IMPACT OF COVID 19 PANDEMIC ON STOCK MARKET

Chetana M. Soni

(Assistant Professor)
Dr. Ambedkar Institute of Management Studies and Research, Nagpur

Mr. Vikram pawar

Territory Manager , Johnson & Johnson Pvt. Ltd.

Dr. Chetan V. Dubey

Territory Sales Manager (Nagpur Division), Fresenius Medical Care India Pvt. Ltd.

ABSTRACT

The coronavirus Disease (COVID-19), which originated in the city of Wuhan, China has spread to various countries and affected worldwide. The outbreak of this news affect the global financial market. Due to this Virus Spread Indian financial market also react to this pandemic situation and witness the volatility. The present paper aims to study is to investigate the impact of COVID-19 on Automobile sector, Health Care sector, Communication Sector and Information Technology Sector. Period from 1st April 2019 to 31th January 2020 is consider as Pre COVID and as Period from 1th February 2020 to 30st November 2020 is consider as Post COVID Period. The study is about comparison of pre and post COVID period.

Keywords: - Impact, COVID 19, Stock Market and Sector

INTRODUCTION

Corona Viruses are large family of viruses which is known to cause the illness from common cold to severe diseases. It identified in 2019 Wuhan, China. This virus leads to dramatic loss of human life worldwide. As per the WHO the economic and social disruption caused by the pandemic is devasting 10 of million people are at of risk falling into extremely poverty. As per the IMF report "the global economy is expected to shrink by 3% in 2020 – sudden slowdown since the great depression of 1930s. Lockdown due to COVID-19 virus keeping millions of citizens at their home, shutting down businesses and stopping most of the economy activities. Slowly and steadily lift in restrictions by government and restart of economy activities take place all over the world.

The COVID 19 virus affected the financial market all over the world. It increase the risk factor which cause the loss to many investors. As per the Economic times article dated 11th May 2020 it is said that Pre-COVID market capitalization of the major exchange in India was about $2.16 trillion. During this Pandemic RBI and the government of India come up with reforms like reducing in the repo rate, relation in regulation and different ways for boosting the liquidity in the market. Declining in GDP, cut in discretionary expenses and demand supply gap were observed during the lockdown which result into decline in income, reduction in travelling cost.

RESEARCH OBJECTIVES

1. To Study the effect of Pre COVID (1st April 2019 to 31th January 2020) and Post COVID Period (1th February 2020 to 30st November 2020)
2. To study the risk and return analysis of Pre and Post COVID Period on selected sectors.

RESEARCH DESIGN

The aim of this study is to find out the relationship between the event of Covid 19 crises and its impact on the performance of selected sectoral indices. So, it is casual and correlation study. Being a casual research, it determined whether the changes in the risk and return is caused by Covid 19 Crisis. On the other hand, as a correlation research, the study seeks to know the relationship of Covid 19 crisis on the company performance. Beside knowing the impact, the study also obtained an estimate of the possible impact of the independent variables to the dependent variable. MS-Excel is used for the statistical analysis. The data is collected from the NSE India Sectoral indices. The period of the study is 10 months before crisis and 10 months after crisis. Pre Covid period from 1st march 2019 to 29th Jan 2020. And post covid period from 30th Jan 2020 to 30th November 2020. Through the NSE India Website we got the sectoral indices daily prices. List of Selected sectors are given as below.

1. Auto Sector
2. Finance Sector
3. Pharma Sector
4. Information Technology Sector
5. Banking Sector
6. FMCG Sector
7. Metal Sector
8. Reality Sector

Variables: -
For measuring the performance of sector following indicators are used.
1. Expected Return
2. Standard Deviation

Methods of Data Analysis: -
For testing this hypothesis and to satisfy this question following approach is used. To test whether there is significant difference in risk and return performance of sector we have to compare pre covid crisis and post covid crisis. So, 10 months pre covid and 10 months post covid are taken for eight sectors. For the purpose of data analysis from Pre Covid period only selected sectors is taken and same with the post covid. For the analysis purpose we will apply paired sample T-Test to compare average value pre covid and post covid.

HYPOTHESIS

Following are the hypothesis formulated for the study purpose.

