



# CHRIST

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**BANNERGHATTA ROAD, HULIMAVU**

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**RESEARCH METHODOLOGY CIA - 3**

**A STUDY ON THE EFFECT OF NEWS ON STOCK OF BLUE  
CHIP COMPANIES IN PHARMACEUTICAL INDUSTRY**

**SUBMITTED TO – DR. MALLIKA SANKAR**

**SUBMITTED BY – YUKTI HANDA (1923373)**

**MUSKAAN SARDANA (1923357)**

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## **1. INTRODUCTION:**

Blue Chip Company and Blue Chip Stocks A blue chip is a well-established, nationally recognized, and financially sound organisation. Blue chips generally sell high quality products and services which are widely accepted. Blue chip businesses are known for weather downturns and operate profitably in the face of adverse economic conditions that help contribute to their long record of stable and reliable growth. The term 'blue chip' was first used to describe high-priced stocks in 1923 when Oliver Gingold, an employee at Dow Jones, observed certain stocks trading at \$200 or more per share. Poker players bet in blue, white, and red chips with the blue chips having more value than both red and white chips. Today, blue chip stocks don't necessarily refer to stocks with a high price tag, but more accurately to stocks of high-quality companies that have withstood the test of time. A blue-chip stock is generally a component of the most reputable market indexes or averages, such as the Dow Jones Industrial Average, the Standard & Poor's (S&P) 500 and the Nasdaq100 in the United States, the TSX-60 in Canada or the FTSE Index in the United Kingdom. How big a company needs to be to qualify for blue-chip status is open to debate. A generally accepted benchmark is a market capitalisation of \$5 billion, although market or sector leaders can be companies of all sizes. A blue chip company is a multinational firm that has been in operation for a number of years. Think companies like Coca-Cola, Disney, PepsiCo, Walmart, General Electric, IBM, and McDonald's which dominant leaders in their respective industries are. Blue chip companies have built a reputable brand over the years and the fact that they have survived multiple downturns in the economy makes them stable companies to have in a portfolio. Conservative investors with a low risk profile or nearing retirement will usually go for blue chip stocks. These stocks are great for capital preservation and their consistent dividend payments not only provide income, but also protect the portfolio against inflation

### **1.2 Characteristics: -**

Blue chip stocks are seen as less volatile investments than owning shares in companies without blue chip status because blue chips have an institutional status in the economy. The stocks are highly liquid since they are frequently traded in the market by individual and institutional investors alike. Therefore, an investor who needs cash on a whim can confidently create a sell order for his stock knowing that there will always be a buyer on the other end of the transaction. Blue chip companies are also characterized as having little to no debt, large market capitalization, stable debt-to-equity ratio, and high return on equity (ROE) and return on assets (ROA). The solid balance sheet fundamentals coupled with high liquidity have earned all blue chip stocks the investment grade bond ratings. While dividend payments are not absolutely necessary for a stock to be considered a blue chip, most blue chips have long records of paying stable or rising dividends

### **1.3 Benefits of investing in Blue chip Stocks: -**

They have highly valued most favourable long-term investment options. They have a history of showing growth in long-term portfolios and they are of reputed companies which are household names. → It is known to most of the investors that these stocks have stable earnings so in times of economic distress investors consider these as the safe choice because of their secure nature. → They give a sense of security during the times when the growth of the economy is slow since such companies have strong management teams and they have the ability to churn out profits. → If the stock market is undergoing a bear market condition then the investors have no need to worry regarding investments because such companies recover

### **1.4 US Food & Drug Administration (US FDA)**

The Food and Drug Administration (FDA or USFDA) is a federal agency of the United States Department of Health and Human Services, one of the United States federal executive departments. The FDA is responsible for protecting and promoting public health through the control and supervision of food safety, tobacco products, dietary supplements, prescription and over-the-counter pharmaceutical drugs (medications), vaccines, biopharmaceuticals, blood transfusions, medical devices, electromagnetic radiation emitting devices (ERED), cosmetics, animal foods & feed and veterinary products. The FDA was empowered by the United States Congress to enforce the Federal Food, Drug, and Cosmetic Act, which serves as the primary focus for the Agency; the FDA also enforces other laws, notably Section 361 of the Public Health Service Act and associated

regulations, many of which are not directly related to food or drugs. These include regulating lasers, cellular phones, condoms and control of disease on products ranging from certain household pets to sperm donation for assisted reproduction.

Most federal laws concerning the FDA are part of the Food, Drug and Cosmetic Act, (first passed in 1938 and extensively amended since) and are codified in Title 21, Chapter 9 of the United States Code. Other significant laws enforced by the FDA include the Public Health Service Act, parts of the Controlled Substances Act, the Federal Anti-Tampering Act, as well as many others. In many cases these responsibilities are shared with other federal agencies.

