance in finance literature. Three forms of efficient market hypothesis (EMH) have been examined by researchers and analysts. This paper examines the stock price reactions to dividends, one of the publicly available information, to test the semi-strong form of EMH. The study is based on the dividend announcements of 149 companies which are part of the BSE-200 Index that announced dividends for the financial year 2002. To test the stock price reactions, the expected returns are found out by regressing the daily returns of companies and market index for the period January 1998 up to the relevant date applicable to companies. Based on these results, abnormal returns, average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) are worked out for 29 days prior to and 30 days after the dividend announcement (event) date. The analysis of the results shows that AARs do not approximate to zero and CAARs show wide fluctuations indicating that abnormal returns can be earned several days after the event day. CAARs show that abnormal returns can be earned 24 days after the event day. From this we conclude that Indian market is not efficient in the semi-strong form.

Key words: Dividend announcements, Value-changing information, Event study, Market model, Average abnormal returns, Cumulative average abnormal returns, Efficient market hypothesis.

Introduction

Modern portfolio theory is based on the assumption that financial markets are capable of incorporating value-changing information into the security prices. It also recognizes that all markets are not absolutely efficient. Depending upon the type of value changing-information that a market can quickly incorporate in pricing its securities, researchers have classified the market efficiency into three distinct forms – the weak, the semi-strong and the strong. The strong-form has been further classified by Fuller and Farrell (1987) into two groups, the super-strong form and the near-strong from. The research on market efficiency has been codified under the heading called efficient market hypothesis (EMH) in finance theory. The weak form of EMH states that share prices reflect all historical value-changing information, the semi-strong form states that security prices reflect all publicly available value-changing information and strong form asserts that security prices reflect all value-changing information. The super-strong

[*] Professor, Department of Business Administration, Mangalore University, Mangalore, India
E-mail: tmmallik@yahoo.com
[**] Professor & Principal, Bapuji Academy of Management & Research, Davangere, India
E-mail: tmmanju@yahoo.com

form states that all the information which is typically available only to insiders and exchange specialists is incorporated in the security prices and the near-strong form states that all the private estimates developed from public information is incorporated into the security prices. If the market efficiency is accepted as true, no one can earn superior returns than the market. While there are a number of studies which support the existence of market efficiency, the real world activity challenges this assumption.

Everyone knows that hundreds and thousands of investors flock around the computer screens in different parts of the world to trade in securities. Even companies get engaged in this kind of activity by way of buy back, takeovers, stake sale, private placements and substantial acquisitions at a high premium. This seems to be a direct refutation of the existence of efficient markets. If the activities in financial markets were isolated cases, one could have considered these as exceptions and relied on the much-supported efficient market hypothesis. The number and value of transactions in financial markets around the world are so huge that no one can simply dub them as irrational investors and ignore their activity. Ironically, if the markets were truly efficient, no one would engage in trading and investment activity. If a large number of investors do not engage in continuous activity of buying and selling, markets cannot become efficient in the true sense. While a number of studies have asserted that markets are efficient, the market activity has induced the researchers and analysts to test the existence of such markets. This has resulted in a large number of studies questioning the validity of the EMH. These studies have highlighted different components of information that are not swiftly incorporated into the prices. Studies have highlighted the P/E effect, small firm effect, month/week/day effect and delay in incorporating information. A brief review of studies, which have supported and repudiated the existence of EMH in the semi-strong form, is presented below.

In their seminal study of stock price reaction to stock splits, Fama et al. (1969) found that there was considerable market reaction prior to the stock split announcement and the cumulative abnormal returns tapered off after the event-day. They concluded that the market is efficient in the semi-strong form. May (1971), Brown and Kennely (1972) and Jordan (1973) studied the behaviour of security prices by taking the quarterly earnings as the event and found that the results were consistent with the semi-strong form of EMH. Ball and Brown (1968), Beaver (1968) and Beaver et al (1980) examined the magnitude of price changes surrounding the announcement of a firm's annual earnings. Their results showed that the reaction occurred quickly and, therefore, the EMH in the semi-strong form holds good. Kormendi and Lipe (1987), and Easton and Zmijewski (1989) found evidence consistent with stock prices reflecting cross sectional differences in the time series behaviour of earnings, which support the existence of efficient markets. Ball and Bartov (1996) reported that investors are aware of the existence as well as of the signs of serial correlation for all the lags. They found that all the variables had predicted signs. However, they report that the market systematically underestimates serial correlation in standardized unexpected earnings.

