Covid-19 Pandemic Events Impact on various Sectors of BSE

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Abstract — This paper, study the short-term & Long-term market reactions for internal and external events of Indian stocks during the COVID-19 pandemic. Country-specific fiscal policy measures like 20lakh Crore economic package and Reduction of bank rates by RBI has been considered as short term events and negatively affected stock returns except for realty and metal sectors. Our results suggest that the stock market react differently to the different events like for Global emergency and Lockdown announcements, etc., in India. The pandemic events greatly affected the Banking, FMCG and Healthcare industries. However, the Realty, Telecom, and Metal industries have responded little strongly to the pandemic in a positive fashion..

Keywords — *Covid-19; Lock downs; Event study; Market Efficiency; Crisis; Pandemic; Stock Market.*

1. Introduction

A novel corona virus (CoV) may even be a replacement strain of coronavirus. The ill health caused by the novel coronavirus initial found in city, China, has been named coronavirus illness 2019 (COVID-19) – 'CO' stands for corona, 'VI' for a virus and D stands for the disease. It is a family of viruses that creates sickness starting from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). A novel corona virus (nCoV) may be a new strain that has not been identified in humans earlier.

Since we live in a global economy that includes frequent domestic and international travel, and Viruses, like other pathogens, don't produce symptoms as soon as they come into contact with humans. First, they go through an incubation period, or a period when the virus multiplies to a threshold necessary to produce symptoms in its host and there it often hitches rides with us.

Thus, the COVID-19 lead us to a pandemic due to the spread of disease to about millions of people and brought economic activity to a near-standstill as many countries imposed tight restrictions on movement to halt and pushed economies into a Great Lockdown, which helped contain the virus and save lives, but also triggered the worst recession since from 1920 world war.India is one of those countries which imposed lockdowns and took strategic decisions and which lead to an impact on all most all Industrial Sectors. According to IMF Indian GDP will contract by 4.5% whereas the global economy is projected to contract sharply by 3 per cent in 2020.

On 30-Jan-2020, India reported its first case of COVID-19 in the state of Kerala. Since India being a 2nd largest population, Multicultural, religious, ethical, and fast-growing major economy, the Government has taken various actions and restrictions to safer guard and reduce pandemic fear in public and thereby avoid the spread of diseases like announcing of multiple lockdown's for about 54 days, temporary closure of educational and commercial establishments, all tourist visas have been suspended and implementation of Aarogya setu app for tracking. This leads to a stoppage of major activities and operations in all industries and prone to losses by many companies. These pandemic situations made many investors fear and stock markets got impacted. On 12 March, Indian stock markets suffered their worst crash since June 2017 after WHO declared the outbreak as an epidemic. The BSE SENSEX got down 8.18 % or 2,919 points which were its lowest in 23 months while the NIFTY dropped 9% or 950 points.

Political announcements and actions like Lockdown's, Ban of certain services, packages announcements, demonetization, etc., and corporate announcements like mergers, acquisitions, issue of right shares, dividends, etc.., are all come under events which lead in the decision of investments by share-holders and gets impact on the market. To assess this impact of an event on the value of a firm is called event study and it serves an important purpose in capital market research as a way of testing market efficiency. Systematically nonzero abnormal security returns persist once a selected form of company event measures inconsistent with market efficiency. The methodology to study the events and to elicit the effects of any type of event on the direction and magnitude of stock price changes is invented by Ball and Brown in 1968.

The main objective of this study is to know the impact of the political announcements made by the WHO and Indian government due to COVID-19 pandemic situations on the major industries and shareholders' investment in stocks of respective sectors. This study also attempts to know whether markets are efficient during the period of announcements by using event study methodology.

2. Literature Survey

Developing countries are exposed to both external and internal events and these internal events could be more harmful to the economy than the external events. These internal events cause macroeconomic volatility and then impacts economic growth. Internal events could be the result of natural disasters, macroeconomic mismanagement, or political instability. (Ahmed M. Khalid, 2010)In this paper, they identified high and low volatile market periods and found that the events can affect the macroeconomic performance through spillover effects from one sector of the financial market to another.For example, (Baele, 2005)the spillovers to European financial markets increased from 8 % of the local variance in the first half of the 1980s to 23 % by the end of the 1990s, and the US, in turn, increased from 15 % to 27 %. This view is supported by, (Badinger, 2013) who argues that the impact of international events has increased substantially up to 1980s.

(Fama E. F., 1970)This implies that investors are reacting immediately to the new information and is called markets are efficient. According to the (Vänskä, 2016) hypothesis, stock prices should always change when new relevant information appears, and thus, nobody can earn abnormal returns. Therefore, when, for example, layoff announcements are published the impact should be immediately seen in the prices. In the inefficient reaction, it takes time that the stock price reflects the real value of the company. The reaction may be additionally biased upwards or downwards if the market is inefficient. Under reaction has been detected for example after earnings announcements (see (Bernard & J.Thomas, 1989)).

(Khotari & Warner, 2006)Even the number of studies on Event Methodologies increasing every year, the basic statistical format of event studies has not been changing over the past 30 years. The first 2 papers which cover a wide range of issues are by Brown and Warner (1980, 1985). The changes and development in event studies happened are the use of daily / intra-day rather than monthly stock return data, which permits more precise measurement of abnormal returns and more informative studies of announcement effects. Next, the methods used to estimate abnormal returns and measure their statistical significance have become more difficult. This is of particular importance for long-horizon event studies which lead to putting more weight on the results of short-horizon tests rather than long-horizon tests. Short-horizon tests signify the "cleanest evidence we have on efficiency" (Fama E., 1991), but the interpretation of long-horizon results is difficult.

Brown and Warner (1980) in his study found by using a market-adjusted model, mean adjusted returns, and market and risk-adjusted simple market model are that mean adjusted method is not able to handle problems of heteroscedasticity and autocorrelation as the market model deals with and whenever there is clustering problem, the Market model performs better.(Armitage, 1995) Other papers also indicate the poor performance of the mean adjusted model. (BAŞDAŞ, 2013)If the researcher is willing to investigate the impact of the inflation announcements on stock returns then the usage of the market model or at least market-adjusted returns to test the significance of abnormal returns is the better choice.

(Brenner, 1979)On the other hand, there are still differences in test results when both CAPM and market models are applied to the same data set. According to the Gauss-Markov Theorem, under certain assumptions of the linear regression model, the OLS estimators are the Best Linear Unbiased Estimators (BLUEThis theorem tells that one should to use OLS estimators not solely as a result of it's unbiased however additionally as a result of it's minimum variance among the category of all linear and unbiased estimators.(Bell, 2015) In this study, a new tracking model suggests that the CAPM is a completely scrap and an asset return with OLS (a form of estimation theory), and "observed data" establishes it's empirical & determines a statistical prediction.

