A STUDY ON SEMI-STRONG FORM OF EFFICIENCY OF PHARMACEUTICAL SECTOR COMPANIES ON DIVIDEND ANNOUNCEMENTS IN BSE

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ABSTRACT:
This research attempts to test the stock market reaction of dividend announcements during 2018-2019. For the study pharmaceutical companies listed in BSE namely Sunpharma, Lupin, Dr.Reddy's, Cipla and Glenmark pharmaceuticals ltd. have been taken for analysis. For this study the researcher used secondary data and the data that are collected from various websites. The hypothesis is examined using Abnormal Return (AR) and Cumulative Abnormal Return (CAR). Event window of 31 days, 15 days before and 15 days after the announcement is used. Event day is represented by 0. Estimation window is used 120 days before the event window. From the study it is found that AR influences Sunpharma and Lupin and CAR influences Sun pharma, Lupin, Dr.Reddy laboratories. So it is concluded that it is not in semi-strong efficiency except Cipla ltd. and Glenmark ltd. So, the investors need to have awareness about BSE pharmaceutical sector companies for future investments.

KEYWORDS*: Dividend Announcements, Event Studies, Semi Strong Form Efficiency, Market Model, AR, CAR, BSE Pharmaceutical Sectoral Companies.*

INTRODUCTION
A productive market is one in which security costs mirror all accessible data. Since the stock market efficiency cannot be tested in an absolute form, researchers argue that there are three forms of market efficiency, namely, the weak form, the semi-strong form and the strong form. In the stock market, testing market efficiency refers to the testing of either all the three forms, or combinations of two forms or any one form of them. This paper examines the semi-strong form of market efficiency. Semi-strong form efficient market is one where investors cannot use published as well as the historical information to earn abnormal profit. One of the ways of testing semi-strong form of market efficiency is the observation of stock market reaction to dividend earnings announcements. In this study event window is used to show the before (Pre) dividend announcement and after (Post) dividend announcement whether the Pre and the Post dividend announcements of pharmaceutical companies fully reflects on the stock price or not. The estimation window of 120 days is considered for the alpha, beta and standard error calculation. For the purpose of analysis, the researcher used the Abnormal Return (AR) calculated

from the Expected Return and Actual Return. T-statistics are carried out from the AR and CAR. The over-reaction and under-reaction of AR & CAR coefficient values will identify from the graphical form. Hence, the Pre and Post dividend announcements of Telecommunication Sector companies are taken for the study.

LITERATURE REVIEW

Raja (2009) attempted to test the efficiency of Indian stock market with respect to a stock split announcement by IT companies. They concluded that the stock split announcement made by sample IT companies contained information useful for valuing the securities. The market reacted quickly during the post-split announcement and the reaction extended up to 15 days for a stock split announcement. They also found that the information about a stock split announcement could have been used by investors for making abnormal returns at any point of the announcement period, through the strategy of short selling.

Rakesh Gupta & Pariksht K. Basu (2007) conducted a study to test the weak form efficiency for the two major equity markets in India for the period of 1991 to 2006. Random walk character for the BSE and NSE market in India using stock market indexes for the Indian markets. It employee unit root test (augmented) Dickey fuller (ADF) in case of BSE and NSE. The null hypothesis of unit root is rejected as the test statistics is more negative then the critical value suggesting that these market do not show characteristics of random walk and both NSE and BSE do not support weak form efficient market hypothesis.

Gagan Deep Sharma and Mandeep Mahendra (2009) "Efficiency hypothesis of stock market:-A case of Indian Securities". The study investigates validity of EMH'S on Indian securities market- discusses the concept of EMH. By taking eleven securities listed on Bombay Stock Exchange, run test and Auto correlation tests are applied to measure the weak market efficiency. From the study it is observed that the effect of stock price for sample companies on future price is very meager and the investor cannot reap out profit by using the share price data as the current share price already reflects the effect of past share price.

Anjala Kalsie (2011) finds that Indian stock market-was weak in efficiency. The weak is tested by using Nifity and 6 major NSE sectoral indices, Pharma, IT, MNC, Bank, FMCG and Nifity Junior. The present study uses daily index return of selected indices for a ten year period from January 2, 2001 to December 30, 2011. Uni variate time series analysis of indices return is carried out for testing randomness. Run test, Unit root test, ACF, Correlograms and other relevant statistical methods are used for the study.