Akhigbe, Frye and Whyte (2005) test the hypothesis that the passage of the Financial Services Modernization Act (FSMA) of 1999 has spillover effects cross-nationally, using a sample of US, non-US transactional (Australian, Canadian, and UK), and relationship (German, Japanese, Dutch, and Swiss) banks. Their results suggest that the respective banking markets are efficient in filtering events that are largely country-specific with only limited implications for other

international banks. Kumar Narayan (2005) examines whether or not stock prices for Australia and New Zealand are characterized by a unit root. He finds that the stock prices of both countries are nonlinear processes that are characterized by a unit root that is consistent with the efficient market hypothesis. Some of the studies on the Indian market have also supported the semi-strong form of EMH. Obaidullah (1992) examined the bonus issues and showed that the market was capable of reacting to bonus issues. Dixit (1986) found that dividend was the most important determinant of share prices. Based on the study of rights issues, Srinivasan (1997) concluded that the market was efficient in the semi-strong form. Narayana Rao (1994), who examined the share price responses to some of the corporate financial policy announcements, reported that the stock market is efficient in the semi-strong form Sehgal and Jhanwar (2008) examine if there is any short-term persistence in mutual funds performance in the Indian context. They find no evidence that confirms persistence using monthly data. Using daily data, they observe that for fund schemes sorted on prior period four-factor abnormal returns, the winners portfolio does provide gross abnormal returns of 10% per annum on post-formation basis. They find that economic feasibility of zero-investment trading strategies that involve buying past winners and selling past losers is however in doubt. This is owing to the fact that these strategies generate low gross returns and that the winners portfolios involve higher investment costs than losers portfolios, thus eliminating a major portion of extra-normal returns. Their empirical findings are consistent with the efficient market hypothesis. Whereas the above studies have found the existence of the efficient market, there are others that contradict this.

Joy et al. (1977) found that the favourable information contained in quarterly earnings was not reflected in share prices. Basu (1977) tested the predictive content of price-earnings (P/E) multiples and concluded that the result was a contradiction of semi-strong form of EMH. Charest (1978) found no evidence for the NYSE being efficient in interpreting selected cash dividend change information during 1947-1967. This is based on his finding that a systematic trader in dividend changing stocks would have earned significant abnormal returns. Jensen (1978) and Joy and Jones (1979) reported that the semi-strong form of EMH does not hold well. Watts (1978), Rendleman et al. (1982), Foster et al. (1984), Bernard and Thomas (1989, 1990), Freeman and Tse (1989), Mendenhall (1991) and Bartov (1992) found statistically significant abnormal returns after quarterly earnings announcements. According to Brown (1979) stock markets failed to adjust instantaneously to the new earnings per share (EPS) information. The results of Poterba and Summers (1988) and Ou and Penman (1989a, b), are inconsistent with the semi-strong form of EMH. Bajaj and Vijh (1995) found that all dividend announcements without any ex-post selection criteria are accompanied by positive average excess returns. They also found that positive average excess returns increase as firm size and stock prices decrease. Cuthbertson et al. (1997) rejected the existence of efficient market based on a study of the behavior of the UK stock market under the null hypothesis that the expected returns are constant. Porta et al. (1997) found evidence that is inconsistent with the risk-based explanation for return differential. They reported that post-formation earnings announcement returns were substantially higher for value stocks than for glamour stocks. This finding goes against the semi-strong form of EMH. Rangan and Sloan (1998) reported that earnings expectations embedded in stock prices systematically underestimate the time series properties resulting from quarterly reporting requirements. Hughen and Wohar (2006) show that in seeming contradiction of the efficient markets hypothesis, closed-end fund shares typically trade at discounts to their portfolio values. They find that about half of these discounts are nonstationary. They apply a methodology

to test for structural breaks in the mean discounts. They report that virtually all have structural breaks, and their findings contradict previous studies that indicate closed-end fund discounts revert to a long-term mean value and structural breaks in mean discounts do not occur together and therefore, does not find support for a common factor causing these breaks. Studies on the Indian market in this area have cast doubt on the existence of the EMH.

Obaidullah (1990) examined the market reaction to half yearly earnings announcements and found that the semi-strong form of EMH could not be accepted. Barua and Raghunathan (1990), Sundaram (1991) and Obaidullah (1991) cast doubt on the consistency of the observed price-earnings ratios with fundamental factors like dividend growth and pay-out-ratios. Chaturvedi (2000a) found that low P/E stocks outperformed the high P/E ones and concluded that the market is inefficient. Chaturvedi (2000b) studied the behaviour of stock returns surrounding the announcement of half yearly earnings. His results showed that abnormal returns were present both during the pre and post-earnings announcement periods. Mohanty (2002) found that companies which announced buyback yielded excess returns even three months after the announcement dates. This casts doubt on the existence of the semi-strong form of EMH. However, he attributes the excess returns to high premium offered on buy backs. Mallikarjunappa (2004) found that Indian stock prices take time to react to the quarterly earnings and therefore, conclude that the market is not efficient in semi-strong form. Iqbal and Mallikarjunappa (2007, 2008) report that market offers opportunity to earn abnormal returns on cumulative basis after the quarterly earnings announcement and therefore conclude that Indian market is not efficient in the semi-strong form. As stated earlier the studies which have investigated the semi-strong form of market efficiency have come to different conclusions. While some have supported the existence of the EMH in the semi-strong form, some have found that the markets are not efficient in incorporating the value-changing information. In the light of the above inconclusive evidence for semi-strong form of EMH, this paper investigates whether the Indian market is efficient in absorbing dividend contents, one of the value-changing information. Therefore, this study is conducted with the following objectives: (a) to empirically test whether the semi-strong form of EMH holds in the Indian stock market, and (b) to test how the share prices in the Indian market react to dividend announcements.

