Sectoral Performance of the Indian Stock Market During Covid-19

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Abstract

The present study investigates the impact of the Covid-19 pandemic on the performance of the Indian Stock Market with a special reference to sectoral indices of the Bombay Stock Exchange Ltd, the premier stock exchange of India. The study comprises two composite indices, namely BSE Sensex and BSE 500, and seven sectoral indices of BSE Ltd such as Information Technology, Bankex, Auto, Capital Goods, Health Care, FMCGs, Consumer Durables, and Real Estate. The secondary data has been taken into consideration to reach out the predefined objectives of the proposed study. The secondary data was collected from the official website of BSE Ltd and this data consists of the daily data of the BSE ltd starting from March 2019 to June 2021. To assess the impact of covid-19 on the Indian Stock Market, GLS regression, Pearson's coefficient of correlation, standard deviation, skewness, and kurtosis are employed. From the analysis, it is found that BSE sensex has generated a few gains to the investors but losses in the most of the cases. This phenomenon is quite reversal in the case of BSE 500. Further, it is also found that there is a strong and positive correlation between BSE health care sector and daily Covid-19 cases. Moreover, the reality sector is more sensitive against daily Covid-19 cases followed by FMCG and Health Care.

Keywords: *Indian Stock Market, BSE, Capital Goods, Covid-19*

Introduction

The majority of people on the earth are being affected by the disease Novel Corona virus 2019 (COVID-19), which is bringing about an unprecedented health shock. As we all know, the first case of the virus was discovered in Wuhan, China, in December 2019, and it had spread to other parts of the world, including India. The World Health Organization (WHO) issued the first global warning for COVID-19 on January 30, 2020(WHO, 2020). On March11, 2020, the WHO designated COVID-19 as a pandemic as the number of confirmed cases increased globally

((WHO, 2020)). As of September 2022, there were over 608 million confirmed illnesses and more than 65,13,000 deaths across the globe. (WHO, 2022c). Around 445 million cases and nearly 5,28,273 deaths from connected cases were documented in India during the same time period (WHO, 2022c). Several governments all over the world, including India, continued to put into practice and adopt a number of preventive and public health policy measures to stop the spread of the virus, such as travel restrictions, shutdown of educational institutions, physical or social isolation, the wearing of face masks, and routine hand washing.

The COVID-19 pandemic posed a significant threat to the growth and development of several economies across the globe. Emerging economies with weak financial sectors, undeveloped healthcare systems, and limited resources of fiscal space are particularly susceptible to the pandemic. That is, in terms of family welfare, the performance of the financial and non-financial markets, and the expansion and development of national economies, developing countries including those in India are anticipated to be more impacted by the COVID-19 pandemic.

As per the WHO and other public health experts, the public were informed about the number of confirmed cases and the threat posed by the COVID-19 epidemic on daily basis and that is expected to influence investors' perceptions of the economy in general and stock market in particular. Hence, it is believed that the stock market might have been influenced by the information of Covid-19. For instance, if the stock market rises there will be less perceived risk and investors would behave more optimistic if the stock market trends towards downward, there will be a significant perceived risk and investors' emotions would shift to a more pessimistic state. As a result, they frequently postponed entering the market until recovery began (Imai et al., 2021; Liu et al., 2020). Such conditions would result in irrational short-term investor reactions and overpriced stock markets. In these uncertain economic times, many investors would turn to holding other assets that are referred to as "safe-haven investments" in order to reduce risk (He et al., 2020; Liu et al., 2020). Such investor activity may have a detrimental effect on stock market performance and price levels.

Review of Literature

There are several studies which have been done on the impact of Covid-19 on economies across the globe. A few studies have focused on the measurement of impact of Covid-19 on the performance of the stock markets across several nations. A considerable amount of research has carried out to study the impact of covid-19 on the economies and policy responses by these nations to deal with the problems therein. As a whole, a growing number of researchers have begun to look at how COVID-19 may affect economies or stock markets or company performance (Chatjuthamard et al., 2021; Ding et al., 2021).

According to (de Vito & Gómez, 2020) COVID-19 might result in severe financial issues for companies that employ simulation approaches. (de Vito & Gómez, 2020) the assertion is supported by (Goodell, 2020) findings, which show how COVID-19 decreases corporate liquidity and it often has a negative impact on stock markets or business performance. However,

there hasn't been much discussion in accounting research thus far on how accounting fits into this COVID-19 conundrum or the relevant laws (Xu, 2021).

