

57. COVID-19 AND ITS IMPACT ON INDIAN STOCK MARKET AND PHARMACEUTICAL SECTOR: AN ECONOMETRIC TESTING

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ABSTRACT

The rampant spread of COVID-19 outbreak, across borders and geographies, has severely impacted almost the whole world and triggered significant downside risks to the overall global economic outlook. Due to the lockdown announced by the Indian Government, the economy may slow over the next few months. For most businesses, the slowdown could be in the form of supply disruptions, fall in consumption demand, and stress on the banking and financial sectors. There has been distress in many sectors. It was also observed that this pandemic situation could boost business in sector and may highly affect some sectors. There observed a mixed response in Pharmaceutical sector. Some experts predicted positive impact however few pharmaceutical companies reported loss during this period. This created a curiosity to test the performance of pharmaceutical companies with their stock price as performance indicator. We propose to consider the sample period as first nationwide lockdown date to June 30, 2020. Closing price of selected companies share price will be considered in the study and we use econometric test to test the performance.

KEYWORDS

COVID-19, Economy, Pharmaceutical sector, Stock Market Index, Econometric test

INTRODUCTION

An unknown disease (n- Cov 19) which is spreading worldwide is affecting the people and also the economy very badly. This Corona virus initially was found in a small area of china in last year December 2019 and slowly started grow rapidly around more than 175 countries in the world. The virus is highly communicable in nature so to cease the virus various measures are imposed as a National shut down, Air traffic control, People adhered to wear a mask, avoid being in a crowded places, class contact conversation and to sanitize themselves frequently. Although the first instance of corona in India was evidenced on January 30th 2020, the spread of virus is rapid in the current scenario has been one of the largest democratic nation around the world, The sectors like Trade, Travel, Tourism, Entertainment, Hotels, Airlines is adversely affected in the economy. The Outbreak of the COVID-19 had created many new challenges globally, one of the major challenges is to lift

the economy loss, due to which many pharmaceutical industries started to innovate a new vaccine for the deadly disease. The pharmaceutical sector has witnessed a mixed result during this pandemic, but many companies are unable to meet the requirements of supply on time. Healthy environment creates a balanced economy, so that the government is working hard to improve the medical emergency. As per the latest analysis, current scenario had benefited the Indian Pharmaceutical sector by increasing Global Investments, Cost regulation, Economic drivers, Policy support etc. The immediate decision of lockdown in a country had worst affected the people of wage labourers, the below poverty group and the unskilled employees. The corona virus has resulted towards an economic recession all over the world, due to which export and import, manufacturing activities, GDP had undergone a drastic decline. This recession period had affected the people both mentally and physically, which had broke their confidence of living and the fear for the future decisions. The government is constantly supporting for the Research and Developmental (R&D) activities in pharmaceutical sector; hence the pharmaceutical industry was able to open the lines of communication to uplift the medical emergency through enhancing patient engagement, introducing commercial strategies in the supply of medication demand. On continuing the Govt. introduces a set of regulations like Educational institutions, Metro and Air traffic, Sports and Entertainment activities to be closed or restricted. Thus the pharmaceutical industry is becoming the new operating model in the society.

REVIEW OF LITERATURE

(Ritwik and Singh, 2020) describes the impact of COVID 19 on different sectors, schemes and policies on the

government announced and how to uplift the Indian economy. The data used in the study are collected from the primary and secondary information, the demographic analysis is made based on the primary data, with a sample size of 119 individuals. These data is represented through tables, pie charts & dichotomous questions. Spurning Chinese products and focusing on Indian products may be an overcome for the Indian economy. Therefore, COVID 19 could be termed as a opportunity to rediscover India.

(Ray et al., 2020) studied the short and long term clash of an initial lockdown on the total number of COVID-19 cases in India by comparing to other interceding non- pharmaceuticals. They have used epidemiological forecasting models to estimate the effects of philosophical durations of lockdown which studies the substitute explanations for slower growth rate of COVID outbreak in India. They have used present data on daily basis of cases from India. These data has been analysed using a extended version of standard SIR model. So finally this study tells that lock down comes with a tremendous change in price which will have major impact in social and economic health in Indian economy.