SAMPLE, DATA AND METHODOLOGY

Sample*:* The companies selected for this study are those which form part of the Stock Exchange, Mumbai (the BSE), index consisting of 200 companies which are called BSE-200 index. Since the objective of the study is to study how fast the value-changing information contents of the dividends are incorporated into the security prices, only those companies which have declared dividends, both interim and final, during the year 2002 have been selected. The search for dividend declaration dates in the BSE and NSE websites resulted in the selection of 149 companies. There were 170 dividend declarations from these companies in the year 2002.

Data: The data on dividend declaration were obtained from the BSE websites, NSE website and the Centre for Monitoring Indian Economy (CMIE). The day of board meeting to announce the dividend is taken as event-day i.e., the day of arrival of information to the market. The daily closing prices of the selected companies and the BSE-200 (the market) are taken from the Centre for Monitoring Indian Economy (CMIE) data base. The daily price data from 1-1-1998 up to four months after the financial year ending (the year 2002) are taken for calculating the alpha and beta of the market model.

M***ethodology****:* Event study methodology is used to assess the average returns (AR), average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) around the dividend announcement day (the event-day). Average abnormal returns and CAAR were computed for 60 days surrounding (29 days before and 30 days after) the event-day. The event-day is defined as day zero, twenty nine and thirty trading days before and after the event-day is designated as days -29 to -1 and 1 to 30 respectively. To examine the stock price reactions to dividends, expected returns, ARs, AARs and CAARs are computed. The returns of each security are isolated into those returns which can be attributed to market movement and those which cannot. Transaction costs are ignored in this study as they are not going to make significant impact on the results. The following market model is used:

$E(R_{it}) = \propto_i + \beta_i R_{mt} + e_{it}$, for i = 1,...N. where E (R_{it}) = Expected return on security 'i' during time period 't', $\propto_i$ = Intercept of a straight line or alpha coefficient of i^{th} security, β_i= Slope of a straight line or beta coefficient of i^{th} security, R_{mt} = Expected return on index (BSE-200 in this paper) during period 't', and e_i = Error term with a mean zero and a standard deviation which is a constant during time period 't'. This term captures the variations of the individual security returns that are not captured by the market index. The following simplified model of regression was used for estimating the returns on each security by taking the actual returns on market, R_{mt}.:expected Return on each security = $E(R_{it}) = \propto_i + \beta_i R_{mt.}$ The ARs are computed using the following model: $AR_{it} = R_{it} - E(R_{it})$, where R_{it} = Actual Returns. The actual returns are used to study whether or not individual securities have earned abnormal returns. In order to eliminate the effect of any one or group of securities on the ARs and CAARs, the ARs are averaged over the number of dividend announcements. The ARs of securities are averaged for each day surrounding the event-day (i.e. -29 to 30 days) using the following model:

$$AAR_{it} = \frac{\sum_{i=1}^{N} AR_{it}}{N}$$

For $i = 1 ...170 ; t= -29...0, ...+30,$

where i = the number of dividend announcements taken in the study, N = total number of dividend announcements, and t = the days surrounding the event-day.

To know the cumulative effect of AARs on days surrounding the event, these are added to get the CAARs. The model for CAAR is: $CAAR_t = \sum_{t=-29}^{K} AAR_{it}$ where k = -29,...0, ... 30. In order to know whether CAARs significantly differ from zero, t-test is carried out. The level of significance used was 5% with appropriate number of degrees of freedom. The values of AARs, CAARs and t are presented in Table 1. A visual representation of AARs and CAARs can help one to understand the movements on days surrounding the event-day. These are presented graphically in Figures 1 and 2.

Analysis of the Returns and Discussion on Market Efficiency

The results of this study are given in Table 1 and Figures 1 and 2. The AAR shows the average deviation of the returns of the i^{th} stock from their normal returns with the market index. The CAAR is the cumulative deviations of the securities' returns from their normal relationship with the market over the periods surrounding the event-day (from – 29^{th} day to $+30^{th}$ day). This shows the cumulative effects of the residuals of all stocks. In an efficient market, no one can consistently earn superior returns since the publicly available value-changing information is

incorporated in the security prices instantaneously. Therefore, AARs can neither be positive nor negative consistently for a long time either before or after the event-day. 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. In an efficient market the AAR should tend to be zero after the event-day. From this, it follows that the CAARs should level out after the earnings announcement. If it does not, the market is not efficient in the semi-strong form. Therefore, one can hypothesize that the semi-strong form of the EMH can be accepted if the CAAR rises sometime before the event-day and levels out subsequently and the AAR hovers around zero after the event-day. From this it follows that CAARs cannot be significantly different from zero in an efficient market.

