Market Warnings : Learning from the Short-Term Impact of COVID-19 on Stock Market Constituents

Chandan Sharma [1]
Archana Singh [2]
Rajan Yadav [3]

Abstract

Purpose : The paper investigated the short-term impact of the lockdown announcement due to COVID-19 on various industries in India using firms' stock returns and credit ratings.

Design/Methodology : The paper used event study methodology to analyze abnormal returns on stocks and credit rating changes of firms following the lockdown to understand the impact on the debt servicing of firms.

Findings : The paper found a heterogeneous impact of lockdown on various industries. Pharmaceuticals, chemicals, FMCGs, and telecom sectors saw positive abnormal returns, while textiles, financial services, construction, services, cement, and automobile sectors were the worst affected. The paper also found that smaller companies were more susceptible to the effects of such lockdowns. Indian subsidiaries of foreign MNCs and Central Government-owned firms fared better than privately-owned domestic firms. The debt servicing ability of firms was unimpacted due to the debt relief package announced to mitigate the impact of the lockdown.

Practical Implications : The paper's findings have implications for investors and managers who can make informed decisions in advance to reduce the risk to their investment if such a black swan event is expected. The paper's findings could help policymakers identify sectors that require immediate support due to the disruption from such an event.

Originality : The paper is unique in investigating the impact of the lockdown due to COVID-19 on companies across different industries, with different ownership groups and sizes. We have not come across such a detailed study investigating the impact of COVID-19 on various industries in India.

Keywords : **COVID-19, event study, industry analysis, lockdown, stock price, risk**

JEL Classification Codes : G12, G14, G40, H12

Paper Submission Date : June 25, 2022 ; Paper sent back for Revision : December 26, 2022 ; Paper Acceptance Date : March 5, 2023 ; Paper Published Online : April 15, 2023

COVID-19 has caused turmoil in the global economy over 2020 – 22. The lockdowns initiated in various countries as the initial response to the virus spread brought economic activities to a standstill. International Monetary Fund (IMF) estimated that global GDP growth contracted by 3.3% in 2020

[1] *Assistant Professor,* Delhi School of Management, Delhi Technological University Delhi, Delhi - 110 042.
(Email : chandansharma.phd@gmail.com) ; ORCID iD : https://orcid.org/0000-0003-4725-1715
[2] *Associate Professor,* Delhi School of Management, Delhi Technological University Delhi, Delhi - 110 042.
(Email : archanasingh203@gmail.com)
[3] *Professor,* Delhi School of Management, Delhi Technological University Delhi, Delhi - 110 042.
(Email : rajanyadav.dsm@gmail.com)

DOI : https://doi.org/10.17010/ijf/2023/v17i4/170094

(International Monetary Fund, 2021). In India, the GDP growth fell by 6.6% in FY21 (Mishra, 2022). As per IMF, the cumulative loss in output relative to the pre-pandemic projected path will grow from 11 trillion over 2020 and next to 28 trillion by end 2025. Thus, apart from output loss during the lockdowns, such pandemics have also impacted future economic growth (Lee & McKibbin, 2004; McKibbin & Sidorenko, 2006). The initial period of the spread of COVID-19 was filled with uncertainties related to the infectious nature of the disease and the likely response required to contain the spread (Anderson et al., 2020). The initial expectation that a vaccine would likely be available after a year further caused panic among investors. The stalling of economic activity due to lockdowns initiated in March 2020 caused a varying degree of disruption across industries in various countries. Although countries had gradually relaxed the lockdown, resulting in improved economic activity, the recurring waves seen globally led to the re-imposition of lockdown in certain countries.

This paper aims to understand the impact on various industries in India due to the sudden external shock of COVID-19 and the unprecedented lockdown. The paper analyzes stock returns and firms' credit ratings to understand the impact on industries. The event study methodology analyzes the abnormal returns on stocks of firms in different industries. Within this, the paper investigates the impact of the COVID-19 lockdown on firms belonging to different industries, ownership groups, and sizes. In addition, the paper investigates the credit rating actions on firms in various industries following the lockdown announcement to understand the impact on companies' debt servicing ability. As corporate bond trading in India is illiquid, we could not analyze bond prices' reaction to the lockdown. We have not come across such a detailed study investigating the impact of COVID-19 on various industries in India. The research will help investors and managers understand the impact of such external shocks on stocks of various industries and aid them in assessing the risk to their investment and making informed decisions in the future.

