Original Article

Pre And Post Vaccination Effect On Selected Sectoral Indices Of National Stock Exchange: A Critical Study

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DOI: 10.47750/pnr.2022.13.S08.217

Abstract

This study is an attempt to explore the effect of the COVID-19 pandemic on selected sectoral indices of the national stock exchange and the relationship among themselves also examined. COVID-19 pandemic was first identified in China during December 2019. To prevent the spread of pandemics various measures were taken by countries around the world. All commercial activities were restricted and people had to remain in their houses which affected the economy of countries. The stock market was also affected by this pandemic. For exploring the relationship and effect of pandemic various statistical tools have been applied. Secondary data of all sectoral indices price from 24th Jan to 24th July 2020 have been taken for the analysis. findings suggest that there is a significant impact of the Lockdown period on the performance of the stock indices.

Introduction

It is very important to know the factors influencing sectoral indices of any country. The stock market of India is growing rapidly and one of the most attractive markets to invest money around the world. Our study is an attempt to investigate the relationship of selected sectoral indices of the Indian stock market during pre and post lockdown. As Covid-19 first identified in China during December 2019 and announced a pandemic in January 2020 by WHO. It is a deathly disease caused by human transmission from one individual to another. To prevent the spread of pandemics various countries around the world restricted human and commercial activities as preventive measures. It caused a decline in the performance of stock markets around the world. A study indicated that during the year 2020 stock market will decline around the world which will cause a decline in the income of investors. Lockdown also caused in the standstill of people, mind and demand and supply. It was the reason for a reduction in employment, demand, and thereby the production of goods, reduction in import and export, or an overall reduction in the growth rate of the economy. Increasing coronavirus cases in India is increasing uncertainty in the mind of investors which is affecting the Indian financial market. Covid-19 is combination of family of decease and people may have cold, cough or some kind of severe deceases due to that (Yang et al., 2020). Covid pandemic outbreak not only affected business in China but also around the world, business and investment are badly affected by pandemic. Any big event or event like Covid -19 pandemic have affected investment in stock market (Zach, 2003). Due to pandemic stock market fallen rapidly and economist started to predict recession in world economy (Baker et al., 2020; McKibbin and Fernando, 2020). Major reason behind prediction of recession are implementation of lock down, social distancing, health protocol due to which demand and supply mismatch arises (del Rio-Chanona et al., 2020)

The objective of this study is to investigate the impact of major event like Covid-19 on selected sectorial indices of NSE India. Next part of study contains brief review of literature, third part of the study is related to the methodology adopted for the study, second last part is analysis and interpretation of data and last part conclude the study.

Literature Review

Previous studies regarding the impact of pandemics shown significant impact over countries, companies, industries. Generally, in these kind of situation people do not buy those kind of goods which are not necessary for their living due to which layoff or reduction in income takes place and people suffers (McKercher and Chon, 2004). Murthy et al., (2020) studies COVID-19 cases and oil prices on Indian Stock Returns by using the VAR approach and found that there is a positive and significant sign. The stock market has a significant impact on the automobile sector during this COVID-19 (Rajamohan et al., 2020). As the lockdown period days increases the economic activities and stock market indices are getting affected by the level of economic activities (Ozili, & Arun, 2020). The impact of Corona has been studied by authors and found that there is a significant impact on economic and financial market activities (Ali et al., 2020; Barro et al., 2020; Gormsen and Koijen, 2020; Zhang, et al., 2020). Negative effects on the stock market during this pandemic situation with the global financial market (Liu, 2020; Baker et al., 2020). By using the VAR model find that there were negative return shows during the COVID-19 lockdown period and found that there is a high impact of this pandemic on stock return concerning GST or Demonetization (Ali et al., 2020; Apergis, 2020; Gil and Monge, 2020; Qin et al.,2020; Mishra et al., 2020). Pandemic or Crisis always do not have negative impact, it can provide some opportunities in terms of new market or provide motivation for the innovation and development of new strategy (Faulkner, 2001)

Research Methodology

The main objective of this paper is to find out the relationship between the stock prices in three situations. Where the first situation is considered as the Lockdown period because of COVID-19 from 25th March 2020 to 31st May 2020, during this lockdown stock market traded in 42 days. The second situation in this paper considers as Pre-Lockdown, which means the 42 working days preceding just from lockdown days, and in the third situation after the Lockdown 42 working days consider as post lockdown period. Secondary data has been used in this study from 24th January to 28th July 2020. All the data collected from www.nseindia.com.