The values of AAR presented in Table 1 and Figure 1 show that they are fluctuating yielding both positive and negative returns around the event-day. These are positive on 18 days (62%) before and 20 days (65%) after the event-day. It is negative on 11 days (38%) before and 11days (35%) after the event-day. During the 60 days selected for the study, the AARs are positive for 38 days (63%) and negative for 22 days(37%). This indicates that these returns are positive for more number of days than they are negative both before and after the event-day. Therefore, the trend indicates that it is possible to earn positive returns on majority of the days surrounding the event-day. The values of CAARs are calculated in two series. In the first series, the values of AARs are cumulated separately from day -29 to -1 and day 0 to 30 (shown as CAAR in Table 1). In the second series, AARs are cumulated continuously from day -29 to 30 (shown as CAAR1 in Table 1). In the first series, the CAARs are negative for four days (14%) before and eight days (26%) after the event-day. These CAARs are positive on 25 days (86%) before and 23 days (74%) after the event-day.

The analysis of CAAR1 shows that these values are negative on four days (14%) before and zero days (0%) after the event-day. These values are positive on 25 days (86%) before and 31 days (100%) after the event-day. The analysis of cumulative returns like that of AARs indicate that positive abnormal returns exist both before and after the event-day, more so in the latter period. This is indicated by the values in Figure 1 and 2 in which the number of values below the X-axis is less than the values above the X-axis. The CAAR curve in Figure 2 shows that with minor fluctuations, it lies above the X-axis on majority of the days from day -29 to -14. It starts rising from -13th day on which the CAARs plots above the X-axis and this trend continuous for all the days following the -13th day (day -13 to 30). Between day -14 and 0, the CAAR rises with minor corrections, which indicates that market was expecting good news from dividend. This trend before the event-day is one of the indicators of efficient market. However, the CAAR curve does not flatten after the event-day as expected in an efficient market. After the event-day the CAAR rises, with some corrections in the process, and the rise is more pronounced from the 24th day onwards. This trend after the event-day is not consistent with EMH.

The t-test carried out on the CAAR1 indicates that the returns are significantly greater than zero on 42 of the 60 days (70%). The analysis of the CAAR values at five percent level of significance show that these fall in the right-tail of the t-distribution on 11 days (38%) before and 31 days (100%) after the event-day. The values of CAARs do not fall in the left-tail of the rejection region on any day either before or after the event-day. The analysis demonstrates that positive CAARs are possible on all days from the event-day onwards. The fact that the t-values

do not plot on the left-tail of the rejection region of the t-distribution further strengthens the evidence that the positive returns which are significantly greater than zero can be earned but there is no possibility of negative returns which are significantly less than zero on any day surrounding the dividend announcements.

The result of t-test combined with that of the analysis of the movement of AARs and CAARs presented above 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 Indian market is slow in reflecting this in the security prices. As the Indian market exhibits learning lags in incorporating value-changing information contained in dividend announcement several trading days after the event-day, which is about one-and-half months, we conclude that EMH in the semi-strong form cannot be accepted for the Indian market.

Summary and Conclusions

Research on financial market efficiency has received well deserved attention in the western economies but not in India. While a number of academic studies have demonstrated that financial markets are efficient in reflecting and incorporating the value-changing information swiftly, the real activity in the market casts doubt on the existence of efficient markets. The continued interest in securities market around the world has attracted the attention of researchers and analysts to understand the market mechanism and degree to which this market exhibit efficiency. The research in this area has lead to three distinct forms of market efficiency – the weak, the semi-strong and the strong. This paper has investigated the semi-strong form of market efficiency by taking the stock price responses to the dividend announcements, publicly available and recurring information. Those companies which constitute the BSE-200 index and declared dividend in the year 2002, have been selected for study. Totally 170 divided announcements by 149 companies have been studied using the event-study methodology. The values of average abnormal returns (AARs) and the cumulative average abnormal returns (CAARs) computed and analysed in this study show that positive abnormal returns persist several days after the dividend announcements by the companies.

The analysis also shows that the number of days on which positive returns are earned is more than the number of days on which negative returns are recorded. The trend of positive returns is more pronounced after the event-day. The positive returns can be earned even after 30 trading days from the dividend announcement day. The analysis of the t-test values also shows that the positive CAARs can be earned by buying the stocks after the dividend announcements. The whole analysis in this study shows that there is no statistical evidence to accept the semi-strong form of market efficiency in the Indian market. However the behaviour of the CAAR before the event-day exhibits some of the features of efficient market which are not sustained after the event-day.

REFERENCES

Akhigbe, Aigbe., Frye, Melissa B., Whyte, Ann Marie (2005). Financial Modernization in US Banking Markets: A Local or Global Event? Journal of Business Finance & Accounting; Vol. 32

