



# Quarterly Earnings Announcements and Stock Price Reactions - A Study of Selected Indian Pharmaceutical companies

<sup>1</sup>Kinjal Dhamecha, <sup>2</sup>Dr. Chetana Marvadi

<sup>1</sup>Research Scholar, <sup>2</sup>Assistant Professor,

<sup>1</sup>School of Commerce,

<sup>1</sup>Gujarat University, Ahmedabad, India

## Abstract

Earnings announcements is a quarterly update on a company's progress, which heavily influences company's returns. Quarterly Earnings announcements are critical for both companies and investors. This research paper analyses the impact of quarterly earnings announcements on abnormal returns. The present study focuses on how the earnings information affects abnormal returns. The secondary data is collected for 6 pharmaceutical companies which are listed on the BSE Index. To accomplish the objective, the study relies on event study methodology and Paired sample t-test. The study emphasis 120 quarters of earnings announcements of selected 6 pharmaceutical companies for 5 years. The study finds that out of these 120 quarters, 9 quarters have a positive effect on the abnormal returns of the selected companies while 9 quarters have a negative effect. The majority of 102 quarters show no effect of the earnings announcements. Quarterly earnings announcements have a mixed effect on company's returns, which may indicate that investors do not give much importance to earnings information while making their investment decisions. Thus, apart from the earnings announcements, other factors such as geopolitical movements and economic factors may also have influence the abnormal returns.

**Keywords:** Quarterly earnings announcements, Abnormal returns, Event study methodology, Paired sample t-test, BSE

## Introduction

India has managed to maintain a steady economic growth despite the global economic challenges. The country's capital market has made significant advancements in recent times, including upgrades to the existing system, implementation of technology, improvements in settlement processes, and regulatory changes. These developments aim to improve the market's efficiency and fairness. The regulatory authorities have taken steps to improve market efficiency, ensuring that every investor benefits from trading in the capital market. (Janet Jyothi Dsouza et al., 2016)

Quarterly earnings announcements are highly valuable for investors as they provide more frequent and detailed updates on company's performance. Quarterly earnings announcements are considered even more significant than the yearly financial data as they allow for regular assessments and adjustments of expectations. The primary purpose of publishing earnings announcements is to offer valuable and pertinent information to all investors. It is widely acknowledged that prices of stocks react quickly to earnings announcements. If the news is good, investors respond positively, and if it is bad, they react negatively. However, when companies meet expectations, the response is typically close to zero. There are various

corporate announcements that affect the stock market, but earning information is a significant disclosure that impacts company's share price. Here in this study after getting the daily share prices using a market model calculate the expected return which is called as normal (expected) return. The abnormal return is then determined by subtracting the expected return from the security return. The abnormal stock return, surrounding the announcement is an indicator of the unexpected change in investors' wealth associated with the event. The study seeks to examine the impact of quarterly earnings announcements on abnormal returns of selected companies.

## Literature Review

Many studies in finance have looked into how earnings announcements affect the share market. This section of the research provides a review of earlier empirical studies.

**(Adam Szyszka, 2001)** examined quarterly financial reports and the stock price reaction at the Warsaw Stock Exchange using 22 companies and 16 quarters from 1997 to 2000. To fulfil the objective of the study, the author used event studies and 121 days has been taken as a observation period for abnormal returns. The quarterly earnings announcements might have contained fewer unexpected elements for the market participants. This paper discovered that some companies experienced a lasting drop in their stock prices after unexpectedly reporting really bad quarterly earnings.

**(Pyemo Afego, 2011)** analyzed stock price response to earnings announcements from the Nigerian Stock Market. For a sample of 16 firms listed on the exchange, the event study methodology is used to examine how quickly the market responds to the release of annual earnings information. The researcher has considered a study period 2005-08 and the event window of 20 days before and 20 days after the announcements. A significant anomalous price reaction suggested that announcements contained information that was crucial. The researcher suggested that the Nigerian stock market did not effectively respond to earnings information for the sample firms during the study period.

**(Shanker Prakash, 2013)** conducted study to analyse the applicability of event study or semi- strong informational efficiency of the Indian stock market. The author has chosen 15 S&P CNX Nifty listed companies as a sample for the financial year 2008-10. The findings showed that blue-chip businesses were more consistently performing in the market, limiting the potential for investors. The study also found that the market was on the path of semi-strong form efficiency.

**(Paul Quaisie Eleke-Aboagye et al., 2013)** examined the impact of earnings announcements on share prices of 10 listed companies on the Ghana Stock Exchange from January 2010 to June 2013. The study used 21-days event window and event study methodology to analyze daily returns and market models. The results displayed that there was no significant correlation between profit reports and market models. Neither the announcement day nor the days preceding it had any noticeable response, indicating that profit releases did not have a significant impact on stock prices.

**(Natika Poddar, 2016)** has studied the impact of earnings announcements on stock returns of 10 firms from the NSE Sensex. The main purpose of the study is to examine the impact of quarterly earnings announcements on the stock prices. The event study methodology was used to analyze the data for the financial year 2016. The study concluded that the Indian stock market demonstrated semi-strong efficiency.