Moreover, the COVID-19 outbreak also continues to have a substantial influence on the domestic and global economies, and some countries have implemented relevant policies to assist businesses. Although scholars have underlined the need for greater research to look into how governments may decrease the negative consequences of COVID-19, it is unclear at this moment if these actions are helpful (Goodell, 2020). As a consequence, this article will also discuss significant COVID-19related stock market performance with reference to the BSE Sensex and BSE 500 stock comparisons.

This research seeks to understand how COVID-19 affects the stock behavior of the Indian Stock Market with a special reference to sectoral indices of the Bombay Stock Exchange Ltd, during a crisis. In order to determine the impact of the virus, this research examines both the number of confirmed COVID-19 cases (a direct proxy) and the number of searches for COVID-19 on the internet (WHO, 2020). In contrast to the other research that may affect economies or stock markets or company performance Thus, this study will add to the continuing debate about how investor mood affects stock markets (Mbanga et al., 2019). Additionally, since it considers three crucial aspects of stock performance, this study will provide a more detailed analysis than past studies (Jebran & Chen, 2021).

Methodology

Our sample includes the Indian Stock Market with a special reference to sectoral indices of the Bombay Stock Exchange Ltd. The study comprises two composite indices, namely BSE Sensex and BSE 500, and eight sectoral indices of BSE Ltd, such as Information Technology, Bankex, Auto, Capital Goods, Health Care, FMCGs, Consumer Durables, and Real Estate. The secondary data has been taken into consideration to reach the predefined objectives of the study. The daily stock trading data, board information, and COVID19 data, such as daily cases and death cases were collected for the period of March 2019 to June 2021. Data regarding BSE was collected from the moneycontrol.com Database. The data so collected has been integrated after excluding data gaps and unwanted data with abnormal for the regression analysis.

Tools used for the present study

Descriptive Statistics: In order to capture the distributional properties of the dependent and independent variables during the period under study, descriptive statistics, such as Mean, Median, Maximum, Minimum, Std. Dev., Probability, Sum, Sum Sq. Dev., and Observations Statistics were used.

Single Linear Regression (SLR): SLR models fit a linear function to collect data to explain the connection between explanatory factor and a response variable. Formulation:

$$\boldsymbol{Y = \beta_0 + \beta_1 X} + \in \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

y: forecasted value of the dependent factor,
β0 : y intercept, or constant
β1x : coefficient of determination of the explanatory variables, and
ϵ : design errors.

Result and Discussion

Descriptive statistics

The descriptive analysis helps the researcher to identify the trends and relationships among the variables used in the study. Table 1 exhibits the descriptive statistics such as mean, median,

