

Rawat & Jessica, 2016

Volume 2 Issue 1, pp. 236-248

Year of Publication: 2016

DOI- <http://dx.doi.org/10.20319/pijss.2016.s21.236248>

This paper can be cited as: Rawat, L., & Jessica, M., (2016). Effect of Ex-Dividend Date on Stock Returns of Nifty Stocks in India. *PEOPLE: International Journal of Social Sciences*, 2(1), 236-248.

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## **EFFECT OF EX-DIVIDEND DATE ON STOCK RETURNS OF NIFTY STOCKS IN INDIA**

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### **Abstract**

*In the present study we examine the impact of ex-dividend day on stock returns to Indian companies listed under Nifty 50 companies during the period 2011-2015 both inclusive. We examine the daily abnormal returns for 61 days, 31 days and 11 days event window using event study methodology with an estimation period of 250 days prior to ex-dividend date. Abnormal returns have been calculated using Market Model with Nifty index as proxy for market returns. To test the significant of Average Abnormal Returns both parametric and non-parametric tests has been used, that is paired t –test and Wilcoxon Signed Rank Test. We conclude from the analysis of the study that AAR have been statistically significant for 31 days event window, with an average mean of 0.0944 during preannouncement and -.0960 average mean during post announcement. This implies that, there had been very high actual returns during the pre-announcement period indicating positive market reaction.*

## **Keywords**

Dividend, Market Model, Average Abnormal Returns, Event Study

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## **1. Introduction**

Indian corporate sector has been on a high development phase ever since the Liberalization, Privatization and Globalization policy was introduced in 1990's. Supply of investment in Indian is sourced from government, semi-government, LIC, Corporate and other institutions sources which are from India and Foreign origin. However, a small portion is owned by individual investors as well. There are two major indices that are National Stock Exchange (NSE) established in 1992 and Bombay Stock Exchange (BSE) established in 1875 which operative from Mumbai, Maharashtra in India. NSE and BSE have about 5163 and 1635 companies listed as on July, 2013 respectively. The main index of BSE is SENSEX – Sensitivity Index and comprises of 30 major stocks whereas, NSE major index is NIFTY and it comprises of 50 stocks of companies from various industries.

Dividends have been a means of attracting investors as it increases overall returns. Information about dividend is one of the most awaited one by stock holders and react market much before the ex-dividend date. According to Securities and Exchange Board of India (SEBI) companies announce Dividend Payment and Ex-dividend dates during Annual General Meeting along with other important and relevant information. All companies during AGM preset details on the declaration of dividends, dividend payout ratio; ex-dividend dates after the consent of board members and henceforth publishes such information through different channels of information. Now, this becomes public information.

A dividend on stock is the proportion of profit the company pays to its shareholders. There are two major types of dividend (1) Cash Dividends and (2) Stock Dividends (Bonus). A Cash dividend is payment made from earnings of the company for a particular period to its shareholders in the form of cash/cheque or electronic transfers. Shareholders also receive tax burden along with cash dividend therefore lowering the final value of stock returns through dividend, however this is a source of regular income to their investment.

Stock dividend implies distribution of shares in addition to cash dividend (known as bonus shares in India) to the existing shareholders of the company. It increases the volume of company's shares and reduces the retained earnings of the company. Whereas, dividends

generally meaning cash dividend have an impact on the financial position of corporates by reducing the retained earnings, stock dividend do not have an impact on financial position of the companies. From the market perspective however, dividends information may bring in good or bad news for investors.

## **2. Literature Review**

Some important theories of dividend policy in financial management are

### **2.1 Walter Model**

With the assumption of retained earnings as a source of financial investment for firms, constant rate of return on equity and endless life of firm; the model proposes that the firm has two ways of using retained earnings either distribute it in the form of dividends or use it for other investment opportunities. Therefore, if rate of return ( $r$ ) from investment is less than  $K_e$  (cost of equity) the firm should have no investment from retained earnings, if  $r > K_e$  then firm should have zero payout and no investment and in case of  $r = K_e$ , firm is indifferent.