(Raj and Bahl, 2020) discussed about the impact of COVID on many sectors of the economy, like the GDP growth levels, Unemployment rate, sector wise Increase or Decrease in sales etc. The paper highlights on the pandemic situation in India, the data is collected from the secondary sources through magazines, publications and also used a different analysis. But at last the virus as improved public health services, in spite of spreading a virus, it has been given for the nation to develop infrastructure of health, developed a cleanliness, improved technology in overall framework of organisation.

(GUMBER and BULSARI, 2020) described that unknown virus which

is creating a pandemic situation in the world, where India is also getting affected by the COVID 19, this virus as created an impact not only on economy but also on human health, various sector is affected with a nationwide lockdown, many sectors are worst affected. But few industries are working essential commodities to combat from disease. The people are getting affected by COVID as well as by technology innovations due to which unskilled people are losing the hope to sustain in the world; many have lost their lives and life.

(Warjri and Shah, 2020) talks India's and Africa's Health with larger population, where both the countries are lacking with the facilities and investments. This paper reveals about the effect of Novel Corona virus in both countries. The data is collected from a secondary source, here the data reveals about the affected people per million. This pandemic situation both the governments as taken a measures and introduce a new measures and policy in health sector, This virus as created a stepping for many changes in the government to provide an opportunity for private sector and helping the society to reshape a for a future pandemics.

(Aravind and Manojkrishnan, 2020) describes how n-Cov affected pharmaceutical stocks listed with the National Stock exchange of India. Here this paper gives us an idea about the stock variation of different company and give us the figure of growth and decline. The data used here is secondary, information used in the study are collected from Daily return from NSE considering 10 companies. The statistical formulation is used to analyse the variation. This report on pharmaceutical stocks results with COVID 19 as also affected a medical industry as well. This study suggests

investing on a R&D activities and encouraging an Indian pharmaceutical sector results a future benefit.

(Gunaseelan and Kesavan, 2020) talks the current crisis on business and economics in India during the Corona virus. The article highlights about the idea to recovery of losses occurred during this pandemic situation. The data is collected from the secondary sources; here this article suggests some ideas about revenue collection for the government to improve the national income. The central and state government should work in an effective manner to overcome the situation and people should also follow rules and policies of the government.

(Raut, 2020) describes about the current condition of COVID 19 in the World, and also the financial crisis taking place in Indian economy due to which the country is bearing a huge loss. The virus is not only affecting our country but many countries are also suffering; every country started to innovative a vaccine for the virus, where government is supporting for the action. The data is collected through secondary source through journals, website etc. This paper is based only the secondary data. Many sectors are affected in the economy, but government has taken measures to overcome from the spreading of virus. The government is giving facilities for people to help them in the pandemic.

(Agrawal, Jamwal and Sumit, 2020) discusses impact of n-Cov 19 on Indian market and distribution channel in India, 18 threats are been founded which affects the distribution. Due to sudden lockdown decision the economic activities have reduced, which results towards the unexpected fall in the market. Workforce, products, costs these are the fields which are affected from virus. In the country like

India corona virus as created a huge disturbance in the global market for manufacturing and exchange activities. Here, by the statistical tool the data is drawn and analysed. COVID 19 is affecting the manufacturing as well the supply chain sector, to overcome from the barrier many techniques, theories and models is available to come out of the problem.

(Jain, Baghla and Aditya, 2020) talks the COVID 19 impact on agricultural sector, here they are pointing it out the problem of a farming activities due to national lockdown; created a problem of transportation, labors availability etc; the disease is harming for a Rabi season harvest all over the nation. Here is data is collected from secondary source through worldometer. By a short span of time virus has been destroyed financial stability all over the globe, India as taken many measures to encourage a MSE's. In spite of these panic period Export activities is running, government should take necessary action about agriculture sector to help the farmers to sell their products.

(Maloney and Temel Taskin, 2020) discusses the social distancing among the nation help to minimize the virus, where Non-pharmaceutical Interventions (NPI's) as to be adopted by the public voluntarily to reduce the spreading of decease. In spite of these measures social distancing and by many restrictions there is a less mitigation happened. The data is collected through COVID community mobility reports, structured using a tables and graphs. As an introduce of NPI many developing countries also got a beneficial by taking protective measures and people to feel confidence to move out, Many countries voluntarily started to apply this method.