## **1.5 Company Profile**

### **1.5.1 Sun Pharmaceuticals Private Limited.**

Sun Pharmaceutical Industries Limited is an Indian multinational pharmaceutical company headquartered in Mumbai, Maharashtra that manufactures and sells pharmaceutical formulations and active pharmaceutical ingredients (APIs) primarily in India and the United States. The company offers formulations in various therapeutic areas, such as cardiology, psychiatry, neurology, gastroenterology and diabetology. It also provides APIs such as warfarin, carbamazepine, etodolac, and clorazepate, as well as anti-cancers, steroids, peptides, sex hormones, and controlled substances. Sun Pharmaceuticals was established by Mr. Dilip Shanghvi in 1983 in Vapi, Gujarat with five products to treat psychiatry ailments. Cardiology products were introduced in 1987 followed by gastroenterology products in 1989. Today, it is the largest chronic prescription company in India and a market leader in psychiatry, neurology, cardiology, orthopedics, ophthalmology, gastroenterology and nephrology

### **1.5.2 Cadila Healthcare Limited.**

Cadila Healthcare Ltd (Zydus Cadila) is an Indian pharmaceutical company headquartered at Ahmedabad in Gujarat state of western India. The company is one of the leading pharmaceutical companies in India, with INR 119.05 Billion revenue (2018). It is a manufacturer of generic drugs. In 2019, injectable ketorolac tromethamine manufactured by Zydus (Cadila Healthcare) was recalled due to microbial growth. Cadila was founded in 1952 by Ramanbhai Patel (1925–2001), formerly a lecturer in the L.M. College of Pharmacy, and his business partner Indravadan Modi. It evolved over the next four decades into an established pharmaceutical company.

### **1.5.3 Cipla Limited.**

Cipla Limited is an Indian multinational pharmaceutical and biotechnology company, headquartered in Mumbai, India. Cipla primarily develops medicines to treat respiratory, cardiovascular disease, arthritis, diabetes, weight control and depression; other medical conditions. As of 17 September 2014, its market capitalisation was ₹49,611.58 crore (US\$7.0 billion), making it India's 42nd largest publicly traded company by market value. It was founded by Khwaja Abdul Hamied as 'The Chemical, Industrial & Pharmaceutical Laboratories' in 1935 in Mumbai. The name of the Company was changed to 'Cipla Limited' on 20 July 1984. In the year 1985, US FDA approved the company's bulk drug manuf

## **2. LITERATURE REVIEW**

This article is meant to highlight the concept of blue chip companies. As blue chip companies have stable earnings and prove to be a moderate debt for the companies thus investors intend to invest in the blue chip stocks and focuses on the factors affecting the same.

These stocks have stable earnings and are also liable in investing in these stocks as these stocks are safe in investing whether the market condition is a bear market or a bull market. The investors consider blue-chip stocks to be secure investments. Long-term investors can look for their investments in blue-chip stocks to grow steadily over time. Through this study in the article, the authors have taken certain parameters like Market capitalisation, Earnings per share, Annual returns, Cash Flows, etc and have explained the benefits of investing

in the blue chip companies and also that the blue chip companies through these parameters of the ten pharmaceutical companies are best for investors to invest. These stocks are proved to be the best for the investors in any market condition to invest and earn returns. Through this study the authors also concluded that the blue chip stocks of the companies have high market capitalisation, strong cash flows, steady dividend payments, stability of earnings, long history of earnings, high earning per share, and are less volatile in nature as compared to non-blue chip companies. Blue chip companies are considered for safe investment and advisable for conservative class of investors. Thus, Blue Chip Company is very strong financially, with a solid track record of producing earnings and only a moderate amount of debt. It also has a strong name in its industry with dominant products or services.

The article also focuses on how biotechnology blue chip firms especially on the news of their patents, how it affects the market. Over here, the company Infotech was issuing its patents and how the news affected the rest of the stock prices of the rest of the blue-chip company. The company frequently issued patents but only few of them were on news but those few affected the stock prices in major. The study inculcated Antares Pharma, Inc. (NASDAQ:ATRS), Infinity Pharmaceuticals, Inc. (NASDAQ:INFI), Inotek Pharmaceuticals Corporation (NASDAQ:ITEK), Hostess Brands, Inc. as some of the major blue-chip which were affected because of the news mentioned above. The news led to fall in stock prices and a report was released for the investor and stakeholders to see the effect.

The uncertainty of stock market indicators goes beyond one's valid explanation. Industrial output, economic and political transition are among the significant factors that can influence the stock market. This article concentrates on the impact of news on the stock market through the day. While there are factors behind all the various changes in stock market performance, we can theoretically evaluate the effect of news on DJIA, NASDAQ, and S&P 500. From an analysis of data gathered over a ten-week span, we have also been able to determine there is a correlation between news articles and market fluctuations, calculated by a rise, decline or adjustment.

In this article, Companies listed on the stock markets are usually obliged to disclose publicly any information that might have a significant effect on their stock prices. The objective of this transparency regulation is to ensure that all market participants have access to the same information. The corresponding press releases are one of the most reliable news sources for all the company's operations. Interestingly, even though the researcher investigated the timing of releases, little effort has been made to analyse the underlying news topics. In this paper, the author analyses the effects of the topics recognized in such corporate press releases on stock market returns on the German market. The topic of ad hoc announcements is chosen by using the Latent Dirichlet Allocation. As believed, the impacts of these thematic groups differ greatly from each other. Some serious problems do not have an effect on abnormal stock returns, while others, such as drug testing, and have a major effect.