(Ahmed M. Khalid, 2010)In this paper, they analyzed the impact of 39 political events that took place in Pakistan from 1998 to 2007 and the results show that the financial market is expected to move between two regimes where the mean and variances are different in each state. The political events are expected to have a positive or negative impact on the financial market consistent with the nature of shocks and any shock that disturbs the currency market will have spill-over effects on the stock and money markets thus leading to a slow down of the economy. (Ghanem & Rosvall, 2014) in this study, they examined the impact of Major World Events (MWE) on stock market returns between 1987-2013 in four countries: Sweden, Finland, Germany, and the United Kingdom. We 60 MWE are divided into three sub-categories: political, economic, and events related to natural disasters and reported that natural disasters do not generate significant spill-over effects during the whole event period of 15 days, nor do "neutral" economical and "negative "political events. On the other hand, our study reported that "positive" and "neutral" political and "negative" economical events did indeed give rise to significant spill-over effects.

(Heyden & Heyden, 2020) This study is on short-term market reactions of US and European stocks during the beginning of the COVID-19 pandemic and results shows that the stock markets respond in a different way to the announcement of the first case and first death in a country. Whereas, there is no vital reaction to the primary case, the

announcement of the primary death results in considerably negative reactions. (He, Sun, Zhang, & Li, 2020) This study is an event learns approach to empirically discover the impact of the COVID-19 outbreak on the stock prices of various Chinese industries and found that COVID-19 hit the traditional industries of China unhelpfully but created opportunities for the growth of high-tech industries. The pandemic affected mainly the transportation, electric and heating, mining and environmental industries. However, the manufacturing, information technology, education, and health industries strongly positively responded to the pandemic, providing a boost to confidence in the stock market.

This study is made an in-depth attempt to explore the impact of External, Internal, short and long term events and Political decisions due to the COVID-19 Pandemic on the 2nd largest country of Indian industries and markets.

3. Research Methodology

The events that considered for the study are 7 major political announcements due to the COVID-19 pandemic situation i.e.., in the initial 5 months of 2020 (01-Jan-2020 to 31-may-2020). The events are WHO announcement as Global Emergency (WHO-GE) & Pandemic (WHO-P), Indian government announcements of 3 complete National Lockdown's, 20 lakh crores Package (20L CR P) & Reduction of Bank Rates by RBI (R-BR-RBI). Lockdown announcement -4 was not considered for the study even it announced in the selected period i.e. on 17-may-2020, because it is not like other lockdowns, it was imposed with some relaxations.

Table 1: List of Events with Announcement dates

Events	Global / India	Type
WHO announced Global Emergency -- (WHO-GE)	30-Jan-20	Long – Term Events
WHO recognized as a pandemic -- (WHO-P)	11-Mar-20	
Lockdown Announcement -1 -- (LA1)	24-Mar-20	
Lockdown Announcement -2 -- (LA2)	15-Apr-20	
Lockdown Announcement -3 -- (LA3)	01-May-20	
20 Lakh Crores Package (20 L CR P)	12-May-20	Short – Term Events
Reduction in Bank Rates by RBI (R-BR-RBI)	22-May-20	

The first 5 events in the above table have been considered as long-term Events because the global emergency and pandemic among the people is held for a long period till the appropriate Medicine/Diagnose is invented and available among all the people. Lockdowns were also implemented for a minimum of 14 days to a maximum of 21 days. While the other two events are considered short term events because this event doesn't hold for a longer time.

3.1 Sample Selection

The three outperformed and underperformed sectors and two outperformed and underperformed stocks in respective sectors were considered for the study based on returns and market capitalization in the past one year (i.e., from 01-Jan-2019 to 31-dec-2019).

Table 2: List of Indices and stocks for the study

Sectoral Indices (SI)		Bench Market Indices (BMI)	Companies stocks						Bench Market Indices (BMI)
Name	% Returns &Mkt Cap in Cr		Out-Performed Stocks (OPS)			Under Performed Stocks (UPS)			
(Out-Performed and Under Performed Indices)			Name	% Return	Mkt Cap in Cr	Name	% Return	Mkt Cap in Cr	
S&P BSE Healthcare Index ⇧	14.17	S&P BSE 500	1) Abbott India	137.57	37676.61	1) Suven Life Sciences	-82.58	584.86	1) RESPECTIVE SECTORAL INDICES & 2) S&P BSE 500
	861637.687		2) Ipca Laboratories	69.77	20452.62	2) Health Care Global	-65.59	621.28	
S&P BSE Telecom Index ⇧	1.59		1) Bharati Airtel	60.63	280579.31	1) Tejas Networks Ltd	-79.88	345.33	
	340466.008		2) ITI Ltd	-4.36	8043.91	2) Optiemus Infracom Ltd	-78.4	219.26	
S&P BSE FMCG Index ⇧	-5.57		1) Ruchi Soya Industries Ltd	5406.04	99.11	1) McLeod Russel (India) Ltd	-92.02	34.47	

	1411471.01	2) Tata Consumer Products Ltd	68.03	32401.76	2) Future Consumer Ltd	-78.43	1777.03
S&P BSE Realty Index ⇩	-36.4	1) Phoenix Mills	-8.72	8314.26	1) HDIL	-92.18	127.98
	92524.3764	2) DLF	-14.98	36349.95	2) Sobha	-58.3	1902.61
S&P BSE Metal Index ⇩	-35.31	1) NMDC	-19.58	24663.2	1) JSPL	-46.47	9690.15
	360978.721	2) Hindalco Indus	-36.73	29243.45	2) TATA Steel	-46.37	35919.11
S&P BSE Bankex Index ⇩	-32.58	1) Kotak Bank	-2.17	259637.56	1) Yes Bank	-83.36	35015.82
	1409820.97	2) ICICI Bank	-6.83	246062.17	2) RBL Bank	-80.55	6722.45
Total	4476898.77			983523.91			92960.35

Respective Sectoral Indices &BSE 500 Index is considered as bench market for company stocks whereas for sectoral indices only BSE 500 is considered as Bench market Index.

3.2 Data Collection

The historical share price data were collected from Finance Yahoo. Sectoral Indices were selected based on the Bloomberg Quint site and companies were selected based on economic time's site.

3.3 Techniques Used

The first date of the media announcement of the respective event has been taken as the event date (day zero). The first possible date when the news of the respective event was made public has been considered. The same has been obtained from the news clippings and the information available on the web sites of the respective companies.

3.4 Event Window and Clean period

The event window has been taken as -30 days before the event and 30 days after the announcement for long term events whereas for short term events it considered as -5 days before the event and 5 days after the announcement. The clean period data for every event window is taken as 50 days for all sectoral indices and the respective company's stocks.

3.5 Actual Returns

Actual Return is the return that has happened which is calculated based on historical data and is used as one measure of corporate performance. This return is useful as a basic determinant of expected return that expected to be obtained by investors in the future. To calculate the actual return by using a formula as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}$$

Where:
Rit   = daily stock return securities i in period t
P_{it} = daily stock price securities i in period t
P_{it-1}= daily stock price securities i in period t-1

3.6 Expected Returns

The expected returns have been calculated by Ordinary Least Square (OLS method) using Intercept and Slope on clean period data returns. Since OLS, is widely used to model the risk distribution for these type of models and in this study, the expected return is linearly dependent on the risk factors, Errors are independent and have conditional mean zero.

