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Impact of COVID-19 on Indian economy: A study of selected sectors

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Abstract
Coronavirus Pandemic has affected the entire Indian stock market in an unprecedented manner. Lowest value of all the indices occurred on 23rd March 2020, which was one of the worst days in the history of the Indian stock market. The present study examines the impact of COVID-19 on the performance of sectoral indices of NSE. Daily closing price data of sectoral indices of NSE along with Nifty 50 from January 2017 to July 2021 have been taken from the website of NSE. The present study is descriptive in nature and the descriptive statistics are used for the purpose of study. The findings of the present study show that Nifty healthcare index, Nifty IT, Nifty Pharma performed well during COVID period as the average return of these sectors have increased significantly. Nifty Bank and Nifty Financial Services performed worst during COVID period as the average return of these sectors have reduced severely. But the standard deviation of all sectoral indices have increased. Skewness is negative during COVID except Pharma sector. Kurtosis value of all sectoral indices are very large during COVID. It shows that stock market has become more volatile during COVID period as compared to the pre-COVID period.

Keywords: COVID-19, NSE, Indian stock market, nifty

Introduction

The World Health Organization (WHO) has declared the COVID-19 outbreak a pandemic on March 11, 2020. The Covid-19 outbreak is an international pandemic that has taken the world by storm (Yan, Tu, Stuart, & Zhang, 2020). No previous infectious disease outbreak affected the US stock market as powerfully as COVID-19 did (Baker, et al., 2020). COVID-19 has significantly affected the Indian stock market also. In India, the first case of coronavirus was found on January 30, 2020. The minimum value for all the indices occurred on 23rd March 2020, which was one of the worst days in the history of the Indian stock market. Some economists say that the impact of coronavirus on the Indian stock market can be considered as a "Black Swan Event". Black swan is an unforeseen event that has a very severe impact.

Stock market performance is a good indicator of the performance of a country's economy. But during crisis period, fundamentals do not play a significant role while the macroeconomic factors play an important role in the return on investment. Efficient Market Theory says that stock prices reflect all information. Information can be positive, negative, or neutral. If there is positive information in the market, then the stock prices move up. On the other hand, if there is negative information in the market, then the stock prices tend to decline. COVID-19 Pandemic has led to uncertainty in the Indian stock market and it has affected the stock market volatility. COVID-19 has increased the Indian stock market volatility (Chaudhary, Bakhshi, & Gupta, 2020).

Review of Literature

Farhan Ahmed *et al*. (2021) [3] found that Indian stock market performance is more adversely affected than Pakistan and Bangladesh stock market performance. COVID had a negative impact on stock market performance & oil prices and positive impact on the gold prices. Sarika Mahajan and Priya Mahajan (2021) [15] found that there has been a positive impact on gold returns during the lockdown period due to COVID. The Indian stock market became more volatile during lockdown period which attract investors towards gold investment. Hardeep Singh Mundi and Yamini Yadav (2021) [16] found negative abnormal returns during wave 1 of COVID 19 as compared to wave 2 of COVID-19 due to negative sentiments. There were negative sentiments in the market during wave 1 of COVID-19. Nazima Ellahi *et al*. (2021) [11] found that COVID-19 had a significant negative impact on daily market returns and liquidity. Debakshi Bora and Daisy Basistha (2021) [6] found that COVID pandemic has affected the stock price and volatility in the stock markets. Return on Sensex and Nifty was lower during COVID-19 period as compared to pre-COVID period. It has increased the volatility in the Indian Stock Market. Bharti and Ashish Kumar (2021) [5] found that herding behaviour increases as stock market volatility increases while stringent government control measures reduce herd behaviour. Haochang Yang and Peidong Deng (2021) [2] found that government intervention measures such as social distancing and containment measures had a negative impact on financial market. Preetha Chandran (2021) [7] found that Automobile, Pharmaceutical, Banking and infrastructure sectors performed well, while FMCG and Media sectors performed worst during COVID period. Shibila E and Jayarajan TK (2021) [10] found that the stock market declined due to increasing number of coronavirus positive cases and fatality rate. Rashmi Chaudhary, Priti Bakhshi and Hemendra Gupta (2020) [8] found that the Indian stock market had almost the same standard deviation as compared to United States, Japan and the United Kingdom but