The article focuses on the factors affecting the approval of those drugs and patents for the companies. The study so conducted was done by taking the values of 889 drugs submitted and approved and the problems or factors that affected them if any. Therefore, it was concluded that the

It lastly Focuses on classifying headlines from newspapers and wire services to examine whether stale macroeconomic news affects stock prices in the market. A compared with individual stocks, the cost of obtaining information about major economic releases is relatively low. Thus, stock prices should adjust to economic news announcements prior to their coverage in newspapers. The researcher establishes statistically and economically significant relationship between stale news stories on unemployment and next week's S&P 500 returns through various tests. The test is then completely reversed during the following week to carry out the analysis. The findings shows that investors are affected by salient information and support the hypothesis that investors overreact to stale macroeconomic news reported in newspapers and the stock prices increases or decreases according to the buy and sell by the investors.

### **3.RESEARCH METHODOLOGY**

### **3.1 Purpose of the Study: -**

The purpose of the study on “Effect of News on Stock of Blue Chip Companies in Pharmaceutical Industry” is to analyse the change in the stock prices due to the releasing of News from US Food and Drug Administration (US FDA)

This study majorly focuses on the continuous rise and fall or fluctuations of the stock prices of the pharmaceutical companies in the pharmaceutical industry.

The companies chosen for the analysis on the following study are as follows–

1. Sun Pharmaceuticals Industries Limited.
2. Cipla Limited.
3. Cadila Healthcare Limited.

### **3.2 Research Objectives: -**

1. To analyse the change in stock price of the companies in pharmaceutical industry.
2. To study the US Food and Drug Administration News and the impacts of it in changing of the stock price.
3. To study the impact of news on the stock seven days and fifteen days previous of the news announced and seven days and fifteen days after the news announced.

### **3.3 Limitations of the Study: -**

1. The study is limited to the collection of secondary data of the stock prices of the above mentioned companies.
2. The study of the topic limits us to US FDA factors affecting the stock prices of the companies.
3. The study is limited to only three pharmaceutical companies.
4. The study is also limited to a period of two years i.e. 2018 and 2019.

### **3.4 Sampling Technique: -**

The sampling technique used in this study is convenience sampling, which is a type of nonprobability sampling that involves the sample being drawn from that part of the population that is close to hand. Convenience sampling can be used by almost anyone and has been around for generations. This method is extremely speedy, easy, readily available, and cost effective.

### **3.5 Data Collection: -**

The data collection done for this study on the “Effect of News on Stock of Blue Chip Companies in Pharmaceutical Industry” is a secondary data which have been collected from the Bombay Stock Exchange site where the stock prices of the three companies have been taken.

### **3.6 Statistical Tools: -**

The statistical tools required in this study are: -

1. Statistical Package for Social Sciences (SPSS): - SPSS is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners, etc. In this research, Paired Sample T-test is used as a tool for the evaluation and analysis of the each of the six news released in the two years and the through this test the significance between the news and stock price is known.
2. Microsoft Excel: - Microsoft Excel is a spread sheet developed by Microsoft. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications. It has been a very widely applied spread sheet for these platforms. Through Ms Excel, the raw data of the stock prices are filtered according to the date wise data and used for the purpose of analysis.

### **3.7 Research Hypothesis: -**

Depending on the above objectives following are the hypothesis for the study: -

Hypothesis 1: - 15 days before and 15 after values of the stock price have a significant relation with the news 1 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited.

Hypothesis 2: - 15 days before and 15 after values of the stock price have a significant relation with the news 2 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 19 3. Cipla Limited.

Hypothesis 3: - 15 days before and 15 after values of the stock price have a significant relation with the news 3 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited.

Hypothesis 4: - 15 days before and 15 after values of the stock price have a significant relation with the news 4 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited.

Hypothesis 5: - 15 days before and 15 after values of the stock price have a significant relation with the news 5 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited.

Hypothesis 6: - 15 days before and 15 after values of the stock price have a significant relation with the news 6 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited.

Hypothesis 7: - 7 days before and 7 after values of the stock price have a significant relation with the news 1 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited

Hypothesis 8: - 20 7 days before and 7 after values of the stock price have a significant relation with the news 2 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited

Hypothesis 9: - 7 days before and 7 after values of the stock price have a significant relation with the news 3 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited

Hypothesis 10: - 7 days before and 7 after values of the stock price have a significant relation with the news 4 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited

Hypothesis 11: - 7 days before and 7 after values of the stock price have a significant relation with the news 5 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited

Hypothesis 12: - 7 days before and 7 after values of the stock price have a significant relation with the news 6 announced by US Food and Drug Administration: - 1. Cadila Healthcare Limited 2. Sun Pharmaceuticals Pvt. Ltd. 3. Cipla Limited



## Chapter – IV

### Analysis and Interpretation: -

1. Here, the analysis is done for Sun Pharmaceuticals Pvt. Ltd., Cipla Limited and Cadila Healthcare Limited where paired sample T-Test is taken as a tool to measure, the significance of the Date on which the news was announced and the change in the Closing Price values of the stock prices before and after the news announced by US Food & Drug Administration. Here, the analysis is done by taking the +7 values and -7 values and +15 values and -15 values from the date of the news which is 27<sup>th</sup> August, 2018 when US Food & Drug Administration announced about the Punitive Regulatory Action.

