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Stock Market Volatility During Covid

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***Abstract:** This research paper is a comparatively study on different sector (Pharma, Energy, Oil &Gas and Auto Sector) during 2019 – 2021. If you have to stay in the market then you have to lead the marketin every situation. And thus, from there market stability begins. The Covid-19 pandemic blast as an acetone not in the Indian market but also all over the globe due to which each and every sectorgot affected and also, they are losing their market stability. The Indian stock market has been declined to 30% only the basic reason is Covid. The present study tries to compare the volatility of the companies listed on BSE and NSE during the pre, during and post COVID 19 periods to examine the effect of this pandemic on the economy as a whole.*
***Keywords:** Covid-19, Daily Closing Prices and Volatility*

I. INTRODUCTION

The immense spread of the Covid-19 pandemic which was started from somewhere but takedown whole the world and bring a huge impact in Indian market. The stability power not onlyof India but many other countries like France, Germany, The USA, and China have been stronglyaffected. To control this virus Nationwide lockdown, restriction has been imposed all over the globe due to which transportation system, demand-supply disequilibrium led to slow down the economy and create a fear factor among the participants of the capital market. The pause on the movement of different sector brigs down the rapid fall in the share price and increased volatility are identified during the period. It disrupts the market stability and position of systematic risk in the market which not only affecting public health but the financial market has intensely affected. The market value of Standard & Poor (S&P) 500 indexes declined to 30% since the Covid-19 outbreak. Sensex has also declined to almost 32% during the period. This pandemic has changed Capital market of India adversely affected by dramatic movement in stock return. To shed light onthis aspect, this paper attempts to undertake a comparative study of few capital market parameters like standard deviation of closing share price, average daily return, average volatility of daily returnand percentage of delivery of traded securities during the pre-covid and post-covid era, based on 4 important sectors of the economy, like, Automobiles, Energy, Pharmaceuticals and Oil & Gas. This paper divides into six sections. Section I starts with an introduction, section II represents a literature review, section III describes the objectives of the study, section IV describes the research methodology, section V shows results and discussion, and section VI end with the conclusion.

II. LITERATURE REVIEW

A Stock Market in India and Covid-19 – An Empirical Understanding, (Amit Kundu & Anil Kumar Goyal, 2022), This research paper shares the information about the impact of Covid-19 on theshare markets in India since the pandemic begun. The different sectors of BSE & NSE have been considered in this article to have a better understanding of the impact of Covid-19 on Indian Stock market over the period of study.

Does the Covid-19 Coaxes Volatility in Indian Stock Market – An Empirical Study, (Aditya Prasad Sahoo, 2021), This study signifies the empirically to explore the effect of COVID-19 on the Indian Stock Market, considering the Covid-19 scenario. This research explores employing regular closing prices of indices like Nifty & Sensex, the volatility of these indices over the period and soughtout to make a quantitative review of the stock market.

A Comparative Study of Bombay Stock Exchange and National Stock Exchange, (P. LAKSHMI, 2020), In this stock exchange has multiple roles in the economy which helps to raise capital businesses, research and development, venture capital, corporate partner and mobilize saving for the investments, creating opportunity for the small investors, government capital raising and barometer of the economy. The main purpose of this paper is the comparative financial performance of Bombay Stock Exchange and National Stock Exchange.

Status in Quo of Equity Derivatives Segments of NSE and BSE, (Shweta Singh and Dr. H.K. Singh, 2018), The aim to return and reduce risk derivatives which are among the prominence innovation in the financial market. Despite this India has not yet accomplished its full potential like other developed capital market. A lot of trading in future and options segments in Indian stock markethas been in the number of market participation and increased phenomenal in the short period of time.

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The Power of India Market: Analyzing NSE and BSE Trading Statistics, (Sitabhra Sinha and Raj Kumar Pan, 2018), Under this we look at the price return of individual stocks, with Tick-By-Tickfrom National Stock Exchange and daily closing price data from both BSE and NSE the largest exchange in India for the cumulative distribution, consistent with the power of law having exponents of distribution of trading volume.

A Sectoral Analysis of the Role of Stock Market Development on Economic Growth: Empirical Evidence from Indian Economy, (Madhu Sehrawat and A.K. Giri, 2017), The empirical results reveal that sector-specific economic growth are significantly influenced by changes in the respective sector-specific stock price indices in the long run as well as in the short run. Apart from that, the control variables, such as trade openness and inflation, act as the instrument variables in explaining the variations in the sector-specific GDP of the economy.