**(Janet Jyothi Dsouza et al., 2016)** examined the impact of quarterly earnings announcements on the Indian stock market and to test the semi-strong form of efficient market hypothesis using BSE-500 companies. The study employs event study methodology, including student t-test and non-parametric tests (Run and Sign) along with Cohen et al.'s methodology to evaluate stock market quality. The findings suggested that the Indian stock market struggles to absorb publicly available information, allowing investors to predict future returns based on new information flow.

**(Krishna Prasad et al., 2020)** investigated how earnings surprise have been influenced during or after the trading hours. The timing of earnings announcements and the hypothesis relating to earnings surprise were both tested using the event study methodology. The relationships between the twelve quarterly earnings reports of 30 companies from the Indian BSE SENSEX were tested. The study found that the market responds negatively to earnings announcements made after trading hours.

(Gaur, 2015) examined the impact of quarterly results on the share prices of two companies in the cement sector, namely ACC and UltraTech. The data was taken from the NSE and BSE websites. The study analyzed the behaviour of share price, 15 days before and 15 days after the announcement. The study found that there is higher premiums for firms without guidance. When the bidding firm provides guidance, additional premiums for targets offering guidance decrease.

## Research Methodology

### Objective of the Study

The purpose of the study is to examine the impact of quarterly earnings announcements on abnormal returns. The study is based on secondary data collected from the BSE website. The study conducted analysis of the quarterly earnings announcements made by the 6 pharmaceutical sector companies listed on the Bombay Stock Exchange. The research covered a period of five years from 2017-18 to 2021-22. Data is collected for 30 days before and 30 days after the quarterly earnings announcements.

### Hypothesis of the Study

H<sub>0</sub>: Quarterly earnings announcements do not have significant impact on abnormal returns

H<sub>1</sub>: Quarterly earnings announcements do have significant impact on abnormal returns.

### Sample Size

In this study, six companies are chosen from the pharmaceutical sector based on specific selection criteria. The criteria include that the companies are not holding companies and follow a financial year from April to March. Additionally, these six companies are chosen from the top 10 pharmaceutical companies. These companies are listed on the BSE index and their names are provided below.

- (1) Aurobindo Pharma Ltd.
- (2) Biocon Ltd.
- (3) Cipla Ltd.
- (4) Dr. Reddy's Laboratories Ltd.
- (5) Lupin Ltd.
- (6) Torrent Pharma Ltd.

### Duration of the Study

The study period, which forms the core time frame of our research, extends from the year 2017-18 through 2021-22.

### Data Analysis Techniques

- Event Study Methodology
- Paired t-test

### 1. Event Study Methodology

Event study methodology is used to analyse the impact of quarterly earnings announcements on abnormal returns. To determine the abnormal return daily share prices of the selected companies have been used for this study. The market model is used to estimate the abnormal returns, this can be stated as:

$$AR_{it} = R_{it} - NR_{it}$$

$R_{it}$  is the actual return or security return of the company

Normal (expected) Return is calculated using Market model which is

$$NR_{it} = \alpha_i + \beta_i * R_{mt}$$

$R_{mt}$  is return on market index for day t.  $\alpha_i$  measures excess return beyond the market return.  $\beta_i$  measures sensitivity of return of each company to the market return.

Abnormal return (AR) is defined as the difference between the actual return ( $R_{it}$ ) and the normal return ( $NR_{it}$ ).

**2. Paired Sample t-test** is used to analyse the statistical significance of abnormal return.

### Data Analysis and Interpretation

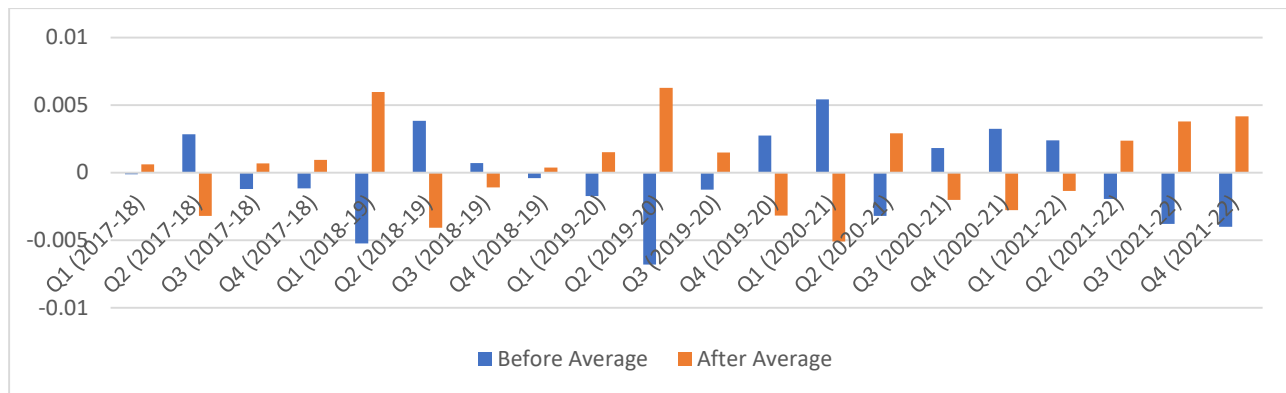
The study employed the event study methodology to calculate abnormal returns of all the selected companies. Paired sample t-test is conduct to analyze the statistical significance of the obtained abnormal returns. The results of company wise analysis are shown in Tables no. 1to 6 below:

