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# Risk Return Analysis of Pharmaceuticals Companies During COVID-19

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***Abstract***

*An unknown disease (COVID-19) is spreading globally, impacting people and economies very negatively. The virus, which was first discovered in a small part of China in December 2019, has since grown fast across more than 175 countries. The virus is very contagious, thus in order to stop it, certain measures have been put in place, such as a national shutdown, air traffic control, and the wearing of masks, avoidance of crowded locations, class contact conversations, and frequent hand sanitization. The virus also affected India as a whole and also whole Indian economy. The main objective of this research work was to study risk and return of pharmaceutical companies during COVID-19. The study covers the statistical analysis of returns given by pharma companies during COVID-19 and a relationship has been found out between Nifty and selected pharma companies and Nifty and Pharma index empirical analysis has been done using Mark Owitzs model by calculating risk, return, beta and correlation. It has been found that the correlation of all selected companies are positive, so it indicates that there is a positive relationship between Nifty and Pharmaceutical companies. Out of five companies, Auro Pharma has more correlation with Nifty Index. Based on the data collected during COVID-19, it is clear that the pharmaceutical industry and the Indian stock market have a close and mutually beneficial relationship. Further evidence of a co-movement relationship is provided by this result, which shows that the two variables move in tandem. During COVID-19, the pharmaceutical industry will feel the effects of stock market corrections just as sharply.*

**Keywords:** Nifty, Nifty pharma, COVID-19, Indian economy, pharmaceutical companies

## INTRODUCTION

The rising number of COVID-19 cases has not only hurt people's health and daily lives, but it has also slowed India's economic growth. Stock returns in many areas show that a country's growth has slowed down, but the healthcare and pharmaceutical sectors may be affected in a different way. What this study aims to do is look into how this pandemic has affected healthcare and drug stores.

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Drug companies are having to deal with fast problems caused by broken supply lines and the need to change how they do business in these never-before-seen times. If the current COVID-19 pandemic lasts for a medium to long time, it could affect the supply of active chemicals and materials (mostly from China), as well as the movement of drugs into and out of the country. It is also possible that R&D and manufacturing activities will be harmed in the medium and long term, and that projects and programs that are not connected to the core supply chain or data management operations will be held up. Even though no one knows what

 

the full effects of the global pandemic will be, drug companies need to move, recover, and do well.

From the point of view of market access, the lockdowns messed up the usual way that drug companies sell their products. Doctor visits in person decreased, and many businesses now only require one original visit, followed by virtual and telephonic follow-ups. Because of this, drug companies quickly started using digital technologies to connect with doctors, track demand, make sure products were available, and make supply lines more flexible. More of these kinds of technological solutions are likely to be used until 2022. As a whole, the world has noticed how quickly India responded to the problem. In the world after the pandemic, the Indian pharmaceutical industry is seen as a top choice for supplying new drugs and ingredients. In order to make the most of this chance, the government should take steps to help the business move up the value chain and make new products [1–10].

## LITERATURE REVIEW

### Jamwal and Agrawal [11]

The primary goal was to analyze the effects of non-COVID-19 factors on the Indian market and distribution channel. A total of 18 threats were identified that have an impact on the distribution process. As a consequence of the abrupt implementation of a lockdown, there has been a decrease in economic activities, leading to an unforeseen decline in the market. The virus impacts the workforce, products, and expenses. The COVID-19 pandemic has caused significant disruptions in the worldwide production and exchange activities, particularly in countries like India. The data is collected and analyzed using a statistical tool. The COVID-19 pandemic is having a significant impact on both the manufacturing and supply chain industries. To address this challenge, several strategies, theories, and models are available to help overcome the problem.

### Gumber and Bulsari [1]

The study's title describes an unidentified virus that is causing a global pandemic. India is also experiencing the impact of COVID-19, which has affected both the economy and human health. The nationwide lockdown has had a significant impact on various sectors, with some being particularly hard hit. However, only a limited number of industries are producing vital goods to battle disease. The general populace is experiencing the impact of both the COVID pandemic and technological advancements. Consequently, individuals lacking specialized skills are becoming increasingly discouraged about their ability to thrive in society. Tragically, many lives have been lost as a result.

### Gunaseelan and Kesavan [12]

The primary aim was to discuss the ongoing commercial and economic crises in India amidst the COVID-19 pandemic. The paper focuses on the concept of mitigating the financial losses incurred during the ongoing epidemic. The data is obtained from secondary sources. This article proposes ways for the government to enhance national income through revenue collecting. The central and state governments should collaborate efficiently to address the crisis, while individuals should adhere to official regulations and procedures.

## RESEARCH METHODOLOGY

### Problem Statement

Risk return analysis of pharmaceutical companies during COVID-19.

### Objectives of the Study

1. To study the impact of COVID-19 on pharmaceutical sector company stocks prices.
2. To study relationship between Nifty index and pharmaceutical sector during COVID-19.
3. To analyze risk and return of pharmaceutical companies during COVID-19 period.
4. To study the relationship between Nifty and Nifty pharma.