### **2.2 Gordon Model**

The assumptions are similar to Walter Model and in addition they believe that growth rate of the firm is determined by the product of retention ratio ( $b$ ) and rate of return  $\otimes$  and the cost of equity capital ( $K_e$ ) is higher than growth rate ( $g$ ). Gordon's growth model is also known as "Bird in Hand Theory" which states that current dividends are important in determining the future value of the firm. Therefore, if ( $r$ ) is the rate of return on investment and ( $k$ ) is the cost of capital, then if ( $r > k$ ) it implies that decrease in share price, ( $r < k$ ) implies increase in share price and ( $r = k$ ) no change.

### **2.3 Modigliani and Miller Hypothesis**

The dividend policy would not influence market price. In a case of investment of retained earnings in other opportunities with higher returns would cause an increase in the earnings of the firm consequently generating income for investors. Therefore in a case where retained earnings are distributed in the form of dividends or otherwise invested in better opportunities would generate returns for investors. It can therefore be concluded that it's the investment pattern and earnings of the firm that affect stock prices or value of the firm. There are relevant assumptions of the theory.

## **2.4 Clientele Effect Theory**

Companies stock prices change along with the changes in investor goals and demands. These return influenced by changes in tax, dividend or any other policy change that affect corporates.

Other corporate announcements include Stock Splits and Rights Issue announcements. Stock Splits are an event where corporates divide existing shares into new shares (Baker, 2009) so that the proportional ownership of the share does not change. This leads to a reduced share price per share and no change in the stock market capitalization. (Fama, Fisher, Jensen, & Roll, 1909) in the seminal paper on stock splits using event study reported positive residuals for stock splits in the months around stock splits.

One of the earliest research by (Kalay, 1982) which explains that the correlation between ex-dividend date price drop and the dividend yield is positive which is consistent with a tax effect and a tax induced clientele effect. (Garrett & Priestley, 2000) find significant evidence of dividend smoothing and dividend conveying information regarding unexpected positive changes in current permanent earnings. (Mehta, Jain, & Yadav, 2014) Study on Stock dividend shows that announcements induce an increase in the wealth of the shareholders. In India there is price stability. (Bashir, 2013) Study in Karachi Stock Exchange for 31 rights issue announcements during 2008-2011 using event study analysis conclude that there is no indication of announcement effect (i.e.) no wealth. Maximum of investors (Conroy et.al., 1999) reveal through their study that stock Splits are designed by managers to achieve the company's stock price to the level achieved after the last split. It is interpreted as positive information by investors and managers. (Baker, 2009) gives interesting conclusions from the study, stock prices are not significant affected by such new stock distribution per se whether or not these distribution are splits or stock dividends, and whether or not the distributions are processed during bull, bear or no change markets. Therefore, decisions regarding such distributions should be based on the costs to the firm and its stockholders. If process cost of a new stock distribution is large, the new distribution may not be useful to the firm's advantage.

## **3. Need for Study**

There have been very few comprehensive studies to understand the effect of dividend announcement using ex-dividend date on stock returns in Indian perspective in recent times.

With the emerging trends in financial sectors and recent development in regulation system in India and outreach of media, there is a need to study this aspect. Therefore consider Nifty 50 stocks in the sample as they have a better visibility in the market.

#### **4. Objectives of the Study**

- To investigate the effect of ex-dividend date on stock returns of Stocks listed in Nifty 50.
- To understand the trend of CAAR during the pre-announcement and post-announcement window.

Testable Hypotheses:

Hypothesis 1:  $H_0$  - There are no significant AAR during event window for 61 days.

Hypothesis 2:  $H_0$  - There are no significant AAR during event window for 31 days.

Hypothesis 3:  $H_0$  - There are no significant AAR during event window for 11 days.