Ramkumar (2012) "An Analysis of market efficiency in sect oral indices a study with a specific reference to Bombay stock exchange in India". Through his paper examined the market efficiency of sectoral indices of BSE, India. The study reveals that the return of 8 indices out of 12 such as BSE Auto mobile index, BSE Bankex, BSE capital goods index, BSE Consumer durable goods index, BSE reality index and BSE PSU sector index followed normal distribution and earned better remuneration at 5% significance level.

Neeraj Gupta and Ashwin Gedem (2014) "Testing of efficient Market hypothesis: A study on Indian stock market" in their Paper investigate weak form efficiency of Indian stock market by taking sample data from NSE over the period 1st January 2014 to 31st March 2014 by employing run test (non parametric test) The study conclude that Indian Stock market is efficient in weak form and stock prices are independent of past prices.

Ravikumar Gupta (2014) "Weak form efficiency of Indian stock market with special reference to BSE" through his study makes an attempt to look at the efficiency of Indian stock market BSE Sensex . Daily closing price data were taken for the sample period of ten years from January 2003 to 2012. Unit root test, run test and Kolmogorov Sminove test were used to analyse the data with the help of Eview software. The study concludes that Indian stock market is not efficient in weak form. Information on the past is not completely absorbed in the current price. So investors have an opportunity to make estimates of current price on the basis of past information.

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STATEMENT OF THE PROBLEM

Now-a-days, investors try to find out the market efficiency. The market efficiency is a tool which explains the relationship between information and its impact on stock prices in the capital market. The major problem is only a few investors know how to predict the stock price based on the information received. Hence, the present study will help the stock market investor to earn abnormal return using semi-strong form of efficiency.

OBJECTIVES OF THE STUDY

The overall objective of the study is to analyse the Semi-strong form market efficiency of the BSE pharmaceutical Service index Companies. The specific objective is to find out the reaction of the Semi-strong form efficiency reacts to Pre and Post dividend announcement of BSE Pharmaceuticals index companies.

HYPOTHESIS

H_0: The Pre and Post Reaction on Dividend Announcements of BSE Pharmaceuticals Index Company do not fully reflect the security prices.

METHODOLOGY

An event study method is used for the analysis. The period of the study is from 1st April 2018 to 31st March 2019. The event window is used to show the impact before, on, and after the particular day and to analyse information to find out whether it will affect the price or not. In this study, Pre and Post event days are generated. The daily data is used for the analysis and the event window is set 15 days before (Pre) and 15 days after (Post) dividend announcement days. The announcement day is represented by 0 and Estimation window is 120 days before the event window. (-15, 0, +15) = -15,-14,-13 …-4, -3, -2, -1, 0, +1,+2, +3, +4 ... +13,+14,+15. The study mainly depends on secondary data. The required data for the study is the daily closing price of BSE Pharmaceuticals index companies. Data was collected from www.bseindia.com and also the dividend announcements of BSE Pharmaceuticals Sectoral index companies. There are 5 events from 5 companies selected from Annual dividend announcements. The sample section was done through BSE Pharmaceuticals Sectoral index companies. BSE Pharmaceuticals Sectoral index companies are Sunpharma ltd, Lupin ltd, Dr Reddy's laboratories ltd, Cipla ltd and Glenmark pharmaceuticals ltd.

Tools

The tools are used for testing the Semi-strong form efficiency of Indian stock market. The computation of data for this study was made by using Micro-soft Excel. The following calculations are done based on the Market Model method. This model was previously studied by Tran Thi Xuan Anh et al. (2016), Mitesh Patel et al. (2016), Rajesh Khurana and Warne, D.P. (2016) and Hasnain Manzoor (2015).