**Table: - 4.1**

### Paired Sample t-Test

#### A. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error
Pair 1 After Cadila	406.07	15	12.038	3.108
Before Cadila	371.93	15	16.875	4.357
Pair 2 After sun Pharma	648.13	15	16.137	4.167
Before Sunpharma	596.40	15	29.478	7.611
Pair 3 After Cipla	655.73	15	8.345	2.155
Before Cipla	639.00	15	11.352	2.931

#### B. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	15	-.559	.030

Pair 2	After sun Pharma & Before Sunpharma	15	-.189	.499
Pair 3	After Cipla & Before Cipla	15	.611	.016

### C. Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
					Lower
Pair 1	After Cadila - Before Cadila	34.133	25.629	6.617	19.941
Pair 2	After sun Pharma - Before Sunpharma	51.733	36.187	9.343	31.694
Pair 3	After Cipla - Before Cipla	16.733	9.098	2.349	11.695

### Paired Samples Test

	Paired Differences	t	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			

	Upper			
Pair 1 After Cadila - Before Cadila	48.326	5.158	14	.000
Pair 2 After sun Pharma - Before Sunpharma	71.773	5.537	14	.000
Pair 3 After Cipla - Before Cipla	21.772	7.123	14	.000

### **Interpretation: -**

Through this we can also analysed the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will not change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

The paired sample correlations for the +15 values and -15 values before and after the news announced are carried out for Sun Pharmaceuticals Pvt. Ltd., where it is observed that the After and Before the news announced values have a negative correlation i.e.  $r = -.189$ .

Through this we can also analysed the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will not change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

The paired sample correlations for the +15 values and -15 values before and after the news announced are carried out for Cipla Limited., where it is observed that the After and Before the news announced values have a positive correlation i.e.  $r = .611$ .

## 2. Analysis of +15 values and -15 values of the stock price for News 2.

**Table: - 4.2**

### Paired Sample t-Test

#### A. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error
Pair 1 After Cadila	347.93	15	5.271	1.361
Before Cadila	356.80	15	6.930	1.789
Pair 2 After Sun Pharma	422.47	15	10.091	2.606
Before Sunpharma	525.53	15	34.211	8.833

Pair 3	After Cipla	523.13	15	8.149	2.104
	Before Cipla	524.47	15	6.696	1.729

### B. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	15	.168	.550
Pair 2 After Sun Pharma & Before Sunpharma	15	.118	.675
Pair 3 After Cipla & Before Cipla	15	.123	.662

### C. Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference
					Lower
Pair 1	After Cadila - Before Cadila	-8.867	7.972	2.058	-13.281
Pair 2	After Sun Pharma - Before Sunpharma	-103.067	34.506	8.909	-122.175

Pair 3	After Cipla - Before Cipla	-1.333	9.890	2.554	-6.810
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### Paired Samples Test

		Paired Differences	t	df	Sig. (2-tailed)
		95% Confidence Interval of the Difference			
		Upper			
Pair 1	After Cadila - Before Cadila	-4.452	-4.308	14	.001
Pair 2	After Sun Pharma - Before Sunpharma	-83.958	-11.568	14	.000
Pair 3	After Cipla - Before Cipla	4.143	-.522	14	.610

### Interpretation: -

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Cipla Limited will change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

### 3. Analysis of +15 and -15 values of stock price for news 3.

**Table: - 4.3**

#### **Paired Sample t-Test**

### A. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error	
Pair 1	After Cadila	365.27	15	14.205	3.668
	Before Cadila	398.73	15	7.759	2.003
Pair 2	After Sun Pharma	473.13	15	16.881	4.359
	Before Sunpharma	512.40	15	14.406	3.720
Pair 3	After Cipla	535.33	15	15.900	4.105
	Before Cipla	594.93	15	10.532	2.719

### B. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	15	-.487	.065
Pair 2 After Sun Pharma & Before Sunpharma	15	-.257	.355
Pair 3 After Cipla & Before Cipla	15	.171	.543



### C. Paired Samples Test

		Paired Differences			
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference
					Lower
Pair 1	After Cadila - Before Cadila	-33.467	19.220	4.963	-44.110
Pair 2	After Sun Pharma - Before Sunpharma	-39.267	24.852	6.417	-53.029
Pair 3	After Cipla - Before Cipla	-59.600	17.508	4.521	-69.296

### Paired Samples Test

	Paired Differences	t	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			
	Upper			

Pair 1	After Cadila - Before Cadila	-22.823	-6.744	14	.000
Pair 2	After Sun Pharma - Before Sunpharma	-25.504	-6.119	14	.000
Pair 3	After Cipla - Before Cipla	-49.904	-13.184	14	.000

**Interpretation: -**

Through this we can also analysed the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will not change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

The paired sample correlations for the +15 values and -15 values before and after the news announced are carried out for Sun Pharmaceuticals Pvt. Ltd., where it is observed that the After and Before the news announced values have a negative correlation i.e.  $r = -.257$ .

