HOW COVID 19 AFFECTED RETURS OF VARIOUS INDUSTRIES IN INDIA

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ABSTRACT

The world has significantly transformed in just nine months, with facemasks, vaccinations, and medical systems becoming everyday necessities. The Covid-19 epidemic has completely stopped countries from moving, completely changed what "normal" living looks like, and thrown the world economy into one of the worst recessions in recent memory. This shift in focus has had a negative impact on the world economy, and the situation is getting worse due to uncertainty about the future. Indian companies have also been negatively impacted by low customer demand, unstable supply, and lockdown regulations. So, the prime objective of the study is to examine how the pandemic affected various Indian sectors. We used sectoral wise Indices of NSE like Nifty FMCG, Nifty Banking, Nifty IT, Nifty Realty, Nifty Pharma and Nifty Oil & Gas. We applied event study method to test the hypothesis. We found that at the anticipatory period, most of the industries reported negative cumulative abnormal return. But in the event period and adjustment period, most of the stock index returns reported a positive cumulative abnormal return. IT industry stocks price is a very less affected and the Oil & gas industry stock price is the more affected (More volatility in the stock price). Additionally, we noticed that pharmaceutical industry investors are made more profit out of the pandemic.

Keyword: - *Covid 19, event study, stock price, NSE indices, NIFTY returns.*

1. INTRODUCTION

The first Covid 19 case reported in china in Dec 2019 and global economies officially confirmed the Covid 19 cases on 22nd Jan 2020. The powerful economies like the U.S, U.K, Germany…etc. lost so many lives and suffered heavy financial loss due to this pandemic. In the case of global industries, the financial sector affected the impact at the initial stage. Later it affected almost all the industries and businesses. It made a negative impact on most of the industries in the global economy (UNWTO, 2020). IMF forecasted that the global GDP would decrease by 4.9% in the year 2020 (International Monetary Fund, 2020). And as per WTO predicted the global trade would fall to 9.2% in the same year (World Trade organisation, 2020)

The first case in India reported on 27th Jan 2020 and due to the fast-spreading nature of the pandemic, most of the affected persons lost their lives. To prevent the further spread of the pandemic the central and all state governments in India announced the complete lockdown at midnight of 24th March 2020. Due to this pandemic and lockdowns uncertainty increased among investors. And the business and travel restrictions also affected the operations of most of the company.

The external shock not only affected the financial performance and cash position of a company but also reflected in the stock prices. By considering the theories of behavioural finance, not only the basic value of the stock but also the emergencies in the economy have a significant impact on the stock price. Earning volatility is depends on the investor's behaviour, if the investor is optimistic earnings volatility is minimum and if the investor is pessimistic earnings volatility will be very high. So many studies revealed that emergencies like Covid 19 pandemic created uncertainty and volatility in the stock exchanges that existed all over the world. Surely, this external shock made a great impact on the major stock exchanges in India.

There is a sharp increase in the risks in the financial sector after official confirmation of the Covid 19 pandemic spread in the global market. Later, it slowly transmitted to other industries (Yang, Chen, and Zhang, 2020). So, in this paper, we are applying an event study approach to understand How the Covid 19 had affected the abnormal returns of each NIFTY indexes?

2. LITERATURE REVIEW

Bai et al. (2019) utilized a general equilibrium model to incorporate infrequent catastrophes and discovered that including crises into the capital asset pricing model (CAPM) can enhance its ability to represent stock prices. In order to provide appropriate investment opportunities and strategies for global investors, Yin, Lu, and Pan's (2020) analyzed Sino-US trade war's effects on the Chinese stock market. They found negative events have a longer-lasting effect on the stock market than good occurrences. Rengasamy (2012) examined the effects of Eurozone sovereign debt-related policy announcements and development rewards in addition to the stock market volatility of the BRIC countries (Brazil, Russia, India, China, and South Africa). According to their findings, throughout the research period, no BRICS stock market has seen negative returns.