Table 1: Descriptive statistics for considered indices and COVID19 cases

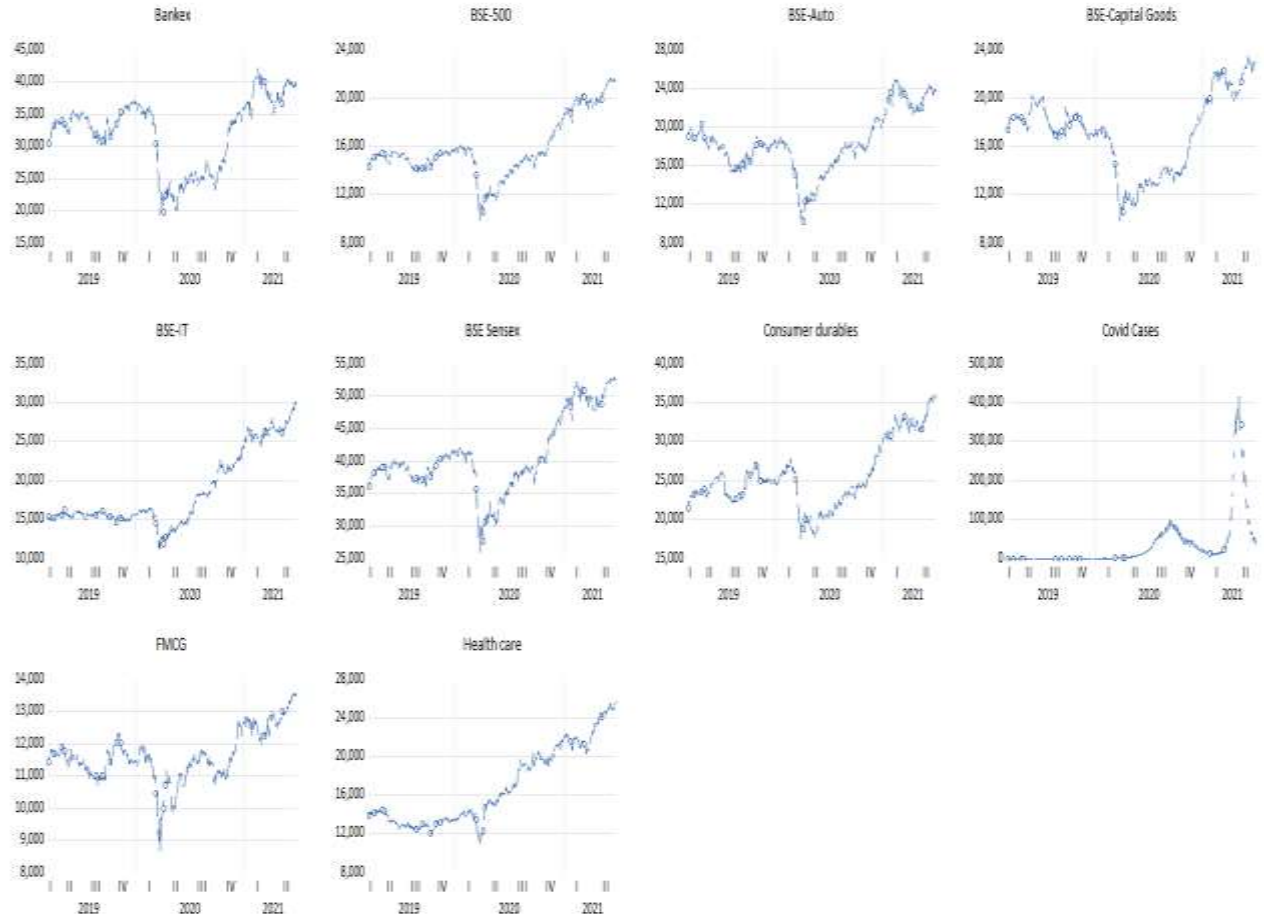
	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability
BSE_SENSEX	0.0007	0.0003	0.0305	-0.0384	0.0055	-0.3933	13.4824	2651.9990	0.0000
BSE_500	0.0007	0.0002	0.0311	-0.0341	0.0052	0.1195	12.9997	2401.2330	0.0000
BANKEX	0.0007	0.0008	0.0418	-0.0433	0.0079	-0.1487	9.0379	877.0601	0.0000
BSE_AUTO	0.0007	0.0007	0.0373	-0.0388	0.0074	-0.4028	7.9340	599.8388	0.0000
BSE_CAPITA	0.0009	0.0009	0.0541	-0.0316	0.0066	0.5414	13.6275	2738.8090	0.0000
BSE_IT	0.0003	0.0004	0.0316	-0.0313	0.0059	0.1872	8.1227	633.1837	0.0000
CONSUMER	0.0008	0.0008	0.0342	-0.0307	0.0061	-0.0730	8.4581	715.5029	0.0000
FMCG	0.0010	0.0009	0.0307	-0.0300	0.0049	0.1058	10.6803	1416.7620	0.0000
HEALTH_CA	0.0007	0.0004	0.0321	-0.0285	0.0053	0.5290	8.6363	789.2884	0.0000
REALTY	0.0007	0.0002	0.0370	-0.0244	0.0084	0.6571	5.5422	196.5566	0.0000

Source: Compiled by the author standard deviation, skewness, kurtosis, Jaraque-Bera,

Probability etc. for 10 indices of BSE Ltd. A look at the Table reveals that between two composite indices i.e., BSE Sensex and BSE 100, the average returns of these two indices were the same with almost same amount of risk in terms of standard deviation. In terms of skewness, the returns of the BSE Sensex registered negative skewness whilst the BSE 500 exhibited positive. This means, during the study period, BSE Sensex has generated a few gains to the investors but losses in the most of the cases. This phenomenon is quite reversal in the case of BSE 500. As per the Kurtosis indicator, the returns of BSE Sensex were more volatile than that of BSE 500. It means the high kurtosis of the returns curve implies that there were rapid price fluctuations in the past which were away from the average returns of the investment.

