Impact of COVID-19 outbreak Pandemic on Stock Market Performance : Evidence from Indian Stock Market

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ABSTRACT

The Covid-19 pandemic has had a colossal impact on several nations. With nationwide lockdowns, economic and social life has almost come to a standstill. The market capitalization on each exchange in India was about $2.16 trillion during the period before February 2020, since the first case of Covid-19 hit India during the last week of January 2020. Until then, both NSE and BSE traded at their highest levels ever, hitting peaks of 12,362 and 42,273 respectively.

Ever since the first COVID 19 case struck India during the last week of January 2020, markets loomed under fear as uncertainty triumphed. Global Markets crashed to levels that were unprecedented and were not experienced even during the 2008, Global Financial Crisis. Following the strong correlation with the movements and indices of the global market, the BSE Sensex and Nifty 50, reacted to this pandemic and mirrored the sentiments the pandemic unbridled upon both foreign and domestic investors by reflecting sharp volatility. It immediately tumbled down 42 percent.

The present paper attempts to explore the impact of the COVID-19 pandemic on the Indian stock market liquidity and returns. Underpinning the COVID-19 situation, this paper empirically explores the impact of the lockdown announcement on the Indian stock market. A panel data regression is developed to examine the effect of the COVID-19 pandemic lockdown announcement on daily market returns. Further, the study analyses the effect of COVID- the 19 outbreaks on daily growth in cases tested positive on Indian stock market return as well as the effect of the daily reported death cases due to COVID-19 on Indian stock market return., three regression models are developed.

Using the daily closing prices of indices such as NSE- Nifty and BSE- Sensex, this study examines the volatility of these indices. Data is analyzed with help of regression, dispersion, and Co-matrix techniques. The analysis is done using R Studio. C0- matrix techniques and heat maps are drawn to further emphasize the findings.

Keywords: Covid- 19, Stock Market, Returns

JEL Classification: D53, E44, E02

INTRODUCTION

The SARS-CoV-2 virus, which caused the Covid-19 outbreak triggered in Wuhan city, Hubei province of China in December 2019, and within a short time spread over 191 countries over the globe. This Covid-19 pandemic emaciated global economies like never before, and the impact was felt by individuals, businesses, and investors who depended on a prospering and bullish market for gains and growth. The swift spread of the unprecedented Covid- 19 pandemic put the world to a standstill and changed the global outlook unexpectedly. This pandemic came to be recognized as a global health emergency and resulted in a significant global economic downturn. Economic activities of several countries came to a standstill, due to restrictions on communications, consumption, and movement. The uncertainty and risk created due to this pandemic affected both advanced as well as emerging economies such as Canada, US, Spain, Italy, and India. In these pandemic times, the financial markets responded with dramatic movement and were adversely affected. At the start of 2020, the period just before the outbreak and spread of the pandemic, the markets did show recovery which in turn led to NSE and BSE trading at their highest levels at 12000 plus and 42000 plus respectively. There were close to 30 companies that were expected to file IPOs. However, ever since Covid-19 struck at the end of March 2020, markets loomed under fear as uncertainty prevailed. Covid 19, sent markets around the world collapsing to levels not witnessed since the financial apocalypse of 2008. While the world had beheld many financial crises in the past, the last one being the financial recession of 2008, the current coronavirus crisis was different from the past fallouts.

Pre Covid-19, market capitalization on each major exchange in India was about $2.16 trillion. Following the correlation with the trends and indices of the global market, BSE Sensex and Nifty 50 fell by approximately 38 percent.

In response to the current upheaval, RBI and the Government of India recommended several reforms to pump in liquidity in the system, such as reductions in repo rate, extending the moratorium, and special measures through the Atmanirbhar Bharat proposal; despite these, the pandemic has impacted several investors and moreover corporate sector. Payments deferrals and sluggish business conditions have impaired the growth and the health of economies. Slowing GDP growth, falling demand supply, and reduced discretionary expenditure were prominent during the lockdown, which led to a substantial decline in household incomes, and marketing spending and hiring came to a halt.

Companies with state-of-the-art products and technology-driven processes will surely resuscitate the growth momentum once the Covid-19 pandemic is overcome.