Literature Review

The change in stock prices in the short term due to new information has been extensively studied in the literature. The earliest study was done by Fama et al. (1969) on adjusting stock prices to information implicit in a stock split. This paper also introduced the "event study" methodology that has been extensively used in the literature to study the stock price reaction to new information/events or external environment factors impacting a firm. COVID-19, as an event, can be considered unique in recent history with limited parallels available for an external shock that impacted economies worldwide with a consequent fallout in the stock market. The global financial crisis of 2008 had a similar impact on the stock market, but the impact was driven primarily by the liquidity shock caused by the bankruptcies of large banks. However, in the case of an infectious disease, the perception created in the public's mind regarding the contagious nature of disease also leads to a drastic reduction in demand in sectors where people-to-people contact was required (Smith, 2006). COVID-19’s uniqueness also stems from the immediate disruption of demand and supply across industries due to the lockdown initiated by countries.

Researchers have undertaken several studies to analyze the impact of communicable diseases on impacted countries. Nippani and Washer (2004) studied the impact of the Severe Acute Respiratory Syndrome (SARS) outbreak in 2003 on the stock market of affected countries and found no impact on two out of the eight countries affected, that is, China and Vietnam. Chen et al. (2009) highlighted the contrasting impact of the SARS outbreak in 2003 on different industries in Taiwan's stock market. Keogh-Brown and Smith (2008) found that the actual economic impact of SARS on affected countries was much less than estimates at the time of the disease outbreak. Garrett (2007) found that the 1918 pandemic led to a short-term negative impact on service and entertainment industries in the U.S., while healthcare-related businesses witnessed an increase in revenue.

Gupta and Kohli (2021) highlighted that investors sometimes react to such events with a herd mentality, failing to distinguish the impact on individual sectors. Researchers have carried out impact analysis on the stock market

due to various events. Sharma (2022) analyzed the impact of tax cut announcements by the Government of India on stock prices in different industries. Syed et al. (2021) analyzed the impact of the COVID wave on Indian stock and commodity markets. Bhattacharya (2019) investigated the impact of negative news on the U.S. soft drinks industry. Pradhan and Kasilingam (2018) examined the reaction of S&P 500 stocks to stock split, while Nadig (2017) observed the impact of dividend announcements on public sector banks' stocks. Pandya (2014) analyzed the reaction of the stock market to Union Budget announcements.

Some studies have been done on the impact of the global economy on COVID-19. Ali et al. (2020) found a decline in global financial markets and commodities like gold as COVID-19 spread across geographies. However, the Chinese markets saw an early recovery due to prompt actions by the government. Liu et al. (2020) found a negative impact of the COVID-19 outbreak on stock markets in 21 different affected countries. He et al. (2020) found a heterogeneous impact of COVID-19 on stocks of different industries in Chinese stock markets. Gössling et al. (2021) looked at the impact of COVID-19 on the global tourism industry and the possible long-term transformation that the industry may undergo. McKibbin and Fernando (2020) analyzed the impact of COVID-19 on the global economy and financial markets.

The immediate impact of such exigencies on the stock market could partly be explained by increased uncertainty leading to a sudden change in investors' mood (Shu, 2010). Understanding the impact of such events could enable investors to predict stock prices in the future (Zouaoui et al., 2011). This paper investigates the impact of COVID-19 on firms of different sizes, ownership, and belonging to different industries in India using stock returns and credit rating. The inferences drawn from stock returns would aid stock investors. In contrast, inference from credit rating actions would benefit debt investors in managing their portfolios in case such an external shock occurs.

Data

The study focuses on the Indian stock market and its constituents. The data on stock prices were collected from the National Stock Exchange (NSE) of India Ltd. and the Centre for Monitoring Indian Economy (CMIE) – Prowess IQ Database. NSE is the biggest stock exchange by market capitalization in India. The Prowess IQ database has been used in several Indian studies (Jaiswall & Bhattacharyya, 2016; Jaiswall & Raman, 2021; Jawed et al., 2019). The sample data consists of a daily closing level of stock indices and the daily adjusted closing price of stocks between May 01, 2019 and September 30, 2020 on NSE. To analyze the impact of COVID-19 on different sectors, we selected stocks belonging to the NIFTY 500 Index, which represents the top 500 companies based on full market capitalization from companies listed on NSE and meets specific liquidity criteria. Table 1 shows these companies grouped into 19 sectors per NSE's classification (National Stock Exchange of India Ltd., 2020). The paper also investigates the impact of COVID-19 on companies as per their ownership. For this purpose, the companies are classified into four groups – private (Indian), private (foreign), Central government, and State Government, as shown in Table 2. The data for ownership of companies were collected from the Prowess IQ database.

We investigate the impact of COVID-19 on the indices listed on NSE, as mentioned in Table 3. The impact on these indices will give us more insights into the impact on small and medium-sized companies compared to large-sized companies. The indices selected for the study are free-float market capitalization-weighted indices, and in specific indices, the weightage of individual security in the index is subjected to a maximum weightage. We also investigate credit rating changes of those companies in the NIFTY 500 Index, which credit rating agencies in India have rated. The firms' credit rating data were taken from the Prowess IQ database. If a company faces rating action by multiple agencies during the observation period, we select the rating action where the company witnessed a rating change.