#### (1) Aurobindo Pharma Ltd.

**Table 1: Paired t-test for Aurobindo Pharma Ltd.**

PERIOD	BET A	ALPH A	BEFORE AVERAG E	AFTER AVERAG E	DEVIATIO N	t-value	Sig.	Decision for Null Hypothesi s
Q1 (2017-18)	1.451	0.000	0.000	0.001	-0.001	-0.221	0.827	Accepted
Q2 (2017-18)	1.781	-0.002	0.003	-0.003	0.006	2.081	0.046	Rejected
Q3 (2017-18)	0.873	-0.003	-0.001	0.001	-0.002	-0.717	0.479	Accepted
Q4 (2017-18)	1.392	0.000	-0.001	0.001	-0.002	-0.608	0.548	Accepted
Q1 (2018-19)	1.215	0.003	-0.005	0.006	-0.011	-2.967	0.006	Rejected
Q2 (2018-19)	0.898	0.000	0.004	-0.004	0.008	2.428	0.022	Rejected
Q3 (2018-19)	1.284	0.000	0.001	-0.001	0.002	0.619	0.541	Accepted
Q4 (2018-19)	0.054	-0.004	0.000	0.000	-0.001	-0.193	0.849	Accepted
Q1 (2019-20)	0.424	0.001	-0.002	0.001	-0.003	-1.128	0.269	Accepted
Q2 (2019-20)	2.133	-0.006	-0.007	0.006	-0.013	-2.281	0.030	Rejected
Q3 (2019-20)	1.507	0.005	-0.001	0.001	-0.003	-0.308	0.760	Accepted
Q4 (2019-20)	-0.051	0.007	0.003	-0.003	0.006	0.951	0.349	Accepted
Q1 (2020-21)	0.515	0.000	0.005	-0.005	0.011	3.032	0.005	Rejected
Q2 (2020-21)	0.916	-0.001	-0.003	0.003	-0.006	-1.790	0.084	Accepted
Q3 (2020-21)	0.469	-0.002	0.002	-0.002	0.004	1.080	0.289	Accepted
Q4 (2020-21)	0.022	0.001	0.003	-0.003	0.006	1.588	0.123	Accepted
Q1 (2021-22)	1.129	-0.007	0.002	-0.001	0.004	0.943	0.353	Accepted
Q2 (2021-22)	0.612	0.000	-0.002	0.002	-0.004	-1.205	0.23	Accepted

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Q3 (2021-22)	0.719	0.000	-0.004	0.004	-0.008	-2.332	0.027	Rejected
Q4 (2021-22)	0.678	-0.003	-0.004	0.004	-0.008	-2.932	0.007	Rejected

**Chart 1: Abnormal Returns of Aurobindo Pharma Ltd.**

In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Aurobindo Pharma Ltd. in all these quarters Q2 (2017-18), Q1 (2018-19), Q2 (2018-19), Q2 (2019-20), Q1 (2020-21), Q3 (2021-22), Q4 (2021-22) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Aurobindo Pharma Ltd. in all these quarters Q1 (2017-18), Q3 (2017-18), Q4 (2017-18), Q3 (2018-19), Q4 (2018-19), Q1 (2019-20), Q3 (2019-20), Q4 (2019-20), Q2 (2020-21), Q3 (2020-21), Q4 (2020-21), Q1 (2021-22), Q2 (2021-22) respectively.

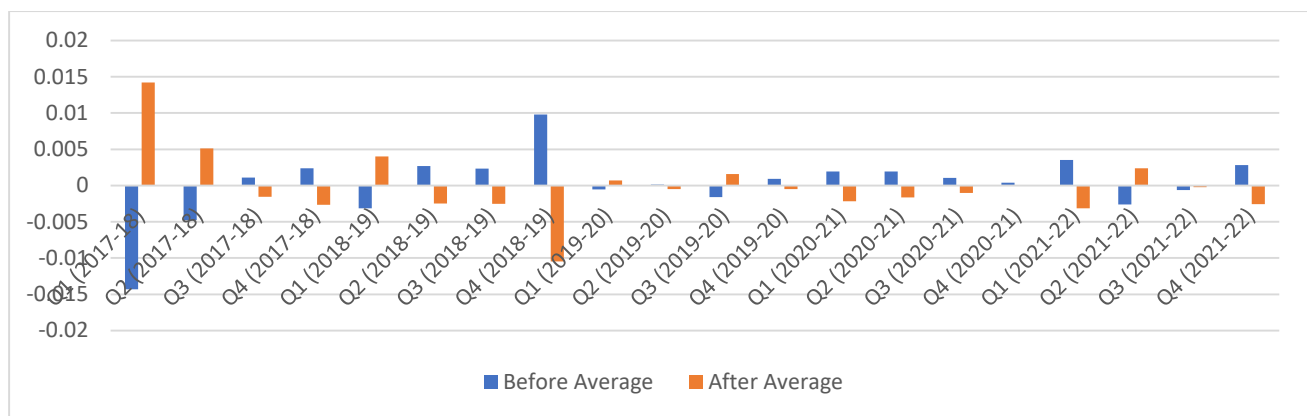
## (2) Biocon Ltd.