A Comparison of Pre and Post COVID View of Indian Stock Markets

	Indexes-15 Jan 20	**Indexes-23 Mar 20**	**Indexes-31st July 20**
Nifty 50	12,343.30	**7,** ,610	10,300
Sensex	41,872.73	25,981	31,327

With the VIC Index increasing by about three times its usual pace, India's stock market experienced an increase in its volatility, besides the markets halted twice in March 2020 due to lower circuit. The Covid-19 had pushed the Indian benchmark index to a level that was witnessed during the Global Financial Crisis of 2008.

As for the outlook for the market, we only need to look back at past records. Fall in BSE sensitive index is momentary, and each fall provides investors with the opportunity to enter the market and earn a higher return especially for those with long term horizon. Moreover, the higher the fluctuations, the higher chances of getting better returns. Although these crises are real and have an effect on the global economy, past records of such cases clearly prove that such cases have not lasted long as the world is capable of finding solutions to overcome these challenges. Given the fact that the scale and effect of Coronavirus on the economy are tough to predict, the markets are bouncing back and will correct after the crisis is completely controlled.

Under this backdrop, the present paper attempts to explore the impact of Covid-19 pandemic on the Indian stock market. Underpinning the Covid-19 situation, this paper empirically explores the impact of lockdown announcement on Indian stock market. A panel data regression is developed to examine the effect of

Covid-19 pandemic lockdown announcement on daily market returns. Further the study analyses the effect of Covid- 19 outbreak on daily growth in cases tested positive on Indian stock market return as well as the effect of the daily reported death cases due to Covid-19 on Indian stock market return.

LITERATURE REVIEW

Over the past period, the available literature examined the economic impact of epidemics and pandemics (Haacker, 2004; Santaeul, 2008; Yach et al., 2006; Bloom et al., 2018). There is academic literature available that firmly confirms that markets react to each big and small instance , even if the impact is temporary. Goodell (2020) confirms that markets respond to acts of terrorism, air disasters, plane crashes as well as natural calamity such as earthquakes (Bosch et al., 1998, Hon et al., 2004; Choudhdry, 2005; Karolyi, 2006; Brounen and Derwall, 2010. Kowalewski and Śpiewanowski, 2020) as well as pandemic diseases, like Severe Acute Respiratory Syndrome (SARS5) (Chen et al., 2007) and Ebola (Ichev and Marinč, 2018).

Keeping in trend, within a short span of time, there were several studies conducted to analyse the impact of Covid-19 pandemic on several aspects of financial system and economy. Several empirical studies were conducted to understand the impact of Covid-19 on the financial market as well as the stock market. Such studies were conducted for both advanced as well as emerging economies.

Raja Ram (2020) in his study confirmed that Covid-19 hit hard on the global financial system, as also reflected in the Indian stock markets experiencing sharp volatility due to the downfall of the global financial market. The study has analysed the history of all unexpected events and thereby on that basis concluded that Covid-19 is a “black swan” event.

Zhang et al. (2020) studied the impact of the Covid-19 pandemic on stock market risk, the study concluded that the pandemic has resulted in an increase in the risk level of financial markets across the world. The study also firmly confirmed that the markets the world over have behaved drastically volatile due to the pandemic-related uncertainty and its related economic damage.

Ramelli and Wagner (2020) studied the impact of market response to the Covid-19 on the global trade and financial policies of companies and found a negative relationship between companies, especially those having trade relationships with China, the study thereby concluded that the health catastrophe caused the economic predicament which had a large impact on the financial system. A study conducted on the impact of social distancing norms taken up to curb the spread of the virus on the economy and stock prices, across four continents: North America, Africa, Asia, and Europe by Ozili and Arun (2020) found that social distancing policy implemented by the country had a significant impact on the economy with a negative impact on stock prices.

Nguyen and Pham (2018) tried to investigate if there is any relationship between investing based on sentiments and returns from the stock market. He examined the Vietnamese stock market for the present study. The study concluded that pessimist investors invest based upon sentiments of the stock markets, however, if the investor is optimistic, he would delay investment decisions until the market corrects itself. This study provides a strong basis that optimistic investors are the potential investors who search with the intention to participate in the markets.

Cepoi (2020) analyzed the relationship between Covid-19 related broadcast and stock market returns across countries most prompted by the pandemic. The study concluded that the stock market presents disproportionate dependence on Covid-19-related information.