### Variables to be Studied

 

Monthly value of Nifty and monthly closing value of selected pharmaceutical companies have been taken for the analysis.

**Data**

Secondary data has been collected from NSE website, and various magazines published by SEBI, equity master website.

**Period of Study**

The period of the study started from 1st March 2020 to 30th June 2020. These values are used to calculate relationship between Nifty and Pharmaceutical companies (Table 1 and Figure 1).

**Sample Size**

From the Pharma Sector, five companies have been selected for the study which are: Dr. Reddy, Aura pharma, Sun Pharma, Divis lab, and Cipla [6–8].

**Data Analysis**

The data analysis has been done using the MS EXCEL and other statistical analyses have been done using return, risk and correlation [9–12].

## DATA ANALYSIS AND INTERPRETATION

It can be said that Dr. Reddy's return was high in the month April-20 as 0.51. And lower return in month March-20 as 0.18. In April-20, Aura pharma's monthly return was high as 0.51. In March-20, Aura pharma' return was low as –0.23. In April-20, Sun pharma company had higher return (0.32). In

**Table 1.** Showing returns of Nifty and Pharma companies.

| Month | Nifty return | Dr Reddy | Auro Pharma | Sun pharma | Divis Lab | Cipla |
|---|---|---|---|---|---|---|
| Feb-20 | –0.06 | –0.06 | 0.05 | –0.14 | 0.08 | –0.1 |
| March-20 | –0.23 | 0.06 | –0.18 | –0.05 | –0.06 | 0.05 |
| April-20 | 0.15 | 0.26 | 0.51 | 0.32 | 0.17 | 0.39 |
| May-20 | –0.03 | 0.03 | 0.19 | 0.02 | 0.02 | 0.09 |
| June-20 | 0.08 | –0.03 | 0.03 | –0.00 | –0.05 | –0.01 |
| July-20 | 0.07 | 0.15 | 0.13 | 0.09 | 0.15 | 0.12 |
| Aug-20 | 0.03 | –0.06 | –0.08 | –0.02 | 0.19 | –0.00 |
| Sep-20 | –0.01 | 0.22 | –0.02 | 0.04 | –0.02 | 0.08 |
| Oct-20 | 0.04 | –0.06 | –0.03 | –0.07 | 0.03 | –0.02 |
| Nov-20 | 0.11 | –0.01 | 0.12 | 0.09 | 0.15 | –0.01 |
| Dec-20 | 0.08 | 0.08 | 0.06 | 0.16 | 0.07 | 0.09 |
| Jan-21 | –0.02 | –0.11 | –0.01 | –0.01 | –0.12 | 0.00 |

 

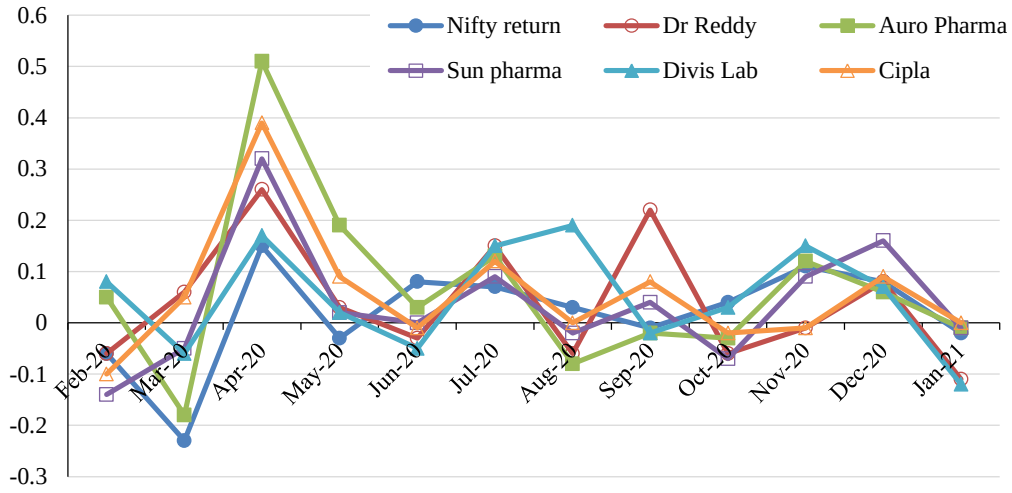


**Figure 1.** Showing movement of Nifty and Pharma companies during COVID-19.

June-20, Sun pharma had low return (0.00). In March-20, Sun pharma's return was –0.05. In August-20, Divis Lab had higher return as 0.19. In March-20, Divis Lab's return was slow as –0.06. In April-20, Cipla had higher return as 0.39. In February-20, Cipla's return was slow (–0.1) [13, 14].