Table 1. ***Industry Classification of Nifty 500 Companies***

S. No.	Industry	Number of Firms	Percentage of Total
1	Automobile	29	5.9
2	Cement & Cement Products	15	3.1
3	Chemicals	22	4.5
4	Construction	29	5.9
5	Consumer Goods	72	14.7
6	Fertilisers & Pesticides	12	2.5
7	Financial Services	81	16.6
8	Healthcare Services	7	1.4
9	Industrial Manufacturing	48	9.8
10	IT	23	4.7
11	Media & Entertainment	11	2.2
12	Metals	21	4.3
13	Oil & Gas	18	3.7
14	Paper	2	0.4
15	Pharmaceuticals	41	8.4
16	Power	13	2.7
17	Services	29	5.9
18	Telecom	7	1.4
19	Textiles	9	1.8

Source : National Stock Exchange of India Limited.

Table 2. ***Ownership Classification of Nifty 500 Companies***

S. No.	Ownership Group	Number of Firms	Percentage of Total
1	Central Government	61	12.6
2	Private (Foreign)	56	11.4
3	Private (Indian)	363	74.8
4	State Government	6	1.2

Source : National Stock Exchange of India Limited.

Table 3. ***Description of a Few NSE Indices Analyzed in the Event Study***

S. No.	Index	Description
1	Nifty 50	Top 50 companies based on market capitalization from stocks listed on NSE meeting specific criteria.
9	Nifty FMCG	Top 15 stocks belonging to the fast moving consumer goods sector.
15	Nifty Midcap 150	Top 150 mid-size companies ranked 101–250 based on full market capitalization from NIFTY 500.
22	Nifty Smallcap 250	250 small size companies representing companies ranked 251–500 from NIFTY 500.

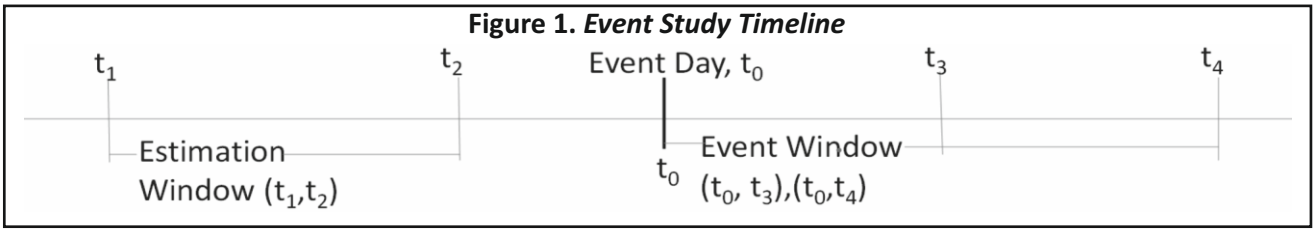
Source : National Stock Exchange of India Limited.

Methodology

The paper uses the event study methodology to analyze the impact of COVID-19 on the Indian stock market. The event study technique's main idea is that abnormal returns (ARs) on the firm security prices can determine the relevancy of any unexpected event for firms. Our study uses a market-adjusted model to calculate the stock's expected return, which is the most popular model used in event studies (Strong, 1992). The market model estimates the parameters using ordinary least square (OLS) regression over the estimation period.

The paper utilizes the returns on the Nifty 500 Index as a proxy for the market return. The event study methodology requires : (a) an estimation window is a period that will be used to estimate the parameters for the market model to calculate the expected returns for the stock of a firm, (b) the event date, which is the announcement date of the event or day '0' and, (c) the event window is the period in which impact of the event on stock prices is examined as shown in Figure 1.

Figure 1. ***Event Study Timeline***



The actual lockdown announcement by the Government of India was on March 24, 2020 at 8 PM IST; hence, we take March 25, 2020 as the event date for the lockdown. The paper considers the estimation window of 170 days, ending 30 days before the event day. The estimation period range is in line with other event studies based on daily returns (Peterson, 1989). We drop firms in Nifty 500 that came out with an initial public offering during and after the estimation window and are left with 486 firms. The paper uses five-event windows to fully understand the impact of the event on the stock prices – (−20,0 days), (−5,0 days), (0,1 days), (0,5 days), and (0,20 days).