Calculation of Expected Returns

The market model is specified thus:

E (R) = á + â (R) it m

Where:

E (R) = returns on a stock i at time period t it

á = Alpha; â = Beta

(R) = Market return

Calculation of Actual Returns

Stock market return calculation is based on the current Market price divided by previous closing price. It is written by the following formula,

R = LN [L/L] lt lt lt-1

Where:

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R = the daily return on day t for indices l lt

L = closing values for indices l lt

L closing values for indices l on day t-1 lt-1 =

LN = Natural log

Calculation of Abnormal Return (AR)

In order to analyse the behavior of market for various announcements, estimate abnormal returns (AR) at the time of the announcement, and pre and post prices on the announcement. The abnormal return is finding as:

ASR = AR - E (R) it it it

Where:

ASR = Abnormal return

AR = Actual return it

E (R) Expected return it =

Calculation of Cumulative Abnormal Return (CAR)

In order to make generalizations and to draw an overall inference for the market reactions to earnings announcements, the cumulative abnormal returns (CARs) for the 31-day event window, from the start of the event period t-15 (day - 15) up to the time t+15 (day + 15) as follows:

CAR = Ó ASR it it

Where:

CAR = Cumulative Abnormal Return it

ASR = Sum of all Abnormal return

ANALYSIS AND INTERPRETATION

Table 1: Sunpharma Limited: AR and Car under the Market Model for the Period of 1st April 2018 to 31st March 2019

AR	T statistic	CAR	T statistic	Period
0.037301748	1.949[***]	0.037302	1.949[***]	-20
0.017203734	0.898887[**]	0.054505	2.847887[***]	-19
-0.00542581	-0.2835	0.04908	2.564391[***]	-18
0.007984799	0.417202[**]	0.057064	2.981593[***]	-17
0.010635326	0.555691[**]	0.0677	3.537285[***]	-16
-0.02065402	-1.07916	0.047046	2.458121[***]	-15
-0.00951059	-0.49692	0.037535	1.961197[***]	-14
-0.00494605	-0.25843	0.032589	1.702768[***]	-13
-0.00065133	-0.03403	0.031938	1.668736[***]	-12
0.00991512	0.518061[**]	0.041853	2.186797[***]	-11
0.030166497	1.576186[***]	0.072019	3.762983[***]	-10
0.017120022	0.894514[**]	0.089139	4.657497[***]	-9
-0.01350703	-0.70574[**]	0.075632	3.95176[***]	-8
0.010085725	0.526975[**]	0.085718	4.478735[***]	-7
0.008135923	0.425098	0.093854	4.903833[***]	-6
-0.0270314	-1.41238[***]	0.066823	3.491455[***]	-5
-0.007756	-0.40525	0.059067	3.086207[***]	-4
-0.01247824	-0.65198[**]	0.046588	2.434225[***]	-3

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-0.00326595	-0.17064	0.043322	2.263581[***]	-2
0.027951395	1.460448[***]	0.071274	3.724029[***]	-1
-0.01032165	**-0.5393[**]**	**0.060952**	**3.184727[***]**	**0**
-0.00904419	-0.47256	0.051908	2.712172[***]	1
-0.00343834	-0.17965	0.04847	2.532521[***]	2
-0.01661548	-0.86815[**]	0.031854	1.664369[***]	3
-0.00192375	-0.10052	0.02993	1.563854[***]	4
-0.00195352	-0.10207	0.027977	1.461783[***]	5
0.004377415	0.228718[**]	0.032354	1.690501[***]	6
-0.01221507	-0.63823[**]	0.020139	1.052269[***]	7
-0.01307453	-0.68314[**]	0.007065	0.369131[**]	8
0.000732561	0.038276	0.007797	0.407407[**]	9
0.002696614	0.140897	0.010494	0.548304[**]	10
-0.03339826	-1.74504	-0.0229	-1.19674	11
0.002321845	0.121315[**]	-0.02058	-1.07542	12
-0.00943096	-0.49276	-0.03001	-1.56819	13
0.010670386	0.557523[**]	-0.01934	-1.01067	14
-0.01145759	-0.59865[**]	-0.0308	-1.60932	15
-0.01853629	-0.96851[**]	-0.04934	-2.57783[***]	16
-0.01183965	-0.61862[**]	-0.06118	-3.19645[***]	17
0.01231814	0.643617[**]	-0.04886	-2.55283[***]	18
-0.00217454	-0.11362	-0.05103	-2.66645[***]	19
0.001537888	0.080354[**]	-0.0495	-2.5861[***]	20

Source: Author Computation
*indicates 1% level of significance
**indicates 5% level of significance
***indicates 10% level of significance

