

IMPACT OF DIVIDEND ANNOUNCEMENT ON STOCK PRICES

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Observing the stock price movement is an area of research that attracted the attention of various academicians and scholars. Perhaps no other area of finance has been subject to so much empirical investigation during the last four decades as the behavior of stock prices. The present study attempts to contribute positively to the understanding of the behavior of Indian share prices in relation to the dividend announcements. Dividend announcements usually are considered as the positive signal to the shareholders and its positive impact on the share prices is also expected. A standard event study methodology is adopted in this paper to examine the price reactions of 15 listed companies surrounding sixty days of the announcement dates.

INTRODUCTION

The dividend is the cost of equity capital to equity shareholders. The dividend announcement has an impact on the market price of the shares; the market will react positively, if the dividend is upto the expectation level of the equity investors. At the same time if the dividend announcement is not the expectation level of the shareholders, the market reaction will in bear trend for that particular scrip.

In recent years the Securities and Exchange Board of India (SEBI) has initiated a number of reforms to make the Indian stock market at par with developed stock markets of the world. One of such reforms is compulsory quarterly earnings announcement and dividend announcements. This reform is based on the experiences of regulatory bodies around the world as well as the compulsions of domestic markets. The compulsory announcements will have an impact on the stock market. Researchers around the world have studied some of these impacts and it is considered as an event study. Event studies focus on the impact of various announcements like bonus issue, right issue, stock splits, earnings, dividends, mergers and acquisitions, buyback of stocks, etc.

Dividend announcements are one of the most important events and the studies on stock market reaction to earnings information are included in the semi-strong form of efficient market hypothesis (EMH). The semi-strong form of efficient market hypothesis states that stock prices reflects all the publicly available information instantaneously and accurately. In this paper an attempt is on the stock market reaction to dividend announcements in India in the light of various previous studies conducted in various developed countries of the world such as the USA, the UK, Australia, etc.

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OBJECTIVE AND HYPOTHESIS

Objective

To examine the stock market reaction to dividend information

Hypothesis

Since this study empirically examines stock market reaction to dividend information the hypotheses being tested are:

H_{01} : The investors cannot earn abnormal returns by trading in the stocks after the Dividend announcements.

H_{02} : The average abnormal returns and the cumulative average abnormal returns are Close to zero.

H_{03} : The average abnormal returns occur randomly.

SAMPLE, DATA AND METHODOLOGY

Sample

15 most actively traded companies during the year 2009 have been selected on random basis. These companies have announced their dividend during the year 2009. Companies that have any price sensitive information during the event window (-30 days to +30 days) are eliminated.

Data

We have used three sets of data in this study. The first set of data consists of dividend announcement made by the sample companies. This includes the dates on which the Board of Directors meets and approves and announces the dividend of the company. The second set of data consists of daily-adjusted closing prices of the stocks selected for the study at the National Stock Exchange for the period covered by this study. Daily-adjusted closing prices are used in the study as these are assumed to reflect the consensus of the market

participants regarding price of the stock at the end of the trading. The third set consists of the CNX S&P NIFTY index of ordinary share prices compiled and published by the National Stock Exchange on daily basis. Data is collected from NSE website. Table 1 clearly shows the 15 selected companies along with their NSE symbol and date of Dividend announcement.

Table 1
Sample Companies with Dividend
Announcement Dates

S. No. assigned to Company for analysis purpose	Company Name	NSE symbol	Date of Dividend announcement
1	State Bank of India	SBIN	10 June 2009
2	Tata Steel Ltd.	TATASTEEL	06 July 2009
3	DLF Ltd.	DLF	22 Sept, 2009
4	Larsen & Turbo	LT	18 Aug, 2009
5	Unitech Ltd.	UNITECH	06 Aug, 2009
6	Infosys Technologies	INFOSYSTCH	15 Oct, 2009
7	ICICI Bank	ICICIBANK	11 June 2009
8	Bharti Airtel Ltd.	BHARTIARTL	24 June, 2009
9	Cyber Media	CYBERMEDIA	28 Aug, 2009
10	Pearl Engineering Polymers	PEPL	17 Sept, 2009
11	Lakshmi Energy & Foods	LAKSHMIEFL	23 March 2009
12	Hind Syntex Ltd.	HINDSYNTEX	27 Aug, 2009
13	Rajasthan Spinning and Weaving Mills Limited	RSWM	16 Sept, 2009
14	HDFC Bank	HDFC	6 July 2009
15	Zenith Computers Ltd.	ZENITHCOMP	24 July 2009