Liu et al. (2020) talked about how COVID-19 affected US stock and crude oil prices. They discovered that stock returns and crude oil returns are positively impacted by the COVID-19 epidemic. They also discovered that the return on crude oil and the return on stocks are inversely related. Utilizing event analysis methodologies, Fang et al. (2020) examined how the Covid 19 epidemic affected the money market, stock market, and other exchange markets. Their research indicates that the COVID-19 pandemic affected the financial markets immediately, and that three to five days following the occurrence, there was an increase in the chance of various markets spiking off. According to Yan, L., and Qian, Y. (2020), the Covid 19 epidemic had a significant short-term effect on the consumer stock market in China. They also found that the pandemic had a minimal effect on consumer industry stock, leading them to believe that COVID-19 is a conditioned, transient phenomena.

Yulong Sun, Ying Zhang, and Tao Li (2020) looked into how different businesses' stock values changed over the Covid 19 pandemic window period in order to determine how well those industries were able to adapt to the epidemic. Researchers discovered that while the epidemic had a beneficial effect on stock prices on the Shenzhen Stock Exchange, it had a negative influence on those on the Shanghai Stock Exchange. Although COVID-19 had a more severe and detrimental impact on China's conventional industries, it also opened up prospects for the growth of high-tech enterprises.

3. RESEARCH METHODOLOGY

3.1 Data

We employed secondary data from nseindia.com for this study. We used the daily price of the stock index to calculate normal return and abnormal return. Where the sectoral wise indices selected for this event study include Nifty FMCG, Nifty Banking, Nifty IT, Nifty Realty, Nifty Pharma, Nifty Oil & Gas. We took the average of Nifty return (From 07 Feb 2019 to 07 Feb 2020. And we selected 246 trading day returns to calculate the expected return during this period. Finally, the event study covering a maximum of 30 days before and after the complete lockdown announced by the central government and state governments i.e. 25th March 2020.

3.2 Empirical Results

Event study mainly examines the abnormal changes of sample stock prices (or abnormal returns) after a specific event occurs. Huang and Ming (2018) made a systematic study of the event method. We used the event study in this article to examine the impact of the COVID-19 pandemic on the stock market. There are three popular models for calculating abnormal returns: the average adjusted return rate model, the market index adjusted return rate model and the market model.

The average adjusted rate of return model has a large deviation when a bull or bear market occurs on the event day (Klein and Rosenfeld, 1987) The market index adjusted return model has a strong relationship assumption, which is not applicable in most cases (Huang and Ming, 2018). Market models are the most commonly used and have good predictive power (Brenner, 1979). In this article, we used the market model, which is outlined as follows

Calculate the normal rate of return $(R_{i,t}) = \alpha i + \beta i R_i, M_{i,t}$ (1)

Calculate the average abnormal rate of return $(AR_{i,t}) = R_{i,t}-(\alpha i+ \beta i R_{i,}M_{i,t})$ (2)

Calculate the cumulative abnormal rate of return $CAR_{t1, t2} = \sum_{t=t1}^{t2} AR_{i,t}$ (3)

where, $R_{i;t}$ is the return rate of stock i on the trading day t,$R_{i;M_{i;t}}$ is the market return rate of the trading market, αiandβi are the regression coefficients of the daily return rate of the stock i and the market return rate. The expected normal return of individual stock i can be calculated if αi and βi remain stable during the estimation period. $AR_{i;t}$ is

the average abnormal return rate of stock *i* on the trading day *t*, obtained by subtracting the expected return from the actual return. $CAR_{i(t_1;t_2)}$ is the cumulative abnormal return rate of stock *i* in the event window period (t_1, t_2).

Then we applied a t-test to understand whether the event had any impact on the abnormal returns of the stock index. To ensure normality before applying 't' test is an essential pre-requisite, we checked for normality of the returns applied Jarque-Bera test in EViews. The t-test has the following null and alternative hypothesis:

H o: μ1 = μ2 i.e. There is no significant difference in the mean stock index returns of the pre and post sample periods
H a: μ1 = μ2 i.e. There is a significant difference in the mean index returns of the pre and post sample periods