Osagie et al. (2020) analyzed the impact of Covid 19 on stock returns in Nigeria. The study concluded that Covid-19 had a negative impact on the stock returns in Nigeria. The study also suggested measures like a stable political setting, and a flexible exchange rate regime to improve the financial market. Hyun-Jung (2020) examined the stock market of South Korea, another leading country of an emerging economy. The study concluded that the Korean economy has shown an upwards- downwards movement with exports showing an increasing trend at times and at times showing a declining trend.

Ravi (2020) has compared the pre-Covid-19 and during Covid-19 situation of the Indian stock market. His findings revealed that before Covid-19 both the bourses-NSE and BSE were at their highest levels hitting peaks showing encouraging stock market conditions. After the outbreak of the Covid-19 stock market came under fear as BSE Sensex and NSE Nifty fell drastically at their all-time lows.

Mondal (2020) has examined the distress of the pandemic on the Indian stock market. The study confirmed that people have had a control on discretionary expenditures and have only been expending on necessities and essentials which adversely impacted the market. The study concluded that BSE Sensex observed the biggest single-day fall and Nifty too had a deep fall.

In a short span there researchers world over studied various aspects on the impact of Covid-19 on different sectors especially health and trade and commerce. However there is limited study on its impact on the stock market of the emerging economy. The stock market is an important reflection of the financial health and extent of development of an emerging economy. India being an emerging economy, this paper is an attempt to study various aspects of impact of Covid-19 on the Indian stock market. The study attempts this paper empirically explores the impact of lockdown announcement on Indian stock market. Further the study analyses the effect of Covid- 19 outbreak on daily growth in cases tested positive on Indian stock market return as well as the effect of the daily reported death cases due to Covid-19 on Indian stock market return.

OBJECTIVE OF STUDY

This study analyses the effect of Covid-19 pandemic on Indian stock market returns. The objective of the study is as follows:

1. Understand impact of lockdown announcement on Indian stock market.
2. Analyze the impact of COVID- 19 outbreak on daily growth cases tested positive on stock market returns.
3. Analyze the impact of the daily reported death cases due to COVID-19 on Indian stock market returns.

RESEARCH METHODOLOGY

This study analyses the effect of Covid-19 pandemic on Indian stock market return. The present study is based on secondary data, considering the first wave of Covid-19, wherein maximum positive cases of Covid-19 as well as Covid-19 related death cases were reported, the data period considered is from 15th June – 30th September 2020 for analysis. Data for the study is collected from database like CMIE, RBI database, World Health Organization. Data on Covid-19 positive cases as well as Covid-19 related death cases are collected from the report of the Ministry of Health and Family Welfare, Government of India and World Health Organization. This paper uses the daily price and return of two stock indices of India, BSE, and NSE. The data is analysed using R- Studio.

Data is analyzed with help of regression, dispersion and Co-matrix techniques.
Heat Maps are drawn to further emphasize the results. This study measures

1. The daily growth Cases tested positive for Covid- 19
2. The daily reported death cases related due to Covid-19 on Indian stock market.

1. The regression model developed to analyze the effect of Covid-19 outbreak on daily growth cases tested positive on Indian stock market return is as follows:

Market return = α0 + The daily growth Cases tested positive for Covid- 19

2. The Regression model developed to analyses the effect of the daily reported death cases due to Covid-19 on Indian stock market return as follows:

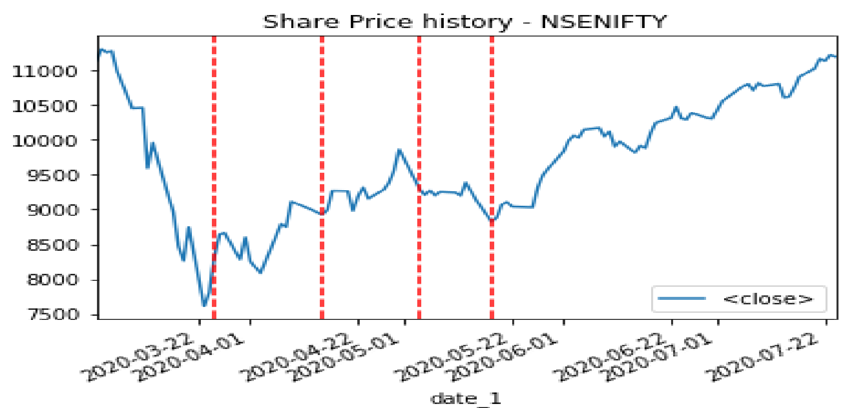
Market Return = α0+ the daily reported death cases related due to Covid-19

3. Co- regression matrix is developed by considering select market data parameters on Covid- 19, positive cases detected and death due to Covid-19 infection. The matrix represents various correlation coefficients with each market data parameter.