Table 2: Lupin Limited: AR and CAR under the Market Model for the Period of 1st April 2018 to 31st March 2019

AR	T statistic	CAR	T statistic	period
-0.01411	-0.84247[**]	-0.01411	-0.84247	-20
0.005604	0.33463	-0.00851	-0.50784	-19
0.029145	1.740275[***]	0.02064	1.232435[***]	-18
0.008399	0.501485[**]	0.029039	1.73392[***]	-17
-0.00807	-0.48206	0.020965	1.251858[***]	-16
-0.01188	-0.70957[**]	0.009082	0.542283	-15
-0.01734	-1.03524[***]	-0.00826	-0.49295	-14
0.000106	0.00635	-0.00815	-0.4866	-13
-0.01368	-0.81666[**]	-0.02183	-1.30327[***]	-12
-0.02646	-1.57996[***]	-0.04829	-2.88322[***]	-11
-0.03359	-2.00551[***]	-0.08187	-4.88873[***]	-10
-0.02383	-1.42294[***]	-0.1057	-6.31167[***]	-9
-0.01825	-1.08942[***]	-0.12395	-7.40109[***]	-8
-0.00479	-0.28604	-0.12874	-7.68714[***]	-7
-0.01162	-0.69354[**]	-0.14036	-8.38068[***]	-6
-0.00292	-0.17458	-0.14328	-8.55526[***]	-5

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0.023495	1.402878***	-0.11978	-7.15238***	-4
-0.01557	-0.9294**	-0.13535	-8.08178***	-3
0.003762	0.22464	-0.13159	-7.85714***	-2
0.006758	0.40351	-0.12483	-7.45363***	-1
0.006871	**0.410299**	**-0.11796**	**-7.04333*****	**0**
-0.0044	-0.26279	-0.12236	-7.30612***	1
0.022734	1.357445***	-0.09963	-5.94868***	2
0.023202	1.385402***	-0.07642	-4.56327***	3
0.022872	1.365718***	-0.05355	-3.19756***	4
-0.003	-0.17935	-0.05655	-3.3769***	5
-0.01597	-0.9533**	-0.07252	-4.3302***	6
-0.02216	-1.3231***	-0.09468	-5.6533***	7
-0.02763	-1.65006***	-0.12231	-7.30335***	8
-0.01678	-1.00223***	-0.1391	-8.30558***	9
-0.00127	-0.07578	-0.14037	-8.38136***	10
0.008056	0.481012	-0.13231	-7.90035***	11
0.022951	1.370424***	-0.10936	-6.52993***	12
0.036576	2.183995***	-0.07278	-4.34593***	13
1.75E-06	0.000105	-0.07278	-4.34583***	14
0.004045	0.241508	-0.06874	-4.10432***	15
0.030323	1.810598***	-0.03841	-2.29372***	16
-0.00843	-0.50362	-0.04685	-2.79734***	17
0.008157	0.487038	-0.03869	-2.3103***	18
-0.00029	-0.01726	-0.03898	-2.32755***	19
-0.01631	-0.97384**	-0.05529	-3.3014***	20

Source: Author Computation
*indicates 1% level of significance
**indicates 5% level of significance
***indicates 10% level of significance

Table 3: Dr.Reddy Limited: AR and CAR under the Market Model for the Period of 1st April 2018 to 31st March 2019

AR	T statistic	CAR	T statistic	period
-0.0023	-0.1483	-0.0023	-0.1483	-20
0.024006	1.546359***	0.021703	1.398058***	-19
-0.01352	-0.87059**	0.008188	0.527465**	-18
-0.02069	-1.33258***	-0.0125	-0.80512***	-17
-0.01167	-0.7519**	-0.02417	-1.55702***	-16
-0.00301	-0.19406	-0.02718	-1.75108***	-15
-0.01301	-0.83776**	-0.04019	-2.58883***	-14
0.005598	0.360612	-0.03459	-2.22822***	-13
-0.00127	-0.08193	-0.03586	-2.31015***	-12
-0.01937	-1.24777***	-0.05523	-3.55792***	-11
-0.00179	-0.11499	-0.05702	-3.67291***	-10
0.007512	0.483898	-0.04951	-3.18902***	-9
0.020204	1.30148***	-0.0293	-1.88754***	-8
0.004226	0.272245	-0.02508	-1.61529***	-7