**Interpretation**

Risk representation and uncertainty with respect to investment has the potential to negatively impact the financial impact. Here the risk has been found out for selected five companies. Aura pharma company contains more risk during selected period of time for study while Divis lab contains less risk during selected period.

As Beta shows the sensitivity of stock in index, so, here Aura pharma company has more beta as 1.18. It means 1% change in Nifty index leads to more than 1% chances in Aura pharma. Dr Reddy has low Beta as 0.23. It means there is 1% change in Nifty to lead to less than 1% chances in it. Beta of Auro pharma is 1.18 means 1% change in Nifty leads to more than 1% change in Auro pharma. From the selected pharma companies, having high beta shows that this company is very sensitive to the market index Nifty.

The correlation shows the relationship between market index and selected companies, it can be seen that the correlation of all selected companies are positive, so it indicates that there is a positive relationship between Nifty and Pharmaceutical companies (Table 2 and Figure 2). Out of five companies, Aua Pharma has more correlation with Nifty Index.

Descriptive statistics provide information regarding the prevalence and characteristics of data (Table 3). Based on the analysis presented in the Table 3, it can be concluded that both variables exhibit moderate levels of data frequency. On the contrary, Nifty Pharma exhibits superior data characteristics in terms of standard deviation, kurtosis, Jarque-Bera, and probability levels, in comparison to Nifty 50.

**Table 2.** Risk, beta and correlation of pharma companies.

| Company | Risk | Beta | Correlation |
|---|---|---|---|
| Dr Reddy | 0.113 | 0.23 | 0.0024 |
| Aura pharma | 0.165 | 1.18 | 0.0090 |
| Sun pharma | 0.117 | 0.64 | 0.0073 |
| Divis Lab | 0.096 | 0.55 | 0.0051 |
| Cipla | 0.116 | 0.68 | 0.0042 |

 

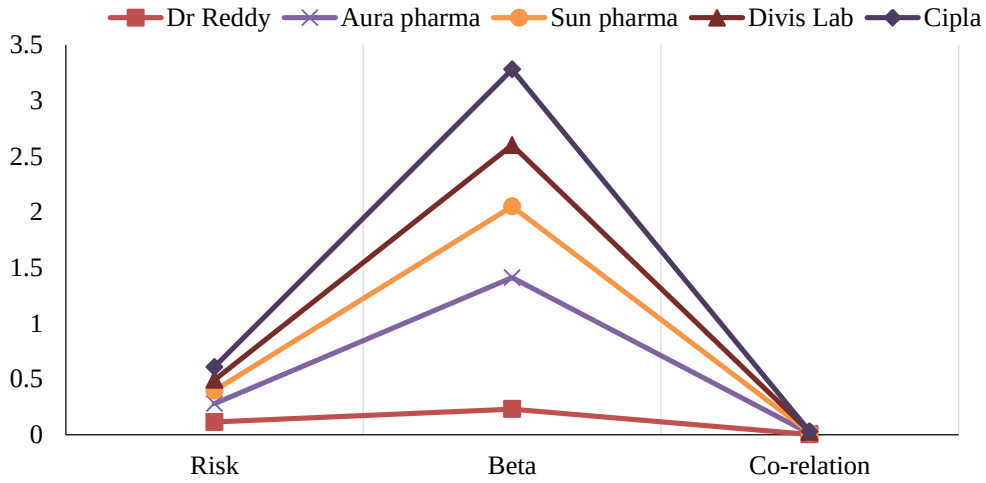


**Figure 2.** Risk, beta and correlation.

**Table 3.** Result of the descriptive statistics.

| Particulars | Nifty 50 | Nifty Pharma |
|---|---|---|
| Mean | 9394.7 | 9224.83 |
| Median | 9271 | 9386.1 |
| Maximum | 10470 | 10361 |
| Minimum | 7801.1 | 6611.1 |
| Std. Dev | 628.8 | 977.9 |
| Skewness | –0.2 | –1.50 |
| Kurtosis | 2.5 | 4.4 |
| Jarque-Bera | 1.22 | 30.1 |
| Probability | 0.54 | 0 |
| Sum | 610654.1 | 599614 |
| Sum Sq. Dev. | 25304526 | 61206345 |
| Observation | 65 | 65 |

## CONCLUSION

Based on the data collected during COVID-19, it is clear that the pharmaceutical industry and the Indian stock market have a close and mutually beneficial relationship. Further evidence of a co-movement relationship is provided by this result, which shows that the two variables move in tandem. During COVID-19, the pharmaceutical industry will feel the effects of stock market corrections just as sharply. If you are an investor looking for a chance in the pharmaceutical industry, you should keep an eye on the Indian stock market. As an alternate investment vehicle to the Nifty 50 during the COVID-19 timeframe, further pharma investments should be seriously examined. This knowledge of Stock market and Pharma co-movement will be more advantageous for portfolio managers and traders those who want to have a diversified portfolio and limit the risk on price volatility. We can only draw conclusions and provide suggestions based on the data we have in our samples.

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