Influence On Exchange Rate BSE Sensex and Nifty NSE, (Aruna Polisetty and Dr. D. Prasanna, 2017), The advent of floating exchange rates, opening up of current account, Liberalization of capital account, reduction of customs duties, the development of 24-hour screen based global trading, the increased use of national currencies.

Stock Market Development and Long Run Growth, (Ross Levine and Sara Zervos, 2016), To access whether the stock market are merely burgeoning casinos where more and more players diffuse theoretical literature presents new empirical evidence which boost the economic growth in the ability to trade equity easily is important for growth and long run commitment of capital savers.

III. OBJECTIVE OF THE STUDY

1) To study the volatility of different sectors Pre, During and Post Covid Period.
2) To study the comparatively analysis of different sector Pre, During and Post Covid.

IV. RESEARCH METHODOLOGY

A. Type Of Research Design

The study carried out a Descriptive Research Study. Descriptive research studies are concerned with describing the characteristics where how different groups respond to a specific product or services. Here researcher widely use descriptive research to help ascertain the research object's prevailing conditions and underlying patterns. Due to the non-invasive research method and the use of quantitative observation and some aspects of qualitative observation, researchers observe each variable and conduct an in-depth analysis.

B. Data Collection Source

The source of data collection for the study is secondary study where every information is attained from already published research paper, newspaper articles and some of the information has been gained from officials' website of BSE and NSE. The use of secondarydata helps to summarized and collated to increase the overall effectiveness of research.

C. Methodology For Data Collection

Methodology is the systematic theoretical analysis of the methods applied to the field of study. The methodology behind the data collection is Quantitative Data Collection analysis which relates to the numerical results of the given data. It also helps to measure and expressed in numerical form.

Sample Period: - The sample covers daily observation Nifty and Sensex of three-time frames.

Sub Period 1: Pre-Covid-19 era (from July 2019 to December 2019) and Sub Period 2: During-Covid-19 era (from April 2020 to September 2020 andSub Period 3: Post-Covid-19 era (from July 2021 to December 2021

V. DATA ANALYSIS AND FINDINGS

For data analyses we have taken four specific sector which are common in both BSE (Sensex) andNSE (Nifty). The four sectors are Oil & Gas Sector, Energy Sector, Pharma Sector and AutomobileSector. We have taken the closing data of these sector which is on the daily basis. And the data wasdivided into Pre Covid-19 (01st July 2018 to 31st December 2018), During Covid-19 (01st April 2019 to 30th September 2019) and Post Covid-19 (01st July 2021 to 31st December 2021). The Data Analysis done on the basis closing index of all the four sectors by calculating standard deviations from which we can get volatility of that sector in particular time frame.

On The Basis Of BSE (Sensex)Oil & Gas Sector

Pre Covid

Column1	
Mean	14312.93569
Standard Error	79.81550432
Median	14642.13
Mode	#N/A
Standard Deviation	885.1967645
Sample Variance	783573.3119

During Covid

Column1	
Mean	12441.19496
Standard Error	82.40763282
Median	12784.97
Mode	#N/A
Standard Deviation	921.3453442
Sample Variance	848877.2433

Post Covid

A	B
Column1	
Mean	17378.53976
Standard Error	106.9806583
Median	17547.425
Mode	#N/A
Standard Deviation	1200.854911
Sample Variance	1442052.517

From the above analysis, it can be observed that there is a visible increase in Oil and Gas Sector from the pre covid period has a low volatility in comparison to during and after covid pandemic. It means that the revenue of Oil and Gas companies is estimated to decline.

Auto Sector

Pre Covid

Column1	
Mean	17126.30675
Standard Error	98.03456914
Median	17263.82
Mode	#N/A
Standard Deviation	1087.255968

During Covid

Column1	
Mean	15408.60224
Standard Error	195.243824
Median	15689.49
Mode	#N/A
Standard Deviation	2182.892314

Post Covid

Column1	
Mean	24055.09857
Standard Error	118.6379146
Median	23952.74
Mode	#N/A
Standard Deviation	1331.707289

From the above analysis, it can be observed that there is a visible increase in Auto Sector during post-covid period as compared to during the covid period. This is because the auto sector was deeply affected by the covid and which remains a long-lasting period but after the covid auto sectorcomes back to its own track even with a faster pace.