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AR	T statistic	CAR	T statistic	period
-0.01633	-1.05192***	-0.04141	-2.66721***	-6
0.01061	0.683469**	-0.0308	-1.98374***	-5
-0.00231	-0.1486	-0.0331	-2.13234***	-4
-0.00953	-0.61361**	-0.04263	-2.74595***	-3
0.025621	1.650419***	-0.01701	-1.09553***	-2
-0.01879	-1.21025***	-0.0358	-2.30578***	-1
-0.0964	**-6.20993*** **	**-0.1322**	**-8.51571*** **	**0**
-0.01628	-1.04879***	-0.14848	-9.5645***	1
-0.00965	-0.62151**	-0.15813	-10.186***	2
-0.00797	-0.51332**	-0.1661	-10.6993***	3
0.001881	0.121136	-0.16422	-10.5782***	4
-0.00578	-0.37261	-0.17	-10.9508***	5
0.006546	0.421692	-0.16345	-10.5291***	6
0.00727	0.468313	-0.15618	-10.0608***	7
0.017389	1.120109***	-0.1388	-8.94069***	8
-0.01882	-1.21214***	-0.15761	-10.1528***	9
-0.01144	-0.73703**	-0.16905	-10.8899***	10
0.015414	0.992912**	-0.15364	-9.89695***	11
0.025411	1.636861***	-0.12823	-8.26009***	12
0.026807	1.726799***	-0.10142	-6.53329***	13
0.021109	1.359781***	-0.08031	-5.17351***	14
-0.00249	-0.16025	-0.0828	-5.33376***	15
-0.00465	-0.2997	-0.08745	-5.63346***	16
-0.00609	-0.39238	-0.09355	-6.02584***	17
-0.01135	-0.7314**	-0.1049	-6.75724***	18
-0.00218	-0.14036	-0.10708	-6.8976***	19
0.004164	0.268218***	-0.10291	-6.62939***	20

Source: Author Computation

*indicates 1% level of significance

**indicates 5% level of significance

***indicates 10% level of significance

Table 4: Cipla Limited: AR and CAR under the Market Model for the Period of 1st April 2018 to 31st March 2019

AR	T statistic	CAR	T statistic	period
-0.00201	-0.13994	-0.00201	-0.13994	-20
0.011718	0.814524**	0.009705	0.67458**	-19
0.001913	0.132988	0.011618	0.807567**	-18
-0.02415	-1.67837***	-0.01253	-0.8708**	-17
-0.00836	-0.58083**	-0.02088	-1.45163***	-16
0.021064	1.464104***	0.000179	0.012473	-15
-0.00397	-0.27606	-0.00379	-0.26358	-14
-0.01249	-0.86827**	-0.01628	-1.13186	-13
0.005622	0.390767	-0.01066	-0.74109**	-12
0.006365	0.442426	-0.0043	-0.29867	-11
-0.00427	-0.29679	-0.00857	-0.59546**	-10
0.009431	0.655553**	0.000865	0.060096	-9

-0.00169	-0.11753	-0.00083	-0.05743	-8
0.009945	0.691225[**]	0.009118	0.633793[**]	-7
-0.00353	-0.24512	0.005592	0.388673	-6
-0.00186	-0.12919	0.003733	0.259483	-5
-0.01846	-1.28286[***]	-0.01472	-1.02338[***]	-4
-0.00271	-0.18828	-0.01743	-1.21166[***]	-3
0.009834	0.683571[**]	-0.0076	-0.52808	-2
-0.02379	-1.65359[***]	-0.03139	-2.18167[***]	-1
0.01166	**0.810473[**]**	**-0.01973**	**-1.3712[***]**	**0**
0.011901	0.827215[**]	-0.00783	-0.54398[**]	1
0.023467	1.631139[***]	0.015641	1.087158[***]	2
-0.00507	-0.35222	0.010573	0.734938[**]	3
-0.01206	-0.83842[**]	-0.00149	-0.10349	4
0.004316	0.299963	0.002827	0.196476	5
0.01555	1.080843[***]	0.018377	1.277318[***]	6
-0.0134	-0.93165[**]	0.004973	0.345669	7
-0.00072	-0.05039	0.004248	0.295281	8
0.014537	1.010463[***]	0.018786	1.305744[***]	9
-0.02571	-1.78733[***]	-0.00693	-0.48159	10
0.001536	0.106785	-0.00539	-0.37481	11
0.018655	1.296691[***]	0.013263	0.921885[**]	12
0.003418	0.23761	0.016682	1.159495[***]	13
-0.01863	-1.29492[***]	-0.00195	-0.13543	14
0.002262	0.157208	0.000313	0.021781	15
0.014148	0.983366[**]	0.014461	1.005147[***]	16
0.007821	0.543632[**]	0.022282	1.548779[***]	17
0.017165	1.193095[***]	0.039447	2.741874[***]	18
0.00223	0.154986	0.041677	2.89686[***]	19
-0.02497	-1.73563[***]	0.016706	1.161227[***]	20