3.3 Measuring of Covid 19 impact on stock index returns applying event study technique

Event window	**Nifty bank**	**Nifty FMCG**	**Nifty Pharma**	**Nifty oil & gas**	**Nifty IT**	**Nifty Realty**
(-30,0)	-0.6168***	-0.2544***	-0.2608**	-0.4592***	-0.3308	-0.6727***
	-4.8438	-2.9879	-2.4564	-4.1698	-3.3019	-5.6668
(-10,0)	-0.4415***	-0.1595***	-0.1692***	-0.2391***	-0.2257***	-0.4354***
	-6.3190	-3.2952	-3.1694	-3.8214	-4.0753	-6.5852
(-5,0)	-0.2612***	-0.0410	0.2913	-0.1077**	-0.0200	-0.2194***
	-5.1994	-1.1212	-1.4856	-2.3862	-0.4276	-4.5076
(0,0)	0.0767***	0.0221	0.0118	0.0533***	0.0305*	0.0767
	3.4396	1.5005	0.7535	2.7436	1.7654	1.2339
(0,5)	-0.0175	0.0740**	0.0436	0.0427	-0.0159	-0.0245
	-0.2548	2.3005	1.2703	1.0351	-0.3245	-0.3578
(0,10)	0.0478	0.1521***	0.2913***	0.1477**	0.0288	-0.0053
	0.7838	3.3730	6.1456	2.4911	0.5332	0.0571
(0,30)	0.0448	0.0870	0.2839***	0.2281**	0.1160	-0.0244
	0.3507	0.9857	3.3753	2.0716	1.1573	-0.2057

Table 1.1: Regression results

*Note: The above table 1.1 showing the regression results, where the first row of each event window is the cumulative abnormal return of each industry index. And the second row is indicating the respective t-value of each event window. ***, **, and * are significant at 1%, 5%, and 10% confidence levels, respectively*

By observing the results (Table 1.1) we can understand that on the event day (i.e. 25th March 2020) the Covid 19 impact is more visible in the banking,oil & gas and IT industry. Covid 19 impact affected only a certain extent in case IT stock index return. Whereas, the impact is more in oil & gas firms. Moreover, the Covid 19 impact is more visible in most of the industries before 10 days of event day, the effect has disappeared after the happening of the event in case Banking, IT and Realty industries. However, in the case of industry like FMCG, Pharmaceutical and Oil &gas the effect is visibleafter the event day.