Through this we can also analysed the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will not change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

4. Analysis of +15 values and -15 values of stock price for news 4.

**Table: - 4.4**

**Paired Sample t-Test**

**A. Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error	
Pair 1	After Cadila	337.27	15	5.284	1.364
	Before Cadila	319.93	15	7.667	1.980
Pair 2	After Sun Pharma	468.93	15	6.408	1.655
	Before Sunpharma	439.93	15	15.383	3.972
Pair 3	After Cipla	529.00	15	4.226	1.091
	Before Cipla	545.40	15	5.316	1.373

### B. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	15	.455	.088
Pair 2 After Sun Pharma & Before Sunpharma	15	.519	.048
Pair 3 After Cipla & Before Cipla	15	-.178	.525

### C. Paired Samples Test

	Paired Differences			
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
				Lower
Pair 1 After Cadila - Before Cadila	17.333	7.058	1.822	13.425
Pair 2 After Sun Pharma - Before Sunpharma	29.000	13.245	3.420	21.665
Pair 3 After Cipla - Before Cipla	-16.400	7.356	1.899	-20.474

### Paired Samples Test

		Paired Differences	t	df	Sig. (2-tailed)
		95% Confidence Interval of the Difference			
		Upper			
Pair 1	After Cadila - Before Cadila	21.242	9.512	14	.000
Pair 2	After Sun Pharma - Before Sunpharma	36.335	8.480	14	.000
Pair 3	After Cipla - Before Cipla	-12.326	-8.634	14	.000

### Interpretation: -

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

The paired sample correlations for the +15 values and -15 values before and after the news announced are carried out for Sun Pharmaceuticals Pvt. Ltd., where it is observed that the After and Before the news announced values have a positive correlation i.e.  $r = .519$ .

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock

price after the news was announced are and thus it can be said that there is a correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will change in both scenarios i.e. before 15 days of the news announced and after 15 days of the news announced.

5. Analysis of +7 value and -7 values of stock price of news 3.

**Table 4.5**

**Paired Sample t-Test**

**A. Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	After Cadila	366.86	7	18.889	7.140
	Before Cadila	394.00	7	3.464	1.309
Pair 2	After sun Pharma	462.00	7	12.741	4.816
	Before Sunpharma	507.71	7	19.448	7.351
Pair 3	After Cipla	542.71	7	20.345	7.690
	Before Cipla	589.43	7	11.731	4.434

### B. Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	7	-.688	.088
Pair 2 After sun Pharma & Before Sunpharma	7	.593	.161
Pair 3 After Cipla & Before Cipla	7	.799	.031

### C. Paired Samples Test

	Paired Differences			
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
				Lower
Pair 1 After Cadila - Before Cadila	-27.143	21.420	8.096	-46.953
Pair 2 After sun Pharma - Before Sunpharma	-45.714	15.713	5.939	-60.247
Pair 3 After Cipla - Before Cipla	-46.714	13.048	4.932	-58.781

### Paired Samples Test

		Paired Differences	t	df	Sig. (2-tailed)
		95% Confidence Interval of the Difference			
		Upper			
Pair 1	After Cadila - Before Cadila	-7.333	-3.353	6	.015
Pair 2	After sun Pharma - Before Sunpharma	-31.182	-7.697	6	.000
Pair 3	After Cipla - Before Cipla	-34.647	-9.473	6	.000

### Interpretation: -

Through this we can also analysed the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will not change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.



Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.

5. Analysis of +7 values and -7 values of stock price of news 4.

**Table 4.5**

**Paired Sample t-Test**

**A. Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 After Cadila	335.86	7	4.298	1.625

Pair 2	Before Cadila	326.86	7	4.914	1.857
	After sun Pharma	467.14	7	5.984	2.262
Pair 3	Before Sunpharma	453.43	7	5.623	2.125
	After Cipla	532.43	7	2.573	.972
	Before Cipla	546.43	7	6.133	2.318

### B. Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	After Cadila & Before Cadila	7	.528	.224
Pair 2	After sun Pharma & Before Sunpharma	7	.597	.157
Pair 3	After Cipla & Before Cipla	7	.472	.285

### C. Paired Samples Test

	Paired Differences			
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
				Lower



Pair 1	After Cadila - Before Cadila	9.000	4.509	1.704	4.830
Pair 2	After sun Pharma - Before Sunpharma	13.714	5.219	1.973	8.888
Pair 3	After Cipla - Before Cipla	-14.000	5.416	2.047	-19.009

### Paired Samples Test

		Paired Differences	t	df	Sig. (2-tailed)
		95% Confidence Interval of the Difference			
		Upper			
Pair 1	After Cadila - Before Cadila	13.170	5.281	6	.002
Pair 2	After sun Pharma - Before Sunpharma	18.541	6.952	6	.000
Pair 3	After Cipla - Before Cipla	-8.991	-6.839	6	.000

### Interpretation: -

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation

between the two variables and that the values of the stock for Cadila Healthcare Limited will change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.

Through this we can also analysed the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.