Source: Author Computation

*indicates 1% level of significance

**indicates 5% level of significance

***indicates 10% level of significance

Table 5: Glen Mark Limited: AR and CAR under the Market Model for the Period of 1st April 2018 to 31st March 2019

AR	T statistic	CAR	T statistic	period
0.020507	1.337242[***]	0.020507	1.337242[***]	-20
0.016321	1.064269[***]	0.036828	2.401511[***]	-19
0.02863	1.866935[***]	0.065457	4.268446[***]	-18
0.010075	0.656983[**]	0.075532	4.925429[***]	-17
0.000742	0.048418	0.076275	4.973847[***]	-16
-0.01912	-1.2469[***]	0.057153	3.726949[***]	-15
-0.00131	-0.08568	0.05584	3.641272[***]	-14
0.008739	0.569834[**]	0.064578	4.211107[***]	-13
0.016997	1.108355[***]	0.081575	5.319461[***]	-12
0.010837	0.706664[**]	0.092412	6.026126[***]	-11

-0.01663	-1.08443***	0.075782	4.941695***	-10
0.017042	1.111299***	0.092824	6.052995***	-9
0.008275	0.539637**	0.101099	6.592632***	-8
0.004583	0.298859	0.105682	6.891491***	-7
0.024281	1.583358***	0.129963	8.474848***	-6
-0.02156	-1.40612***	0.1084	7.068726***	-5
-0.02264	-1.4765***	0.085758	5.592221***	-4
0.026449	1.724704***	0.112206	7.316925***	-3
0.007052	0.459844	0.119258	7.776769***	-2
-0.00538	-0.35065	0.113881	7.426124***	-1
-0.01398	**-0.91159****	**0.099902**	**6.514533****	**0**
-0.01412	-0.92083**	0.085781	5.593702***	1
-0.02669	-1.74043***	0.059091	3.85327***	2
-0.01435	-0.93549**	0.044745	2.917776***	3
0.027573	1.798012***	0.072318	4.715788***	4
-0.0064	-0.41766	0.065913	4.298132***	5
-0.00805	-0.52506**	0.057861	3.77307***	6
-0.0407	-2.65373***	0.017165	1.119343***	7
0.022273	1.452437***	0.039439	2.57178***	8
-0.03597	-2.34566***	0.003468	0.226121	9
0.011145	0.72676**	0.014613	0.952881**	10
-0.01904	-1.24144***	-0.00443	-0.28856	11
0.003172	0.206814	-0.00125	-0.08175	12
-0.0048	-0.31291	-0.00605	-0.39466	13
0.020202	1.317392***	0.01415	0.922736**	14
-0.0167	-1.08924***	-0.00255	-0.16651	15
0.018528	1.208191***	0.015974	1.041684***	16
-0.01073	-0.69961**	0.005246	0.342074	17
-0.00824	-0.53707**	-0.00299	-0.195	18
0.001453	0.094721**	-0.00154	-0.10028	19
0.020703	1.350029***	0.019165	1.24975***	20