3.7 Abnormal Returns

Abnormal Return shows the gauge market reaction to events. Abnormal return is the excess of the return that going against the normal return is the return expected by investors. Thus, the abnormal return is the difference between actual returns that occurred with the return expectations. Here is the formula of abnormal returns:

$$AR_{it} = R_{it} - E(R_{it})$$

Where:
$AR_{i,t}$ = Abnormal Return of securities i-th in the event period to-t
$R_{i,t}$ = Actual Return that happened for the securities of the i-th on the event period to t
E ($R_{i,t}$) = Expected return of securities i-th to the event period to-t

3.8 Cumulative Abnormal Returns

The Cumulative Abnormal Returns (CAR) of events announcement in a 30-day (-30, +30) window are estimated for Sectoral indices and respective company stocks by

summation of the average abnormal returns (ARt) in the respective window.

$$t=40$$
$$CAR = \Sigma \; ARt$$
$$t=-40$$

The absolute wealth created as a result of the events announcements for the shareholders of securities has been estimated by multiplying the cumulative abnormal returns in the 1-day (-1,+1), 5-day (-5,+5), 10-day (-10,+10), 20-day (-20,+20) and 30-day (-30,+30) window with the market capitalization on a day preceding the commencement of the respective window period.

3.9   Statistical Significance of Event Returns

The null hypothesis that there are no abnormal returns associated with the event announcements needs to be statistically tested. The statistical significance of the daily

residual returns of each security (rjt), daily Average Abnormal Returns (ARt), and the cumulative abnormal return has been examined using the t-statistic. If the estimated value of the t-statistic in the range -2.57 to 2.57, it is significant at 1% level, -1.96 to 1.96, it is significant at 5% level and -1.64 to 1.64, it is significant at 10% level In the event of the t-statistic being significant, it implies that there are abnormal returns associated with the events announcements in India.

4.   Results and Discussion

The results of the present study using the market model for the Events announcements during the COVID-19 Pandemic are discussed in detail. Initially, an attempt is made to analyze the results of Sectoral Indices and subsequently, the Respective Sectoral companies' stocks considered for this study.

Table 3: CAR for Sectoral Indices with Bench Market BSE 500

Event	Event Window	S&P BSE Healthcare Index	S&P BSE Telecom Index	S&P BSE FMCG Index	S&P BSE Realty Index	S&P BSE Metal Index	S&P BSE Bankex Index
WHO - GE	(1,1)	-1.9482*	2.1366	0.1864	1.3242***	-0.9795	1.7347*
	(5,5)	-1.3561**	1.1718	-1.1404**	-3.2650*	-3.1622*	2.0673*
	(10, 10)	2.7386*	6.0559*	0.1669	-9.1101*	-8.3954*	1.0600*
	(20, 20)	2.5665*	0.2501	4.0959*	-7.6096*	-10.5833*	-0.8645
	(30, 30)	3.3688*	4.3554*	3.4490*	-5.9283*	0.7362	-4.0704*
WHO-P	(1,1)	-2.7301*	1.5576	-0.0695	1.9000***	6.0654*	-0.0141
	(5,5)	5.6487*	-4.1148**	0.8474	-1.8682	19.0143*	-4.1143*
	(10, 10)	4.7782*	-0.4653	5.9082*	-3.7826*	17.0040*	-8.5529*
	(20, 20)	21.0429*	0.2495	12.2757*	-10.8035*	18.5807*	-11.8562*
	(30, 30)	15.9758*	-9.4449*	5.4196*	-12.2685*	12.3297*	-7.5727*
LA1	(1,1)	0.0929	-1.7712	-1.5735	-2.3317**	0.9042	-2.2981*
	(5,5)	4.7045*	-7.5420*	15.5078*	-6.3607*	6.3678*	-9.6258*
	(10, 10)	16.6937*	-0.2960	11.8450*	-3.7919*	17.6995*	-12.2356*
	(20, 20)	18.4970*	-7.5446*	8.9400*	-0.8228	15.2212*	-12.1901*
	(30, 30)	13.6585*	-0.6885***	-0.2251*	-4.0340*	21.4956*	-15.4929*
LA2	(1,1)	1.7111	1.4590	1.4052	-0.0730	5.5653*	-2.4522**
	(5,5)	10.6836*	2.2705	-1.9853	3.5076**	-0.7916	-4.0990*
	(10, 10)	10.5899*	-6.7643*	-1.0041***	2.6445	2.3213	-2.6002*
	(20, 20)	9.2401*	1.6078	-3.0355**	3.1801	23.3606*	-15.0914*
	(30, 30)	8.7471*	-3.0061	2.0851*	8.4135*	30.2259*	-15.8359*
LA3	(1,1)	-1.0103	7.9443*	-3.3966**	-2.6525***	3.1499***	-4.0081*
	(5,5)	-4.7680*	5.3616**	-9.5689*	0.7711	5.4116*	-3.9753*
	(10, 10)	-9.9387*	3.2143	-13.8699*	5.9124*	2.1096	-2.6230

	(20, 20)	2.5244*	-4.2356	-8.2929*	15.5075*	16.8262*	-7.9196*
	(30, 30)	2.1182*	-15.2502*	-3.4621*	16.2149*	20.4943*	-12.0946*
20 L CR P	**(1,1)**	-4.0005**	3.2347	-2.0192	6.1623*	4.2770**	-0.3131
	(5,5)	-5.6667*	12.6234*	-1.5267	4.0698*	5.8076*	-4.1147*
R-BR-RBI	**(1,1)**	-0.9379	-6.4721**	2.0168	1.5127	3.0128	-1.2843
	(5,5)	-4.8574*	-6.7073***	2.4031	5.8696*	6.4769*	-0.2041

*CAR stands for cumulative abnormal return. *, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.*

Healthcare: Since all the events are directly interlinked with this sector, on the immediate day of global event announcements the Abnormal Returns were declined but later days it has raised. While on the immediate day of internal events announcements of short and long except on the events of LA1 & LA2, also the abnormal returns were declined but later it has raised. During the events LA1 & LA2 several other events had taken place which has not considered for this study like raise in finding medicines by various companies and extreme support and encouragement of the Government to the healthcare sector.

Telecom: Indian Telecom industry has reacted positively for all the external and internal Pandemic events that considered for the study except on the events LA1 & R-BR-RBI. The major events happened in the Indian telecom industry except for this pandemic events which require to be noted during this study period are Growth in 5G, giant companies Google and Facebook have invested huge amounts in Reliance Jio and communications, Media and Telecom is the only source through which all are get connected by corporates and other's due to lockdowns and restrict in transport.

FMCG: Pre COVID FMCG is the one Industry which is outperformed apart from others. It has impacted severely after the announcement of LA3 and 20 L CR P apart from the other events announcements. This might be due to supply chain breakdowns, stockpiling, and stock outs. The COVID-19 pandemic has made a shift in the perception of essentials and so hygiene products considered in this category, whereas industries such as apparel have shifted to discretionary.

Realty: There are both Positive and Negative events that lead the Realty index to fluctuate during the Covid-19 Pandemic. On the immediate day of global events announcements, there was a positive impact, but later it has impacted negatively while in the internal events announcements it was converse. The negative impact on the realty index is high on LA1, it might be due to the shift of corporate companies from work from the office to work from home and job security fear among the employees, delays in the supply of construction materials, and shortage of labour. For the short-term events Realty index has a very positive impact because of RBI announced several rate cuts for the house loans bringing the repo rate down to 4% and high tax exemption, the moratorium on EMI Loans.