The event window (−5,0) is more critical as the partial lockdown announcement after the stock market's closing

Table 4. ***Timeline of Events of COVID-19 in India***

11-Mar-20	World Health Organization declared COVID-19 a pandemic.
19-Mar-20	'Janta Curfew' – Partial Lockdown announcement by Indian Prime Minister at 8 pm on March 22, 2020 from 7 am to 9 pm.
24-Mar-20	Nationwide Lockdown announcement by Indian PM at 8 pm from March 25, 2020 to April 14, 2020.
26-Mar-20	Fiscal stimulus announcement by Government of India of INR 1,850 bn.
27-Mar-20	Monetary support announcements by Reserve Bank of India amounting to INR 3,790 bn.
27-Mar-20	USD 2 trillion fiscal stimulus approved by the United States Government.
14-Apr-20	Extension of nationwide lockdown to May 03, 2020 with some relaxations.
17-Apr-20	Monetary support announcements by Reserve Bank of India amounting to INR 1,000 bn.
27-Apr-20	Monetary support announcements by Reserve Bank of India amounting to INR 500 bn.
1-May-20	Extension of nationwide lockdown to May 17, 2020 with some relaxations.
12-May-20	Fiscal stimulus announcement by Government of India of INR 12,000 bn.
30-May-20	Announcement of gradual relaxation of lockdown restrictions from June 01, 2020.

on March 19, 2020 built in the expectation that the Government of India will soon announce the nationwide lockdown as had happened in other countries. Besides, the Government announced a fiscal stimulus on March 26, 2020, one day after the lockdown initiation. This provided confidence to the investors regarding the government's readiness to come out with measures to tackle the negative impacts of the lockdown on the economy. Thus, making the event window (−5,0) important for understanding the impact of the lockdown announcement. The overall timeline of the early stages of COVID-19 is presented in Table 4.

We calculate the CAAR (cumulative average abnormal return) of firms in an industry group and ownership group by aggregating the average abnormal return of securities in the index group over the event window. We use the adjusted BMP (Boehmer, Masumeci, and Poulsen) parametric test (Kolari & Pynnönen, 2010) and the generalized rank nonparametric test (Kolari & Pynnonen, 2011) due to their robustness over other parametric and nonparametric tests.

To understand the impact of various industries of the lockdown using credit rating actions, we analyze the proportion of companies undergoing credit rating change in a particular industry among Nifty 500 constituents till six months after the lockdown announcement on March 25, 2020. If a significant portion of the industry witnessed rating action, we conclude that the lockdown has impacted the industry. The reason for taking a more extended period to investigate credit rating action is primarily the less sensitivity of credit rating to such sudden shocks due to focus on debt serviceability compared to stock returns that are more linked to earnings or net profit.

Analysis and Results

The event study results on industry groups are presented in Table 5. It could be seen that 17 out of 19 industry groups witnessed a negative return during the event window of (−5,0), and for 10 out of the 19 industry groups, the returns are negative and significant at a 10% level. The negative returns on various industries are in line with a drastic dip in demand expected across industries due to the lockdown and supply-side constraints related to labour and the closure of factories. The significance of returns for the industry group is essentially the same in both the adjusted BMP test as well as the generalized rank test.

Table 5. ***Impact of Lockdown Announcement on the Industry Group of Nifty 500 Stocks Using Adjusted BMP Test***

Industry	Event Window				
	CAAR [–20,0]	CAAR [–5,0]	CAAR [0,1]	CAAR [0,5]	CAAR [0,20]
Automobile	–11.66%	–8.44%*	–2.78%	–3.92%	–2.64%
Cement & Cement Products	–4.17%	–8.39%**	–2.11%	–0.90%	–4.40%
Chemicals	–2.47%	–2.89%	–1.03%	4.60%	15.33%**
Construction	–15.74%**	–10.09%**	–3.57%	–1.61%	–1.49%
Consumer Goods	–4.61%	–6.66%**	–1.38%	4.09%	2.58%
Fertilisers & Pesticides	–7.60%	–6.12%***	1.69%	6.85%***	16.66%***
Financial Services	–19.11%***	–12.80%***	–0.65%	0.49%	–1.50%
Healthcare Services	5.63%	–3.63%	–3.51%	–3.21%	–7.78%
Industrial Manufacturing	–8.39%*	–9.13%***	–2.48%*	2.52%	3.19%
IT	–6.28%	–1.64%	–2.90%	0.09%	–1.06%
Media & Entertainment	–17.08%***	–1.30%	–3.51%	–1.51%	–1.38%

Metals	–12.15%	–4.72%	–4.51%*	–0.58%	–2.57%
Oil & Gas	–5.65%	–3.87%	–3.32%	2.78%	4.75%
Paper	–28.72%***	–13.47%***	6.92%***	14.97%***	18.23%
Pharmaceutical	10.12%**	1.73%	–4.45%**	2.58%	–15.62%***
Power	3.82%	5.84%	–7.68%***	–3.20%	–7.35%
Services	–16.49%***	–10.91%***	–4.29%***	0.21%	–8.39%**
Telecom	0.13%	–3.80%	–4.64%	–3.11%	12.03%
Textiles	–22.74%***	–13.55%***	–7.18%**	–5.10%	–2.04%

Note. *** indicates *p*-value <.01, ** indicates *p*-value <.05, * indicates *p*-value <.1.