Among the rest of the indices under the study, FMCG yielded the highest returns followed by BSE Capital and BSE Consumer etc. The lowest returns were seen in the case of BSE IT. Among these indices, BSE reality has posed high risk in terms of standard deviation followed by BANKEX, BSE AUTO, and BSE Capital. Interesting finding is that FMCG yielded good returns with the lowest risk. In terms of the skewness, three out of eight indices such as BANKEX, BSE Auto and Consumer have registered negative skewness which means these indices have produced very volatile returns in comparison to their counter parts under the study. The kurtosis exhibits higher degree in case of BSE capital followed by FMCG, BANKEX etc. It implies that the returns of these indices were more volatile comparatively to the rest of the indices of the study. The trend in the number of Covid-19 cases and the movement of selected stock indices of the BSE ltd has been exhibited in Figure 1.

Figure 1: Considered indices trend and COVID cases.



The correlation coefficient helps us to measure the strength of a liner relationship between any two variables under the study. The relation between the number of Covid-19 cases and BSE

indices is portrayed in Table 2. A glance at the Table 2 reveals that there is a strong and positive correlation between BSE health care indices and Covid-19 cases followed by BSE IT, BSE 500,

Table 2: Correlation coefficient Between COVID-19 cases and BSE Indices

	BSE_SENSEX	BSE_500	BSE_AUTO	BANKEX	BSE_CAPITA	BSE_IT	FMCG	HEALTH_CA	REALTY
COVID Cases	0.44	0.49	0.39	0.17	0.25	0.57	0.42	0.64	0.22

Source: Compiled by the author

BSE Sensex, FMCG, BSE AUTO, BSE Capital, BSE reality and BAKEX. It may be understood that during the Covid-19 Pandemic, the BSE health care sector has given good returns in proportion to increase of the number of Covid-19 cases during the study period. It may be noted that Information Technology sector has performed well and given good returns after health care sector.

The correlation coefficient between BSE Sensex and other indices of the study are given in the Table 3. The BSE Sensex is considered as the barometer of the Indian Economy. It comprises various stocks which are drawn from several sectors of the economy by following predefined criteria to do so. At the same time, a sectorial index represents the stocks that are only from a particular sector. Hence, a small movement in the composite sector like BSE Sensex shall have phenomenal impact over the performance of sectorial indices. A look at the Table 3 shows that

Table 3: The Correlation Coefficient between BSE Sensex and other Indices

	BSE_SENSEX	BANKEX	BSE_AUTO	BSE_CAPITA	BSE_IT	CONSUMER	FMCG	HEALTH_CA	REALTY
BSE_SENSEX	1.00	0.83	0.96	0.84	0.91	0.96	0.90	0.76	0.90

Source: Compiled by the author there is a strong correlation between BSE Sensex and BSE

Auto and BSE Consumer followed by BSE IT, FMCG, Reality, BANKEX, BSE Capital and Health Care. It may be observed from the data that Health Care sector exhibits less correlation coefficient with BSE Sensex when compared to other indices. It denotes that the health care sector is quite independent from BSE Sensex.

BSE 500 is one of the premier stock indices after BSE Sensex. It represents nearly 93 per cent of the total market capitalization on BSE ltd. It also covers 20 major industries of the economy. Therefore, it is assumed that there is a negative impact of the Covid-19 on the performance of the BSE 500 and the sectorial indices of the BSE. Table 4 reveals the correlation coefficient between

Table 4: The Correlation Coefficient between BSE 500 and other Indices

	BSE_500	BANKEX	BSE_AUTO	BSE_CAPITA	BSE_IT	CONSUMER	FMCG	HEALTH_CA	REALTY
BSE_500	1.00	0.82	0.96	0.85	0.92	0.97	0.91	0.78	0.89

Source: Compiled by the author

BSE 500 and other BSE indices under the study. As per the results of the correlation coefficient, there is a strong correlation between BSE 500 and BSE Consumer sector followed by BSE Auto, BSE IT, FMCG, Reality, BSE Capital, BANKEX and Health Care. Among the other indices, BSE Consumer exhibits strong positive correlation with BSE 500 whilst(it is)the weak positive correlation in the case of Health Care Sector. It denotes the health care sector is somewhat independent from the BSE 500.