METHODOLOGY

In this paper two-stage approach is used to test the stock price responses to dividend announcement. The first stage consists of estimation of parameter like beta based on the ex-post returns on stocks and market index, and expected returns on each of the stocks based on the market model. In the second stage these estimated parameters are used to calculate abnormal returns around the event day. In this study, the date of dividend announcement is defined as day 0 or event day. If event day is a non-trading day then the immediately following trading day is considered as an event day. Pre-announcement period includes 30 trading days prior to the dividend announcement date, i.e., days -30 to -1. Post announcement period includes 30 trading days after the dividend announcement i.e., days +1 to +30. Thus, we have taken the event window of 61 trading days (including day 0 as the event day). The estimated abnormal returns are

averaged across securities to calculate average abnormal returns (AARs) and average abnormal returns are then cumulated over time in order to ascertain cumulative average abnormal returns (CAARs). In this paper the market model to measure the returns of stock that is related to market movement is used. Market model was developed and suggested by Sharpe.

Market model can be expressed mathematically as:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + e_{it} \text{ for } i = 1 \dots N$$

Where,

$E(R_{it})$ = Expected return on security 'i' during time period 't'

α_i = Intercept of a straight - line or alpha coefficient of ith security.

β_i = Slope of a straight - line or beta coefficient of ith security

R_{mt} = Expected return on index (CNX S&P NIFTY Index in this study) during period 't'

e_{it} = Error term with a mean zero and a standard deviation which is a constant during time period 't'.

Paper used raw returns. For the values of α_i a proxy of 6% per annum interest on treasury bills is used and for β_i values are estimated by using the formula that is described in this paper. Therefore, the following simplified model of regression is used for estimating the returns on each security by taking the actual returns on market, R_{mt} .

$$\text{Expected Return} = E(R_{it}) = \alpha_i + \beta_i R_{mt}$$

The abnormal returns are computed using the following model:

$$AR_{it} = e_{it} = R_{it} - E(R_{it})$$

Where,

R_{it} = Actual Returns

The abnormal returns of individual security are averaged for each day surrounding the event day i.e., 30 days before and 31 days after the event day. The AAR is the average deviation of actual returns of a security from the expected returns. The following model is used for computing the average abnormal returns (AARs):

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

Where,

i = the number of securities in the study;

N = total number of securities in the portfolio.

t = the days surrounding the event-day

Since the security's overall reaction to the dividend announcement or the event will not be captured instantaneously in the behavior of average abnormal return for one specific day, it is necessary to accumulate the abnormal returns over a long period. It gives an idea about average stock price behavior over time. Generally, if market is efficient, the CAAR should be close to zero. The model used to ascertain CAAR is:

$$CAAR_t = \sum_{t=-30}^k AAR_{it} \quad \text{Where } t = -30, \dots, 0, \dots, + 30.$$

Beta is calculated using following equation:

$$\beta_i = \frac{N \sum_{t=1}^N R_{mt} R_{it} - \left(\sum_{t=1}^N R_{mt} \right) \left(\sum_{t=1}^N R_{it} \right)}{N \left(\sum_{t=1}^N R_{mt}^2 \right) - \left(\sum_{t=1}^N R_{mt} \right)^2}$$

Where,

β_i = Slope of a straight line or beta coefficient of security 'i'

N = Number of observations

R_{mt} = Return on market index 'm' during time period 't'

R_{it} = Return on security 'i' during time period 't'