Data Analysis and Interpretation

Unit Root test

In this study time series data has been used and to check whether the data series available are not possessed a unit root. In this paper to find out the relationship regression model has been applied, so to find out the accurate result data should be stationary. To check the stationarity in the data two different tests have been applied in this paper.

Augmented Dickey-Fuller (ADF) test

In this test, H_0 is as that the unit root is present in the series and H_1 is as that the unit root is not present in the data series. ADF test works on the negative i.e. more negative number gives the higher chances of rejection of the hypothesis.

Phillips–Perron test

This test is used when the number in the series is finite and integrated into the order of 1. This test helps to solve the issue that if the data is of a higher order of autocorrelation and that introducing a lag as regressors in the test equation than PP test makes a t-test statistic by using the non-parametric correction.

T1 – Shows the Unit Root Test Results of ADF and PP

		ADF				PP			
Variables		**At Level**		**At First Level**		**At Level**		**At First Level**	
		t-statis.	p-value	t-statis.	p-value	t-statis.	p-value	t-statis.	p-value
Pre	Nifty 50	3.136181	1.0000	-8.094701	**0.0000**	2.24531	0.9999	-8.368305	**0.0000**
	Auto	3.772379	1.0000	-8.785348	**0.0000**	4.188623	1.0000	-8.421252	**0.0000**
	Bank	4.676379	1.0000	-7.933574	**0.0000**	3.986381	1.0000	-7.559641	**0.0000**
	Consumer Durables	0.377573	0.9795	-6.201654	**0.0000**	0.223051	0.9709	-6.264581	**0.0000**
	Fin Service	3.910124	1.0000	-8.475358	**0.0000**	3.24812	1.0000	-7.642279	**0.0000**
	FMCG	1.494946	0.9990	-10.20154	**0.0000**	0.641734	0.9892	-9.780984	**0.0000**
	IT	0.288212	0.9747	-2.982682	**0.0454**	0.423488	0.9816	-7.870365	**0.0000**
	Media	1.393267	0.9987	-6.961997	**0.0000**	1.662367	0.9994	-6.991213	**0.0000**
	Metal	1.230153	0.9978	-7.678975	**0.0000**	1.021717	0.9961	-7.678975	**0.0000**
	Oil & Gas	-0.018246	0.9512	-8.136169	**0.0000**	-0.301418	0.9159	-8.127099	**0.0000**
	Pharma	-0.265163	0.9213	-7.696917	**0.0000**	-0.031021	0.9500	-7.696917	**0.0000**
	Pvt Bank	4.994806	1.0000	-7.448092	**0.0000**	4.153833	1.0000	-7.418249	**0.0000**
	PSU Bank	1.128744	0.9971	-8.15191	**0.0000**	1.305848	0.9983	-8.128843	**0.0000**
	Realty	2.676368	1.0000	-7.218197	**0.0000**	3.888772	1.0000	-7.175424	**0.0000**
During	Nifty 50	-2.402354	0.1474	-7.943915	**0.0000**	-2.327791	0.1684	-8.245765	**0.0000**
	Auto	-1.21302	0.6598	-4.97445	**0.0002**	-1.066314	0.7199	-6.918425	**0.0000**
	Bank	-2.531606	0.1156	-5.8684	**0.0000**	-2.531606	0.1156	-7.4526	**0.0000**
	Consumer Durables	-1.364396	0.5902	-6.885422	**0.0000**	-1.468431	0.5393	-6.885422	**0.0000**
	Fin Service	-2.836084	0.0621	-6.053978	**0.0000**	-2.894877	0.0546	-8.103971	**0.0000**
	FMCG	-2.59866	0.1014	-6.747456	**0.0000**	-2.611919	0.0988	-6.749163	**0.0000**
	IT	-1.784416	0.3828	-8.541156	**0.0000**	-1.465794	0.5407	-10.96684	**0.0000**
	Media	-1.996823	0.2871	-5.611132	**0.0000**	-1.854022	0.3500	-7.513982	**0.0000**
	Metal	-1.817769	0.3669	-7.365317	**0.0000**	-1.725341	0.4113	-7.365317	**0.0000**
	Oil & Gas	-2.793007	0.0681	-8.361083	**0.0000**	-2.880455	0.0564	-8.288407	**0.0000**
	PHARMA	-2.683674	0.0855	-4.524933	**0.0008**	-2.515638	0.1192	-4.623072	**0.0006**
	Pvt Bank	-2.714339	0.0803	-5.881493	**0.0000**	-2.810754	0.0655	-7.329432	**0.0000**
	PSU Bank	-1.182963	0.6727	-6.113529	**0.0000**	-1.050065	0.7261	-6.631854	**0.0000**
	Realty	-2.328464	0.1682	-6.955476	**0.0000**	-2.357768	0.1597	-7.203503	**0.0000**