Return Hypothesis
H0- There is no significant difference between Pre and Post Covid Crisis return of Different Sector.
H1- There is significant difference between Pre and Post Covid Crisis return of Different Sector

Standard Deviation Hypothesis
H0- There is no significant difference between Pre and Post Covid Crisis Standard Deviation of Different Sector.
H1- There is significant difference between Pre and Post Covid Crisis Standard Deviation of Different Sector

FINDINGS

Here we compared Pre and Post Covid Value on the basis of their mean. Pairs are compared of each variable for Pre Covid and Post Covid sector ratios, to check that whether the difference between Pre and Post Covid mean value is zero or not. Paired t-test (two- tailed) is conducted to test for difference between Pre and Post-COVID mean.

Months	Pre Covid Sectorial Indices Return	

	Auto	Finance	Pharma	IT	Bank	FMCG	Metal	Reality	Average
Jan-20	-0.0861%	-0.0724%	0.0529%	0.1345%	-0.1833%	0.0934%	-0.376%	0.4493%	0.0015%
Dec-19	0.0946%	0.1154%	-0.0879%	0.2034%	0.0320%	-0.1331%	0.309%	0.2707%	0.1005%
Nov-19	-0.2199%	0.2498%	0.1941%	-0.1837%	0.3032%	-0.2124%	0.243%	0.2369%	0.0764%
Oct-19	0.6006%	0.1881%	0.2142%	0.0062%	0.1628%	0.1868%	0.123%	0.1942%	0.2095%
Sep-19	0.3513%	0.2480%	-0.2655%	-0.1569%	0.3120%	0.3273%	0.334%	-0.1691%	0.1226%
Aug-19	0.1137%	-0.1151%	0.0526%	0.1234%	-0.2573%	0.0328%	-0.612%	-0.0047%	-0.0833%
Jul-19	-0.7209%	-0.2812%	-0.0421%	-0.0871%	-0.3233%	-0.0712%	-0.613%	-0.2733%	-0.3015%
Jun-19	-0.1618%	0.0298%	-0.2485%	-0.0735%	-0.0455%	-0.0539%	0.143%	0.0157%	-0.0494%
May-19	-0.0963%	0.3229%	-0.4828%	-0.1507%	0.2395%	-0.0735%	-0.287%	0.4303%	-0.0121%
Apr-19	-0.0423%	0.0247%	0.0160%	0.2953%	-0.1039%	0.0264%	-0.024%	-0.1882%	0.0006%
Average	-0.0167%	0.0710%	-0.0597%	0.0111%	0.0136%	0.0122%	-0.0760%	0.0962%	0.0065%

Source: - Author Calculation Based on Secondary Data

Months	Pro Covid Sectorial Indices Return								
	Auto	Finance	Pharma	IT	Bank	FMCG	Metal	Reality	Average
Nov-20	0.5949%	1.0284%	0.2580%	0.1987%	1.0708%	0.3747%	1.1093%	0.6753%	0.6638%
Oct-20	-0.0910%	0.4340%	-0.2190%	0.2251%	0.5148%	-0.0664%	0.2099%	0.3529%	0.1700%
Sep-20	0.0391%	-0.3167%	0.2758%	0.4858%	-0.4634%	-0.1133%	-0.3473%	-0.2270%	-0.0834%
Aug-20	0.3533%	0.2843%	-0.0296%	-0.0378%	0.4439%	-0.0430%	0.5705%	0.4893%	0.2539%
Jul-20	0.3484%	0.0682%	0.4793%	0.8818%	0.0546%	0.1155%	0.3278%	-0.0355%	0.2800%
Jun-20	0.3517%	0.4687%	0.0997%	0.2351%	0.4638%	0.1174%	0.2619%	0.5362%	0.3168%
May-20	0.2757%	-0.5472%	0.2434%	-0.0366%	-0.5773%	0.1140%	0.0562%	-0.2063%	-0.0848%
Apr-20	1.2277%	0.7012%	1.4562%	0.5565%	0.6537%	0.2680%	0.8854%	0.3615%	0.7638%
Mar-20	-1.7995%	-2.0349%	-0.2584%	-0.8359%	-2.0018%	-0.3350%	-1.6311%	-2.2339%	-1.3913%
Feb-20	-0.6962%	-0.0741%	-0.2951%	-0.3576%	-0.1203%	-0.1568%	-0.5227%	-0.4398%	-0.3328%
Average	0.0604%	0.0012%	0.2010%	0.1315%	0.0039%	0.0275%	0.0920%	-0.0727%	0.0556%