Metal: Metal industry in India has reacted positively for External and Internal COVID Pandemic events except for the WHO-GE event. Steel is a major metal accounting for 63 % of India's imports and 68 % of exports. A decreasing trend in the steel output in China, Major domestic companies are looking for new suppliers in alternative markets such as India, Turkey and Brazil.

Bankex: The AR of Bankex index has impacted negatively on the immediate announcement of all events considered except in the case of WHO – GE and on later days too it tends to be declined. Key takeaways need to consider during this study period which impacted abnormal returns are Yes bank disaster, outstanding loans face a risk of default, raise of NPA's, aggressive lending to the MSME's and it is one of the biggest components of PM Modi's Rs 20 lakh crore economic relief package, declining asset quality and weak balance sheets.

Table 4: CAR for Company Stocks for the Event WHO-GE

Sector	Company	Bench Market / Event Window	BSE 500					Sectoral Indices				
			(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)
Health Care	**Abbott India**		-0.59	2.25**	12.24*	13.53*	2.77*	0.05	2.97*	10.20*	12.31*	0.39*
	Ipca Laboratories		0.57	-3.30***	1.09	5.59*	0.47	0.95	-3.02	-0.35	5.08*	-0.63
	Suven Life Sciences		21.01	53.48*	-180.77*	-132.35*	-178.05*	22.83***	52.48*	-184.63*	-136.26*	-187.21

Sector	Company										
											*
	Health Care Global	-0.69	0.33	7.07*	5.28*	-7.80*	-1.14***	-0.65	5.66*	2.26**	-17.07*
Telecom	Bharati Airtel	1.57	0.94	8.46*	2.83	1.19	-0.49	-0.36	2.97*	4.33*	0.28**
	ITI Ltd	5.17	-15.84*	-13.79*	-9.89*	-19.93*	2.49	-18.47*	-19.59*	-19.18*	-55.13*
	Tejas Networks Ltd	-3.82	-6.41	-20.10*	-48.15*	-10.05**	-5.24	-4.25	-21.51*	-52.61*	-45.34*
	Optiemus Infracom Ltd	4.79	-2.39	4.88	-0.72***	15.57*	3.18	-3.19	1.95	-5.46*	-0.19***
FMCG	Ruchi Soya Industries Ltd	24.90	183.09*	185.89*	309.01*	649.73*	-19.66	104.99*	98.70*	11.23*	-148.22*
	Tata Consumer Products Ltd	0.92	-2.35	-6.69*	1.02**	4.74*	0.19	-0.78	-8.07*	-4.94**	-3.07
	McLeod Russel (India) Ltd	-0.10	0.30	5.50	-5.35	-7.91	-0.38	0.96	6.15***	-8.40*	-19.58*
	Future Consumer Ltd	0.43	-8.17*	-8.15*	-28.00*	-5.83*	-0.51	-8.02**	-10.07*	-38.06*	-29.12*
Realty	Phoenix Mills	4.41**	-4.39***	-3.81***	-6.03**	-6.18**	3.83***	-3.52	-0.59	-3.76	-5.08
	DLF	1.80	-7.91*	-19.65*	-12.60*	-10.71*	-0.15	-4.45*	-7.68*	-3.36*	-4.73*
	HDIL	-6.04	-24.06*	-14.12*	-23.84*	-70.95*	-7.10***	-24.48*	-17.76*	-31.98*	-82.75*
	Sobha	2.67***	-10.17*	-15.34*	-22.61*	-30.32*	1.42	-7.64*	-10.72*	-17.90*	-27.01*
Metal	NMDC	-6.37*	-21.46*	-22.91*	-31.65*	-17.11*	-5.08**	-17.94*	-14.77*	-22.75*	-19.79*
	Hindalco Indus	-1.49	-1.87	-6.19*	-15.28*	-12.80*	-0.80	0.68	1.32	-5.93*	-13.28*
	JSPL	1.28	1.91	2.10	-14.06*	-4.57***	3.17	7.83*	16.08*	2.17	-4.58*
	TATA Steel	-0.01	-1.22	-14.04*	-13.88*	0.72**	1.40	3.15*	-3.15*	0.09	2.78
Bank	Kotak Bank	4.64*	6.25*	1.42	1.39	-4.98*	3.57*	5.00*	0.26	0.76	-1.98
	ICICI Bank	0.08	1.11	-0.31	-5.79*	-5.92*	-1.26	-0.40	0.07	-3.53*	-0.75
	Yes Bank	-0.58	10.80**	13.62*	14.81*	4.62**	-4.34	6.13	12.38*	21.61*	26.08
	RBL Bank	-3.67	-5.39**	-0.79	-4.59	-6.31*	-7.26*	-9.76*	-3.87	-2.98	-1.04

CAR stands for cumulative abnormal return. WHO-GE stands for the World Health Organization announced COVID as Global Emergency.*, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.

Healthcare: On the immediate announcement of this event WHO – GE, Abbott India has resulted from a slight decline in abnormal returns but both outperformed stocks (i.e., Abbott India & Ipca Laboratories) AR resulted positively verall with both Bench markets BSE 500 and S&P BSE Healthcare Index. With both the considered bench markets Suven life sciences has resulted in positive abnormal returns on the immediate day of announcement but later it declined rapidly whereas healthcare global on overall resulted declined abnormal returns on this event.

Telecom: Bharati airtel impacted positively when considered with Bench market BSE 500 , but it impacted negatively when Bench market S&P BSE Healthcare Index is considered on the immediate announcement day and later the abnormal returns have raised. With both the bench markets ITI Ltd has resulted in positive abnormal returns on the immediate day of announcement but overall, both ITI Ltd & Tejas Networks Ltd has resulted in negative returns. Optiemus Infracom Ltd has resulted in positive abnormal returns with the BSE 500 bench index but resulted in negative abnormal results with the respective sectoral index.

FMCG: One thing we need to point regarding Ruchi Soya stock is, trading of this stock was not happened for

around 60 days from NOV 2019 to Jan 2020. Ruchi soya has resulted in positive impact when the BSE 500 index was considered, but with the S&P BSE FMCG Index, it has a negative impact. Tata consumer products had a positive impact on the immediate day of announcement but later the abnormal results were declined with both bench market indices. The 2 under-performed stocks McLeod Russel (India) & Future consumer have negative abnormal returns with both bench markets for this event.

Realty: Phoenix mills & Sobha has resulted in positive abnormal returns on the immediate day of event announcement but overall, the 2 outperformed and under-performed considered stocks has negative abnormal returns for both the bench markets.

Metal: Both the outperformed stocks in this sector (NMDC & Hindalco) had a negative abnormal return on

this event announcement with both bench markets. On the immediate day of the announcement, the 2 under-performed stocks (JSPL & Tata steel) has resulted in a positive return but JSPL was declined later days with both bench markets.

Bankex: Both the outperformed stocks in this sector (Kotak bank & ICICI bank) had a positive abnormal return on an immediate day of event announcement with BSE 500 index but overall, the 2 stocks had a declined result with both bench markets. Yes bank had a negative impact on the immediate announcement and later it has a positive abnormal return. RBL bank asoverall resulted negative impact on this event announcement with both bench market indices.