Energy Sector

Pre Covid

Column1	
Mean	4785.137073
Standard Error	34.09519951
Median	4713.69
Mode	#N/A
Standard Deviation	378.1340549
Sample Variance	142985.3635

During Covid

Column1	
Mean	5414.64144
Standard Error	77.73216477
Median	5462.7
Mode	#N/A
Standard Deviation	869.0720223
Sample Variance	755286.1799

Post Covid

Column1	
Mean	7440.999603
Standard Error	53.06842325
Median	7546.95
Mode	#N/A
Standard Deviation	595.6915735
Sample Variance	354848.4508

From the above analysis, it can be observed that there is a visible increase in Energy Sector as compared to previous year data where covid affect the most. This means that fall in the figure if standard deviation in 2021 as compared to 2020 is high which implies that energy sector is movingtowards the profitability.

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Pharma Sector

Pre Covid

Column1	
Mean	12930.88033
Standard Error	35.07410652
Median	12923.39
Mode	#N/A
Standard Deviation	388.9906588

During Covid

Column1	
Mean	16955.59608
Standard Error	161.54178
Median	16490.06
Mode	19379.79
Standard Deviation	1806.092006

Post Covid

Column1	
Mean	25792.81151
Standard Error	53.59079925
Median	25872.71
Mode	#N/A
Standard Deviation	601.5552296

From the above analysis, it can be observed that there is a visible increase in Pharma Sector duringthe covid time is moving at a rapid pace. This is because the use of pharmaceutical company is ata priority list of every sector. And the price of stock of pharma is also high. Even the pharma sectoris high at even after the post covid pandemic

On The Basis of NSE (Nifty 50)Oil And Gas Sector

Pre Covid

Column1	
Mean	7437.514326
Standard Error	31.4134063
Median	7469.9
Mode	6692.8
Standard Deviation	460.6109536

During Covid

Column1	
Mean	7437.514326
Standard Error	31.4134063
Median	7469.9
Mode	6692.8
Standard Deviation	460.6109536

Post Covid

Column1	
Mean	7437.514326
Standard Error	31.4134063
Median	7469.9
Mode	6692.8
Standard Deviation	460.6109536

From the above analysis, it can be observed that there is a visible increase in Oil and Gas Sector from the pre covid period has a low standard deviation in comparison to during and after covid pandemic. It means that the revenue of Oil and Gas companies is estimated to decline.

Auto Sector

Pre Covid

Column1	
Mean	7626.155285
Standard Error	44.9415595
Median	7673.8
Mode	7593.3
Standard Deviation	498.4260063

During Covid

Column1	
Mean	6806.068
Standard Error	87.425304
Median	6931.05
Mode	#N/A
Standard Deviation	977.4446135

Post Covid

Column1	
Mean	10703.44643
Standard Error	52.3383308
Median	10612.15
Mode	10351.45
Standard Deviation	587.4963062

From the above analysis, it can be observed that there is a visible increase in Auto Sector during post-covid period as compared to during the covid period. This is because the auto sector was deeply affected by the covid and which remains a long-lasting period but after the covid auto sectorcomes back to its own track even with a faster pace.

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Energy Sector

Pre Covid

Column1	
Mean	15417.75203
Standard Error	67.27191729
Median	15587.5
Mode	#N/A
Standard Deviation	746.0816546

During Covid

Column1	
Mean	14270.7204
Standard Error	125.3940665
Median	14620.85
Mode	15408.15
Standard Deviation	1401.948283

Post Covid

Column1	
Mean	21853.67063
Standard Error	169.4053838
Median	22467.375
Mode	#N/A
Standard Deviation	1901.570717

From the above analysis, it can be observed that there is a visible increase in Energy Sector as compared to previous year data where covid affect the most. This means that fall in the figure if standard deviation in 2021 as compared to 2020 is high which implies that energy sector is movingtowards the profitability.