Indian Stock Market had higher negative skewness and higher positive kurtosis of returns which makes it more volatile. Yunchuan SUN *et al*. (2020) [20] found that return of Chinese stock market decreases and volatility increases due to the COVID-19 Pandemic. COVID-19 has an adverse effect on the Chinese stock market. Scott R. Baker *et al*. (2020) [4] examined the U.S. stock market and found that no previous infectious disease outbreak has severely affected the U.S. stock market as COVID-19 did. Kishore Kumar Das and Shalini Patnaik (2020) [9] found that India's real GDP fell to its lowest level in six years during 4Q 2019-20 due to COVID-19. COVID-19 pandemic has adversely affected the demand for non-essential goods. Heather Yan *et al*. (2020) [1] found that it is the tendency of the outbreak to reduce the value of various industries over a short period of time but these industries will recover in the long period of time. Nuhu A Sansa (2020) [19] investigated the impact of the Coronavirus on the Financial Markets in China and USA. Findings of the study revealed that COVID - 19 had a significant impact on the financial markets of China and USA. Nils Engelhardt *et al*. (2020) [12] found that there is inverse relationship between trust and stock market volatility. Stock market volatility is lower in high-trust countries and higher in low trust countries. S. Rajamohan, A. Sathish and Abdul Rahman (2020) [17] analyze the stock price volatility of automobile sector. The study found that automobile industry become more volatile during COVID and automobile sector was adversely affected during the study period i.e. 14th January, 2020 - 24th March, 2020. Manamani Sahoo (2020) [18] investigated the existence of day-of-the-week effect during COVID period and pre-COVID period. The study found a negative return for Monday during COVID period but it was positive for pre- COVID period. Zaky Machmuddah *et al*. (2020) [14] found that daily closing stock price and volume of stock trade were significantly different before and after COVID-19. Non-financial factors play an important role in influencing the share prices and trading volume of the stock.

Objective of the study

The objective of the present study is to investigate the impact of the COVID - 19 on the performance of sectoral indices of NSE from the period dated January 1, 2017 to July 31, 2021.

Research methodology

Type of data and data sources: The present study is descriptive in nature which is based on the secondary data. The daily closing price data of sectoral indices of NSE along with NIFTY 50 has been collected from the website of NSE i.e. www.nseindia.com. Data of that date has been dropped when any series has a missing value.

Period of the Study: The present study covers the time period from January 1, 2017 to July 31, 2021.

Statistical technique: Descriptive statistics are used for the purpose of study.

Data analysis and interpretation

Table 1: Descriptive statistics

Pre-COVID period (January 2017 – December 2019)									
Descriptive Statistics	**Nifty 50**	**Nifty Auto**	**Nifty Bank**	**Nifty FMCG**	**Nifty healthcare index**	**Nifty IT**	**Nifty Oil & Gas**	**Nifty Pharma**	**Nifty Financial Services**
Mean	0.06	-0.01	0.08	0.06	-0.02	0.06	0.05	-0.03	0.10
Median	0.06	0.01	0.10	0.02	-0.03	0.06	0.07	-0.06	0.10
Standard Deviation	0.76	1.21	1.02	0.92	1.10	1.03	1.18	1.23	0.99
Kurtosis	3.95	7.16	7.27	5.62	1.15	1.83	11.27	0.99	5.65
Skewness	0.43	0.73	1.00	0.02	0.02	-0.05	-1.11	0.08	0.74
Range	7.99	13.85	11.14	11.14	8.72	9.48	16.73	9.58	10.59
Minimum	-2.67	-3.95	-2.83	-6.73	-4.02	-4.68	-10.79	-4.37	-3.44
Maximum	5.32	9.90	8.31	4.41	4.70	4.80	5.94	5.21	7.15
During COVID period (January 2020 – July 2021)									
Mean	0.08	0.07	0.05	0.05	0.17	0.19	0.08	0.16	0.06
Median	0.20	0.15	0.13	0.11	0.17	0.19	0.13	0.13	0.13
Standard Deviation	1.71	2.04	2.39	1.41	1.54	1.82	1.88	1.74	2.28
Kurtosis	13.28	9.18	8.36	16.25	6.83	6.72	8.62	6.00	8.57
Skewness	-1.41	-0.68	-0.92	-0.39	-0.13	-0.51	-0.63	0.05	-1.05
Range	21.74	24.26	27.24	18.92	17.53	18.60	20.76	19.30	25.26
Minimum	-12.98	-13.85	-16.73	-10.60	-8.33	-9.58	-11.70	-8.93	-15.94
Maximum	8.76	10.41	10.51	8.32	9.20	9.02	9.06	10.37	9.32

Source: website of NSE (calculated by author).