Although not significant, the positive returns on the pharmaceuticals sector during the event window (−5,0 days) could be explained by the fact that pharmaceutical companies were likely to benefit due to the emerging opportunities of vaccines for COVID-19 and the demand for related medicines. The Indian pharmaceutical sector is the largest provider of generic medicines globally and has a leadership position in the supply of several vaccines.

In terms of the severity of the impact of the lockdown announcement from March 25, 2020 among the major sectors, the textiles, financial services, construction, and services sector were the most affected. The textile sector faced drastic demand reduction and unavailability of labour due to the lockdown. The financial services sector was impacted due to demand issues and the risk of default on loan exposure to firms and individuals. Construction activities came to a standstill, and labour shortages were expected to impact the construction sector negatively. The services sector, including hotel, courier, and airline services, was likely to see a complete stalling of demand due to the lockdown.

Industrial manufacturing, automobile, and the cement sector were also likely to be impacted by a lack of demand and the closure of factories. However, chemicals and pharmaceuticals were less impacted, with demand being primarily insulated. The telecom sector was expected to see increased demand due to people being confined to their homes. This is seen in the fact that in the event window of (0,20 days) the chemical, pharmaceutical, and telecom sectors witnessed significant positive returns. The consumer goods industry group, which includes consumer durables and FMCG sectors, also witnessed significant negative returns. However, further analysis indicates that the Nifty FMCG Sector Index (Table 7) showed significant positive abnormal returns in the event window (−20,0 days) and (−5,0 days). The consumer durables sector was negatively impacted due to a decline in product demand. However, demand for FMCG products were unlikely to drop much due to most being necessity items. The fertilizer & pesticides sector saw a significant negative return during the event window (−5, 0 days). However, the sector saw a higher significant positive return during the event window (0, 20 days) due to the expectation of a limited impact on demand from agriculture activities which are based primarily out of rural areas. Other sectors such as healthcare services, IT, media & entertainment, and the power sector saw a mixed impact during the event window, with abnormal returns not being significant.

Table 6 shows the announcement's impact on some of the major indices listed on the NSE. It is seen that the Nifty 50, which is the index for large market capitalization companies, witnessed positive abnormal returns, but Nifty Midcap witnessed significant negative abnormal returns. In contrast, Nifty Smallcap companies witnessed even higher negative abnormal returns, indicating that investors expected smaller companies to be the most impacted by the lockdown. This is in line with the fact that smaller companies will likely have fewer resources available to overcome the liquidity issues due to a drastic or complete reduction in sales.

Table 6. ***Impact of Lockdown Announcement on Nifty Indices using Adjusted BMP Test***

Index	Event Window				
SECURITY	**CAAR [–20,0]**	**CAAR [–5,0]**	**CAAR [0,1]**	**CAAR [0,5]**	**CAAR [0,20]**
Nifty 50	2.23%***	2.42%***	0.87%***	–0.29%	0.01%
Nifty FMCG	15.64%***	7.61%***	–2.47%***	3.55%**	–0.31%
Nifty Midcap 150	–5.09%***	–5.33%***	–2.69%***	–1.56%*	–1.93%
Nifty Smallcap 250	–15.02%***	–11.55%***	–3.68%***	0.32%	–0.96%

Note. *** indicates *p*-value <.01, ** indicates *p*-value <.05, * indicates *p*-value <.1.

Table 7. ***Results of Event Study to Analyze the Impact of Lockdown Announcement on Companies as per their Ownership Pattern Using Adjusted BMP Test***

Ownership Group	Event Window				
	CAAR [–20,0]	**CAAR [–5,0]**	**CAAR [0,1]**	**CAAR [0,5]**	**CAAR [0,20]**
Central Government	–6.63%	–2.72%	–4.87%**	1.83%	0.35%
Private (Foreign)	0.94%	–5.26%	–0.95%	3.11%	2.49%
Private (Indian)	–10.27%**	–7.75%***	–2.46%**	0.51%	1.88%
State Government	–13.24%	–6.55%*	–1.29%	4.22%	15.70%

Note. *** indicates *p*-value <.01, ** indicates *p*-value <.05, * indicates *p*-value <.1.