Post	Nifty 50	-0.339332	0.9099	-6.771865	**0.0000**	-0.283026	0.9187	-6.771278	**0.0000**
	Auto	-0.507924	0.8793	-6.584299	**0.0000**	-0.424278	0.8953	-6.584948	**0.0000**
	Bank	-2.202226	0.2086	-6.643224	**0.0000**	-2.258011	0.1900	-6.643224	**0.0000**
	Consumer Durables	-1.310616	0.6156	-5.939329	**0.0000**	-1.530217	0.5085	-5.980485	**0.0000**
	FIN Service	-1.880241	0.3380	-5.13642	**0.0002**	-1.925961	0.3175	-6.878484	**0.0000**
	FMCG	-0.620455	0.8549	-6.772781	**0.0000**	-0.740695	0.8249	-6.78225	**0.0000**
	IT	1.083324	0.9967	-6.620264	**0.0000**	1.307233	0.9983	-6.619415	**0.0000**
	Media	-3.169944	0.0594	-4.667831	**0.0005**	-3.31645	0.0505	-4.56728	**0.0007**
	Metal	-1.619959	0.4635	-7.243825	**0.0000**	-1.515996	0.5156	-7.237953	**0.0000**
	Oil & Gas	-1.479084	0.5340	-5.717092	**0.0000**	-1.467662	0.5397	-5.796401	**0.0000**
	Pharma	-2.767126	0.0719	-6.313185	**0.0000**	-2.819338	0.0643	-6.354629	**0.0000**
	Pvt Bank	-2.189384	0.2130	-6.702843	**0.0000**	-2.191358	0.2124	-6.710304	**0.0000**
	PSU Bank	-2.93799	0.0597	-5.873883	**0.0000**	-2.933998	0.0501	-5.899129	**0.0000**
	Realty	-3.027261	0.0506	-5.937445	**0.0000**	-3.174771	0.0588	-5.937445	**0.0000**

(Compiled by Author)

In the above Table 1, the unit root test has been applied by using both the method i.e ADF and PP test. T1 Shows that all the data is not significant at the level I_0. So to make the data stationary 1st differentiation has been applied and all data become stationary at I_1 as it becomes significant because the p-value becomes less than a 5% level of significance.

Descriptive Statistics

This statistic involves all the basic characteristics of the data i.e. getting about the average value of the data. Missing series, mid-value of the series where it lies, and about S.D. and the normality of the data. In this paper to find out the relationship regression model has been applied and one of the basic requirements of the test is to check for normality. This helps to find out that the data is normally skewed or not.