#### **5. Research Methodology**

One of the most popularly used methods is event study analysis, to capture effect of an event on stock returns. (Brown & Warner, 1980, 1985); (Bowman, 1983) following terms are important value before we start using this methodology.

##### **5.1 Event**

It is the occurrence of a particular action occurring at a specific time, and is expected to convey some information. Day "0" is the event day for each announcement/security.

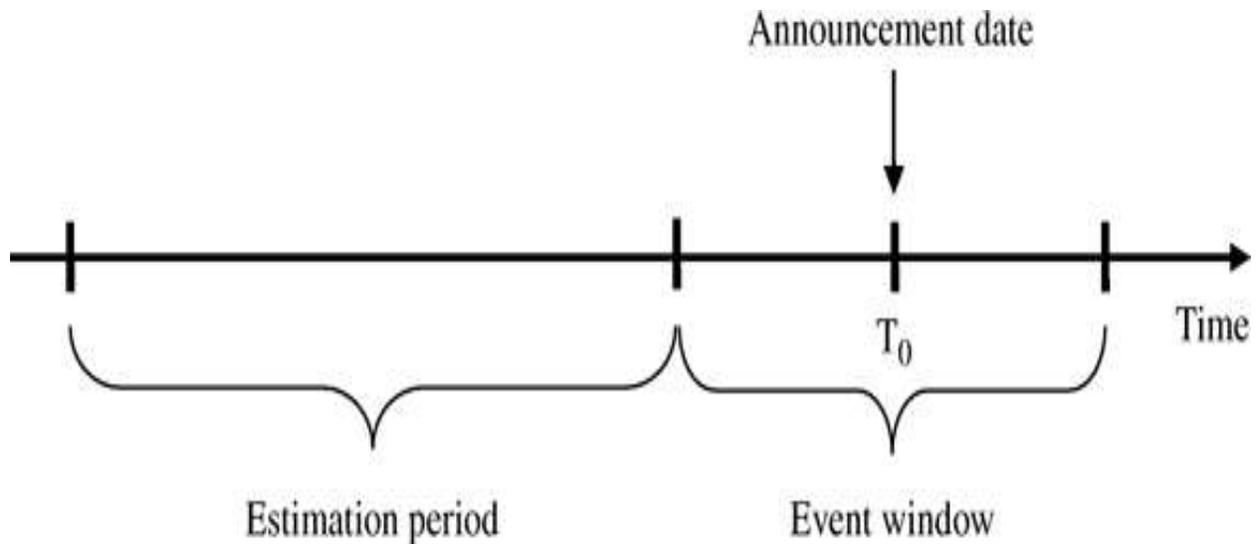
##### **5.2 Estimation Period**

It is the period for which daily returns observations for the period before the event window are drawn and used for estimating expected returns. In present case we use 250 days event period which is commonly used in most of the event study analysis.

##### **5.3 Event Window**

The time duration selected before and after the event being considered to study the variance in abnormal return. In present study we use three different event windows that are 61 days, 31 days and 11 days.

**5.4 Estimation Model:** the model used to calculate estimated returns for each security. Market model is a statistical model which relates the return of any given security to the return of the market portfolio. Models with linear specification follow from the assumed joint normality of asset returns. For any security 'i' the market models abnormal returns are calculated using the market model, which is commonly used in event studies to measure abnormal returns (Strong, 1992).



**Figure 1:** Event Study Estimation Period

We use the single factor market model for estimating the expected returns from the estimation period of 250 days prior to 30 days of ex-dividend date. Daily returns are calculated for each day using data from NSE website for 50 companies listed in Table :1 in appendix. The Nifty 50 Index represents 50 companies from 13 sectors with 65% of free float market capitalization of stocks listed with Nifty as on 31<sup>st</sup>, March 2016. It is used mostly for benchmarking of portfolios, index based derivatives and index funds. As mentioned by NSE India the impact cost of the Nifty 50 for a portfolio size of Rs.50 lakhs is 0.04% for the month March 2016. Nifty 50 is professionally maintained and is ideal for derivatives trading.