Pharma Sector

Pre Covid

Column1	
Mean	8845.245079
Standard Error	18.8398615
Median	8869.105
Mode	8628.55
Standard Deviation	211.4769208

During Covid

Column1	
Mean	8845.245079
Standard Error	18.8398615
Median	8869.105
Mode	8628.55
Standard Deviation	211.4769208

Post Covid

Column1	
Mean	8845.245079
Standard Error	18.8398615
Median	8869.105
Mode	8628.55
Standard Deviation	211.4769208

From the above analysis, it can be observed that there is a visible increase in Pharma Sector duringthe covid time is moving at a rapid pace. This is because the use of pharmaceutical company is ata priority list of every sector. And the price of stock of pharma is also high. Even the pharma sectoris high at even after the post covid pandemic.

Table Of Analysis On The Basis Of Sector

VOLATILITY OF BSE SECTORS

AUTO SECTOR:- In Auto sector volatility is high during covid period.

PHARMA SECTOR:- In Pharma sector volatility is very high during the covid period.

OIL & GAS SECTOR:- In Oil and Gas sector volatility is high in post covid period.

ENERGY SECTOR:- In Energy sector volatility is high during covid period.

SECTORS →	AUTO	PHARMA	OIL &GAS	ENERGY
PRE COVID (From 1st July to 31ST Dec,2019)	1087.255	388.990	885.196	378.134
DURING COVID (From 1st April to 30th sep,2020)	2182.892	1806.092	921.345	869.092
POST COVID (From 1st July to 31st dec,2021)	1331.707	601.552	1200.85	595.691

VOLAITILITY OF NSE SECTORS

AUTO SECTOR:- In Auto sector volatility is high during covid period.

PHARMA SECTOR:- In Pharma sector volatility is high before covid period.

OIL & GAS SECTOR:- In Oil and Gas volatility is high after covid period.

ENERGY SECTOR:- In Energy sector the volatility is high after covid period.

SECTORS →	AUTO	PHARMA	OIL & GAS	ENERGY
PRE COVID (From 1st July to 31st Dec, 2019)	498.42	1331.81	319.415	746.081
DURING COVID (From 1st April to 30th Sept, 2020)	977.44	570.29	451.188	1401.948
POST COVID (From 1st July to 31st Dec, 2021	587.496	211.47	460.610	1901.57

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A. Findings

1) In Auto Sector volatility is high during the Covid in both BSE and NSE

2) As we compared Pharma sector in BSE & NSE we observed that volatility of Pharma sectoris high during the Covid period in BSE but in NSE volatility is high during Pre Covid period as compared to other sector (Auto, Oil & Gas and Energy Sector).

3) As compared to other sectors, Oil and Gas is the only sector where volatility is high after Covid in both BSE and NSE

4) As we observe Energy sector, here volatility is high during the Covid period in BSE and inNSE the volatility is high after Covid period.

5) As we compared the selected sector in both BSE & NSE Pharma (in NSE) is only 1 sectorwhere the volatility is decrease in Post Covid as compare the Pre Covid period.

VI. CONCLUSION

From the above research study here, I conclude by saying that the differences can be seenin the different sectors of the BSE and NSE before, during and after the Covid-19 pandemic. Where the fluctuations can be seen in the closing amount of stock market on thedaily basis. While observing the data analysis part on an individual basis of each sector we could examine that the volatility of Auto sector was remain high during covid period both in case of BSE and NSE. The reason behind the growth forecasts by the automobile expertsit remains positive, despite the lockdowns as the base foundation of the Indian economy isstill strong. Despite the dent in the consumer sentiment, it is still upbeat and the buyers theready to buy with a slight improvement in the scenario. Also, the surging demand for personal mobility is a key factor that is driving the growth in the automobile industry, sincethe emergence of the Covid-19 crisis. As we move onto next sector which is Pharma sectorwhere the volatility is very high during the covid period because the demand of pharmaceutical products has extremely got increased during the pandemic and the sudden increase in demand leads to fluctuations in the Pharma sector. Third sector is Oil and Gas sector where volatility is high after covid pandemic and the reason behind is the reason behind the change in volatility is due to the usage of oil and gas has been stopped during the covid pandemic and as the lockdown removes the people use to travel from there personal transport insisted for using the commercial transport which leads to increase in fluctuation in the Oil and Gas Sector after the pandemic. And the last sector is Energy sector the volatility is high during the covid in BSE and the volatility is high after the covidin NSE the reason behind the such change in the effects of the COVID-19 pandemic on theenergy markets in terms of energy stock indexes, energy futures, ETFs, and implied volatility indexes. We model the volatility of energy markets and demonstrate the effects of various phases of the pandemic outbreak (COVID-19) on the energy market. COVID- 19-induced uncertainty indicators like the growth of the infection, economic policy uncertainty (EPU), and infectious diseases market volatility (IDs MV) have shown pronounced effects on energy markets' historical volatility.