**Table 2: Paired t-test for Biocon Ltd.**

PERIOD	BET A	ALPH A	BEFORE AVERAG E	AFTER AVERAG E	DEVIATIO N	t-value	Sig	Decision for Null Hypothesi s
Q1 (2017-18)	2.066	-0.020	-0.014	0.014	-0.029	-0.758	0.455	Accepted
Q2 (2017-18)	0.585	0.007	-0.005	0.005	-0.010	-1.646	0.110	Accepted
Q3 (2017-18)	1.132	0.002	0.001	-0.002	0.003	0.558	0.581	Accepted
Q4 (2017-18)	0.919	0.000	0.002	-0.003	0.005	1.672	0.105	Accepted
Q1 (2018-19)	1.355	0.000	-0.003	0.004	-0.007	-1.973	0.058	Accepted
Q2 (2018-19)	0.837	0.000	0.003	-0.002	0.005	1.183	0.246	Accepted
Q3 (2018-19)	0.912	-0.001	0.002	-0.003	0.005	2.172	0.038	Rejected
Q4 (2018-19)	1.294	-0.016	0.010	-0.010	0.020	0.850	0.402	Accepted
Q1 (2019-20)	1.015	-0.001	-0.001	0.001	-0.001	-0.302	0.765	Accepted
Q2 (2019-20)	0.182	0.003	0.000	-0.001	0.001	0.161	0.873	Accepted
Q3 (2019-20)	0.625	0.002	-0.002	0.002	-0.003	-1.058	0.29	Accepted

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Q4 (2019-20)	0.464	0.005	0.001	-0.001	0.001	0.303	0.764	Accepted
Q1 (2020-21)	0.188	0.001	0.002	-0.002	0.004	0.970	0.340	Accepted
Q2 (2020-21)	1.083	-0.002	0.002	-0.002	0.004	1.078	0.290	Accepted
Q3 (2020-21)	1.046	-0.004	0.001	-0.001	0.002	0.442	0.661	Accepted
Q4 (2020-21)	0.420	0.000	0.000	0.000	0.000	0.141	0.889	Accepted
Q1 (2021-22)	0.660	-0.003	0.004	-0.003	0.007	2.292	0.029	Rejected
Q2 (2021-22)	0.391	0.000	-0.003	0.002	-0.005	-1.310	0.200	Accepted
Q3 (2021-22)	0.532	-0.001	-0.001	0.000	0.000	-0.092	0.927	Accepted
Q4 (2021-22)	0.848	0.000	0.003	-0.003	0.005	1.523	0.139	Accepted

**Chart 2: Abnormal Returns of Biocon Ltd.**



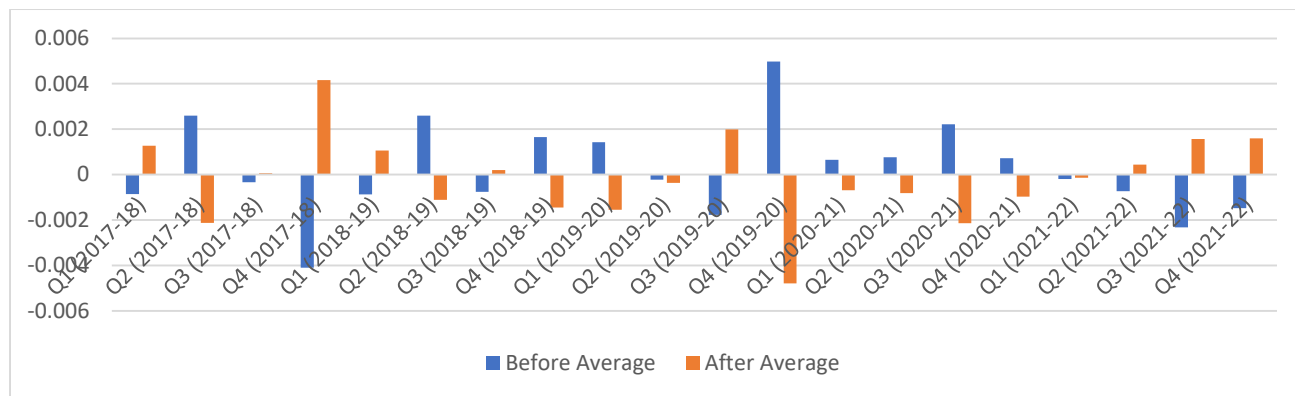
In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Biocon Ltd. in all these quarters Q3 (2018-19), Q1 (2021-22) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Biocon Ltd. in all these quarters Q1 (2017-18), Q2 (2017-18), Q3 (2017-18), Q4 (2017-18), Q1 (2018-19), Q2 (2018-19), Q4 (2018-19), Q1 (2019-20), Q2 (2019-20), Q3 (2019-20), Q4 (2019-20), Q1 (2020-21), Q2 (2020-21), Q3 (2020-21), Q4 (2020-21), Q2 (2021-22), Q3 (2021-22), Q4 (2021-22) respectively.