We need to consider one point that on 12th March the Sensex fell by 8.18% as a result of WHO declaring corona

Table 5: CAR for Company Stocks for the Event WHO-P

Sector	Company	Bench Market	BSE 500					Sectoral Indices				
		Event Window	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)
Health Care	Abbott India		-7.07*	1.91	-1.79	10.19*	6.52*	-6.45*	-3.74**	-6.68*	-11.00**	-10.03*
	Ipca Laboratories		-6.94**	-2.20	0.81	21.41*	18.35*	-4.57	-6.27**	-2.98	3.88*	3.27*
	Suven Life Sciences		-9.09	-44.53*	-63.19*	-8.49**	81.76*	-14.37	-53.08*	-73.22*	-20.81	71.64*
	Health Care Global		-18.46*	-10.99*	-27.31*	-44.49*	-40.77*	-19.76*	-16.87*	-36.15*	-62.60*	-64.18*
Telecom	Bharati Airtel		-2.99***	-3.95**	-2.90	-3.09	-13.99*	-3.54*	1.43	0.16	0.50	-0.54
	ITI Ltd		1.06	6.75	13.91*	60.62*	44.33*	-16.33*	-17.80*	-21.71*	23.94*	17.23
	Tejas Networks Ltd		23.86*	27.88*	11.66*	20.77*	25.52*	1.28	1.91	-27.00*	-21.24*	-4.65***
	Optiemus Infracom Ltd		17.21*	11.89*	13.85*	-9.21*	38.99*	9.84*	6.64***	3.16	-22.72*	27.91*
FMCG	Ruchi Soya Industries Ltd		246.21*	320.15*	470.30*	421.52*	439.72*	-94.62	-170.34*	-266.25*	-386.89*	-450.19*
	Tata Consumer Products Ltd		3.76***	5.14*	8.80*	-2.78***	0.27	2.06	-0.79	-5.78*	-21.10*	-7.48*
	McLeod Russel (India) Ltd		7.29***	-6.38	-14.74*	6.18***	66.11*	2.36	-12.87*	-29.12*	-12.35*	50.66*
	Future Consumer Ltd		18.32*	41.82*	-1.94*	-24.96*	15.54*	7.16	27.69*	-28.76*	-53.71*	-9.98*
Realty	Phoenix Mills		1.58	-18.87*	-22.33*	-38.59*	-25.38*	-0.06	-18.84*	-18.27*	-30.64*	-20.69*
	DLF		4.35**	10.18*	19.13*	20.80*	5.56	1.05	11.82*	20.56*	31.47*	17.62*
	HDIL		-5.15	-15.43*	-43.07*	22.04*	4.38	-10.34*	-22.12*	-51.48*	10.23*	-9.52**
	Sobha		-3.42**	-19.37*	-44.22*	-24.11*	-11.10*	-5.55*	-17.08*	-36.76*	-11.40*	3.56*
Metal	NMDC		-1.28	29.05*	23.87*	34.40*	5.56	-8.27*	9.68*	5.53**	14.57*	-7.59*
	Hindalco Indus		1.57	16.08*	4.62*	11.91*	5.12*	-3.37*	-2.05	-11.38*	-5.61*	-4.22*

	JSPL	6.45*	11.95*	9.20*	-14.14*	-19.64*	-2.03	-12.52*	-12.18*	-37.55*	-31.04*
	TATA Steel	8.54*	25.68*	34.21*	17.67*	14.10*	2.71	6.56**	18.12*	-0.03	3.02
Bank	**Kotak Bank**	-0.61	-10.70*	1.21	-11.65*	-8.53*	0.57	-6.11*	10.67*	1.75	1.28
	ICICI Bank	3.05*	-2.51*	-7.56*	-12.82*	-11.61*	2.04***	0.72	-0.37	-2.14***	-4.86*
	Yes Bank	66.25*	86.01*	-4.66*	-18.32*	-4.15**	75.98*	97.38*	-1.20**	-21.41*	-11.70*
	RBL Bank	11.82*	5.50	13.31*	-26.16*	-8.13***	11.02*	10.29***	23.29*	-15.07*	-3.60**

*CAR stands for cumulative abnormal return. WHO-P stands for the World Health Organization announced COVID as Pandemic. *, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.*

a pandemic on 11th March, which is the first Sensex crash after 2008 financial crisis.

Healthcare: All the 4 stocks (2 outperformed and 2 underperformed) has resulted in negative abnormal results on the immediate announcement of WHO-P event day and later they tend to positive abnormal returns with both bench market indices except for the Healthcare global stock.

Telecom: Bharati Airtel as overall resulted in negative abnormal returns with both bench markets on the immediate announcement day of WHO-P. ITI Ltd has resulted in negative abnormal returns with BSE Healthcare index on the immediate day of this event announcement but overall, had a positive return. Both Tejas Networks & Optiemus infracom Ltd has resulted in a positive return on the immediate day of this event announcement.

FMCG: With the bench market BSE 500 index all the 4 stocks considered for the study under this sector has resulted in a positive return on this WHO-P event announcement, whereas with the bench market BSE FMCG index all the stocks have resulted in negative impact except the McLeod Russel (India) Ltd.

Realty: Phoenix mills, Sobha & HDIL as overall, resulted in negative abnormal returns whereas the DLF resulted in Positive abnormal returns upon this event announcement.

Metal: Both the outperformed stocks in this sector (NMDC & Hindalco) had a negative abnormal return on this event announcement with bench market BSE Realty Index and positive returns with BSE 500 index. JSPL stock has resulted in a negative impact whereas the Tata steel resulted in positive abnormal returns.

Bankex: All the 4 stocks (2 outperformed and 2 underperformed) has resulted in positive abnormal results on the immediate announcement of WHO-P event day and later they tend to decline.

Table 6: CAR for Company Stocks for the Event LA1

Sector	Company	Bench Market	BSE 500					Sectoral Indices				
		Event Window	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)
Health Care	**Abbott India**		-1.02	3.50	7.24**	-10.02*	4.38*	-1.24	-1.04	-11.06*	-28.39*	-9.05**
	Ipca Laboratories		-0.29	8.84*	13.45*	9.38*	8.69*	-1.25	3.57	-1.77	-7.15***	-4.01
	Suven Life Sciences		-10.01	-41.27*	-45.45	-14.81*	35.25*	-11.17	-43.40*	-56.08**	-27.13*	26.16*
	Health Care Global		-8.96*	-19.48*	-38.35*	-40.31*	-19.49*	-10.21*	-25.22*	-52.54*	-62.52*	-47.27*
Telecom	**Bharati Airtel**		-4.12**	-5.07***	-3.08	-12.44*	-6.89*	-2.02***	3.35*	-1.30	-1.67	-2.36
	ITI Ltd		-2.55	33.38*	42.70*	48.73*	36.84*	-5.42	33.54*	21.33*	22.77*	4.35
	Tejas Networks Ltd		-2.38	-1.52	40.72*	40.33*	27.24*	-4.91	0.04	15.87*	7.66	-11.27*
	Optiemus Infracom Ltd		-1.90	-3.91	16.01*	39.35*	19.40*	-1.21	-2.47	9.95*	29.33*	6.48
FMCG	**Ruchi Soya Industries Ltd**		22.81	-29.02	164.48*	405.58*	422.84*	-33.02	-67.74	-227.01*	-349.95*	-390.61*