The equation used is:

$$R_{i,t} = \alpha_i + \beta_i * R_m + \varepsilon_{i,t} \dots \dots \dots (1)$$

Where,  $R_{i,t}$  is the return from stock i at time t,  $\alpha_i$  and  $\beta_i$  are the estimated values and  $\varepsilon_{i,t}$  is the error term which is assumed to be '0'.

Abnormal returns calculated using:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i * R_m) \dots\dots\dots(2)$$

The Average Abnormal Returns:

$$AAR_t = \frac{\sum_{i=1}^n AR_{i,t}}{n} \dots\dots\dots(3)$$

CAR<sub>i</sub> (t1, t2) where t1 < t2 < t3 <.....t

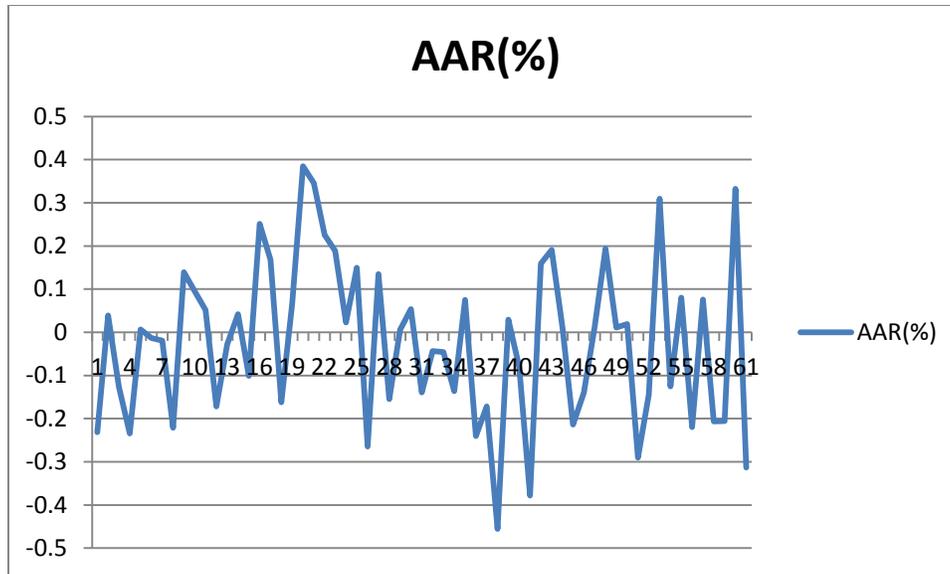
Cumulative Average Abnormal Returns: Abnormal Returns must be aggregated to draw overall inference for each announcement across two dimensions, through time and across securities. CAR is used to accommodate multiple period event windows.

Significance of Abnormal Returns:

Using parametric tests such as t test the assumption of normality is different to test. As tells in India with t-d was on time. Estimate of standard division of the average Abnormal returns under the null hypothesis of normal performance. Non-parametric tests reject the hypothesis of positive abnormal returns, few times when testing for negative abnormal data (as in the data relevant to daily stock prices. Generalised sign test, Wilcoxon signed ranks test as it connects both sign and magnitude of abnormal returns. The assumption of Wilcoxon test is that numbers of absolute values are equal and each is different from zero.