Table 7 shows the result of the clusters formed as per the ownership of companies. The returns on private (Indian) companies witnessed significant negative abnormal returns followed by state-owned companies. Private (foreign) companies witnessed marginally better, but negative returns in the event window (−5,0 days), which were not significant. However, looking at a longer time horizon of (−20,0 days) and (0,20 days), private (foreign) companies performed better than other ownership groups. This is because private (foreign) companies are Indian subsidiaries of multinational companies. Investors favour these companies in times of uncertainty due to access to resources of the multinational parent and high-quality management. Central government-owned companies also witnessed marginally negative returns in the event window (−5,0), which were insignificant. This could be explained by the fact that the Central Government-owned entities were better placed in terms of receiving support from the government as and when required. The above results are robust using the generalized rank nonparametric test.

Table 8 shows the industry-wise distribution of credit rating actions among the Nifty 500 companies. The analysis of credit ratings of companies indicates that companies in nine industries did not witness any credit rating change. In contrast, another eight of the remaining industries saw less than 15% of companies witness credit rating change in the six months following the lockdown announcement. Only two industries out of the 19 in the Nifty 500, the number of companies witnessing credit rating change were above 15% of the total companies but remained below 30% of the total companies in the industry. The mitigated impact of the lockdown on the credit ratings of companies could be due to the COVID-19 package announced by the Reserve Bank of India following the lockdown leading to a moratorium on interest and principal payment for corporates ("No interest on interest lockdown," 2021; Reserve Bank of India, 2020). The measure mitigated the burden of debt servicing on companies. However, such a relief package is still negative for debt investors as they lose the principal and interest

Table 8. ***Proportion of Firms in Different Industries with Credit Rating Changes in Six Months Following Lockdown Announcement on March 25, 2020***

Industry	Number of rated companies in Industry in NIFTY 500	Companies with a Downgrade of Credit Rating	Companies with an Upgrade of Credit Rating	Proportion of Companies with a Credit Rating Change
Automobile	21	2	1	9.5%
Cement & Cement Products	9	1	0	11.1%
Chemicals	12	0	0	0.0%
Construction	22	3	0	13.6%
Consumer Goods	32	3	1	9.4%
Fertilisers & Pesticides	7	2	0	28.6%
Financial Services	29	1	1	3.4%
Healthcare Services	6	0	1	0.0%
Industrial Manufacturing	19	1	1	5.3%
IT	8	0	0	0.0%
Media & Entertainment	2	0	0	0.0%
Metals	14	2	1	14.3%
Oil & Gas	15	0	1	0.0%
Paper	1	0	0	0.0%
Pharma	17	0	5	0.0%
Power	9	0	0	0.0%
Services	17	2	0	11.8%
Telecom	5	1	0	20.0%
Textiles	5	0	0	0.0%

payments during this relief period. In the absence of such a relief measure, debt investors in industries that have been impacted negatively, as seen from negative abnormal stock returns, are likely to be severely affected as many of the companies would have ended up defaulting on their loan obligations.

The paper's findings add to the literature by giving investors a detailed understanding of the short-term impact of an event like COVID-19 on various constituents of the stock market. The paper findings are supported by Harjoto et al. (2021), who found negative abnormal returns across global markets and a higher negative impact on smaller companies in the U.S. witnessed from COVID-19. He et al. (2020) also showed a short-term negative impact on the stock markets of affected countries.

Conclusion and Implications

The COVID-19 pandemic in 2020 shocked the global stock markets. The impact of the pandemic on various sectors caused much uncertainty for investors. This paper highlights the heterogeneous impact of lockdown on various sectors in the short term. The results show that sectors such as pharmaceuticals, chemical, FMCG, and telecom saw positive abnormal returns in the stock market due to the lockdown. In contrast, sectors such as automobile, cement, construction, financial services, industrial manufacturing, services, and textiles witnessed significant negative returns due to the lockdown. The paper also finds that companies owned by private domestic

investors were worse performing than government-owned or foreign MNCs in the face of such an external shock. At the same time, smaller companies are also likely to face greater headwinds. The paper also finds that debt investors or equity investors in lending firms were likely to face short-term losses due to principal and interest moratoriums by the government to provide relief to firms during such an event.

The paper aids investors to understand the stock market reactions across different industries during an emergency, as seen in the case of the COVID-19 pandemic. It also highlights which sectors are more resilient to such shocks and are likely a better hedge for investors to reduce the risk to their investments when faced with such risks in the future. The paper's findings could help policymakers identify segments of the economy that require immediate support due to the disruption from such an event.

Limitations of the Study and Scope for Future Research

The paper helps researchers understand how stock markets and its constituents react to such a disruptive event in the short term. However, long-term implications on various sectors of the economy may not be in line with the paper's findings. The paper primarily focuses on the short-term impact of such a disruptive event on industries using stock markets returns. However, researchers could investigate the long-term impact of such an event on financial and operational performance of various industries.