## (3) Cipla Ltd.

Table 3: Paired t-test for Cipla Ltd.

PERIOD	BET A	ALPH A	BEFORE AVERAG E	AFTER AVERAG E	DEVIATIO N	t-value	Sig	Decision for Null Hypothesi s
Q1 (2017-18)	1.025	0.000	-0.001	0.001	-0.002	-0.976	0.337	Accepted
Q2 (2017-18)	0.987	0.000	0.003	-0.002	0.005	1.726	0.095	Accepted
Q3 (2017-18)	0.694	-0.001	0.000	0.000	0.000	-0.167	0.869	Accepted
Q4 (2017-18)	1.016	0.002	-0.004	0.004	-0.008	-2.412	0.022	Rejected
Q1 (2018-19)	0.746	0.001	-0.001	0.001	-0.002	-0.986	0.332	Accepted
Q2 (2018-19)	0.681	-0.004	0.003	-0.001	0.004	1.142	0.263	Accepted
Q3 (2018-19)	0.454	0.000	-0.001	0.000	-0.001	-0.561	0.579	Accepted
Q4 (2018-19)	0.681	0.001	0.002	-0.001	0.003	1.443	0.160	Accepted
Q1 (2019-20)	0.289	-0.003	0.001	-0.002	0.003	1.303	0.203	Accepted
Q2 (2019-20)	0.480	-0.001	0.000	0.000	0.000	0.050	0.961	Accepted
Q3 (2019-20)	0.639	0.000	-0.002	0.002	-0.004	-1.112	0.275	Accepted
Q4 (2019-20)	0.496	0.007	0.005	-0.005	0.010	1.640	0.112	Accepted
Q1 (2020-21)	0.512	0.003	0.001	-0.001	0.001	0.309	0.759	Accepted
Q2 (2020-21)	0.616	-0.002	0.001	-0.001	0.002	0.505	0.617	Accepted
Q3 (2020-21)	0.445	0.000	0.002	-0.002	0.004	1.713	0.097	Accepted
Q4 (2020-21)	-0.481	0.004	0.001	-0.001	0.002	0.653	0.519	Accepted
Q1 (2021-22)	0.702	-0.001	0.000	0.000	0.000	-0.020	0.984	Accepted
Q2 (2021-22)	-0.133	-0.001	-0.001	0.000	-0.001	-0.374	0.711	Accepted
Q3 (2021-22)	0.369	0.002	-0.002	0.002	-0.004	-1.192	0.243	Accepted
Q4 (2021-22)	0.543	-0.001	-0.001	0.002	-0.003	-1.256	0.219	Accepted

**Chart 3: Abnormal Returns of Cipla Ltd.**

In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Cipla Ltd. in this quarter Q4 (2017-18) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Cipla Ltd. in all these quarters Q1 (2017-18), Q2 (2017-18), Q3 (2017-18), Q1 (2018-19), Q2 (2018-19), Q3 (2018-19), Q4 (2018-19), Q1 (2019-20), Q2 (2019-20), Q3 (2019-20), Q4 (2019-20), Q1 (2020-21), Q2 (2020-21), Q3 (2020-21), Q4 (2020-21), Q1 (2021-22), Q2 (2021-22), Q3 (2021-22), Q4 (2021-22) respectively.

#### (4) Dr. Reddy's Laboratories Ltd.

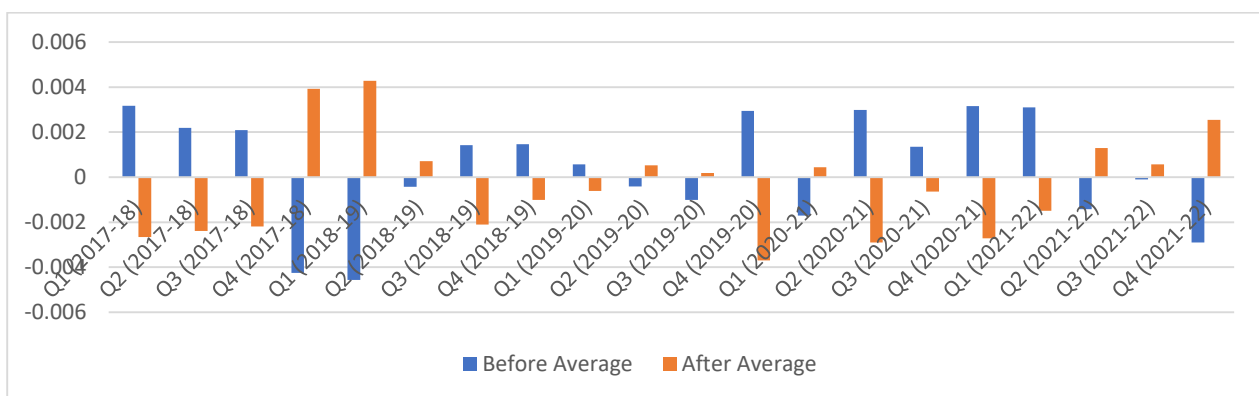
**Table 4: Paired t-test for Dr. Reddy's Laboratories Ltd.**