Parametric Significance Test

The cumulative average abnormal return provides information about the average price behavior of securities during the event window. If markets are efficient, the AARs and CAARs should be close to zero. Parametric 't test' is

used to assess significance of AARs. The 5% level of significance with appropriate degree of freedom was used to test the null hypothesis of no significant abnormal returns after the event day. The conclusions are based on the results of t values on AARs for the event window. The t test statistics for AAR for each day during the event window is calculated as:

$$t = \frac{AAR}{\sigma(AAR)}$$

Where,

AAR = Average abnormal return

$\sigma(AAR)$ = Standard error of average abnormal return

The standard error is calculated by using the following formula:

$$S.E = \frac{\sigma}{\sqrt{n}}$$

ANALYSIS & INTERPRETATION

Results reported in this paper are obtained in terms of the event study methodology wherein the abnormal return of every company is computed through Sharpe Model with a view to study the informational efficiency that is shown in table 2. In order to investigate the incidence of market efficiency, Abnormal Return (AAR) and Cumulative Average Abnormal Returns (CAAR) centric to the dividend announcement date were obtained for portfolio of sample stocks for the study period. The same were condensed for 61 days event window comprising 30 days prior /post to annual dividend announcement, respectively and shown in table 3.

Table 2

Abnormal Returns of 15 Selected Companies Around Event Window

Days	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
-30	-1.5	1.42	0.672	1.39	7.21	-0.8	-2.67	-2.56	-0.73	6.32	0.21	-4.3	4.755	-0.1	-2.15
-29	-1.3	2.53	-1.66	-2.2	-5.1	-1.5	5.446	-0.07	-5.25	-3.8	-8.3	-4	5.241	6.38	-2.1
-28	1.24	-2.8	3.563	-1.9	3.07	1.25	4.873	-1.59	-4.34	-3.4	-2.7	-5.5	-3.1	-2.4	0.91
-27	3.37	0.8	0.904	-0.1	-2.8	1.21	7.143	0.82	-2	-3.1	-3.2	5.03	-4.15	-1.3	-2.5
-26	-1.7	1.33	-0.13	-1.2	1.83	1.27	-4.1	1.33	4.66	0.14	-1.8	0.44	-0.86	3.65	-2.9
-25	-1	5.54	0.217	-1.4	-0.3	-0.9	-0	-0.4	2.24	3.9	2	0.7	0.814	2.93	-2.06
-24	2.45	8.16	0.066	1.03	-1.7	-0.7	-3.33	-1.23	-0.31	5.51	-6.6	-9.4	2.144	-0.9	4.22
-23	-2.1	2.66	1.619	-3.6	0.38	-1.3	2.485	-0.69	-0	-0.4	-4.2	-1.7	1.248	2.11	-3.3
-22	-3.8	-5.1	-1.91	-1.2	-0.7	-0.8	2.716	1	-4.23	1.73	-3.8	1.73	2.068	-1	4.59
-21	0.54	-1.9	-1.27	-0.8	-5.6	2.2	0.105	-0.03	1.68	5.7	-2.4	-3	-3.31	-4.2	5.6
-20	-1.8	-4.9	-1.68	1.87	1.92	1	-1.47	0.58	-2.78	-5.5	-0.9	-2.1	-2.12	3.88	-0.88
-19	1.22	0.97	-1.03	0.25	-0.2	-0.4	4.765	-0.53	2.42	-4.6	-4.8	-0.4	-1.64	-2.5	1.79
-18	2.17	-3.4	0.606	-0.6	-2.6	-0.5	3.537	0.4	-0.41	3.93	1.51	4.78	0.773	-2	-3.55

Contd...

Contd...