DATA ANALYSIS AND INTERPRETATION

Time period considered for study was from 19th June to 30th September 2020.The Figure 1 is graphical representation of lockdown period versus stock market movement.

Figure 1 Lockdown VS Market movement (Nifty 50)



INTERPRETATION:

The stock prices, world over are impacted by the demand and supply in the market. The above graph represents the lockdown announcement versus the Nifty -50 index movement. The researcher observed that at the time of the announcement market experienced a bearish movement but it immediately moved towards recovery once investors realised that there is an investment opportunity and this recovery was even more rigorous in phases as the lockdown showed signs of ending in phases. Before February 2020 (pre-COVID-19 period) the prices of the Nifty index was positive and show almost a smooth line. But after reporting the first case in India as well as the declaration of the first lockdown, it moved down to the bottom of the steep at the end of March 2020. From April 2020, it again shows a positive trend. This was so as post the outburst of the

COVID19, the stock market came under anxiety and NSE Nifty fell by more than 35%. This led to a close to 25% loss of the total stock market. The Red Line indicates lockdown announcement dates in India As we can clearly see right after the lockdown was announced the market was bearish and recovered in time. Some of the sectors that were responsible for this downward movement were hospitality, tourism, and entertainment which all dropped by more than 40% due to transport restrictions. The only sectors that showed positive performance were the FMCG Sector and Pharma Sector since consumers had limited their consumption only to essentials. The relaxation adopted in the case of a lockdown policy from April by the government helped to positively influence NIFTY.

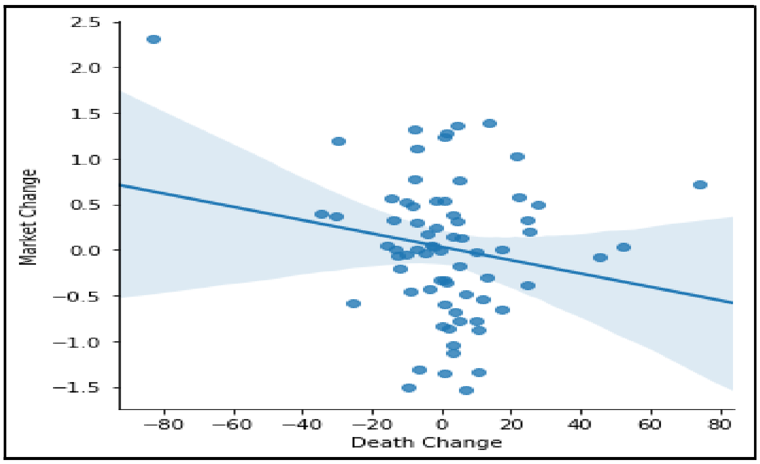


Figure2 - Regression Line death change vs Market change

INTERPRETATION:

The Figure 2 showcases graphical representation of rate of death versus stock market movement. The slope of the line is negative and showcasing negatives correlation between two variables. Which indicates that as death rate increases is impacting market and market turns bearish.

The relationship between two variables is expressed by following linear regression equation

Market rate change = -0.098 + [0.04] death rate change

Governments across the globe took unprecedented measures to protect the population's health and business operations. Despite all the measures countries reported rising cases of Covid-19 related deaths. This had a significant negative impact on the stock market.

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Figure 3 Regression Line Confirmed Case Change vs Market change