Bajaj, M and Vijh, A.M. (1995). Trading behaviour and the unbiasedness of the market reaction to dividend announcements. *Journal of Finance,* Vol.50, No.1, 255-279.
Ball, R. and Brown, P. (1968). An empirical evaluation of accounting income numbers, *Journal of Accounting Research,* VOL.6, 159-178.
Ball, R. And. Bartov, E. (1996). How naïve is the stock market's use of earnings information?.. *Journal of Accounting and Economic,* Vol.21, 319-337.
Bartov, E. (1992). Patterns in unexpected earnings as an explanation for post announcement drift. *Accounting Review,* Vol.67, 610-622.
Barua, S.K. and Raghunathan, V. (1990). Soaring stock prices: Defying fundamentals. *Economic and political Weekly,* Vol.25, No.46, 2559-2561.
Basu, S. (1977). Investment performance of common stocks in relation to their price earnings ratio: A test of efficient market hypothesis. *Journal of Finance,* Vol. 32, No.3, 663-682.
Beaver, W. (1968). The information content of annual earnings announcement. *Empirical Research in Accounting: selected studies. Supplement to Journal of Accounting Research,* 67-92.
Beaver, W.H.; Lambert, R. and Morse, D. (1980). The information content of security prices. *Journal of Accounting and Economics,* Vol.2, No.1, 3-28.
Bernard, V. L and Thomas, J.K. (1989). Post earnings announcement drift: Delayed price response or risk premium?. *Journal of Accounting Research,* Supplement. Vol. 27, 1-36.
Bernard, V. L and Thomas, J.K. (1990). Evidence that stock prices do not fully reflect the implications of current earnings for future earnings. *Journal of Accounting and Economics,* Vol.13, 305-340.
Brown, P. and Kennelly, J.W. (1972). The information contents of quarterly earnings: An extension and some further evidence. *Journal of Business,* Vol.45, 403-415.
Brown, S.L. (1979). Earnings changes, stock prices, and market efficiency. *Journal of Finance,* Vol.34, 17-28. Charest, G., (1978). Dividend Information, Stock Returns and Market Efficiency-II. *Journal of Finance Economics,* Vol.6, 297-330.
Chaturvedi, Om, Hari. (2000a). Anomalies based on P/E ratios: Empirical evidence from the Indian stock market. *ICFAI Journal of Applied Finance,* Vol.6, No.3, 1-13.
Chaturvedi, Om, Hari. (2000b). Empirical anomalies based on unexpected earnings: The Indian experience. *ICFAI Journal of Applied Finance,* Vol.6, No.1, 52-64.
Cuthbertson, Hayes, K. S.and Nitzsche, D. (1997). The behavior of UKstock prices and returns: Is the market efficient ?. *Economic Journal,* Vol.107, 986-1008.
Dixt, R.K. (1986). *Behaviour of share prices and investment in India*. New Delhi: Deep and Deep, p. 328.
Easton, P.D. and Zmijewski, M.E. (1989). Cross sectional variation in the stock market response to accounting earnings announcement. *Journal of Accounting and Economics,* Vol.12, 117-141.
Fama, E.; Fisher L.; Jensen M. and Roll R. (1969). The adjustment of stock prices to new information. *International Economic Review,* Fabruary, Vol. 20, No.2, 1-21.
Faster,G.; Olsen, C. and Shevlin, T. (1984). Earnings releases, anomalies, and the behaviour of security returns. *Accounting Review,* Vol.59, 574-603.
Freeman, R. and Tse, S. (1989). The multiperiod information content of accounting earnings: Confirmations and contractions of previous earnings reports. *Journal of Accounting Research,* Vol.27, Supplement. 49-79.
Fuller, Russel, J. and Farrell Jr, J.L. (1987*). Modern Investments and Security Analysis*. New York: McGraw-Hill Book Company. Hughen, J. Christopher and Wohar, Mark E. (2006).