-17	8.12	3.52	-2.09	-0.6	2.67	1.08	7.039	2.2	4.99	-1.4	-2.8	-1.5	2.838	-2.5	-2.96
-16	11.3	2.92	3.499	-0.1	-0.1	1.67	-5.04	-2.67	-3.92	2.25	-1.7	-0.1	3.02	0.92	1.75
-15	2.28	-1.9	5.51	-0.2	0.88	-0.1	-3.55	1.17	1.49	-2.5	-0.2	-2.7	-0.14	2.79	-3.29
-14	-3	2.67	-0.33	-0.5	-3.7	1.21	3.661	-1.78	-1.39	-0.5	3.59	0.64	0.838	-1.9	1.08
-13	0.7	-1.9	-0.62	0.26	2.88	-1	0.292	3.34	-3.02	0.72	-7.3	5.53	0.76	2.51	-1.71
-12	-0.6	-3.2	1.045	-0.8	0.33	-3.8	-2.37	-1.1	1.52	5.37	3.23	4.76	-1.68	2.51	-2.03
-11	-0	3.96	-3.27	-1.1	1.25	-1.5	2.378	0.35	-2.67	1.36	-0.3	-4.7	-0.56	-0.5	0.96
-10	3.51	0.4	0.882	0.73	0.23	1.66	1.238	-1.42	0.03	6.02	-6.1	-1	-3.65	3.93	0.54
-9	1.07	-1	-0.96	-0.6	1.51	-0.8	-1.5	-1.16	-2.43	4.6	0.74	0.14	-0.24	-2.6	-4.42
-8	0.4	-0	-3.86	0.84	0.75	1.31	-4.39	-0.71	-1.09	-2.2	-3.5	-3.8	-1.15	2.04	0.42
-7	-0.8	0.07	-2.94	1.32	9.04	0.66	1.445	-0.48	4.54	-3.4	-8	4.77	2.559	-1.1	3.49
-6	1.66	-7.7	-3.05	-0.9	-3.5	-0.9	-1.9	0.59	3.22	-0.1	1.89	-2.9	-3.66	2.07	1.73
-5	3.06	1.79	-1.02	-0.3	-0.9	-1.9	0.874	3.7	-1.18	4.32	0.09	-3.9	-1.61	-2.8	-1.19
-4	2.61	1.71	2.1	-1.2	-4.4	-2.1	2.538	1.4	3.05	-3.3	3.37	-4.1	0.098	0.53	3.39
-3	3.17	-0.5	-1.15	1.17	2.14	-0.6	-0.25	-0.99	0.39	-4.2	-1.2	2.96	0.831	-0.9	-1.43
-2	5.8	5.86	-0.01	0.03	0.82	1.05	-1.2	-1.07	-0.48	9.35	-1.3	5.24	3.146	2.36	1.56
-1	1.79	1.47	1.611	0.07	-1.9	-0.3	-1.26	-2.4	0.83	3.44	0.96	4.93	6.597	6.2	-2.3
0	2.17	-0.6	-1.38	2.63	1.95	-1.6	0.708	-49.4	-4.52	-7	-8.3	4.78	-2.06	-4.5	-3.14
1	4.1	-1.4	0.393	1.96	-1.8	-1.8	0.196	1.76	4.43	-3.3	0.31	4.32	-0.64	-0.5	0.17
2	4.76	-4	-0.46	-1.6	0.19	0.15	1.328	1.49	-2.1	-0.5	-4.4	-2.5	0.25	0.74	-0.39
3	5.56	0.31	1.618	-2	2.05	0.18	-0.92	-0.64	1.18	1.58	1.74	4.75	0.129	-0.9	1.8
4	3.71	-0.2	-1.88	1.48	1.31	2.07	2.284	-0.78	4.63	-0.2	-0.3	-2.8	1.115	-3.3	-3.11
5	6.75	-2.9	-0.38	1.05	1.46	1.02	-0.03	-3.95	-2.65	-7.4	2.03	-1.4	0.39	1.09	1.85
6	6.08	0.15	0.414	-0.5	-0.8	1.96	-0.09	-0.68	0.52	10.1	-0.9	-5.1	-1.96	4.56	1.67