Authors' Contribution

Chandan Sharma conceived of the presented idea and contributed towards the implementation of the research, the analysis of the results, and the writing of the manuscript. Dr. Archana Singh and Prof. Rajan Yadav aided in the writing of the manuscript as well as the analysis and interpretation of the results.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

Funding Acknowledgement

The authors received no financial support for the research, authorship, and/or for publication of this article.

References

Ali, M., Alam, N., & Rizvi, S. A. (2020). Coronavirus (COVID-19) — An epidemic or pandemic for financial markets. *Journal of Behavioral and Experimental Finance, 27*, 100341. https://doi.org/10.1016/j.jbef.2020.100341

Anderson, R. M., Heesterbeek, H., Klinkenberg, D., & Hollingsworth, T. D. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet, 395*(10228), 931–934. https://doi.org/10.1016/S0140-6736(20)30567-5

Bhattacharya, A. (2019). Impact of negative news on the U.S. soft drinks industry. *Indian Journal of Finance, 13*(8), 26–37. https://doi.org/10.17010/ijf/2019/v13i8/146302

Chen, C.-D., Chen, C.-C., Tang, W-W., & Huang, B.-Y. (2009). The positive and negative impacts of the Sars outbreak: A case of the Taiwan industries. *The Journal of Developing Areas, 43*(1), 281–293. https://doi.org/10.1353/jda.0.0041

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International Economic Review, 10*(1), 1–21. https://doi.org/10.2307/2525569

Garrett, T. A. (2007). *Economic effects of the 1918 influenza pandemic : Implications for a modern-day pandemic.* Federal Reserve Bank of St. Louis. https://www.stlouisfed.org/~/media/files/pdfs/community-development/research-reports/pandemic_flu_report.pdf

Gössling, S., Scott, D., & Hall, C. M. (2021). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism, 29*(1), 1–20. https://doi.org/10.1080/09669582.2020.1758708

Gupta, P., & Kohli, B. (2021). Herding behavior in the Indian stock market: An empirical study. *Indian Journal of Finance, 15*(5–7), 86–99. https://doi.org/10.17010/ijf/2021/v15i5-7/164495

Harjoto, M. A., Rossi, F., & Paglia, J. K. (2021). COVID-19: Stock market reactions to the shock and the stimulus. *Applied Economics Letters, 28*(10), 795–801. https://doi.org/10.1080/13504851.2020.1781767

He, P., Sun, Y., Zhang, Y., & Li, T. (2020). COVID–19's impact on stock prices across different sectors — An event study based on the Chinese Stock Market. *Emerging Markets Finance and Trade, 56*(10), 2198–2212. https://doi.org/10.1080/1540496X.2020.1785865

He, Q., Liu, J., Wang, S., & Yu, J. (2020). The impact of COVID-19 on stock markets. *Economic and Political Studies, 8*(3), 275–288. https://doi.org/10.1080/20954816.2020.1757570

International Monetary Fund. (2021). *World economy outlook.* https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021

Jaiswall, S. S., & Bhattacharyya, A. K. (2016). Corporate governance and CEO compensation in Indian firms. *Journal of Contemporary Accounting & Economics, 12*(2), 159–175. https://doi.org/10.1016/j.jcae.2016.06.001

Jaiswall, S. S., & Raman, K. K. (2021). Sales growth, CEO pay, and corporate governance in India. *Journal of Accounting, Auditing & Finance, 36*(2), 249–277. https://doi.org/10.1177/0148558X19825672

Jawed, M. S., Dhaigude, A. S., & Tapar, A. V. (2019). The sectoral effect of demonetization on the economy: Evidence from early reaction of the Indian stock markets. *Cogent Economics & Finance, 7*(1), 1595992. https://doi.org/10.1080/23322039.2019.1595992

Keogh-Brown, M. R., & Smith, R. D. (2008). The economic impact of SARS: How does the reality match the predictions? *Health Policy, 88*(1), 110–120. https://doi.org/10.1016/j.healthpol.2008.03.003

Kolari, J. W., & Pynnönen, S. (2010). Event study testing with cross-sectional correlation of abnormal returns. *The Review of Financial Studies, 23*(11), 3996–4025. https://doi.org/10.1093/rfs/hhq072

Kolari, J. W., & Pynnonen, S. (2011). Nonparametric rank tests for event studies. *Journal of Empirical Finance, 18*(5), 953–971. https://doi.org/10.1016/j.jempfin.2011.08.003

Lee, J.-W., & McKibbin, W. J. (2004). Estimating the global economic costs of SARS. In S. Knobler, A. Mahmoud, S. Lemon, A. Mack, L. Sivitz, & K. Oberholtzer (eds.), *Learning from SARS: Preparing for the next disease outbreak.* National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK92473/