6. Analysis of +7 values and -7 value of stock price of news 5.

**Table 4.6****Paired Sample t-Test****A. Paired Samples Statistics**

	Mean	N	Std. Deviation	Std. Error
Pair 1 After Cadila	232.71	7	2.498	.944
Before Cadila	245.86	7	5.210	1.969
Pair 2 After sun Pharma	386.00	7	3.215	1.215
Before Sunpharma	411.43	7	3.309	1.251
Pair 3 After Cipla	418.29	7	6.020	2.275
Before Cipla	449.29	7	10.210	3.859

**B. Paired Samples Correlations**

	N	Correlation	Sig.
Pair 1 After Cadila & Before Cadila	7	-.490	.264
Pair 2 After sun Pharma & Before Sunpharma	7	.705	.077
Pair 3 After Cipla & Before Cipla	7	-.221	.634

**C. Paired Samples Test**

	Paired Differences
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	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference
				Lower
Pair 1 After Cadila - Before Cadila	-13.143	6.793	2.567	-19.425
Pair 2 After sun Pharma - Before Sunpharma	-25.429	2.507	.948	-27.747
Pair 3 After Cipla - Before Cipla	-31.000	12.949	4.894	-42.975

### Paired Samples Test

	Paired Differences	t	df	Sig. (2-tailed)
	95% Confidence Interval of the Difference			
	Upper			
Pair 1 After Cadila - Before Cadila	-6.861	-5.119	6	.002
Pair 2 After sun Pharma - Before Sunpharma	-23.110	-26.835	6	.000
Pair 3 After Cipla - Before Cipla	-19.025	-6.334	6	.001



**Interpretation: -**

Through this we can also analyse the fact that both the variables are negatively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is no correlation between the two variables and that the values of the stock for Cadila Healthcare Limited will not change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.

Through this we can also analyse the fact that both the variables are positively correlated i.e. the values of the stock price before the news was announced and the values of the stock price after the news was announced and thus it can be said that there is a correlation between the two variables and that the values of the stock for Sun Pharmaceutical Pvt Ltd will change in both scenarios i.e. before 7 days of the news announced and after 7 days of the news announced.

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## **5. Findings and Conclusion: -**

### **5.1 Introduction: -**

This chapter is the conclusion of the comprehensive study on various news announced by US Food and Drug Administration for the three pharmaceutical companies i.e. Cadila Healthcare Limited., Sun Pharmaceuticals Pvt. Ltd., and Cipla Limited. In the Pharmaceutical Industry in India. The research hypotheses have also been tested and accepted or rejected on test such as Paired Sample t-Test using the SPSS Software. The study had employed variety of sources to collect information majorly from Bombay Stock Exchange (BSE) site for the subject matter of this research including in – depth study of secondary data sources and of the news announced by US Food and Drug Administration.

### **5.2 Findings: -**

The study was conducted using elaborate literature reviews and test carried out on the secondary data of the three Indian pharmaceutical companies. The study was done considering the variables i.e. 7 days values of the stock price before the date of the news announced and 7 days values of the stock price after the date of the news announced. The other is 15 days values of the stock price before the date of the news announced and 15 days values of the stock price after the date of the news announced. The association between the variables and identified relation between the before and after the values of the stock price after the news was announced was analyses in – depth.

Through the first construct, it is analyses and showed through descriptive statistics analysis that in all six news which were announced by US Food and Drug Administration (USFDA) for all the three companies. In each case, we can see that the before and after values of the stock prices of the pharmaceutical companies are dependent as well as non-dependent on the release of the news. In this research the previous 15 days values and next 15 days values are been considered, and also it is studied that these before 15 days values have correlation which will change the values according to the release of news, as well as it has some cases where it is not correlated and will not influence the change of stock price values even after the news is announced.

Through the second construct, it is studied and showed through descriptive statistics analysis that in all six news which are announced by US Food and Drug Administration (USFDA) for all the three companies. In each case we can see that the before and after values of the stock prices of the pharmaceutical companies are dependent as well as non-dependent on the release of the news. In this

research the previous 7 days values and next 7 days values are been considered and also that these before 7 days values and after 7 days values have correlation which will change the stock price but in some cases it is not correlated and will not influence in the change of the stock price. In the research, we have seen through the table 4.13 and table 4.14 about the significance of the Paired Sample t-Test in all the three companies for previous 15 days values of the stock price and after 15 days values of the stock price. In the second table, we have seen about the significance for the previous 7 days values of the stock price and after 7 days values of the stock price.