Identifying regime changes in closed-end fund discounts. Journal of Economics & Finance; Spring2006, Vol. 30 Issue 1, 115-132.
Iqbal and Mallikarjunappa T. *(2008).* The behaviour of Indian stock prices and returns: Is the stock market efficient? *SCOUR -- Journal of Institute of Productivity and Management,* July, Vol 2, No.2, 39-46.
Iqbal and Mallikarjunappa, T. (2007). Market reactions to earnings information: an empirical study. *AIMS International Journal of Management,* May, Vol 1, No.2, 153-167.
Jensen, Michael, C. (1978). Some anomalies evidence regarding market efficiency. *Journal of Financial Economics,* Vol.6, 95-107.
Jordan, J.R. (1973). An empirical investigation of the adjustment of stock prices to new quarterly earnings information. *Journal of Financial and Quantitative Analysis,* Vol.8, No.4, 609-620.
Joy, O.M. and Jones, C.P (1979). Earnings reports and market efficiency: An analysis of the contrary evidence. *Journal of Financial Research,* Vol.12, No.1, 51-63.
Joy, O.M.; Litzenberger, R. and MacEnally, R. (1977). The adjustment of stock prices to announcements of unanticipated changes in quarterly earnings. *Journal of Accounting Research*, Vol.15, 207-225.
Kormendi, R. and Lipe, R. (1987). Earnings innovations, earnings persistence and stock returns. *Journal of Business,* 323-345.
Kumar, Narayan, Paresh (2005). Are the Australian and New Zealand stock prices nonlinear with a unit root? Applied Economics; 10/10/2005, Vol. 37, Issue 18, 2161-2166.
Mallikarjunappa, T (2004). How do the Indian stocks react to quarterly earnings? *ICFAI Journal of Applied Finance,* 10 (3), 37-48.
May, R. (1971). The influence of quarterly earning announcements on investor decisions as reflected in common stock prices changes. *Empirical Research in Accounting: Selected Studies. Supplement. to the Journal of Accounting Research*, 119-163.
Mendenhall, R.R. (1991). Evidence on the possible underweighting of earnings-related information. *Journal Accounting Research,* Vol.29, 170-179.
Mohanty, P. (2002). Who gains in share buy back*?*. *ICFAI Journal of Applied Finance*, Vol.8, 19-30.Murray, Roger (1976). Pension Funds and Other Institutional Investors. Journal of Finance. December, Vol. 31, No. 5, 1522-1523.
Narayana Rao. (1994). The adjustment of stock prices to corporate financial policy announcements. *Finance India,* Vol.8, No.4, 941-953.
Obaidullah, M. (1990). Stock price adjustment to half yearly earnings announcements--A test of market efficiently. *Charted Accountant* Vol.38, 922-924.
Obaidullah, M. (1991). The Price/Earnings ratio anomaly in Indian stock markets. *Decision,* Vol.18, No.3, 183-190.
Obaidullah, M. (1992). How do stock prices react to bonus issues?. *Vikalpa,* Vol.17, No.2, 17-22.
Ou, J. and Penman, S. (1989a). Financial Statement Analysis and the Prediction of Stock Returns. *Journal of Accounting and Economics,* Vol.11, 295-330
Ou, J. and Penman, S. (1989b). Accounting measurement, price earnings ratios, and the information content of security prices. *Journal of Accounting Research, Supplement.* Vol.27, 111-144.
Porta Rafaew, L. J. Lakonishok, A. Shleifer and Vishny, R. (1997). Good News for Value Stocks: Further Evidence on Market Efficiency. *Journal of Finance,* Vol.52, No2, 859-874.

Poterba, J.M. and Summers, L.H. (1988). Mean reversion in stock prices: Evidence and implications. *Journal of Financial Economics*, Vol.21, 27-59.
Rangan, S. And Sloan, R.G. (1998). Implication of the integral approach to quarterly reporting for the post earnings announcement drift. *Accounting Review*, Vol.73, No.3, 353-371.
Rendleman, R.J. Jr.; Jones, C.P. and Latane, H.A. (1982). Empirical anomalies based on unexpected earnings and the importance of risk adjustments. *Journal of Financial Economics*, Vol.10, 269-287.
Sehgal, Sanjay and Jhanwar, Manoj (2008). Short-Term Persistence in Mutual Funds Performance: Evidence from India. Journal of Accounting, Business & Management; Apr2008, Vol. 15, No.1, 90-108.
Srinivasan, R. (1997). Security prices behaviour associated with right issue related events. *ICFAI Journal of Applied Finance*, Vol.3, No.1, 50-62.
Sundaram, S.M. (1991). Soaring stock prices. *Economic and Political Weekly*, Vol.26, No.18, 1184.
Watts Ross, L. (1978). Systematic abnormal returns after quarterly earnings announcement. *Journal of Financial Economics*, VOL.6, 95 -101.

Appendix 1 : **Table and Figures**

Table 1: The Values of AARs, CAARs and t surrounding the Dividend Announcement.

Days	AAR	CAAR	CAAR1	t Value CAAR1
-29	0.039966	0.039966	0.039966	0.192663
-28	-0.244500	-0.204533	-0.204533	-1.19367
-27	0.078318	-0.126215	-0.126215	-0.6841
-26	0.273874	0.147659	0.147659	0.834798
-25	0.253970	0.401629	0.401629	1.880014
-24	0.057318	0.458947	0.458947	2.252554
-23	-0.086322	0.372625	0.372625	1.812933
-22	-0.057914	0.314710	0.314710	1.526598
-21	0.070892	0.385603	0.385603	1.916665
-20	-0.171022	0.214581	0.214581	1.009073
-19	0.057813	0.272394	0.272394	1.462432
-18	-0.116874	0.155520	0.155520	0.764321
-17	-0.028246	0.127274	0.127274	0.608725
-16	-0.156814	-0.029540	-0.029540	-0.14599
-15	0.202928	0.173388	0.173388	0.677805
-14	-0.269000	-0.095612	-0.095612	-0.24835
-13	0.142637	0.047025	0.047025	0.281722
-12	-0.016053	0.030972	0.030972	0.144851
-11	0.269060	0.300032	0.300032	1.529421
-10	0.383935	0.683967	0.683967	3.610829
-9	0.165204	0.849172	0.849172	3.884273
-8	0.163076	1.012248	1.012248	4.572484
-7	-0.052029	0.960219	0.960219	4.284883
-6	-0.067823	0.892397	0.892397	4.602292
-5	0.275326	1.167723	1.167723	5.870092
-4	0.336986	1.504709	1.504709	7.124835
-3	0.011373	1.516081	1.516081	6.316589
-2	0.069201	1.585282	1.585282	9.582645
-1	0.235667	1.820949	1.820949	8.774654
0	0.262665	0.262665	2.083614	8.668191
1	-0.371708	-0.109043	1.711906	6.217411
2	0.007552	-0.101491	1.719458	8.501082
3	-0.267550	-0.369041	1.451908	6.880181
4	0.404770	0.035729	1.856678	7.553294
5	0.123485	0.159214	1.980163	8.906702
6	0.281908	0.441122	2.262071	11.24869
7	0.052375	0.493497	2.314446	12.26582
8	-0.304654	0.188843	2.009792	9.476389
9	0.093460	0.282303	2.103252	8.575009
10	-0.004997	0.277307	2.098255	11.35939
11	0.337470	0.614777	2.435726	11.46926
12	-0.504400	0.110377	1.931326	9.386383
13	0.058875	0.169252	1.990201	9.259742
14	0.024439	0.193691	2.014640	8.744167