RESEARCH GAP

COVID-19 and its impact on economy is an ongoing research which is seeking

huge concentration and importance. It is very essential to assess the impact of selected sectors due to COVID-19. Pharmaceutical sector is being one such dynamic one which contributes to relatively important levels to Indian economy. Various researchers, economists and industrialists observed that Pharmaceutical sector is the highly regarded and progressive sector. Profits and earnings of this sector were predicted to be positive and appreciating. This created curiosity to find the actual performance of Indian pharmaceutical sector.

OBJECTIVE

- To determine the significant relationship between Indian stock market Index & Indian pharmaceutical Index due to COVID-19.

METHODOLOGY

Research Design & Hypothesis:

Causal research design is used in the study where the objective is to identify the variables and analyse if a cause and effect impact exists among them, and if so, to quantify the extent of the impact. The variables in this study are Stock Market Index and Pharma Index. The approach used in this study for hypothesis testing is the classical or sampling theory approach where the hypothesis is accepted or rejected on the basis of sampling information alone. Any sample might vary from its population and so it is important to judge whether the result from the sample is statistically significant or not. To test the significance null (H_0) and alternate hypotheses (H_1) are used.

The Hypotheses for the study are:

H_0 : There is no significant relationship between Indian stock market Index & Indian pharmaceutical Index due to COVID-19.

H_1 : There is a significant relationship between Indian stock market Index & Indian pharmaceutical Index due to COVID-19.

Sampling design:

The population considered for the study is the index values of Indian pharma and stock markets. Non-probability sampling design is adopted to select a sample from the population of Indian stock market Index & Indian pharmaceutical Index due to COVID-19.

Data used:

The study relies mainly on secondary data. The secondary data used for the purpose of study are the closing prices of the Nifty 50 and Nifty Pharma from the nationwide lockdown period starting from March 24, 2020

to June 30, 2020. These values are used to calculate the relationship and causality.

Data analysis techniques:

The following Statistical and Econometric Techniques are used for data analysis.

- Descriptive Statistics
- Augmented Dickey-Fuller Unit Root Test
- Normality Test
- Correlation Test
- Ordinary Least Square Test

DISCUSSIONS AND ANALYSIS**Descriptive Statistics**

	NIFTY_50	NIFTY_PHARMA
Mean	9394.680	9224.825
Median	9270.900	9386.200
Maximum	10471.00	10360.80
Minimum	7801.050	6611.050
Std. Dev.	628.7951	977.9311
Skewness	-0.194869	-1.514196
Kurtosis	2.454375	4.391579
Jarque-Bera	1.217671	30.08323
Probability	0.543984	0.000000
Sum	610654.2	599613.6
Sum Sq. Dev.	25304527	61206346
Observations	65	65

Descriptive statistics helps us with the data frequency and its characteristics. From the above analysis it is observed that both the variables have fair levels of data frequency. However with respect to Standard deviation, Kurtosis, Jarque-Bera and Probability levels, Nifty Pharma displays better data characteristics compared to Nifty 50.