PERIOD	BETA	ALPHA	BEFORE AVERAGE	AFTER AVERAGE	DEVIATION	t-value	Sig	Decision for Null Hypothesis
Q1 (2017-18)	1.601	-0.004	0.003	-0.003	0.006	1.295	0.206	Accepted
Q2 (2017-18)	0.223	0.000	0.002	-0.002	0.005	1.426	0.165	Accepted
Q3 (2017-18)	0.969	-0.001	0.002	-0.002	0.004	1.121	0.271	Accepted
Q4 (2017-18)	0.299	0.001	-0.004	0.004	-0.008	-2.566	0.016	Rejected
Q1 (2018-19)	0.564	0.002	-0.005	0.004	-0.009	-1.884	0.070	Accepted
Q2 (2018-19)	0.901	0.002	0.000	0.001	-0.001	-0.29	0.774	Accepted
Q3 (2018-19)	0.862	0.000	0.001	-0.002	0.004	1.551	0.132	Accepted
Q4 (2018-19)	-0.031	-0.001	0.001	-0.001	0.002	0.896	0.378	Accepted
Q1 (2019-20)	0.612	0.002	0.001	-0.001	0.001	0.426	0.674	Accepted
Q2 (2019-20)	0.433	0.000	0.000	0.001	-0.001	-0.41	0.685	Accepted



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Q3 (2019- 20)	0.498	0.002	-0.001	0.000	-0.001	-0.383	0.704	Accepted
Q4 (2019- 20)	0.488	0.002	0.003	-0.004	0.007	1.552	0.131	Accepted
Q1 (2020- 21)	0.204	0.001	-0.002	0.000	-0.002	-0.632	0.532	Accepted
Q2 (2020- 21)	0.39	0.001	0.003	-0.003	0.006	1.395	0.174	Accepted
Q3 (2020- 21)	0.348	-0.003	0.001	-0.001	0.002	0.687	0.498	Accepted
Q4 (2020- 21)	-0.334	0.004	0.003	-0.003	0.006	2.083	0.046	Rejected
Q1 (2021- 22)	1.009	-0.003	0.003	-0.001	0.005	1.362	0.184	Accepted
Q2(2021- 22)	0.344	-0.001	-0.001	0.001	-0.003	-1.129	0.268	Accepted
Q3 (2021- 22)	0.686	-0.002	0.000	0.001	-0.001	-0.206	0.838	Accepted
Q4 (2021- 22)	0.763	0.002	-0.003	0.003	-0.005	-1.856	0.074	Accepted

**Chart 4: Abnormal Returns of Dr. Reddy's Laboratories Ltd.**

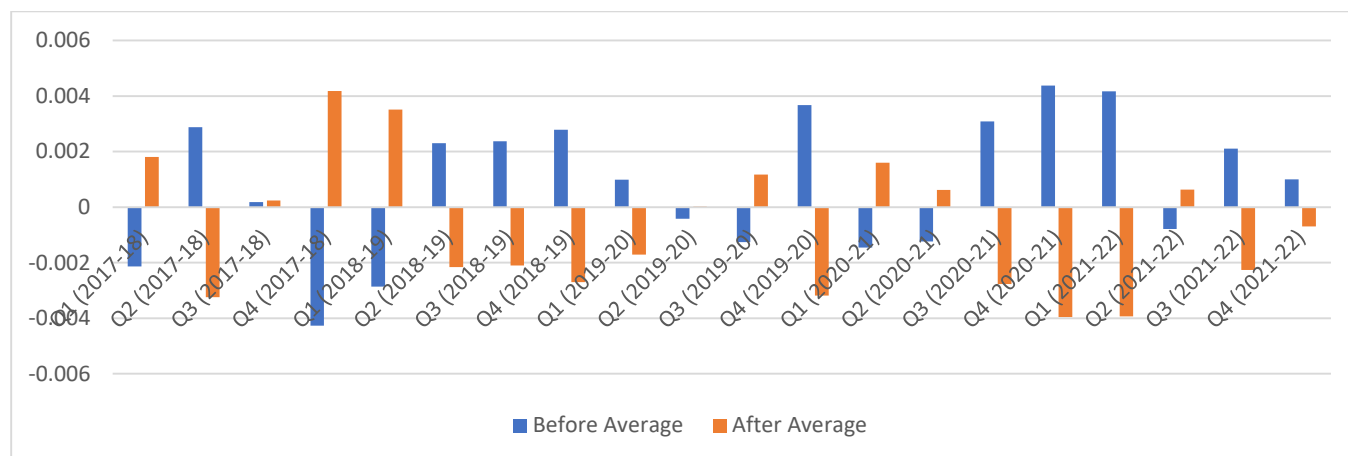


In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Dr. Reddy's Laboratories Ltd. in all these quarters Q4 (2017-18), Q4 (2020-21) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Dr. Reddy's Laboratories Ltd. in all these quarters Q1 (2017-18), Q2 (2017-18), Q3 (2017-18), Q1 (2018-19), Q2 (2018-19), Q3 (2018-19), Q4 (2018-19), Q1 (2019-20), Q2 (2019-20), Q3 (2019-20), Q4 (2019-20), Q1 (2020-21), Q2 (2020-21), Q3 (2020-21), Q1 (2021-22), Q2 (2021-22), Q3 (2021-22), Q4 (2021-22) respectively.