15	-0.167921	0.025770	1.846718	9.512936
16	0.049083	0.074852	1.895801	10.03605
17	-0.108386	-0.033534	1.787415	11.29565
18	-0.148711	-0.182245	1.638704	7.307568
19	0.042802	-0.139443	1.681506	8.394667
20	0.123563	-0.015880	1.805069	10.51313
21	0.178840	0.162961	1.983909	9.186941
22	-0.124899	0.038062	1.859011	11.70251
23	-0.280962	-0.242900	1.578049	7.729881
24	0.285456	0.042556	1.863505	7.987225
25	0.738732	0.781288	2.602237	9.912851
26	0.095587	0.876875	2.697824	13.8021
27	0.210461	1.087336	2.908285	16.49784
28	0.241682	1.329018	3.149967	15.45841
29	-0.039025	1.289993	3.110941	15.81162
30	0.017410	1.307402	3.128351	12.67638

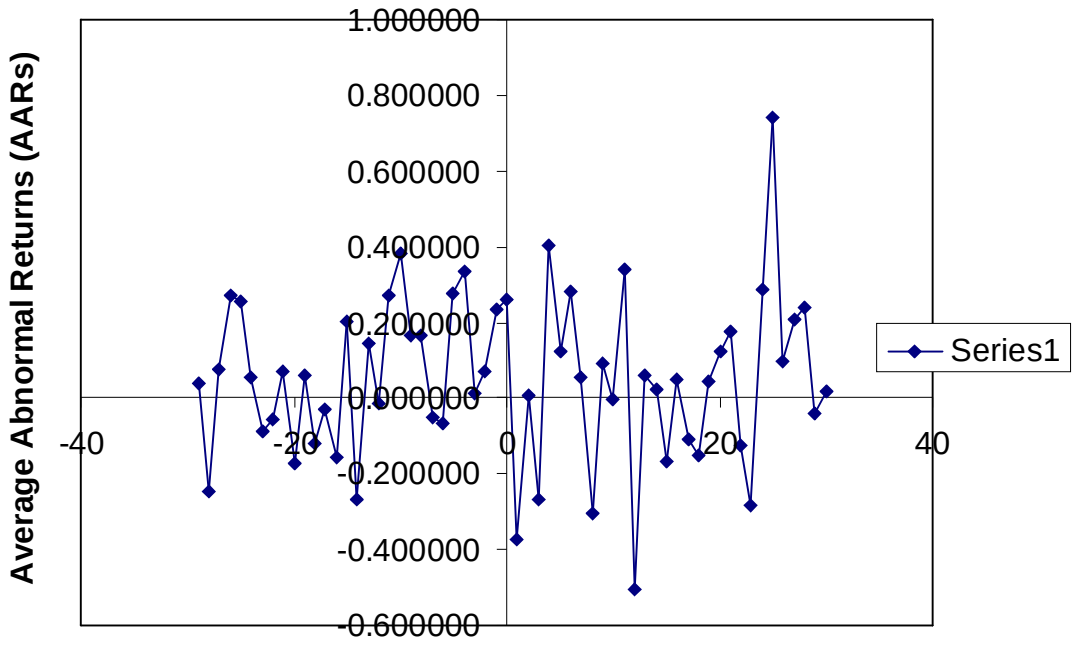
Before –Ve	11	4	4	All Days-RT	42
After –Ve	11	8	0	All Days-LT	0
Before +Ve	18	25	25		
After +Ve	20	23	31	Before-RT	11
				Before-LT	0
				After-RT	31
				After-LT	0

Before –Ve	37.93	13.79	13.79	All Days-RT	70.00
After –Ve	35.48	25.81	0.00	All Days-LT	0.00
Before +Ve	62.07	86.21	86.21		
After +Ve	64.52	74.19	100.00	Before-RT	37.93
				Before-LT	0.00
				After-RT	100.00
				After-LT	0.00

Notes:

1. CAAR shows the values of cumulative average abnormal returns which are computed separately for days -29 to -1 and days 0 to 30. CAAR1show the values of cumulative average abnormal returns which are computed for days -29 through 30.
2. Before –ve and Before +ve indicate the number of negative and positive values, respectively, in the respective columns before the event-day. After –ve and After +ve indicate the number of negative and positive values, respectively, from the event-day to day 30, in the respective columns.
3. The t-test was carried out at a level of significance of 5% with 169 degrees of freedom. The critical value of t is 1.96. The rejection regions fall on both sides of the t-distribution.
4. All Days-RT and All Days-LT indicate the number of t values that fall in the right (RT) and left (LT) tail of the rejection region, respectively, when all the 60 values of CAAR1s are considered.
5. Before-RT, Before-LT, After-RT, After-LT indicate the number of t values that fall in the right (RT) and left tail (LT) of the rejection region when t values which are statistically significant are counted separately for the period before and after the event-day.