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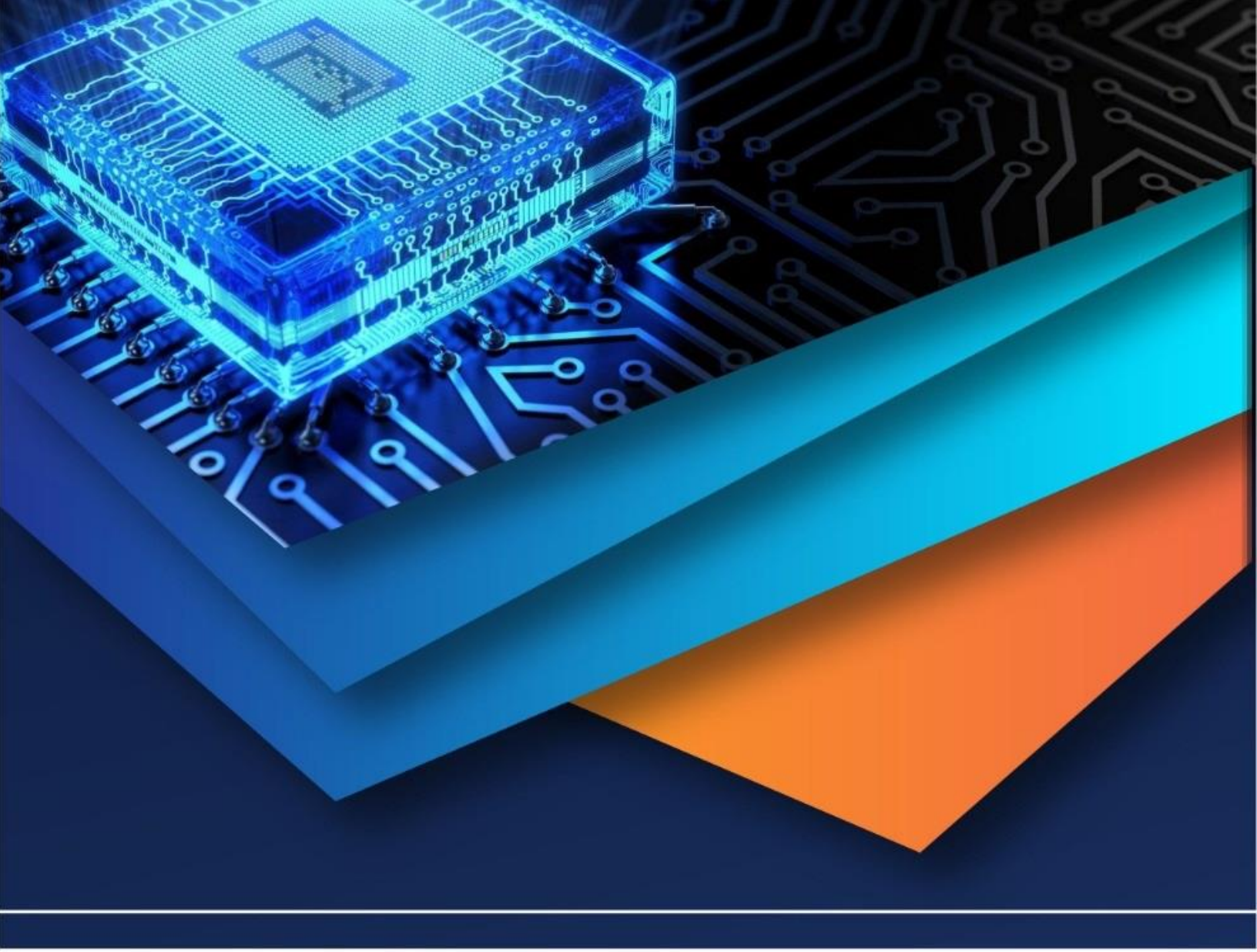
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