## (5) Lupin Ltd.

Table 5: Paired t-test for Lupin Ltd.

PERIOD	BET A	ALPH A	BEFORE AVERAG E	AFTER AVERAG E	DEVIATIO N	t-value	Sig	Decision for Null Hypothesi s
Q1 (2017-18)	1.174	-0.003	-0.002	0.002	-0.004	-1.28	0.211	Accepted
Q2 (2017-18)	1.426	-0.003	0.003	-0.003	0.006	1.161	0.255	Accepted
Q3 (2017-18)	1.130	-0.002	0.000	0.000	0.000	-0.022	0.983	Accepted
Q4 (2017-18)	1.162	0.002	-0.004	0.004	-0.008	-2.465	0.020	Rejected
Q1 (2018-19)	1.315	-0.001	-0.003	0.004	-0.006	-1.594	0.122	Accepted
Q2 (2018-19)	1.104	-0.001	0.002	-0.002	0.004	1.528	0.137	Accepted
Q3 (2018-19)	0.656	-0.003	0.002	-0.002	0.004	1.615	0.117	Accepted
Q4 (2018-19)	0.423	0.001	0.003	-0.003	0.005	1.506	0.143	Accepted
Q1 (2019-20)	0.206	0.000	0.001	-0.002	0.003	0.999	0.326	Accepted
Q2 (2019-20)	0.303	0.000	0.000	0.000	0.000	-0.160	0.874	Accepted
Q3 (2019-20)	0.441	-0.001	-0.001	0.001	-0.002	-0.669	0.509	Accepted
Q4 (2019-20)	0.112	0.002	0.004	-0.003	0.007	1.412	0.169	Accepted
Q1 (2020-21)	0.095	0.001	-0.001	0.002	-0.003	-0.635	0.531	Accepted
Q2 (2020-21)	0.883	-0.004	-0.001	0.001	-0.002	-0.609	0.547	Accepted
Q3 (2020-21)	0.773	0.000	0.003	-0.003	0.006	2.192	0.037	Rejected
Q4 (2020-21)	0.43	0.002	0.004	-0.004	0.008	2.301	0.029	Rejected
Q1 (2021-22)	1.169	-0.005	0.004	-0.004	0.008	2.090	0.045	Rejected
Q2 (2021-22)	0.570	-0.002	-0.001	0.001	-0.001	-0.452	0.654	Accepted
Q3 (2021-22)	0.973	-0.003	0.002	-0.002	0.004	1.293	0.206	Accepted
Q4 (2021-22)	0.933	-0.001	0.001	-0.001	0.002	0.487	0.630	Accepted

**Chart 5: Abnormal Returns of Lupin Ltd.**

In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Lupin Ltd. in all these quarters Q4 (2017-18), Q3 (2020-21), Q4 (2020-21), Q1 (2021-22) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Lupin ion Ltd. in all these quarters Q1 (2017-18), Q2 (2017-18), Q3 (2017-18), Q1 (2018-19), Q2 (2018-19), Q3 (2018-19), Q4 (2018-19), Q1 (2019-20), Q2 (2019-20), Q3 (2019-20), Q4 (2019-20), Q1 (2020-21), Q2 (2020-21), Q2 (2021-22), Q3 (2021-22), Q4 (2021-22) respectively.

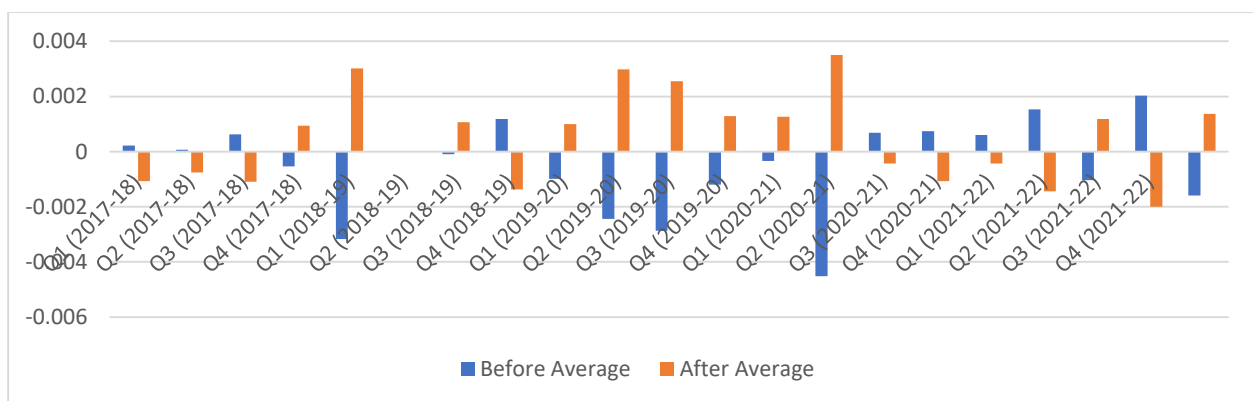
#### (6) Torrent Pharma Ltd.