T2- Shows the Descriptive Analysis of Pre Lockdown Sectorial Indices

		Mean	Median	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
Pre	Nifty 50	11111.76	11752.9	1373.615	-1.30504	3.350954	12.13738
	Oil & Gas	4411.12	4670.855	670.6215	-0.61633	1.810281	5.136032
	Pharma	7841.174	8101.05	586.0835	-1.0836	2.83242	8.268453
	PSU Bank	1992.525	2118.9	350.7163	-0.64069	2.029531	4.521515
	Realty	282.681	302.7	47.30691	-1.06174	2.882116	7.915424
	Metal	2324.342	2475.45	392.2426	-0.86627	2.352064	5.98769
	Media	1631.839	1780.7	279.8812	-1.04349	2.590274	7.915919
	IT	15346.24	16305.28	1754.263	-1.31424	3.171205	12.14193
	FMCG	29087.15	30184.93	2443.132	-1.21089	3.029461	10.26536
	Fin Service	13225.13	14175.75	1798.065	-1.49835	4.024416	17.55177
	Consumer Durables	15675.73	16531.2	1869.668	-1.16191	2.831209	9.500152

	Bank	28199.37	30369.78	4149.484	-1.47508	3.928414	16.7395
	Auto	7164.876	7558.225	1040.17	-0.95788	2.859798	6.457182
	Pvt Bank	15443.08	16597.23	2362.329	-1.50638	4.042136	17.78479
During	Nifty 50	9054.551	9139.8	372.1542	-0.72956	3.529602	4.216587
	Auto	5446.012	5470.475	387.8633	-0.58099	3.028351	2.364243
	Bank	19197.61	19284.5	1015.249	-0.11048	2.834172	0.13357
	Consumer Durables	12470.68	12403.24	505.6174	0.458307	2.381382	2.140023
	Fin Service	9413.967	9429.25	433.0114	0.093256	3.242324	0.163638
	FMCG	27700.82	27836.6	1244.265	-0.40058	2.368204	1.821804
	IT	13089.33	13165	591.8381	-0.20476	2.261823	1.247071
	Media	1107.044	1108.1	48.2218	-0.5702	2.630861	2.514386
	Metal	1693.743	1697.925	88.21314	-0.22409	2.895407	0.37065
	Oil & Gas	4111.536	4157.26	255.482	-1.02718	4.190034	9.863934
	Pharma	8862.03	9190.4	910.3109	-1.49896	3.68432	16.54776
	PSU Bank	1233.721	1261.55	84.25086	-0.4001	1.869273	3.358005
	Pvt Bank	10402	10472.83	559.1252	-0.06581	2.940331	0.036546
	Realty	176.1238	175.35	7.54216	-0.07183	1.926185	2.054004
	Nifty 50	10472.16	10406.53	437.3521	0.267884	1.921132	2.539255
Post	Pvt Bank	11830.31	11818.6	476.7669	-0.07122	2.077751	1.523957
	Auto	6829.862	6740.325	298.1371	0.215088	1.722866	3.178213
	Bank	21560.81	21549.1	849.1896	-0.12568	2.160596	1.343616
	Consumer Durables	13540.88	13462.81	302.6626	0.52169	2.518318	2.311156
	Fin Service	10653.42	10634.05	433.2768	-0.12842	1.97405	1.957446
	FMCG	30076.43	30088.25	907.0086	-0.14119	1.781029	2.73985
	IT	15408.43	14868.33	1101.761	0.939908	2.496238	6.628096
	Media	1350.373	1363.225	44.32671	-0.64878	3.846665	4.200909
	Metal	2034.467	2042.85	57.93689	-0.04299	1.970253	1.868598
	Oil & Gas	4902.992	4883.23	199.5185	0.441394	2.247504	2.354739
	Pharma	10073.46	10075.05	157.4392	0.495544	2.703244	1.873056
	PSU Bank	1418.293	1429.75	75.07636	-0.87927	3.487294	5.827297
	Realty	202.5381	201.925	6.647059	0.563642	3.930331	3.7385

(Compiled by Author)

Table 2 shows the basic characteristics of the data series and the results show that all the data is available in the series and no data is missing in the given series for this paper. As the probability value of Jarque-Bera teat is significant and the value of skewness and Kurtosis is representing that data is normally distributed.