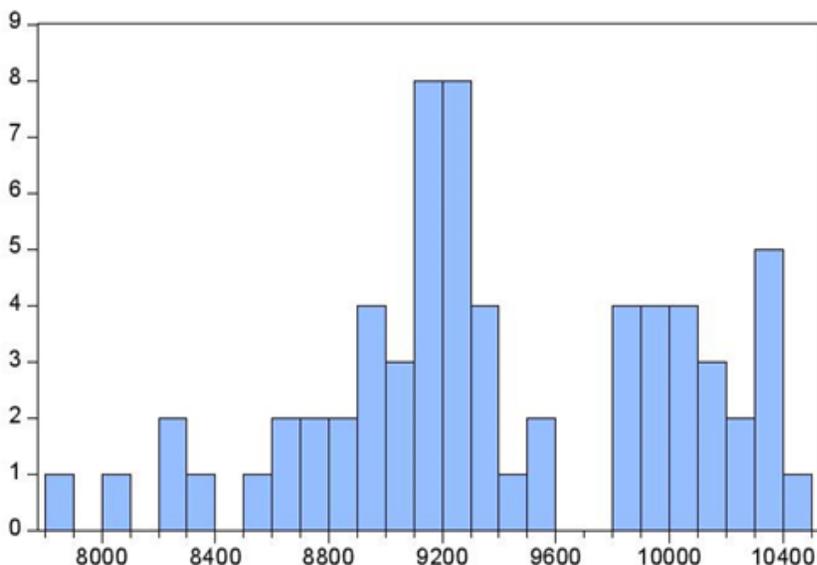
NIFTY 50

Null Hypothesis: D(NIFTY_50) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=10)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic				
			-9.362672	0.0000
Test critical values:	1% level		-3.538362	
	5% level		-2.908420	
	10% level		-2.591799	

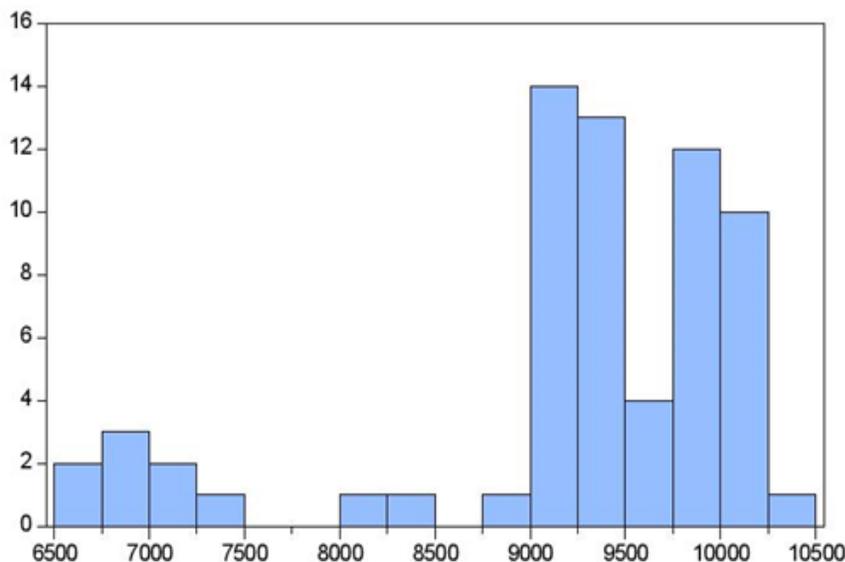
*MacKinnon (1996) one-sided p-values.				

NIFTY PHARMA

Null Hypothesis: NIFTY_PHARMA has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=10)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic				
			-3.356275	0.0163
Test critical values:	1% level		-3.536587	
	5% level		-2.907660	
	10% level		-2.591396	
*MacKinnon (1996) one-sided p-values.				



Series: NIFTY_50	
Sample 3/24/2020 6/30/2020	
Observations 65	
Mean	9394.680
Median	9270.900
Maximum	10471.00
Minimum	7801.050
Std. Dev.	628.7951
Skewness	-0.194869
Kurtosis	2.454375
Jarque-Bera	1.217671
Probability	0.543984



Series: NIFTY_PHARMA	
Sample 3/24/2020 6/30/2020	
Observations 65	
Mean	9224.825
Median	9386.200
Maximum	10360.80
Minimum	6611.050
Std. Dev.	977.9311
Skewness	-1.514196
Kurtosis	4.391579
Jarque-Bera	30.08323
Probability	0.000000