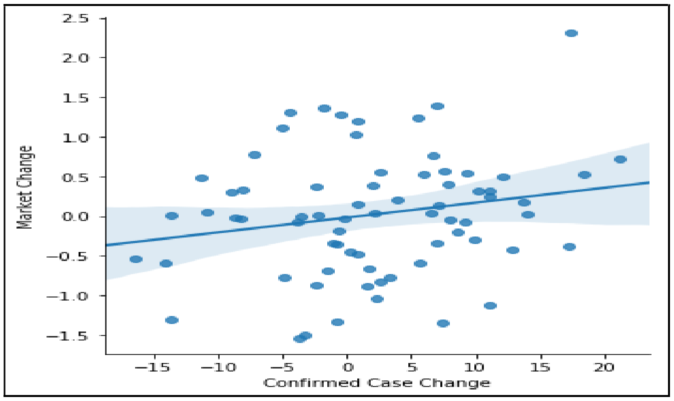
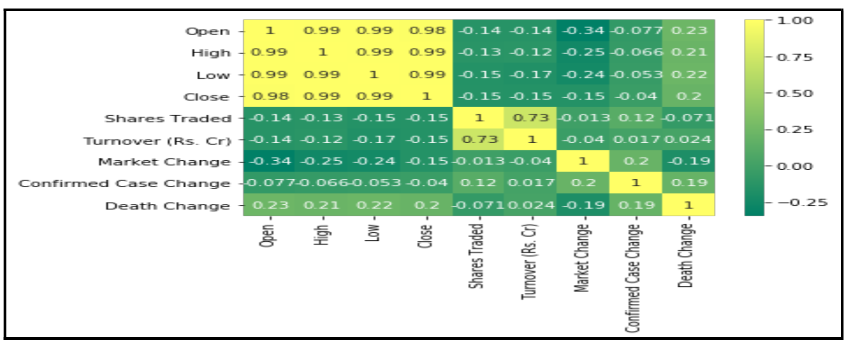


Figure-3 is graphical representation of confirmed case changes versus market change rate. As confirmed cases rate increases market react to it positively. The relationship between market change and confirmed case change as represented as follow:

Linear Regression Equation:

Market Change = -0.043 + [0.014]confirmed case change Multiple Correlation Confirmed Case Change * Death Change = 0.07074422212577935

Figure 4 Heat map showing Correlation of the dataset



INTERPRETATION:

The above Figure-4 is correlation coefficient matrix of market data – Market prices (open, high, and low), Market volume data (shares traded and turnover), market rate of return change and Covid data – confirmed cases changes and death rate change.

The correlation matrix is representation of interdependent relationship among variables. If the correlation coefficient between variables is above 0.75 it reflects a strong positive correlation between two variables. In the above figure-4 correlation coefficient matrix among study variables which is repented by shades of colour which is called heat map.

The correlation coefficient between death rate change and shares traded is -0.071 which is significant low but market during that period was bearish in nature.

Increased in confirmed cases and market rate change have moderate positive correlation coefficient 0.2 which indicates that recovery is positively correlated. Similar relationship exists between market volume and confirmed cases.

The research finds a positive correlation between confirmed cases and market return but it is not significant whereas death change percentage and market return have a negative correlation which is also not significant. This implies that when it comes to the Indian stock markets, not like the US, the stock markets in India starting reacting even before the actual outbreak of COVID-19 taking cue from the experience of other countries.

FINDINGS AND CONCLUSIONS

The global Covid-19 pandemic put major global economies into a back turn. India too laid back by almost a year of economic development and growth. There is immense pressure on the government and regulation to bring stability; resume growth and reinstate India back again to the predicted growth rates during pre-Covid-19 times. Organization for Economic Co-operation and Development (OECD) has reduced the GDP projection for Financial Year 2020 by more than fifty percent.

In times like the present, which has disrupted life, markets, and the financial system, we need to protect our society and ecosystem. Any financial meltdown will always reflect in the capital market and banking system of the country.

With reference to the literature review and data analysis, the study concludes that the Covid-19 pandemic has not impacted the Indian capital market significantly. The present paper further emphasizes the above, as it proves that there was not much significant relation between confirmed positive case changes and death cases due to Covid-19 changes with respect to market returns This was due to protective measures taken by the government at the right time to stabilize the economy, as the liquidity pump in and relief measures pronounced by the banking regulator along with reduction of policy repo rate and Cash Reserve Ratio of all banks. The next set of measures was directed toward protecting the capital markets in India from drastic volatile behavior through increased trading margin which reduced market-wide position and thereby curbed volatility. Measures were also taken to put in policy measures and compliance requirements of risk management for REITs and InVITS. There were also positive steps taken by the Ministry of Corporate Affairs by extending the period for quarterly and annual report declaration as well as permitting time for submission of corporate governance reports and many more positive steps taken in order to flatten the curve of the negative impact of the covid-19 pandemic on capital market and moreover to recoup investors' trust and confidence.

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