Regression analysis

Regression analysis is primarily used for prediction and forecasting. It establishes a causal relationship between independent and dependent variables. Daily Covid-19 cases as independent variable and the performance of the BSE indices as dependent variable and the relationship between these two variables are portrayed in Table 5. There is positive relationship between daily Covid-19 cases and BSE Sensex. Among two composite indices, such as the BSE Sensex and BSE 500 of the BSE ltd, the BSE Sensex index has increased by 5.34 units against per every

Table 5: Regression analysis of each index with COVID cases

Variable	Coefficient	Std. Error t-statistic	Prob.
BSE_SENSEX	-183101.2 5.341299	18818.21 -9.730002 0.455936 11.71502	0.0000 0.0000
BSE_500	-185742.3 13.93476	16570.75 -11.20904 1.032611 13.49469	0.0000 0.0000
BANKEX	-35677.48 2.198840	17540.73 -2.033979 0.537158 4.093472	0.0424 0.0000
BSE_CAPITAL_GOODS	-58671.05 5.474336	15576.38 -3.766668	0.0002 0.0000

		0.893478 6.126994	
CONSUMER_DURABLES	-150716.3 7.253040	16256.63 -9.271069 0.625810 11.58984	0.0000 0.0000
FMCG	-400281.7 37.42986	39161.34 -10.22135 3.358600 11.14448	0.0000 0.0000
HEALTH_CARE	-156961.7 11.39040	9934.616 -15.79947 0.573218 19.87098	0.0000 0.0000
C REALTY	-47070.38 39.43971	15174.75 -3.101888 7.147879 5.517680	0.0020 0.0000

Source: Compiled by the author

1000 Covid-19 cases registered in a day and the increase is statistically significant. In case of BSE 500, the increase is 13.93 units and it is statistically significant. It may be understood that the impact of the Covid-19 cases on the performance of these indices is positive and statistically significant. Further, it may be deduced that BSE 500 index is more sensitive against the Covid-19 cases during the study period as the increase in the case of these indices is much larger than that of the increase in BSE Sensex. It is also observed that the reality sector is more sensitive against daily Covid-19 cases followed by FMCG and Health Care. The same tendency could be seen in descriptive statistics and the correlation coefficient analysis.

Among the sectorial indices, BSE BANKEX exhibits the lowest sensitivity against the Covid-19 daily cases with the increase of 2.19 times followed by BSE CAPITAL GOODS with 5.47 times, consumer durables with 7.25 times, Health Care 11.39 times, FMCG 37.42 times and Reality 39.43 times. At the same time all the indices have demonstrated positive relation between dependent and independent variables under the study and the increase in all indices are statistically significant. The reason for this sensitivity might be due to the close proximity between daily Covid-19 cases and Health Care products as they play a very important role in combating the Covid-19. During the Covid-19 period, the Fast Moving Consumer Goods had much demand as the people tried to store them in advance. As the result, there was a high sensitivity between FMCG and daily Covid-19 cases. The realty sector also had seen a phenomenal growth during the Covid-19 period as the prices of the real assets have been slashed

down initially and consequently the prices rise as there was gradual increase in the transactions of the real estate due to the entry of new players in the sector.

Implications

For traders and investors who would like to invest in Indian stock market, the results indicate which sectors are correlated and risky and which will give optimum returns through appropriate portfolios. For practitioners, the findings may give some clues about the dynamic behavior of each sectorial sector of the BSE ltd so that they can cultivate best investment options. For policy makers, the findings may reaffirm the role to be played by the bureaucrats, political leadership at critical situations to mitigate adverse effects therein so as to send some feel good message to investors' community.

Conclusion

The present enquiry made an attempt to explain how Covid-19 pandemic has affected the Indian premier stock exchange and its sectorial indices. Primarily, the researchers focused on how the daily Covid-19 cases had influence over the performance of two composite indices and seven sectorial indices of the BSE ltd. From the analysis, it is found that BSE Sensex has generated a few gains to the investors but losses in the most of the cases. This phenomenon is quite reversal in the case of BSE 500. Further, it is also found that there is a strong and positive correlation between BSE health care sector and daily Covid-19 cases. Moreover, the realty sector is more sensitive against daily Covid-19 cases, followed by FMCG and Health Care. Our findings may provide some key implications for investors, practitioners and policy makers.

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