7	3.61	1.84	-0.84	1.38	-0.5	1.02	4.337	-2.07	0.51	-2.9	-2.2	-2.2	0.135	-0	1.26
8	5.92	0.93	-2.24	-0	-3.5	0.61	-4.95	0.01	3.46	-0	-0.3	3.07	-1.47	-2	0.73
9	4.65	-3.2	0.756	-1.4	-0.8	0.95	-2.32	0.51	-5.7	4.02	-1.8	-0.1	-0.82	3.46	0.6
10	4.23	-4.8	0.42	-0.2	0.02	-0.9	2.973	-2.83	0.39	-1.3	-3.4	6.2	0.143	-2.9	1.03
11	5.88	6.48	1.635	-0.8	-1.4	0.54	-3.62	-2.41	0.59	-0.7	-2.5	5.8	-1.94	1.28	-2.89
12	3.09	-0.7	-2.06	-0.8	1.39	-0.4	7.608	2.17	1.55	-4.5	-3.3	-4.1	-3.1	-3.7	0.97
13	5.08	-0.3	-0.94	1.19	-0.7	1.79	1.489	6.15	-0.82	8.41	1.87	3.83	2.98	-0.2	-1.24
14	6.96	4.85	0.675	-0.7	0.34	-1.6	-4.83	0.34	1.1	-3.2	-2	2.37	0.918	-2.3	-1.63
15	4.79	3.53	4.933	0.63	2.17	-0.7	0.834	-0.82	1.77	-6	-3.4	-4.1	1.023	-2.4	1.93
16	5.56	2.96	0.202	-1.2	3.95	-1.1	-1.42	-0.53	0.87	1.18	-6.4	4.15	-1.3	1	-0.91
17	4.65	-4.4	2.808	-0.2	10.8	-0.4	9.218	2.3	-3.59	-2.6	0.21	-3	-0.57	0.42	0.01
18	9.78	0.19	2.318	1.38	-1.9	1.98	-10.9	-0.71	-0.6	-4.6	2.68	-3.9	-1.46	3.46	4.83
19	-1.6	0.04	-2.04	-0.9	-0.6	1.66	5.433	-1.97	-1.95	1.44	-2.5	1.34	0.177	1.42	-1.23
20	8.02	2.41	0.914	-0.6	1.01	0.67	-6.1	2.11	5.95	-1.9	0.55	-2.7	2.421	-1.4	-0.74
21	6.13	-1	-4.59	-1.5	0.34	-1.3	-0.65	-0.54	-0.28	9.15	-1.1	4.12	4.968	-0.7	0.86
22	7.56	-0.9	-1.78	0.7	3.96	1.89	-0.31	-1.69	-4.36	6.57	-3.6	-3.3	-1.86	-1.7	0.01
23	6.87	-0.4	1.177	0.31	-2.2	1.56	-3.17	-0.88	1.81	-6	-4.5	5.78	-2.28	-0.6	1.73
24	4.21	3.96	-3.69	-0.3	-1.5	0.07	4.076	2.65	-4.66	1.22	-3.1	-0.9	2.522	0.53	4.92
25	4.67	1.39	0.16	-0.8	-2.1	-0.3	2.525	4.03	-1.71	-2	-1.9	-4.3	-2.4	-1.2	-4.5
26	6.81	0.35	-3.31	1	-2.2	-1.6	-4.11	-1.77	6.37	-8.3	-4.9	-4.1	1.216	-1.8	1.9
27	4.63	-3.7	2.516	-0.1	-1.5	1.34	3.851	-0.21	-2.45	0.39	0.59	-0.1	-1.13	-0.6	-3.65
28	5.07	0.84	-0.23	-1	2.12	-0.1	6.433	-2.13	-3.5	-1	0.64	3.34	-3.22	0.68	-0.93
29	7.63	0.76	0.748	0.54	-0.2	-0.3	0.17	-1.73	-0.42	3.52	-5.3	-0.7	1.885	-1.6	-0.97
30	8.31	-0.3	-1.49	-1.4	-3.2	-1.7	-4.84	-0.87	7.45	-0.6	-2.9	-4.8	-3.67	0.36	-0.85