Source: Author Computation

*indicates 1% level of significance

**indicates 5% level of significance

***indicates 10% level of significance

Tables 1, 2, 3, 4 and 5 show that the results of AR and CAR under the Market Model for the period from 1st April 2018 to 31st March 2019. The dividend announcement of Sunpharma ltd., Lupin ltd., Dr Reddy laboratories ltd., Cipla ltd., and Glenmark pharmaceuticals ltd. companies return series are calculated. The estimation window for the BSE Telecom Sector companies is -120 days, and, the Event Window Preannouncement period is -15 days and Post-announcement period is 15 days. The event date is considered as Zero. The AR and CAR values are showing positive and Negatives values with lags. Among the five pharmaceutical Sectoral index companies, the highest AR value is 1.75 from Lupin ltd and lowest AR is -0.0964 from Dr Reddy laboratories ltd. The highest value of AR in the pre event window has been on day -20,-18,-19,-15 and -3 for Sunpharma ltd,Lupin ltd, Dr reddy laboratories ltd, Cipla ltd and Glenmark pharmaceuticals ltd and the values are 0.03730,0.02915, 0.02400,0.02106 and 0.02645.

The lowest value of AR in the pre event window on day -5,-10,-11,-17 and -4 for Sunpharma ltd., Lupin ltd., Dr Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are-

0.02703,-0.03359,-0.01937,-0.02415 and -0.02264. The highest value of AR in the post event window on day 18,14,13,2 and 4 for for Sunpharma ltd., Lupin ltd., Dr.Reddy laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are 0.01232,1.75E-06,0.02681,0.02346 and 0.02757.

The lowest value of AR in the post event window on day 11,8,9,20 and 9 for Sunpharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are -0.0334,-0.02763,-0.01882,-0.02497 and -0.03597.

The highest value of CAR in the pre event window on day -6,-17,-19,-18 and-6 for Sunpharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are 0.09385,0.02904,0.021703,0.01161 and 0.12996. The lowest value of CAR in the post event window on day -12,-5,-10,-1 and -20 for Sunpharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are .03193,-0.14328,-0.05702,-0.03139 and 0.0205.

The highest value of CAR in the post event window on day 8,16,15,19 and 1 for Sunpharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are 0.00706,-0.03841,-0.0828,0.04167 and 0.08578. and, The lowest value of CAR in the post event window on day 19,10,10,1and 13 for for Sunpharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd., Cipla ltd. and Glenmark pharmaceuticals ltd. and the values are -0.05103,-1.14037,-0.16905,-0.00783 and -0.00605.
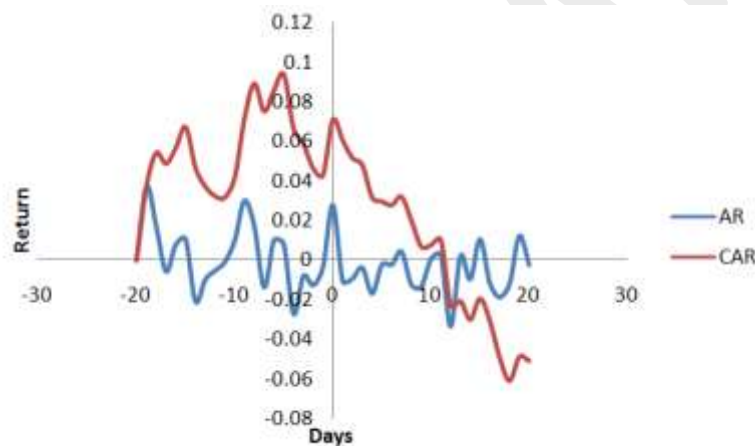
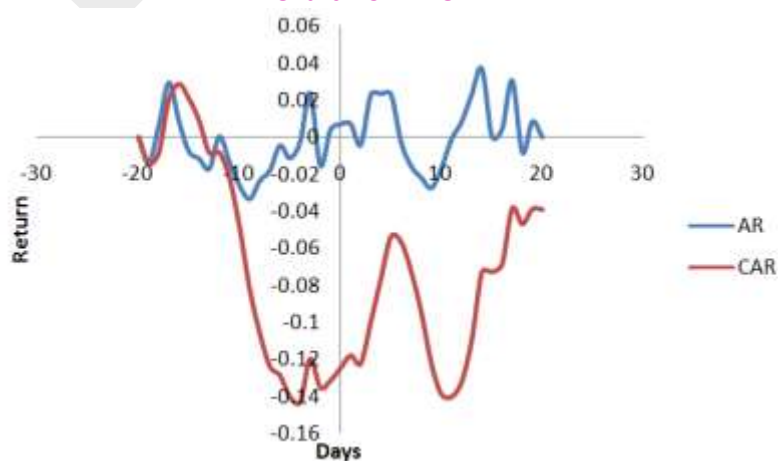### Chart No.1: SUN PHARMA