Correlation

To measure the relationship between the different variables this tool is used. This tool is helpful while determining relationships in numeric terms and also tells about the direction of the relationship as this test value is between -1 to +1. This test tells about the negative-positive and no relationship with the variables.

T3- Shows the Correlation between Sectorial Indices with Nifty 50 in different Duration

Variables	Pre - Lock Down	During - Lock Down	Post - Lock Down
Auto	0.973025691	0.860476	0.981856

Bank	0.995436667	0.554594	0.896509
Consumer Durables	0.962322743	0.042405	0.686916
Fin Service	0.994276599	0.613792	0.931671
FMCG	0.989635343	0.524736	0.874904
IT	0.988009307	0.773924	0.912887
Media	0.986731701	0.894305	0.372723
Metal	0.980504286	0.831563	0.898094
Oil & Gas	0.9115591	0.759499	0.826998
Pharma	0.971368755	0.832528	0.490917
PSU Bank	0.94451836	-0.17546	0.574367
Pvt Bank	0.994422566	0.678202	0.89557
Realty	0.98618214	0.191617	-0.02505

(Compiled by Author)

In the above table 3 shows the results of correlation with the Nifty 50 and other indices. So this test applied three times wherein first Pre Nifty 50 prices are correlated with the Pre indices values and same with during and post situation. Results shoes that data is representing a positive relationship with the Nifty 50 and Bank Indices are having the most positive relationship during the pre-situation and vice versa oil and Gas is having less relationship. At the time of the Lockdown situation, PSU Banks shows a negative relationship (-.17546) and Media indices are mostly positive with the Nifty 50. Now after the lockdown Realty indices have become negative in correlation and the auto sector is having the most positive relationship with the Nifty 50.

Regression

Regression is a measurement of the relationship between the mean value and the corresponding value of the different given variables. To find out the relationship among the variables this test consider as one dependent variable and other variables are considering as independent variables.

T4- Shows the Results of Regression at Pre-Lockdown Period

	Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
Pre	Metal	0.464581	0.097403	4.769659	**0.0001**
	Media	0.24202	0.11313	2.139302	**0.0413**
	IT	0.095647	0.024384	3.922523	**0.0005**
	FMCG	0.085698	0.01318	6.502075	**0.0000**
	Fin Service	0.46909	0.068191	6.879038	**0.0000**
	Auto	0.136621	0.038511	3.547619	**0.0014**
During	Fin Service	0.288511	0.070714	4.079947	**0.0003**
	IT	0.164637	0.022986	7.16241	**0.0000**
	Oil & Gas	0.125826	0.051497	2.443347	**0.0211**
	Pharma	0.125897	0.018255	6.896721	**0.0000**
	PSU Bank	-0.79812	0.319697	-2.4965	**0.0187**
Post	Fin Service	0.707508	0.241709	2.927102	**0.0067**
	IT	0.167719	0.029621	5.662237	**0.0000**

(Compiled by Author)

Above table 4 shows the results of the regression model which applied three times classified as pre-during and post situation arises due to covid-19 lockdown in India. Multiple regression has been applied where Nifty 50 is

considered as a dependent variable and this T4 shows only the variables which are significant at the 5% level. Regression in all situation R- square value nearby 99% and Durbin Watson value as 2 that represent that model is

	Correlation	Sig.
Pre Nifty 50 & Post Nifty 50	-0.867	**0.0000**
Pre Auto & Post Auto	-0.904	**0.0000**
Pre Bank & Post Bank	-0.576	**0.0000**
Pre Consumer Durables & Post Consumer Durables	-0.791	**0.0000**
Pre Fin Service & Post Fin Service	-0.615	**0.0000**
Pre FMCG & Post FMCG	-0.761	**0.0000**
Pre IT & Post IT	-0.953	**0.0000**
Pre Media & Post Media	-0.027	0.8670
Pre Metal & Post Metal	-0.806	**0.0000**
Pre Oil & Gas & Post Oil & Gas	-0.86	**0.0000**
Pre Pharma & Post Pharma	-0.461	**0.0020**
Pre Pvt Bank & Post Pvt Bank	-0.582	**0.0000**
Pre PSU Bank & Post PSU Bank	-0.399	**0.0090**
Pre Realty & Post Realty	0.262	0.0930