**Table 6: Paired t-test for Torrent Pharma Ltd.**

PERIOD	BET A	ALPH A	BEFORE AVERAG E	AFTER AVERAG E	DEVIATIO N	t-value	Sig	Decision for Null Hypothesi s
Q1 (2017-18)	1.477	-0.002	0.000	-0.001	0.001	0.420	0.678	Accepted
Q2 (2017-18)	0.597	0.001	0.000	-0.001	0.001	0.194	0.847	Accepted
Q3 (2017-18)	0.675	-0.001	0.001	-0.001	0.002	0.685	0.499	Accepted
Q4 (2017-18)	0.998	0.001	-0.001	0.001	-0.001	-0.491	0.627	Accepted
Q1 (2018-19)	1.533	0.001	-0.003	0.003	-0.006	-2.280	0.030	Rejected
Q2 (2018-19)	0.729	0.000	0.000	0.001	-0.001	-0.410	0.685	Accepted
Q3 (2018-19)	0.21	0.000	0.001	-0.001	0.003	1.151	0.259	Accepted
Q4 (2018-19)	0.323	-0.004	-0.001	0.001	-0.002	-0.734	0.469	Accepted
Q1 (2019-20)	0.295	0.002	-0.002	0.003	-0.005	-1.800	0.082	Accepted
Q2 (2019-20)	0.322	0.001	-0.003	0.003	-0.005	-2.104	0.044	Rejected
Q3 (2019-20)	0.658	0.004	-0.001	0.001	-0.002	-0.807	0.426	Accepted
Q4 (2019-20)	-0.399	0.003	0.000	0.001	-0.002	-0.388	0.701	Accepted

Q1 (2020-21)	0.053	0.002	-0.005	0.004	-0.008	-1.877	0.071	Accepted
Q2 (2020-21)	0.715	-0.003	0.001	0.000	0.001	0.347	0.731	Accepted
Q3 (2020-21)	0.600	-0.003	0.001	-0.001	0.002	0.581	0.565	Accepted
Q4 (2020-21)	0.021	0.003	0.001	0.000	0.001	0.383	0.704	Accepted
Q1 (2021-22)	0.428	0.001	0.002	-0.001	0.003	1.137	0.265	Accepted
Q2 (2021-22)	0.187	0.000	-0.001	0.001	-0.002	-0.624	0.538	Accepted
Q3 (2021-22)	0.305	-0.002	0.002	-0.002	0.004	0.894	0.379	Accepted
Q4 (2021-22)	0.758	0.002	-0.002	0.001	-0.003	-0.819	0.420	Accepted

**Chart 6: Abnormal Returns of Torrent Pharma Ltd.**



In this given situation on the basis of the above result, the study failed to accept the null hypothesis as significance value is less than 0.05, which means that there is a significant effect of quarterly earnings announcement on abnormal returns of Torrent Pharma Ltd. in all these quarters Q1 (2018-19), Q2 (2019-20) and the study accept the null hypothesis as significance value is more than 0.05, which means that there is no significant effect of quarterly earnings announcement on abnormal returns of Torrent Pharma Ltd. in all these quarters Q1 (2017-18), Q2 (2017-18), Q3 (2017-18), Q4 (2017-18), Q2 (2018-19), Q3 (2018-19), Q4 (2018-19), Q1 (2019-20), Q3 (2019-20), Q4 (2019-20), Q1 (2020-21), Q2 (2020-21), Q3 (2020-21), Q4 (2020-21), Q1 (2021-22), Q2 (2021-22), Q3 (2021-22), Q4 (2021-22) respectively.

## Findings

The study explores how quarterly earnings announcements affect pharmaceutical company's returns. The following table -7 presents the major findings on how these announcements impact on different quarters' abnormal returns.

**Table 7: Summary of Results**

Company Name	Positive	Negative	No effect	Total Quarters
Aurobindo Pharma Ltd.	4	3	13	20
Biocon Ltd.	0	2	18	20
Cipla Ltd.	1	0	19	20
Dr. Reddy's Laboratories Ltd.	1	1	18	20
Lupin Ltd.	1	3	16	20
Torrent Pharma Ltd.	2	0	18	20
<b>Total</b>	<b>9</b>	<b>9</b>	<b>102</b>	<b>120</b>

The Table no. 7 represents the effect of the earnings announcements on abnormal returns. The table displays the number of positive, negative and no effect quarters for each of the six selected companies which include Aurobindo Pharma Ltd., Biocon Ltd., Cipla Ltd., Dr. Reddy's Laboratories Ltd., Lupin Ltd., and Torrent Pharma Ltd.. These all six companies have most of the quarters are having no significant effect. Overall the table indicates that out of the 120 quarters, there is a positive effect observes in only 9 quarters and a negative effect in 9 quarters, while in the remaining 102 quarters, there is no significant effect of earnings announcements.

## Conclusion

Based on the findings of this study, it is concluded that the quarterly earnings announcements alone may not be a reliable indicator of changes in abnormal returns for the selected pharmaceutical companies. The study shows that there is mixed effect on abnormal returns of the selected company's after the quarterly earnings announcements. It suggests that there are other factors than earning announcements such as economic factors, geopolitical movements, and many other financial and non financial factors that may play a significant role in influencing the abnormal returns. Investors need to consider these factors along with earnings announcements to make informed investment decisions.

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