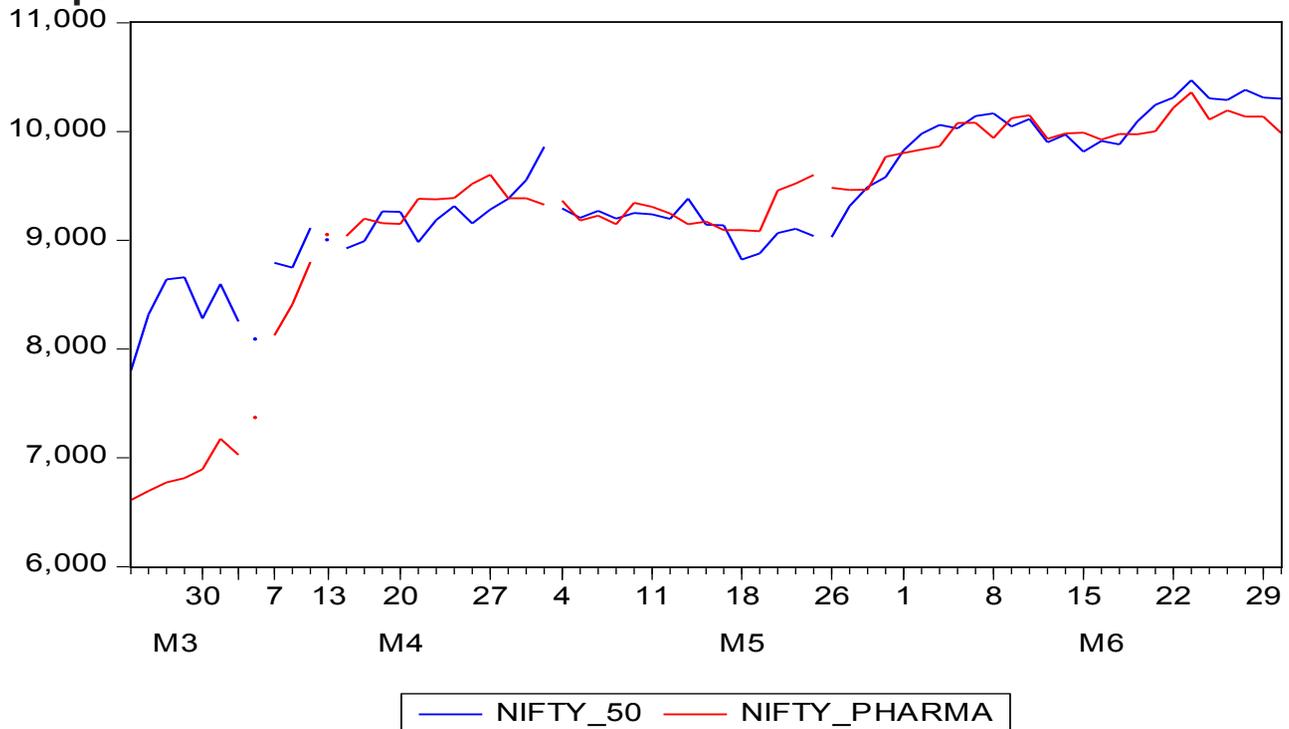
The normality of the data is tested with the above histogram. Observation of the histogram for Nifty Pharma showed that it is well distributed and forms balanced bell-shape. The Jarque-Bera test value also indicates the balanced distribution of data. However the Nifty 50 is not normally distributed which has observed high volatility during the COVID-19 period.

5.4 Correlation

	NIFTY_50	NIFTY PHARMA
NIFTY_50	1	0.8688674132509056
NIFTY PHARMA	0.8688674132509056	1

Ordinary Least Squares test reveals the regression level for the variables. The Bivariate regression analysis used in the study shows that there is a reasonable impact between Nifty 50 and Nifty Pharma. Stock market index impacts the performance of Pharma sector and coefficient value 56 percentage signifies the level of impact. Also the values are significant. Both R-squared and Adjusted R-squared values are above 75 percentage which shows that study is reliable and satisfies the predicting requirements.

Graph



The above graph shows the co-movement between stock market and pharma sector. The graph shows that both the variables follow similar pattern of movements. This is suitable to infer that both stock market and pharma sector follows similar trend during COVID-19

CONCLUSION

From the above analysis it is found that Indian Stock Market and Pharma sector has positive and strong relationship and further it is observed that they are highly impacted among each other during COVID-19. This result further reveals that both variables move together which proves a co-movement relationship. Any impact or corrections in stock

market will reflect an immediate and equal impact in Pharma sector during COVID-19.

It is suggested to investors to pay attention towards Indian stock market if they are finding an opportunity in Pharma investments. Further Pharma investments can be considered as an alternative investment instrument to Nifty 50 during the COVID-19 period.

This knowledge of Stock market and Pharma co-movement will be more beneficial for portfolio managers and traders those aspire to have a diversified portfolio and mitigate the risk on price volatility.

The results and recommendation are arrived only based on sample data.

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