fit and in first situation Metal, Media. IT, FMCG, Fin Service, and Auto sectors are found significant and all are having a positive impact on the Nifty 50. In the Second test i.e. during lockdown Fin Service, IT, Oil & Gas, Pharma, and PSU Bank is found significant where PSU bank makes a negative impact on the Nifty 50 and in last Fin services and IT sectors are significant.

Paired Sample t-test

This test is also called a dependent sample test because this test is depending on two aspects i.e. pre and post situation. To find out the impact or measure the impact of a situation or condition this test has been used. This test compares the means value of the same individual series and measures the intervention administered between the two different time points.

T5- Shows the Correlation between Pre and Post lockdown period with itself

(Compiled by Author)

Table 5 shows the correlation between the pre and post values of the same indices. Results show that all the values are significant except two i.e. Media and Reality as the probability value is less than 5% Level of significance. Most of the variables show that they are having a negative relationship during pre and post situation of lockdown.

T6- Shows the Results of Paired Sample t-test between Pre and Post lockdown period

	Paired Differences			**t**	**Sig. (2-tailed)**
	Mean	**Std. Deviation**	**Std. Error Mean**		
Pre-Post Nifty 50	639.6071	1766.139143	272.5211863	2.347	**0.0240**
Pre-Post Auto	335.0143	1315.927945	203.0520901	1.65	0.1070
Pre-Post Bank	6638.564	4689.992294	723.6815223	9.173	**0.0000**
Pre-Post Consumer Durables	2134.846	2117.18329	326.6884741	6.535	**0.0000**

Pre-Post Fin Service	2571.704	2092.51127	322.8814988	7.965	**0.0000**
Pre-Post FMCG	-989.281	3187.886629	491.9015861	-2.011	0.0510
Pre-Post IT	-62.1833	2824.371404	435.8099691	-0.143	0.8870
Pre-Post Media	281.4667	284.5325209	43.9043211	6.411	**0.0000**
Pre-Post Metal	289.875	440.2799519	67.9366715	4.267	**0.0000**
Pre-Post Oil & Gas	-491.872	848.274066	130.8915301	-3.758	**0.0010**
Pre-Post Pharma	-2232.29	673.2872166	103.890473	-21.487	**0.0000**
Pre-Post Pvt Bank	3612.768	2668.247486	411.7195256	8.775	**0.0000**
Pre-Post PSU Bank	574.2321	386.8461393	59.6916552	9.62	**0.0000**
Pre-Post Realty	80.14286	46.0120485	7.0998132	11.288	**0.0000**

(Compiled by Author)

Table 6 shows the results of the paired sample t-test. This table represents that there is a relationship among the variable during pre and lockdown situations that means there is an impact of lockdown on the indices prices. All the indices are having an impact as the probability value is less than 5% except Auto, FMCG, and IT sectors are not having more impact on Lockdown in the country.

Granger Causality Test

Test of causality is telling about that one series can help other series to predict or not. This test investigates the causality between two variables. This test deals with the testing of hypotheses for finding out the cause. In this test null hypothesis is considered as does not cause the variables and also provide the direction where the values are moving it can be bidirectional or uni-directional.