Chart No. 2: LUPIN

Chart No. 3: Dr.REDDY

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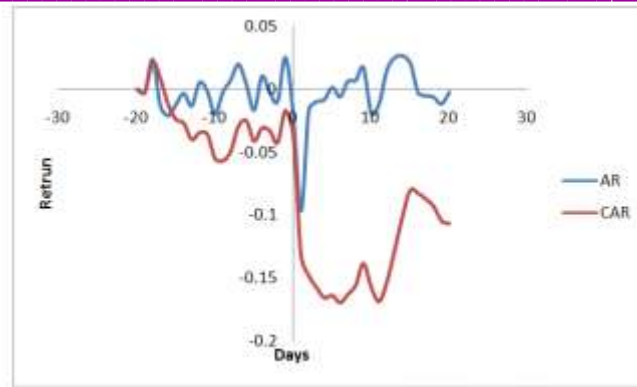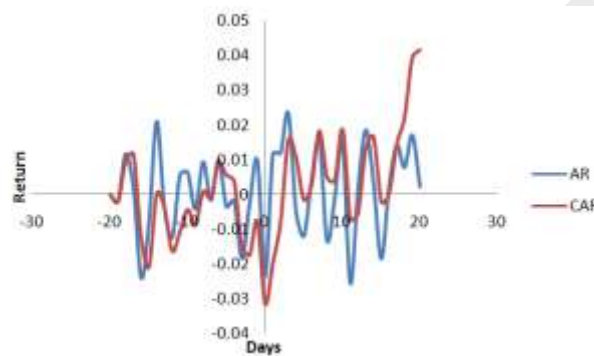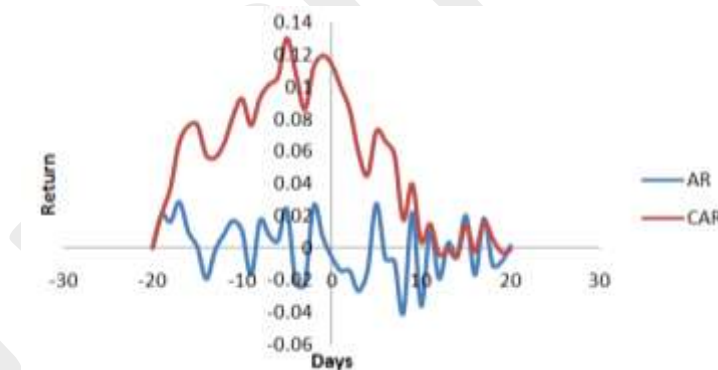
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Chart No. 4: CIPLA

Chart No. 5: GLEN MARK

FINDINGS AND SUGGESTIONS

The Market model is one of the methods for measuring Semi strong form of efficiency. The Market Model for dividend announcements of BSE pharmaceutical Sector index companies is taken for the study. It is to be found that AR shows in Sunpharma, Lupin and CAR for Sun pharma ltd., Lupin ltd., Dr.Reddy's laboratories ltd. have declines. Therefore, it is suggested the investors cannot have chance to earn abnormal return from these securities as the market information quickly reacts to the stock prices except Cipla ltd and Glenmark ltd since both the AR and CAR are showing increasing trend.

CONCLUSION

The market efficiency is a popular concept in stock market. It is the best technique for testing stock market return predication. These can be measured through Weak form, Semi Strong form and the Strong form. In this study, event study is used for identifying the market efficiency. The Market Model of AR and CAR calculated for the period from 1st April 2018 to 31st March 2019. From the study it is found that AR

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shows in Sunpharma, lupin and CAR for Sun pharma ltd., Lupin ltd, Dr.Reddy's laboratories ltd. have declined. So it is concluded that it is not in semi-strong efficiency except Cipla ltd. and Glenmark ltd. So, the investors need to have awareness about BSE pharmaceutical Sector companies for the future investments.

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