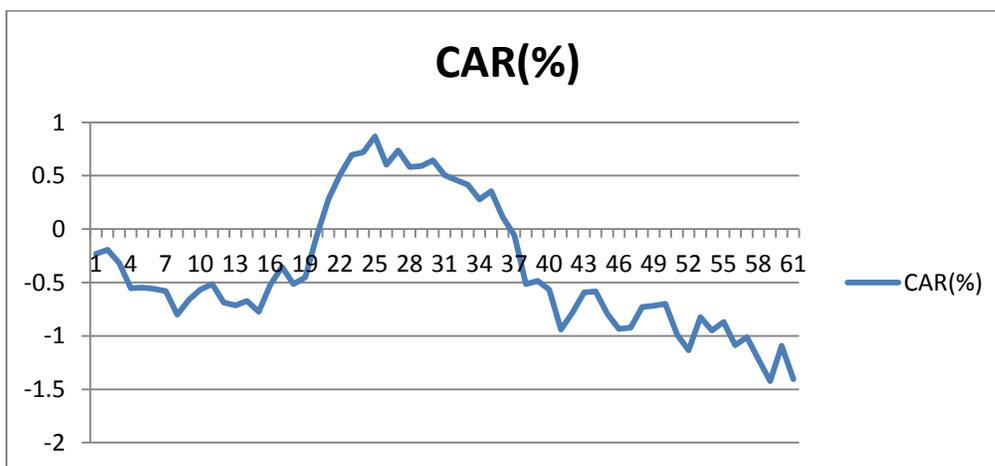
**5.6 Samples for the Study**

The sample for present study includes dividend announcement from 50 stocks listed with Nifty 50. Initial actual dates of ex-dividend were collected NSE website and [www.moneycontrol.com](http://www.moneycontrol.com) website. Overall there were 249 dividend announcements, from which there was overlap of ex-dividend dates for 104 events; hence a sample of 125 events is used for further analysis from the period 2011 to 2015. Exclusion of the overlapping dates is done to ensure that the event window is not influence by any other announcement which occurs simultaneously.



**Figure 2:** Analysis of Ex-dividend dates AAR

A visual inspection of the trend of AAR indicates that during the preannouncement period day 1 to 30 the trend is mostly positive and most positive around day 19, whereas we find that during the post announcement period that is from day 31 to 61 most of AAR's are negative and mostly around day 37. Cumulative Abnormal Returns show a positive trend during days 14 to day 26 after which CAR's have declined to negative.



**Figure 3:** Analysis of Ex-dividend dates CAAR

**Table 1: Results of Ex-Dividend Date Analysis**

Paired Samples Statistics								
		Mean	N	t	df	Sig. (2-tailed) t-test	Test Sig. at 5% Wilcoxon Test	Decision
Pair 1	DIVPRE30	.0215	30	1.98	29	0.058	0.125	Cannot Reject
	DIVPOST30	-.0636	30					
Pair 2	DIVPRE15	.0945	15	3.00	14	0.009	0.015	Rejected
	DIVPOST15	-.0960	15					
Pair 3	DIVPRE5	-.0447	5	1.41	4	0.231	0.225	Cannot Reject
	DIVPOST5	-.0780	5					

On account of frequent fluctuation in abnormal returns in the present study we have analysed data for three event periods Pair 1 for 61 days, (i.e.) 30 days during pre-announcement and 30 days post-announcement similarly for Pair 2 for 31 days and Pair 3 for 11 days. Paired sample t-test is generally used for testing the significance of variance in mean for event study methodology for parametric test, and Wilcoxon Test as non-parametric test. From the above table we understand that Pair 2 indicates statistically significant results at 95% confidence interval for both t-test and Wilcoxon test. Therefore we find that there is a significant difference in abnormal returns during 15 days before and after announcement. Both tests confirm with similar results.

## 6. Conclusions

From the results we draw conclusion that CAR are positive mostly during day 19 to day 27 of event window. A positive CAR is an indication to investors in market that the stocks are doing better than the estimated returns hence; investors can get higher returns if they invest in stocks during the time when CAR is negative and withdraw when CAR becomes positive. From figure 3, we understand CAR are negative during day 14, so this could perhaps be the right time to make buy decision, and then hold until day 25-26, where we find CAR are at the peak so this is the right time to sell the stocks to make highest returns.

It can also be confirmed from the results that 31 days event window has attracted lot of investor attention, we can be found from Table 1 results, there is a significant difference in means of Abnormal Returns for 15 days pre announcement and 15 days post announcement period. Results of paired t- test at 95% confidence interval shows that the p values are 0.009, 95% and when tested using Non-parametric test (i.e.) Wilcoxon Sign Test at 95% confidence interval p values are 0.015. As both values for 31 days estimation period are less than 0.05, we conclude that there is statistically significant difference.