Sector	Company	(1,1)	(5,5)	(10,10)	(20,20)	(30,30)	(1,1)	(5,5)	(10,10)	(20,20)	(30,30)
	Tata Consumer Products Ltd	10.91*	3.18	5.76**	10.95*	4.47	10.78*	-17.26*	-10.28*	-1.30**	3.14**
	McLeod Russel (India) Ltd	1.54	5.89***	37.46*	74.25*	76.37*	1.01	0.01	27.73*	58.18*	62.18*
	Future Consumer Ltd	-5.01	-30.63*	-23.38*	28.53	35.14	-6.62	-44.19*	-42.95*	2.79*	10.18*
Realty	Phoenix Mills	-12.81*	-7.23	-22.63*	-22.77*	-26.61*	-10.36**	-2.53	-20.71*	-21.94*	-26.47*
Realty	DLF	0.58	10.78*	20.15*	22.22*	20.43*	2.28	17.81*	22.69*	18.88*	22.44*
Realty	HDIL	-10.50*	-3.29	16.16*	9.57**	20.95*	-10.64*	-3.43	11.12*	0.68	7.35***
Realty	Sobha	-20.21*	-26.59*	-9.92*	15.16	-1.98	-16.30*	-20.06*	-4.37*	22.79	7.17*
Metal	NMDC	0.97	22.91*	26.20*	28.88*	18.74*	0.70	17.23*	8.20*	11.66*	-3.78
Metal	Hindalco Indus	-0.08	-1.33	9.39*	5.84*	20.16*	-0.43	-6.49*	-5.56*	-6.06*	-0.35*
Metal	JSPL	-0.34	-11.43*	1.01	-21.59*	-11.65*	-1.62	-18.89*	-20.68*	-38.51*	-37.86*
Metal	TATA Steel	6.77**	10.25*	27.34*	18.72*	16.52*	5.84*	3.08**	8.64*	3.75**	-4.54*
Bank	Kotak Bank	7.28*	-2.76*	-15.78*	-12.89*	-23.23*	9.43*	5.25**	-4.21*	0.29	-6.88*
Bank	ICICI Bank	-2.33	-13.11*	-12.84*	-14.16*	-18.47*	-0.08	-2.89**	-1.02	-3.14*	-3.72*
Bank	Yes Bank	-60.11*	-75.49*	48.96*	-7.93*	-8.98*	-63.84*	-84.54*	47.37*	-10.32*	-13.96*
Bank	RBL Bank	2.81	0.15	-19.59*	-13.09***	-4.34	6.08	13.28*	-5.99	-0.90	10.29

*CAR stands for cumulative abnormal return. LA1 stands for First Lockdown Announcement in India. *, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.*

As the pandemic further spread and the number of cases in India increasing the stock market plunged 13.5% on March 23rd. Besides, a countrywide first lockdown of 21 days was announced by Prime Minister Narendra Modi starting from midnight March 24th.

Healthcare: All the 4 stocks (2 outperformed and 2 underperformed) has resulted in negative abnormal results as overall and as well as on the immediate announcement of LA1 event day.

Telecom: All the 4 stocks (2 outperformed and 2 underperformed) has resulted in negative abnormal results on the immediate announcement of LA1 event day. They tend to gain positive abnormal returns upon the other event window periods except for the Bharati Airtel.

FMCG: with the bench market BSE 500 index all the stocks had a positive abnormal return on immediate event window and tend to raise upon the other event window periods.

Realty: Phoenix mills has resulted in negative abnormal returns as overall on this event announcement whereas the DLF impacted positively. The 2 underperformed stocks have impacted negatively on the immediate event window and tend to gain positive abnormal returns upon the other event windows.

Metal: NMDC & Tata steel has resulted in positive impact with both the bench markets on this LA1 event announcement, whereas the Hindalco & JSPL has resulted in negative abnormal returns on the immediate day of the announcement.

Bankex: Kotak bank & RBL bank has a positive impact on the immediate announcement of LA1, but as an overall, all the stocks considered for the study has resulted in Negative abnormal results for both bench market indices.

Table 7: CAR for Company Stocks for the Event LA2

Sector	Company	Bench Market	BSE 500					Sectoral Indices				
		Event Window	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)

Sector	Company										
Health Care	Abbott India	-6.67**	-15.03*	-8.69**	-6.63	-30.99*	-8.21*	-25.50*	-19.16*	-17.24*	-39.28*
	Ipca Laboratories	-7.68**	-1.27	-0.33	-0.82	-11.11**	-9.14*	-11.32*	-11.58*	-11.70*	-22.77*
	Suven Life Sciences	13.90*	48.66*	50.71*	5.81*	-36.59*	13.34*	46.84*	50.60*	0.88*	-42.13*
	Health Care Global	-3.00	-4.92***	-3.76	-6.50*	7.12*	-5.78**	-13.22*	-16.41*	-32.43*	-26.41*
Telecom	Bharati Airtel	0.68	1.25	-9.91*	-1.94	-13.46*	-0.84	-1.24	-3.22*	-2.92**	-8.06*
	ITI Ltd	18.89*	11.06*	33.98*	34.74*	27.12*	18.56*	16.77*	48.66*	22.60*	5.27
	Tejas Networks Ltd	18.06*	27.74*	28.29*	43.38*	45.02*	17.62*	31.19*	39.12*	29.60*	16.27*
	Optiemus Infracom Ltd	1.51	36.24*	42.63*	36.11*	44.83*	1.31	36.68*	44.87*	32.79*	36.12*
FMCG	Ruchi Soya Industries Ltd	-1.16	-75.49*	-131.13*	59.85*	276.05*	-1.13	-27.20*	-59.50*	-195.14*	-376.95*
	Tata Consumer Products Ltd	3.98***	0.64	0.67	11.39*	3.08***	2.83	7.37**	8.61**	16.22*	2.36
	McLeod Russel (India) Ltd	16.87*	58.18*	100.53*	86.26*	57.71*	16.52*	58.80*	101.958	84.56*	47.23*
	Future Consumer Ltd	21.71*	44.66*	39.37*	34.05*	64.54*	21.86*	47.82*	42.98*	25.39*	43.86*
Realty	Phoenix Mills	-5.43	1.57	-3.66	-22.20*	-22.96*	-5.71	-2.44	-7.71***	-27.74*	-32.23*
	DLF	-9.49*	-7.42*	5.37**	18.03*	32.77*	-9.42*	-12.31*	1.80	11.80*	18.98*
	HDIL	16.17*	37.43*	47.42*	28.87*	-2.99	16.37*	38.19*	48.17*	23.92*	-14.07*
	Sobha	18.72*	51.29*	60.86*	47.42*	23.59	19.04*	50.30*	60.06*	48.75*	23.87*** *
Metal	NMDC	1.85	-13.24*	4.46	26.12*	37.33*	-3.04	-12.74*	1.88	3.25***	7.23*
	Hindalco Indus	12.57*	5.02*	7.70*	18.34*	29.05*	5.89*	7.81*	7.64*	-3.17*	-1.39*
	JSPL	-2.64	6.15***	-19.33*	13.71*	22.33*	-10.62*	8.79*	-19.93*	-14.67*	-14.76*
	TATA Steel	2.34	-8.09**	-10.51*	31.91*	29.38*	-3.51	-8.26*	-14.44*	6.80*	-1.18
Bank	Kotak Bank	-12.22*	-15.06*	-16.28*	-26.46*	-22.34*	-10.07*	-11.60*	-14.11*	-13.12*	-6.68*
	ICICI Bank	0.48	-5.70*	-2.96***	-18.73*	-19.11*	3.15***	-1.18	-0.38	-3.39**	-4.33*
	Yes Bank	-1.50	27.39*** *	-0.49	-23.36	-24.53*	-2.67	23.63	-5.02	-28.12	-27.28*
	RBL Bank	6.67	-22.51*	-21.23*	10.16*	5.51	8.96***	-19.28*	-19.09*	27.37*	21.85*

CAR stands for cumulative abnormal return. LA2 stands for Second Lockdown Announcement in India. *, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.