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## Annexures: -

News 1	After Cadila	Before Cadila	After sun Pharma	Before Sunpharma	After Cipla	Before Cipla
News 1	396.45	375.55	621.2	579.5	648.95	638.15
News 1	386.75	377	620.7	584.85	643.6	640.55
News 1	388.35	380	639.5	575.6	648.65	637.1
News 1	402.85	372.95	652.2	569.55	660.05	628.7
News 1	405	375.15	655.95	572.55	648.9	633.4
News 1	392.25	377.95	654.15	570.7	642.8	619.25
News 1	401.2	376.5	663.4	553.6	645.95	620.9
News 1	422.55	354.55	676.65	562.75	660.85	626.65
News 1	425.85	340.05	664.2	601.65	663.9	641.95
News 1	420.8	339.85	639.5	619.6	667.4	647.4
News 1	408.65	356.8	631.05	623.3	655.45	648.15
News 1	408.3	376.75	649.85	624.7	657.8	643.7
News 1	412.45	386.45	665.1	635.25	666.25	650.65
News 1	412.85	390.85	646.15	639.1	663	657.1
News 1	407.4	397.5	642.3	629.65	662.25	650.95

News 1	After Cadila	Before Cadila	After sun Pharma	Before Sunpharma	After Cipla	Before Cipla
News 1	396.45	340.05	621.2	601.65	648.95	641.95
News 1	386.75	339.85	620.7	619.6	643.6	647.4
News 1	388.35	356.8	639.5	623.3	648.65	648.15
News 1	402.85	376.75	652.2	624.7	660.05	643.7
News 1	405	386.45	655.95	635.25	648.9	650.65
News 1	392.25	390.85	654.15	639.1	642.8	657.1
News 1	401.2	397.5	663.4	629.65	645.95	650.95

News 2	After Cadil	Befor e	After Sun	Before Sunpharm	Afte r	Befor e
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	<b>a</b>	<b>Cadil a</b>	<b>Pharma</b>	<b>a</b>	<b>Cipl a</b>	<b>Cipla</b>
News 2	352.7 5	360.35	442.8	595.9	546.3 5	526.8
News 2	358.3	356.65	413.6	589.5 5	529.1 5	531.9
News 2	355.2 5	355.55	420.1	561.7	517.2	528.1
News 2	349.4	370.25	411.3	520.3 5	515.1	520.1
News 2	341.0 5	359.75	398.8 5	514.9 5	513	519
News 2	346.0 5	355.5	421.8	519.6	519.7 5	530.9
News 2	352.7	364.65	431.3	530.5 5	530.2 5	528.7
News 2	349.5 5	355.35	422.1 5	525.5	527.7 5	521.3
News 2	346.1 5	358.25	419.7 5	531.1 5	521.4	522.0 5

News 2	351.1 5	353.55	420.5 5	525.8	524.6	517.8
News 2	345.3 5	353.25	433.1	510.6 5	523.1	522.2 5
News 2	343.6 5	345.05	424	493.6	524.8 5	517.9
News 2	344.7 5	342.75	429.2 5	486.3 5	519.8 5	515
News 2	342.0 5	356.25	424.7 5	483.4	516.8	524.5 5
News 2	341.1 5	363.9	423.4 5	492.3	517.8 5	539.9

<b>News 2</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 2	352.75	358.25	442.8	531.15	546.35	522.05
News 2	358.3	353.55	413.6	525.8	529.15	517.8
News 2	355.25	353.25	420.1	510.65	517.2	522.25
News 2	349.4	345.05	411.3	493.6	515.1	517.9
News 2	341.05	342.75	398.85	486.35	513	515
News 2	346.05	356.25	421.8	483.4	519.75	524.55
News 2	352.7	363.9	431.3	492.3	530.25	539.9

<b>News 3</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After Sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 3	384.4 5	384.8	468.2 5	505.4	574.9	587.8 5
News 3	383.6 5	398.7	471.8 5	514.2	559.85	599.3 5
News 3	386.8 5	404.2 5	480.1	517.6 5	553.05	600
News 3	369.6 5	402.2	464.7	514.3	533.95	594.2
News 3	351.8 5	409.3 5	443.8	512.5 5	519.8	599.8 5
News 3	343.7	406.0 5	453	524.2 5	524.35	599.8 5
News 3	347.2	412.1 5	451.9 5	528.1 5	532.75	606.6 5
News 3	357.5 5	406.2	462.0 5	515.5 5	532.1	610.3 5
News 3	382.5	393.6 5	466.5 5	534.5	535.85	608.0 5



News 3	369	389.6 5	499.7	518.7 5	540.35	596.9 5
News 3	367.1 5	391.3	498.5	513.5 5	530.75	591.0 5
News 3	367.1	393.1 5	494.7 5	511.5	525.3	590.8
News 3	362.3	400.5	480.1 5	506.3	524.5	589.2
News 3	353.8	397.4	482.9	496.9 5	523.35	575.6 5
News 3	352.5	392.9	478.5	471.8 5	519.85	573.6 5

<b>News 3</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 3	384.4 5	393.6 5	468.25	534.5	574.9	608.0 5
News 3	383.6 5	389.6 5	471.85	518.75	559.8 5	596.9 5
News 3	386.8 5	391.3	480.1	513.55	553.0 5	591.0 5
News 3	369.6 5	393.1 5	464.7	511.5	533.9 5	590.8
News 3	351.8 5	400.5	443.8	506.3	519.8	589.2

News 3	343.7	397.4	453	496.95	524.35	575.65
News 3	347.2	392.9	451.95	471.85	532.75	573.65