Efficient market theory states about the presence of three form of market efficiency for information, the present research is inclined to test for the presence of semi-strong form of market efficiency. Information about ex-dividend dates is publicly available information and from the present study it can be concluded that Indian markets has reacted to this information. The present study is restricted to 50 companies listed with Nifty and only annual dividend announcement has been considered the scope of the study was limited. There is further scope to investigate the effect of dividend announcements in Indian markets for different types of dividend announcements and sector wise study of companies.

**Table 2:** *List of Nifty Companies used as Sample for Study*

<b>S.No.</b>	<b>COMPANY NAME</b>	<b>INDUSTRY</b>
1	ACC Ltd.	CEMENT & CEMENT PRODUCTS
2	Ambuja Cements Ltd.	CEMENT & CEMENT PRODUCTS
3	Asian Paints Ltd.	CONSUMER GOODS
4	Axis Bank	FINANCIAL SERVICES
5	Bajaj Auto Ltd.	AUTOMOBILE
6	Bank of Baroda	FINANCIAL SERVICES
7	Bharat Heavy Electricals Ltd.	INDUSTRIAL MANUFACTURING
8	Bharat Petroleum Corporation Ltd.	ENERGY
9	Bharti Airtel Ltd.	TELECOM
10	Cairn India Ltd.	ENERGY
11	Cipla Ltd.	PHARMA
12	Coal India Ltd.	METALS

13	DLF Ltd.	CONSTRUCTION
14	Dr. Reddy's Laboratories Ltd.	PHARMA
15	GAIL (India) Ltd.	ENERGY
16	Grasim Industries Ltd.	CEMENT & CEMENT PRODUCTS
17	HCL Technologies Ltd.	IT
18	HDFC Bank Ltd.	FINANCIAL SERVICES
19	Hero MotoCorp Ltd.	AUTOMOBILE
20	Hindalco Industries Ltd.	METALS
21	Hindustan Unilever Ltd.	CONSUMER GOODS
22	Housing Development Finance Corporation Ltd.	FINANCIAL SERVICES
23	I T C Ltd.	CONSUMER GOODS
24	ICICI Bank Ltd.	FINANCIAL SERVICES
25	IDFC Ltd.	FINANCIAL SERVICES
26	IndusInd Bank Ltd.	FINANCIAL SERVICES
27	Infosys Ltd.	IT
28	Jaiprakash Associates Ltd.	CONSTRUCTION
29	Jindal Steel & Power Ltd.	METALS
30	Kotak Mahindra Bank Ltd.	FINANCIAL SERVICES
31	Larsen & Toubro Ltd.	CONSTRUCTION
32	Lupin Ltd.	PHARMA
33	Mahindra & Mahindra Ltd.	AUTOMOBILE
34	Maruti Suzuki India Ltd.	AUTOMOBILE
35	NMDC Ltd.	METALS
36	NTPC Ltd.	ENERGY
37	Oil & Natural Gas Corporation Ltd.	ENERGY
38	Power Grid Corporation of India Ltd.	ENERGY
39	Punjab National Bank	FINANCIAL SERVICES
40	Ranbaxy Laboratories Ltd.	PHARMA
41	Reliance Industries Ltd.	ENERGY
42	Sesa Sterlite Ltd.	METALS

43	State Bank of India	FINANCIAL SERVICES
44	Sun Pharmaceutical Industries Ltd.	PHARMA
45	Tata Consultancy Services Ltd.	IT
46	Tata Motors Ltd.	AUTOMOBILE
47	Tata Power Co. Ltd.	ENERGY
48	Tata Steel Ltd.	METALS
49	Ultra Tech Cement Ltd.	CEMENT & CEMENT PRODUCTS
50	Wipro Ltd.	IT

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