Table clearly shows that investors can earn abnormal returns by trading in the stocks after the Dividend announcements. A lesser (close to zero) positive incidence of abnormal return was noticed around 2 days pre/post announcement for each company having positive dividend

announcement and few days pre/post negative returns for those companies having negative dividend announcement. This rejects the first null hypothesis that the investors cannot earn abnormal returns by trading in the stocks after the Dividend announcements.

Table 3
Average Abnormal Returns, Cumulative Average Abnormal Returns & t-values of Portfolio

Pre Announcement				Announcement & Post Announcement			
Days	AAR	CAAR	t-value	Days	AAR	CAAR	t-value
-30	0.342434	0.342434	0.103143	0	-4.68244	-3.00463	-0.36928
-29	-1.04475	-0.70232	-0.25236	1	0.549283	-2.45534	0.249674
-28	-0.85564	-1.55796	-0.27962	2	-0.46826	-2.9236	-0.20448
-27	0.131152	-1.4268	0.042485	3	1.094492	-1.82911	0.598083
-26	0.132146	-1.29466	0.058214	4	0.278262	-1.55085	0.121512
-25	0.816657	-0.478	0.387041	5	-0.20292	-1.75377	-0.06463
-24	-0.03722	-0.51522	-0.0087	6	1.029357	-0.72442	0.302752
-23	-0.45464	-0.96986	-0.21245	7	0.223329	-0.50109	0.110559
-22	-0.58083	-1.55069	-0.21354	8	0.020154	-0.48093	0.007577
-21	-0.44652	-1.99721	-0.14086	9	-0.07042	-0.55136	-0.02638
-20	-0.99013	-2.98734	-0.40746	10	-0.05732	-0.60867	-0.02025
-19	-0.31526	-3.3026	-0.12974	11	0.402204	-0.20647	0.127684
-18	0.315498	-2.9871	0.127732	12	-0.19562	-0.40209	-0.063
-17	1.243008	-1.7441	0.373276	13	1.906174	1.504083	0.708615
-16	0.911261	-0.83283	0.255972	14	0.080941	1.585025	0.02772
-15	-0.03837	-0.8712	-0.01579	15	0.279412	1.864436	0.091162
-14	0.040325	-0.83088	0.018756	16	0.463758	2.328194	0.166221
-13	0.093911	-0.73697	0.032161	17	1.047745	3.375939	0.250058
-12	0.21784	-0.51913	0.080384	18	0.169685	3.545623	0.037458
-11	-0.28875	-0.80788	-0.13493	19	-0.09325	3.452371	-0.04616
-10	0.466942	-0.34094	0.166172	20	0.712885	4.165256	0.224178
-9	-0.50588	-0.84683	-0.2492	21	0.919851	5.085107	0.272145
-8	-0.99546	-1.84228	-0.47858	22	0.080427	5.165534	0.023586
-7	0.739854	-1.10243	0.188738	23	-0.05955	5.105986	-0.01751
-6	-0.89616	-1.99859	-0.30174	24	0.664158	5.770143	0.228233
-5	-0.06603	-2.06461	-0.02858	25	-0.5739	5.196246	-0.21177
-4	0.381777	-1.68284	0.145162	26	-0.96995	4.226299	-0.2389
-3	-0.03138	-1.71422	-0.01715	27	-0.01151	4.214791	-0.00492
-2	2.078664	0.364444	0.704632	28	0.468902	4.683693	0.175619
-1	1.313367	1.677811	0.46739	29	0.27592	4.959613	0.103729
0	-4.68244	-3.00463	-0.36928	30	-0.70078	4.258838	-0.18393

Patterns of AAR

The behaviour of abnormal Returns (AAR) around the dividend announcement, as shown in table offers some interesting readings. A lesser positive incidence of average abnormal return was noticed around 2 days pre/post announcement for the portfolio. Though the positive incidence of average Abnormal returns in the post

announcement period reflects investor's confidence in the stock performance and this also rejects the first part of second null hypothesis that the average abnormal returns are close to zero, yet these results further reendorsed the informational efficiency of the stock market. The t-test value on AAR for portfolio shows that for all the days during the event window they are insignificant at 5% level. This proves the third null hypothesis that average abnormal returns occur

randomly. Hence the t-values on AARs indicate that totally accepts the existence of abnormal returns around the event days (pre/post). This provides an opportunity to beat the market and to earn abnormal returns. However this incidence could not be considered statistically significant enough to validate market efficiency.

Patterns of CAAR

The results reported in table reveals that the cumulative average abnormal returns have a rising tendency in the post event period. A higher negative incidence of cumulative return in the post event phase window for few days reflects over expectation and irrational to the new information disclosure concerning annual dividend. This rejects the second part of second null hypothesis that the Cumulative average abnormal returns are close to zero. However the magnitude of overreaction was not considered significant to invalidate stock market efficiency.

CONCLUSION

Using an event study methodology paper find that despite of investors do not gain significant value in the period preceding as well as on the dividend announcement day, yet they can gain value in the post announcement period. Investors do shift their security positions at the time of dividend announcement, which indicate that in post

announcement period there is a possibility of information content in dividend announcement in NSE. The evidence nevertheless shows that dividend increases lead more positive abnormal returns, supporting the Efficient Market Hypothesis.

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