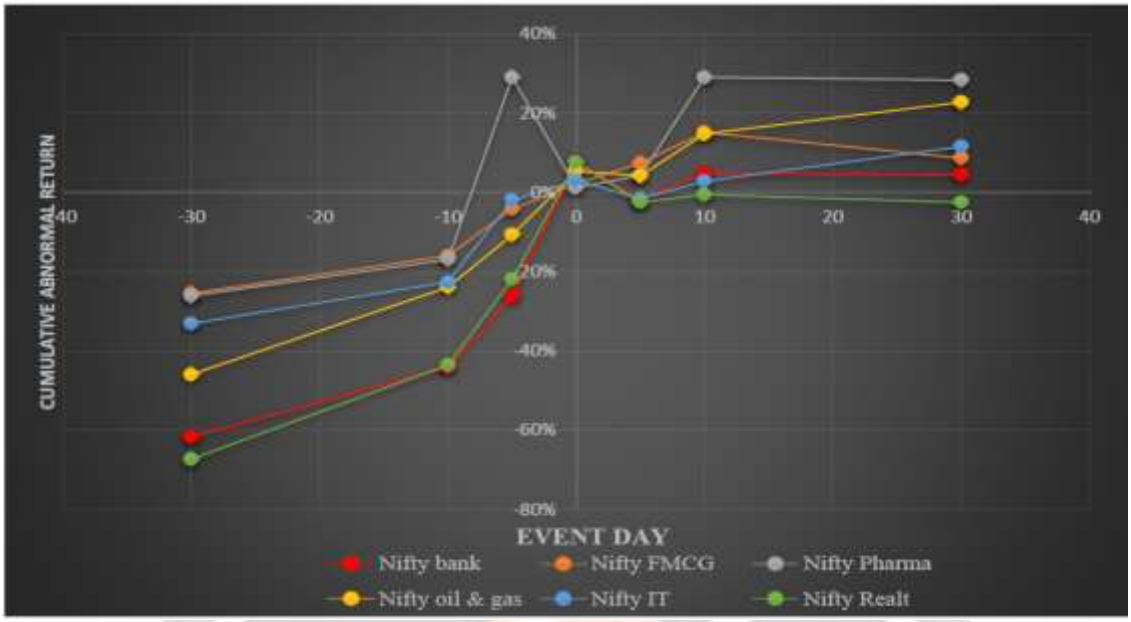

Chart 1.1 Cumulative abnormal return of different stock indexes

In summary, all the industry stock return (except the pharmaceutical industry) showing negative cumulative abnormal return before the happening of the event (Anticipation period). Moreover, majority of the industries stock index showing positive abnormal return in the event period and the post-event period. The pharmaceutical industry made more profit out of the Covid 19 impact, since the industry is earning positive abnormal return on pre-event, post event and event day.

4. CONCLUSIONS

Based on our study, it is clear that most of the industries stock return was affected by the Covid 19 first wave. First, it affected the return of the financial sector is due to uncertainty among investors. And later it transmitted into all other sectors in the Indian economy. At the anticipatory period, most of the industries reported negative cumulative abnormal return. But in the event period and adjustment period, most of the stock index returns reported a positive cumulative abnormal return. And the IT industry stocks price is a very less affected industry and the Oil & gas industry stock price is the more affected (More volatility in the stock price) due to this pandemic. Additionally, Pharmaceutical industry investors made more profit (Cumulative positive abnormal return) out of Covid 19.

We hope this study will help you to understand the effect of the Covid 19 pandemic on the stock listed NSE. It can clarify how long NSE take to recover the external shock due to Covid 19. The findings can help company management, investors, government and other competent authority to take the right decision at right time to recover from the shock-like Covid 19 as much as earlier. It also helps analysts to forecast the stock price, return and other variables in any upcoming events in the Indian economy.

5. REFERENCES

Bai, H., K. Hou, H. Kung, E. X. N. Li, and L. Zhang. 2019. The CAPM strikes back? Anequilibrium model with disasters. *Journal of Financial Economics*, 131(2), pp. 269-298.

Brenner, M., 1979. The sensitivity of the efficient market hypothesis to alternative specificationsof the market model. *Journal of Finance*, 34(4), pp. 915-929.

Fang, Y., Yu, B., & Wang, W. (2020) 2020. China's financial. *Journal of. Central University ofFinance and Economics*, pp. 116-128.

Huang, H. a. L. M., 2018. An overview of event study methodology. *Statistics & Decision*,

34(13), pp. 66-71.

International Monetary Fund, 2020. *World Economic Outlook (WEO),* Washington, D.C: IMF.Klein, A., and

J. Rosenfeld, 1987. The influence of market conditions on event-study residuals. *Journal of Financial and Quantitative Analysis,* 22(3), pp. 345-351.

Liu, L. W. E.-Z. &. L. C.-C., 2020. Impact of the COVID-19 pandemic on the crude oil andstock markets in the US: A time-varying analysis. *RESEARCH LETTERS.*

Pinglin He, Yulong Sun, Ying Zhang & Tao Li., 2020. COVID–19's Impact on Stock PricesAcross Different Sectors—An Event Study Based on the Chinese Stock Market. *Emerging Markets Finance and Trade*, 56(10), p. 2209.

Rengasamy, E., 2012. The sovereign debt crisis in the eurozone and its impact on the BRICS'sstock index returns and volatility. *Economics and Finance Review,* 2(2), p. 37–46.

Righi, M. B., and P. S. Ceretta., 2011. Analyzing the structural behaviour of volatility in themajor European markets during the Greek crisis. *Economics Bulletin,* 31 (4).

UNWTO, 2020. UNWTO world tourism barometer. May.18(2).

World Trade organisation, 2020. *Trade shows signs of a rebound from COVID-19, recovery stilluncertain,* Geneva: WTO.

Yang, Chen, and Zhang, 2020. Macroeconomic shock, financial risk. *Management World.*

Yan, L., & Qian, Y, 2020. The Impact of COVID-19 on the Chinese Stock Market: An EventStudy Based on the Consumer Industry. *Asian Economics Letters*, p. 1.

Yin, Z. C., H. Z. Lu, and B. X. Pan., 2020. The impact of the Sino-US trade war on China'sstock market: An event-based analysis. *Journal of Management,* 33(1), p. 18–28.