Liu, H., Manzoor, A., Wang, C., Zhang, L., & Manzoor, Z. (2020). The COVID-19 outbreak and affected countries stock markets response. *International Journal of Environmental Research and Public Health, 17*(8), 2800. https://doi.org/10.3390/ijerph17082800

McKibbin, W. J., & Fernando, R. (2020). The global macroeconomic impacts of COVID-19: Seven scenarios. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3547729

McKibbin, W. J., & Sidorenko, A. A. (2006). *Global macroeconomic consequences of pandemic influenza.* Centre for Applied Macroeconomic Analysis. https://cama.crawford.anu.edu.au/pdf/working-papers/2006/262006.pdf

Mishra, A. R. (2022). At 6.6%, India's GDP contracted less than projected in FY21: NSO data. *Business Standard*. https://www.business-standard.com/article/economy-policy/at-6-6-india-s-gdp-contracted-less-than-projected-in-fy21-nso-data-122020100024_1.html

Nadig, A. (2017). Impact of interim dividend announcements on banking stock prices in India. *Indian Journal of Finance, 11*(7), 50–64. https://doi.org/10.17010/ijf/2017/v11i7/116567

National Stock Exchange of India Ltd. (2020). *NSE indexogram*. https://www1.nseindia.com/content/indices/ind_nifty_500.pdf

Nippani, S., & Washer, K. M. (2004). SARS: A non-event for affected countries' stock markets? *Applied Financial Economics, 14*(15), 1105–1110. https://doi.org/10.1080/0960310042000310579

No interest on interest lockdown loan moratorium , rules SC; refuses to extend relief. (2021, March 23). *Financial Express*. https://www.financialexpress.com/industry/banking-finance/no-interest-on-interest-lockdown-loan-moratorium-rules-sc-refuses-to-extend-relief/2218344/#:~:text

Pandya, I. H. (2014). Impact of the union budget on the Indian stock market. *Indian Journal of Finance, 8*(3), 44–57. https://doi.org/10.17010/ijf/2014/v8i3/71963

Peterson, P. P. (1989). Event studies: A review of issues and methodology. *Quarterly Journal of Business and Economics, 28*(3), 36–66. https://www.jstor.org/stable/40472954

Pradhan, S. K., & Kasilingam, R. (2018). Stock split announcements and their impact on shareholders' wealth : A study on the Indian stock market. *Indian Journal of Finance, 12*(10), 46–61. https://doi.org/10.17010/ijf/2018/v12i10/132499

Reserve Bank of India. (2020). *COVID-19 – Regulatory package*. https://www.rbi.org.in/Scripts/NotificationUser.aspx?Id=11835&Mode=0

Sharma, C. (2022). Impact of India's 2019 corporate tax cut announcement on the stock market. *Indian Journal of Finance, 16*(2), 24–36. https://doi.org/10.17010/ijf/2022/v16i2/162839

Shu, H.-C. (2010). Investor mood and financial markets. *Journal of Economic Behavior & Organization, 76*(2), 267–282. https://doi.org/10.1016/j.jebo.2010.06.004

Smith, R. D. (2006). Responding to global infectious disease outbreaks : Lessons from SARS on the role of risk perception, communication and management. *Social Science & Medicine, 63*(12), 3113–3123. https://doi.org/10.1016/j.socscimed.2006.08.004

Strong, N. (1992). Modelling abnormal returns: A review article. *Journal of Business Finance & Accounting, 19*(4), 533–553. https://doi.org/10.1111/j.1468-5957.1992.tb00643.x

Syed, A. A., Tripathi, R., & Deewan, J. (2021). Investigating the impact of the first and second waves of the COVID - 19 pandemic on the Indian stock and commodity markets : An ARDL analysis of gold, oil, and stock market prices. *Indian Journal of Finance, 15*(12), 8–21. https://doi.org/10.17010/ijf/2021/v15i12/167306

Zouaoui, M., Nouyrigat, G., & Beer, F. (2011). How does investor sentiment affect stock market crises? Evidence from panel data. *The Financial Review, 46*(4), 723–747. https://doi.org/10.1111/j.1540-6288.2011.00318.x

About the Authors

Chandan Sharma is an Assistant Professor at the Delhi School of Management, Delhi Technological University, Delhi. He has been engaged in teaching finance and related areas to post-graduate students. His principal areas of interest include corporate finance, credit risk, and valuation.

Dr. Archana Singh is an Associate Professor at the Delhi School of Management, Delhi Technological University, Delhi. She has been engaged in teaching finance and related areas to post-graduate students. Her principal areas of interest include corporate finance, financial accounting, and security analysis.

Prof. Rajan Yadav is a Professor at the Delhi School of Management, Delhi Technological University, Delhi. He has been engaged in teaching research methodology, marketing research, and marketing courses to post-graduate and doctoral students.