T7- Shows the Results of Granger Causality Test

Null Hypothesis:	**F-Statistic**	**Prob.**
Pre Realty ⟶ Post Nifty 50	3.34353	**0.0469**
Pre Oil Gas ⟶ Pre Nifty 50	5.68897	**0.0073**
Pre Nifty 50 ⟶ Pre Pharma	7.16763	**0.0025**
Pre Nifty 50 ⟶ Pre Fin Service	4.27382	**0.0218**
Pre Auto ⟶ Pre Nifty 50	3.92901	**0.0289**
Pre Auto ⟶ Post Nifty 50	4.04891	**0.0262**
Post PSU Bank ⟶ During Nifty 50	6.20956	**0.0049**
Post Oil Gas ⟶ Post Nifty 50	7.74378	**0.0016**
Post Nifty 50 ⟶ Post Metal	6.50679	**0.004**
Post Nifty 50 ⟶ During Realty	3.49205	**0.0414**
Post Nifty 50 ⟶ During PSU Bank	3.65043	**0.0363**
Post Nifty 50 ⟶ During Metal	4.67954	**0.0158**
Post Nifty 50 ⟶ During FMCG	4.46146	**0.0188**
Post Nifty 50 ⟶ During Auto	5.82699	**0.0065**
Post Metal ⟶ Post Nifty 50	4.70525	**0.0155**
Post IT ⟶ Pre Nifty 50	6.32048	**0.0045**
Post Consumer Durables ⟶ Post Nifty 50	9.45637	**0.0005**
During Pharma ⟶ During Nifty 50	6.02558	**0.0056**
During Oil Gas ⟶ During Nifty 50	5.54217	**0.0081**
During Nifty 50 ⟶ Post PSU Bank	3.34824	**0.0467**

During Nifty 50	——▶ Post Pharma	5.24989	**0.0101**
During Nifty 50	——▶ Post Metal	3.57895	**0.0385**
During Nifty 50	——▶ Post Media	3.86688	**0.0304**
During Nifty 50	——▶ Post FMCG	4.77779	**0.0146**
During Nifty 50	——▶ During FMCG	5.45769	**0.0086**
During Metal	——▶ Post Nifty 50	3.44685	**0.043**
During Auto	——▶ Post Nifty 50	3.94807	**0.0284**

(Compiled by Author)

Table 7 shows the results of the Causality Test in this test only the variables that are affecting the Nifty 50 and are significant consider to represent in this paper. Arrows represent the direction of the data variables. All the variables are significant as the probability value is less than 5% and all the variables are having a uni-directional relationship with each other.

Conclusion

Based on the analysis above made it can be concluded that all sectoral indices are having a positive correlation with the national stock exchange indices Nifty 50. Regression shows that finance services indices are having an impact on nifty 50 in all the situations. The paired sample t-test shows that there is an impact of lockdown because there is a significant relationship between pre and post value. Granger test shows that all the indices are having a uni-directional relationship with Nifty 50 or vice versa. So we overall can have concluded that there is a significant impact of lockdown on the prices of stock indices.