Healthcare: All the stocks considered in this sector for the study has resulted in negative abnormal results with both bench market indices as overall and as well as on the immediate announcement of LA2 event day except the Suven Life Sciences, which reacted positively.

Telecom: All the stocks considered in this sector for the study has resulted in positive abnormal results with both bench market indices as overall and as well as on the immediate announcement of LA2 event day except the Bharati Airtel, which resulted positive with bench market BSE500 but later window periods the results were declined into negative abnormal returns.

FMCG: All the stocks considered in this sector for the study has resulted in positive abnormal results with both bench market indices as overall and as well as on the

immediate announcement of LA2 event day except the Ruchi soya Industries, which impacted negatively.

Realty: Phoenix mills impacted negatively and DLF also impacted negatively on the immediate announcement day, but later periods it tends to gain positive abnormal returns. The 2 underperformed stocks considered for this study has resulted in positive abnormal returns upon the announcement of LA2.

Metal: With bench market BSE500 index except for JSPL, remaining stocks considered for the study have resulted in positive abnormal returns whereas, with BSE

Metal index except for Hindalco industries, remaining stocks considered for the study have resulted in negative abnormal returns. Overall, with the considered stocks in this sector, Hindalco resulted in more positive returns upon LA2 announcement.

Bankex: With both bench market indices Kotak & Yes banks have resulted in negative abnormal returns on the immediate day of event announcement and later event window periods too, whereas the ICICI & RBL banks resulted in positive returns on the immediate day of event announcement and for later event window periods ICICI tends to negative abnormal returns.

Table 8: CAR for Company Stocks for the Event LA3

Sector	Company	Bench Market / Event Window	BSE 500					Sectoral Indices				
			(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)	(1,1)	(5,5)	(10, 10)	(20, 20)	(30, 30)
Health Care	Abbott India		1.79	0.79	-16.87*	-24.07*	-34.94*	2.58	5.36***	-7.32**	-26.83*	-37.39*
	Ipca Laboratories		-1.62	-5.10	-7.10***	-5.20	-4.27	-0.43	-2.11	-0.52	-11.99*	-11.11*
	Suven Life Sciences		-5.36	3.45	22.19*	41.46*	-7.05*	-5.23	5.59	26.23*	46.48*	-4.39*
	Health Care Global		18.30*	21.57*	46.62*	45.98*	25.85***	15.76*	15.22*	35.08*	19.85*	-8.38*
Telecom	Bharati Airtel		8.30*	4.40***	-0.39	-12.38*	-20.35*	0.29	-1.09	-3.70*	-8.55*	-3.93*
	ITI Ltd		-3.31	-12.77**	-19.89*	12.94*	23.68*	-9.88***	-15.13**	-19.76*	26.96*	30.33*
	Tejas Networks Ltd		-1.57	0.19	-6.14	31.76*	62.77*	-6.74	-1.48	-5.69	42.23*	66.60*
	Optiemus Infracom Ltd		4.53	-8.18***	20.98*	29.33*	30.06*	2.15	-9.36**	20.19*	32.69*	34.03*
FMCG	Ruchi Soya Industries Ltd		-0.30*	-2.01*	-4.52*	-148.94*	-82.62*	-0.30*	-1.98*	-4.45*	-103.29*	-176.50*
	Tata Consumer Products Ltd		-4.22***	4.16***	1.16	-8.10*	-11.43*	-1.20	16.02*	18.56*	10.56*	-5.22*
	McLeod Russel (India) Ltd		-4.59	25.17*	30.74*	79.06*	100.17*	-3.85	28.43*	35.23*	84.18*	100.31*
	Future Consumer Ltd		7.64	17.38*	42.80*	78.64*	88.81*	7.28	19.30*	46.04*	85.21*	79.69*
Realty	Phoenix Mills		0.05	4.84	5.37	12.47**	-0.31**	2.52	3.91	-0.41	-3.42	-17.30*
	DLF		-5.65**	2.93	10.17*	8.80*	15.00*	-2.29	1.97	2.41	-10.65*	-7.30
	HDIL		0.67	-10.77*	-10.08**	35.41*	66.12*	1.59	-11.10*	-11.19*	31.61*	59.97*
	Sobha		-9.25***	-2.53	17.45*	78.74*	39.64*	-7.68	-3.14	14.23*	69.31*	35.04*
Metal	NMDC		0.60	-2.40	-5.76	8.24*	28.21*	-1.98	-7.03**	-7.53**	-7.26**	8.65*
	Hindalco Indus		5.36***	10.77*	1.47	25.46*	24.09*	1.20	4.03***	-1.17	6.78*	3.16
	JSPL		4.73	11.03**	12.61*	23.67*	30.18*	-0.41	3.47	10.33*	3.86*	5.95*
	TATA Steel		1.30	6.95**	1.08	7.65*	17.28*	-2.00	1.28	-1.17	-10.06*	-3.81

Bank	**Kotak Bank**	-3.17	-4.83***	1.55	-21.22*	-17.71*	0.44	-1.40	3.68***	-14.18*	-7.46*
	ICICI Bank	-6.13**	-7.83*	-8.42*	-13.37*	-20.40*	-1.56	-3.39***	-5.32*	-5.67*	-8.56*
	Yes Bank	-9.04	-7.97	-0.64	-5.59	-11.43	-10.16	-9.76	-2.06	-12.88	-21.10
	RBL Bank	5.28	23.21*	14.27**	3.53	37.46*	9.05	26.93*	16.71*	10.20	52.68*

*CAR stands for cumulative abnormal return. LA3 stands for Third Lockdown Announcement in India. *, **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.*

Healthcare: On the immediate day of event LA3 announcement with both bench markets Abbott India & Healthcare global had positive returns, whereas the Ipca laboratories & Suven Life sciences had negative returns. With the considered companies in this sector for the study Healthcare global had high abnormal returns and Suven life sciences had low abnormal returns upon the event announcement.

Telecom: On the immediate day of event LA3 announcement with both bench markets Bharati Airtel & Optiemus Infracom Ltd had positive returns, but on the later event windows Bharati Airtel tend to negative abnormal returns. Whereas, ITI & Tejas Networks Ltd had negative abnormal returns on the immediate day of event announcement.