Figure 1: The AAR Values surrounding the Event-Day



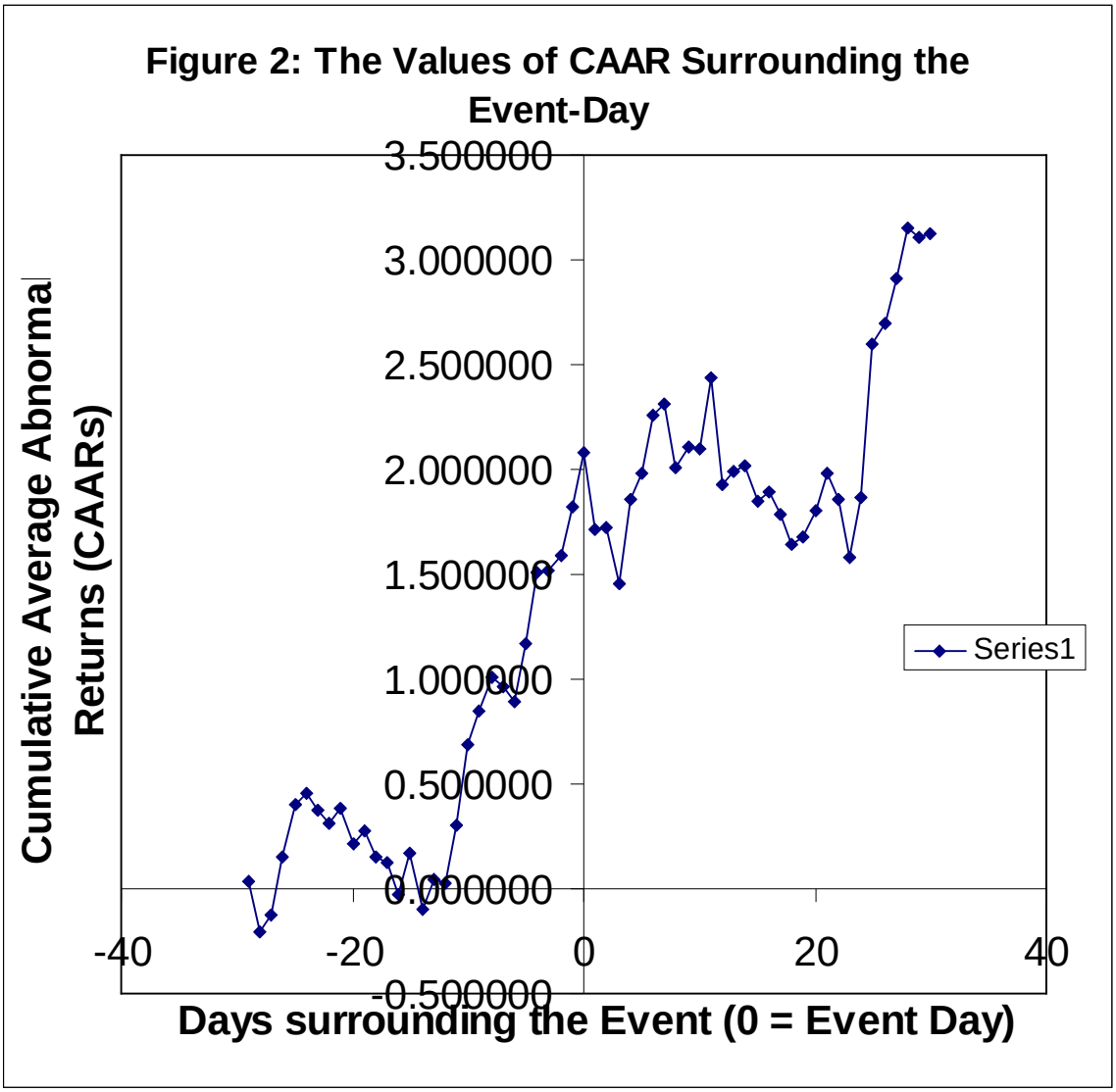


Figure 2: The Values of CAAR Surrounding the Event-Day
Cumulative Average Abnormal Returns (CAARs)
3.500000
3.000000
2.500000
2.000000
1.500000
1.000000
0.500000
0.000000
-0.500000
-40
-20
0
20
40
Days surrounding the Event (0 = Event Day)
Series1

Copyright of Journal of Management & Public Policy is the property of Management Development Research Foundation and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.