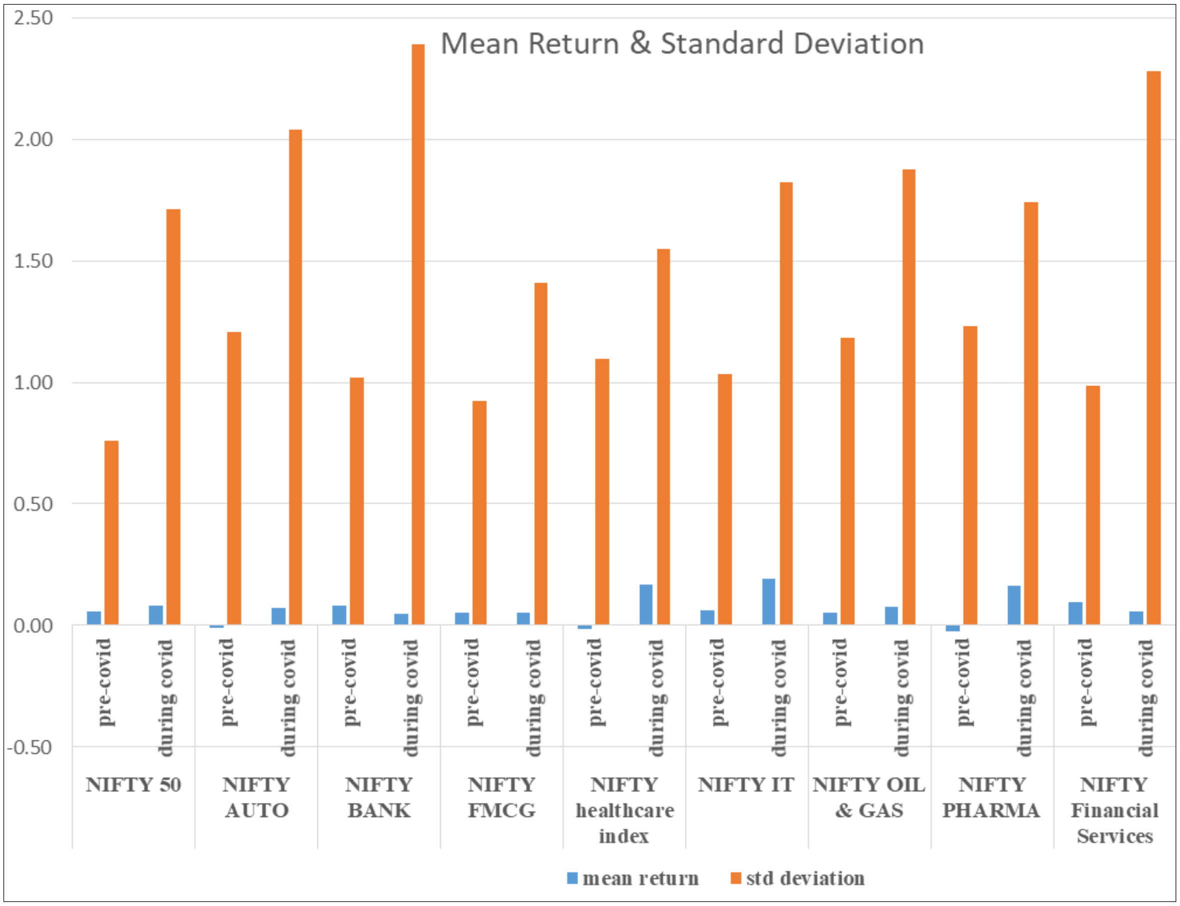

Fig 1: Mean Return and Standard Deviation of sectoral indices of NSE including Nifty 50.

Table 1 presents the descriptive statistics using the daily returns for each sectoral indices including Nifty 50. The descriptive statistics for pre-COVID period and during COVID period are disclosed separately. Figure 1 presents the mean return and standard deviation of sectoral indices of NSE along with Nifty 50.

Table 1 reveals that Nifty Bank, Nifty FMCG and Nifty Financial Services have lower mean daily return during the COVID period than pre-COVID period. Nifty Healthcare Index, Nifty IT, Nifty Pharma, Nifty Auto, Nifty Oil & Gas and Nifty 50 have higher mean daily return during COVID period than pre-COVID period. The standard deviation and Kurtosis values of all sectoral indices including Nifty 50 are higher in the COVID period than pre-COVID period. Skewness is negative during COVID except Pharma sector. Negative skewness and high value of kurtosis indicate future risk. The range of variation of all sectoral indices including Nifty 50 is more in COVID period as compared to pre-COVID period.

Fig 1 reveals that Nifty Auto, Nifty healthcare index and Nifty Pharma had negative mean return in the pre-COVID period but they have positive mean return during COVID period. The average return of healthcare index, Pharma and IT sector have increased significantly. These sectors performed very well during COVID. On the other hand, the average return of Nifty Bank and Nifty Financial Service have decreased substantially. They performed worst during COVID. The standard deviation of all sectoral indices are higher during COVID. It shows that volatility in Indian stock market has increased during COVID period than pre-COVID period.

Conclusion

The study analyzes the impact of COVID-19 on the performance of sectoral indices of NSE. COVID-19 has affected the entire Indian stock market. It has created uncertainty among the investors. The Minimum value of all the indices occurred on 23rd March 2020. COVID-19 has affected some sectors positively and some sectors negatively. The average return of Nifty Healthcare Index, Nifty Pharma and Nifty IT sector have increased significantly. These sectors have been positively affected due to Coronavirus Pandemic. But the average return of Nifty Bank and Nifty Financial Service have decreased substantially. These sectors have been negatively affected due to Coronavirus Pandemic. But Standard deviation of all sectoral indices show that the variation is more during COVID period than the pre-COVID period. The study concludes that COVID-19 has affected the stock prices and volatility. It has increased the volatility in the Indian stock market.

Limitation

The present study covers the time period from January 1, 2017 to July 31, 2021. As the time taken into consideration to study the impact of COVID-19 on the performance of sectoral indices of NSE is limited. Hence, the inference made regarding the impact of COVID-19 on the performance of sectoral indices of NSE are based on the data related to time period of January 1, 2017 to July 31, 2021.

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