FMCG: On the immediate day of event LA3 announcement with both bench markets Ruchi soya industries, Tata consumer products &McLeod Russel (India) Ltd. Had negative returns, but on the later event windows McLeod Russel (India) Ltd tend to positive abnormal returns. With the considered companies in this sector for the study Future Consumer Ltd had high abnormal returns.

Realty: On the immediate day of event LA3 announcement with both bench markets Phoenix Mills & HDIL had positive returns, whereas the DLF & Sobha had negative returns and for later event window periods Sobha results tend to raise.

Metal: With the bench market BSE500 all the considered companies had a positive abnormal return, whereas with BSE Metal Index had a negative abnormal return except Hindalco Industries on the immediate day of event announcement.

Bankex: All the banks considered for the study are negatively impacted upon the LA3 announcement except RBL bank, which had a very positive abnormal return.

Table 9: CAR for Company Stocks for the Short-Term Events

Sector	Company / Indices	Event Bench Market	20 Lakh Crore Package				Bank Rates Reduce by RBI			
			BSE 500		Sectoral Indices		BSE 500		Sectoral Indices	
		Event Window	(1,1)	(5,5)	(1,1)	(5,5)	(1,1)	(5,5)	(1,1)	(5,5)
Health Care	**Abbott India**		-1.58	-14.05*	2.25	-8.78*	-0.35	-15.60*	0.61	-10.23*
	Ipca Laboratories		-2.65	-6.62***	-0.15	-2.43	0.22	-10.22*	0.75	-8.55*
	Suven Life Sciences		1.02	-20.44*	3.13	-17.78*	1.81	-9.58**	2.43	-6.11
	Health Care Global		-2.80	32.34*	0.15	35.99*	-3.01	18.95*	-2.30	22.93*
Telecom	**Bharati Airtel**		1.88	10.18*	-0.94	-0.77	-8.09**	-8.47**	-1.86	-1.80
	ITI Ltd		1.32	-3.96	-3.07	-18.34*	-3.44	-10.08***	4.53	-3.52
	Tejas Networks Ltd		-1.50	-4.32	-4.07	-13.31*	8.56**	-1.03	13.43*	3.95
	Optiemus Infracom Ltd		-15.39*	-26.38*	-15.87*	-28.80*	11.31*	3.09	12.96*	5.86
FMCG	**Ruchi Soya Industries Ltd**		-0.31*	-11.15*	-0.31*	-11.15*	-28.49*	-53.90*	-28.39*	-54.02*
	Tata Consumer Products Ltd		-1.33	6.20**	3.07	13.01*	1.39	-13.17*	0.39	-9.66*
	McLeod Russel (India) Ltd		-5.87	-19.33*	-4.25	-16.45*	-1.47	-20.81*	-2.06	-20.75*
	Future Consumer Ltd		-11.48***	-4.57	-10.09***	-2.00	3.35	23.65*	3.17	24.79*

Realty	**Phoenix Mills**	2.41	-0.15	0.97	5.84	2.77	11.74**	4.11	16.86*
	DLF	7.28*	6.92**	5.08	16.68*	-1.41	4.81***	0.99	13.26*
	HDIL	1.57	-7.35***	0.09	-3.68	-1.30	-1.03	-0.61	-0.16
	Sobha	16.16*	16.13*	13.39*	23.04*	0.78	-5.07	2.05	-1.53
Metal	**NMDC**	1.69	0.93	-0.21	4.26	6.46***	9.87*	5.73	10.74*
	Hindalco Indus	3.01	7.16**	0.04	12.74*	5.89***	4.36	4.63	4.92
	JSPL	7.33***	17.85*	3.92	24.14*	14.19*	20.78*	12.72**	21.38*
	TATA Steel	0.56	6.73**	-1.22	10.60*	-0.66	9.79*	-1.40	11.05*
Bank	**Kotak Bank**	-4.19	-7.05**	-1.40	7.02***	-0.47	0.50	3.82	9.95**
	ICICI Bank	-1.71	-4.29***	1.96	12.92*	-3.46	-3.22	1.85	9.31***
	Yes Bank	4.64	-7.53	3.35	-14.49	-1.63	-7.99	-3.90	-10.72
	RBL Bank	3.22	6.71	6.26	19.65*	2.09	8.86	6.06	19.94*

CAR stands for cumulative abnormal return., **, and *** are significant at 1%, 5%, and 10% confidence levels respectively.*

Healthcare: For both the considered short term events with both bench market indices Abbott India and Ipca Laboratories had a negative impact. Suven life sciences had a positive abnormal return on the immediate announcement of both short-term events but for the later event period, it had a negative abnormal return, whereas the Healthcare global had negative returns in the initial but later it had a positive abnormal return.

Telecom: For the event, 20 lakh crore package announcement Bharati Airtel & ITI Ltd had a positive return with the bench market BSE 500 and negative returns with BSE Telecom Index, whereas for the event Bank rates reduce by RBI both have negatively impacted. 2 underperformed companies (Tejas Network & Optiemus Infracom ltd) had a negative impact on the event 20 lakh crore packages and positive impact for the event Bank rates reduce by RBI.

FMCG: Ruchi Soya Industries Ltd & McLeod Russel (India) Ltd had a negative impact on both the short-term events. Tata Consumer Products Ltd & Future consumer Ltd had a positive impact on the event Bank rates reduce by RBI announcement. For the event 20 lakh crore package Future consumers Ltd had very low abnormal returns compare to others.

Realty: For the event 20 lakh crore package announcement, all the considered companies have positive abnormal returns, whereas for the event Bank rates reduce by RBI only phoenix mills & Sobha had positive returns. HDIL had a high negative abnormal return when compared to others in the study for the event Bank rates reduce by RBI.

Metal: For both the considered short term events with both bench market indices all the considered companies in this sector for the study had a positive abnormal return.

Bankex: RBL bank had a positive abnormal return for both the short-term events with both bench markets. Kotak & ICIC banks with Bench market BSE500 index for both the events had a negative abnormal return. Yes bank had a high negative abnormal return when compared to others in the study for the event Bank rates reduce by RBI.

5. Conclusion

Event study approach has been used in this study to empirically explore the impact of the COVID-19 outbreak on the stock prices of various Indian industries. This paper also investigates the impact of internal and external events (BAŞDAŞ, 2013)on the financial market which can affect the macroeconomic performance. Our results suggest that the stock market react differently to the different events like for Global emergency and Lockdown announcements, etc., in a country. The pandemic events greatly affected the Banking, FMCG and Healthcare industries. However, the Realty, Telecom, and Metal industries have responded little strongly to the pandemic in a positive fashion, providing a boost to confidence in the stock market. India's large economy, the early decision on nationwide lockdown and huge economic package to support industries and shift to usage of local-made goods and Make in India movement etc., helped the country to quickly overcome the unfavorable effects of COVID-19. It is a typical turning event, including its occurrence, development and disappearance, as well as the intensity and impact is also unknown. The stock market is the measurement of the

economy, andthe capital market reflects the overall situation of a country's economy toa certain extent. This article discussed the market performance of 6 major sectors in India under the influence of COVID-19 and analysed, in detail by considering major companies in respective sectoral indices, the response trends and capabilities of sectors that are hard hit. Moreover, these findings show that other important reasons are driving the cross-section of stock returns, which have not yet been addressed during this crisis.

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