News 4	After Cadila	Before Cadila	After Sun Pharma	Before Sunpharma	After Cipla	Before Cipla
News 4	331.5	311.55	456.1	415.1	533.1	541.35
News 4	330.35	312.35	467.1	414.35	533.55	539.2
News 4	342.25	313.6	464.55	422.2	531.75	541.05
News 4	339.25	313.25	466.25	429.75	534.55	543.1
News 4	337.3	314.5	469.35	430.4	533	541.75
News 4	338	313.8	474.35	436	533.1	549.05
News 4	332.9	312.1	473.15	435.85	526.85	550.35
News 4	332.6	319.65	464.2	441.9	526.85	550.95
News 4	335.45	318.7	469.35	445.4	529.2	554.85
News 4	330.5	323.2	464.2	448.25	525.15	551.65
News 4	335.75	331.2	475.75	455.75	525.85	548.55
News 4	346.6	330.1	479.25	459.95	529.3	547.6
News 4	343.7	327.1	479.05	450.9	525.95	540.85
News 4	344.3	325.35	469.85	455.05	525.75	539.5
News 4	338.6	332.7	462.9	459.45	520.2	539.85

News 4	After Cadila	Before Cadila	After sun Pharma	Before Sunpharma	After Cipla	Before Cipla
News 4	331.5	318.7	456.1	445.4	533.1	554.85
News 4	330.35	323.2	467.1	448.25	533.55	551.65
News 4	342.25	331.2	464.55	455.75	531.75	548.55
News 4	339.25	330.1	466.25	459.95	534.55	547.6
News 4	337.3	327.1	469.35	450.9	533	540.85
News 4	338	325.35	474.35	455.05	533.1	539.5
News 4	332.9	332.7	473.15	459.45	526.85	539.85

News 5	After Cadila	Before Cadila	After Sun Pharma	Before Sunpharma	After Cipla	Before Cipla
News 5	233.45	235.9	389.65	431.95	425.05	478.35
News 5	234.1	238.8	386.55	424.9	412.45	475

	5	5				
News 5	233.9	236.5	388.2	428.8	418.1	474.9
News 5	232.2	239.6	385.9	422.0 5	418.35	471.4 5
News 5	228.2	239.3	379.85	427.7	408.55	468.1
News 5	236.5	241.8	383.55	423.2 5	423.5	468.6 5
News 5	232.1	242	386.95	426.6 5	422.25	470.4 5
News 5	230.1	239.1 5	386.3	420.6 5	441.55	460.4
News 5	232.5	241.2	394.6	416.8	440.85	458.9 5

News 5	234.2 5	237.7 5	396.6	410.9	446.85	451.3 5
News 5	234.5 5	247.2 5	399.5	413.9 5	446.55	463.4
News 5	237.6 5	246.2 5	401.4	408.6	446.3	448.9
News 5	240.4	254.1	401.4	410.0 5	443.8	449.8
News 5	245.1	249.2	405.55	406.7 5	453.75	434.4 5
News 5	247.8	245.8	405.3	412	454.95	438.9 5

<b>News 5</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 5	233.45	241.2	389.65	416.8	425.05	458.95
News 5	234.15	237.75	386.55	410.9	412.45	451.35
News 5	233.9	247.25	388.2	413.95	418.1	463.4
News 5	232.2	246.25	385.9	408.6	418.35	448.9
News 5	228.2	254.1	379.85	410.05	408.55	449.8
News 5	236.5	249.2	383.55	406.75	423.5	434.45
News 5	232.1	245.8	386.95	412	422.25	438.95

<b>News 6</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After Sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 6	289.7	341.7	438	464.3	554.3	554.35
News 6	268.9	340.75	396.85	458.45	544.3	566.1
News 6	260.7	338.1	420.15	462.3	556.15	559.3
News 6	260.2	336.85	408.95	462.1	555.4	562
News 6	258.15	330.65	411.05	454.5	550.55	560.15
News 6	249.55	328.75	408	468.5	543.95	562.05
News 6	250.5	329.75	413.85	469.15	565.6	559.8
News 6	244.55	324.05	408.7	461.15	558.75	555.25
News 6	251.1	327.9	420.65	463.85	554.05	568.45
News 6	250.35	324.95	413.25	456.95	563.45	564.25
News 6	252.8	315.2	415.55	451.45	570.35	564.85
News 6	255.35	304	414.7	452.9	578.35	564.4
News 6	259.25	307.7	412.9	453.3	577.8	563.6
News 6	263.65	299.3	422.85	446.9	563.1	558.9
News 6	257.3	287.2	412.75	438.85	563.3	557.95

<b>News 6</b>	<b>After Cadila</b>	<b>Before Cadila</b>	<b>After sun Pharma</b>	<b>Before Sunpharma</b>	<b>After Cipla</b>	<b>Before Cipla</b>
News 6	289.7	327.9	438	463.85	554.3	568.45
News 6	268.9	324.95	396.85	456.95	544.3	564.25
News 6	260.7	315.2	420.15	451.45	556.15	564.85
News 6	260.2	304	408.95	452.9	555.4	564.4
News 6	258.15	307.7	411.05	453.3	550.55	563.6

News 6	249.55	299.3	408	446.9	543.95	558.9
News 6	250.5	287.2	413.85	438.85	565.6	557.95