Reference

1. Al-zwadhi, A. M., Al-Saifi, K., Al-Awadhi, A., &Alhamadi, S. 2020. Death and contagious infectious diseases: Impact of the COVID-19 virus on stock market returns. Journal of Behavioural and Experimental Finance 27 September 2020, 100326.doi:https://doi.org/10.1016/j.jbef.2020.100326.
2. Ali, M., N. Alam, and S. A. R. Rizvi. 2020. Coronavirus (COVID-19)–An epidemic or pandemic for financial markets. Journal of Behavioral and Experimental Finance 27:100341. doi:10.1016/j.jbef.2020.100341.
3. Apergis, N., and E. Apergis. 2020. Can the COVID-19 pandemic and oil prices drive the US Partisan Conflict Index?. Energy Research Letters 1 (1): 13144. doi:10.46557/001c.13144
4. Baker, S. R., Bloom, N., Davis, S. J., Kost, K. J., Sammon, M. C., &Viratyosin, T. (2020). The unprecedented stock market impact of COVID-19. National Bureau of Economic Research Working Paper No. 26945, doi:10.3386/w26945.
5. Baker, S., Bloom, N., Davis, S.J., Kost, K., Sammon, M. and Viratyosin, T. (2020), "The unprecedented stock market reaction to COVID-19", Covid Economics: Vetted and Real-Time Papers, Vol. 1 No. 3.
6. Barro, R. J., Ursúa, J. F., & Weng, J. (2020). The coronavirus and the great influenza pandemic: Lessons from the "Spanish flu" for the coronavirus's potential effects on mortality and economic activity.National Bureau of Economic ResearchWorking PapersNo.26866.doi:https://www.nber.org/papers/w26866.pdf.
7. del Rio-Chanona, R.M., Mealy, P., Pichler, A., Lafond, F. and Farmer, D. (2020), "Supply and demand shocks in the COVID-19 pandemic: an industry and occupation perspective", arXiv preprint arXiv:2004.06759.
8. Faulkner, B. (2001), "Towards a framework for tourism disaster management", Tourism Management, Vol. 22 No. 2, pp. 135-147.
9. Gil-Alana, L. A., and M. Monge. 2020. Crude oil prices and COVID-19: Persistence of the shock. Energy Research Letters 1 (1): 13200. doi:10.46557/001c.13200
10. Gormsen, Niels Joachim and Koijen, Ralph S. J (2020).Coronavirus: Impact on Stock Prices and Growth Expectations. The University of Chicago, Becker Friedman Institute for Economics Working Paper No. 2020-22.doi: http://dx.doi.org/10.2139/ssrn.3555917.
11. Kumar, K., Prakash, A., & Singh, K. (2021). How National Education Policy 2020 can be a lodestar to transform future generation in India. Journal of Public affairs, 21(3), e2500.
12. 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 Health17(8), 2800.doi: https://doi.org/10.3390/ijerph17082800.
13. McKercher, B. and Chon, K. (2004), "The over-reaction to SARS and the collapse of Asian tourism", Annals of Tourism Research, Vol. 31 No. 3, pp. 716-719.
14. McKibbin, W.J. and Fernando, R. (2020), The Global Macroeconomic Impacts of COVID-19: Seven Scenarios, Brookings Institution, Washington, DC.

15. Murthy, A., and Rajesh, A. H. (2020). Impact of COVID-19 Virus Cases and Sources of Oil Price Shock on Indian Stock Returns. Structural VAR Approach. International Association for Energy Economics. 2020 issue, pp. 68 – 70.
16. Ozili, P. K., & Arun, T. (2020). Spillover of COVID-19: Impact on the Global Economy Available at SSRN 3562570. pp. 1-27.
17. Qin, M., Y. C. Zhang, and C. W. Su. 2020. The Essential Role of Pandemics: A Fresh Insight into the Oil Market. Energy Research Letters 1 (1): 13166. doi:10.46557/001c.13166
18. Rajamohan, S., Sathish, A., & Rahman, A. (2020). Impact of COVID-19 on stock price of NSE in the automobile sector. Int. J. Adv. Multidiscip. Res, 7(7), 24-29.
19. Singh, K. Upshot of Environment Fear and Health Consciousness of Consumers on Buying Purpose of Green Goods: A Path Investigative Method.
20. Singh, T. P., Dhamija, S., & Singh, K. (2015). Impact of Green Marketing Tools on Buying Behaviour of Indian Consumer. Pragyaan: Journal of Management, 23.
21. Singh, T. P., Dhamija, S., & Singh, K. (2015). Role of Employee Behavior in Managing Brand Consistency. JIM QUEST, 11(2), 40.
22. Singh, T. P., Dhamija, S., & Singh, K. (2015). Role of Employee Behavior in Managing Brand Consistency. JIM QUEST, 11(2), 40.
23. Yang, Y., Peng, F., Wang, R., Guan, K., Jiang, T., Xu, G., Sun, J., Chang, C., 2020. The deadly coronaviruses: The 2003 SARSpandemic and the 2020 novel coronavirus epidemic in China. J. Autoimmun. 102434.
24. Zach, T., 2003. Political events and the stock market: Evidence from Israel. Int. J. Bus. 8 (3).
25. Zhang, D., Hu, M., & Ji, Q. 2020. Financial markets under the global pandemic of COVID-19. Finance Research Letters, 101528.doi: https://doi.org/10.1016/j.frl.2020.101528.