The above two tables reflect the data of Pre and Post Covid Sectorial Indices return. For the study purpose the researcher has choose eight sectors. Averages are calculated month wise and sector wise also. On the basis of month wise analysis here we can see that Pre Covid-October 2019 has highest return with 0.2095 and Post Covid April 2020 has highest return with 0.7638.

Months	Pre Covid Sectorial Indices Standard Deviation								
	Auto	Finance	Pharma	IT	Bank	FMCG	Metal	Reality	Average
Jan-20	1.0598%	0.9153%	0.9153%	0.6846%	1.0075%	0.7559%	1.511%	1.1921%	1.0052%
Dec-19	0.9106%	0.5818%	0.5818%	0.9523%	0.7174%	0.5215%	1.377%	0.7584%	0.8001%
Nov-19	0.7518%	0.6039%	0.6039%	0.7745%	0.7633%	0.6125%	1.690%	1.0613%	0.8576%
Oct-19	1.3855%	1.0683%	1.0683%	1.3785%	1.3885%	0.7107%	1.602%	1.4882%	1.2612%

Sep-19	2.9915%	2.3221%	2.3221%	1.0902%	2.5752%	1.4731%	2.347%	2.2378%	2.1698%
Aug-19	1.6718%	1.5712%	1.5712%	1.0437%	1.5262%	0.8376%	2.056%	2.0553%	1.5416%
Jul-19	1.6847%	0.9733%	0.9733%	1.0120%	0.9574%	0.7224%	1.629%	1.6300%	1.1978%
Jun-19	1.0442%	0.8552%	0.8552%	0.7274%	0.8922%	0.6290%	1.298%	1.2227%	0.9404%
May-19	1.5257%	1.3663%	1.3663%	0.9104%	1.4016%	0.9342%	1.531%	1.7537%	1.3487%
Apr-19	0.9904%	0.8402%	0.8402%	0.7540%	0.9650%	0.5286%	1.238%	1.4540%	0.9512%
Average	1.4016%	0.1140%	1.1098%	0.9328%	1.2194%	0.7726%	1.6278%	1.4853%	1.0829%

on the other hand if we see sector wise reality sector has highest return with 0.0962% Pre Covid and Post Covid Pharma Sector has the highest with 0.2010%.
Source: - Author Calculation Based on Secondary Data

Months	Pro Covid Sectorial Indices Standard Deviation								
	Auto	**Finance**	**Pharma**	**IT**	**Bank**	**FMCG**	**Metal**	**Reality**	**Average**
Nov-20	1.1311%	1.6725%	1.6725%	1.4257%	1.8316%	0.7369%	1.4511%	1.5374%	1.4324%
Oct-20	-0.0910%	1.6118%	1.6118%	1.4538%	1.8135%	0.6535%	1.5659%	1.9314%	1.3189%
Sep-20	0.0391%	1.3399%	1.3399%	1.6526%	1.6251%	1.1158%	2.1850%	2.1492%	1.4308%
Aug-20	0.3533%	1.4133%	1.4133%	0.7069%	1.6683%	0.7572%	1.4800%	2.1482%	1.2425%
Jul-20	0.3484%	1.5244%	1.5244%	1.5810%	1.7134%	0.6054%	1.2943%	1.3530%	1.2430%
Jun-20	0.3517%	2.0455%	2.0455%	1.3401%	2.2506%	0.8737%	1.8526%	2.4756%	1.6544%
May-20	0.2757%	3.3899%	3.3899%	1.7296%	3.4643%	1.5700%	2.6798%	2.7595%	2.4073%
Apr-20	1.2277%	3.7542%	3.7542%	3.1701%	4.0971%	2.4957%	3.3631%	2.6060%	3.0585%
Mar-20	-1.7995%	5.9253%	5.9253%	4.6429%	5.8170%	4.2042%	5.3246%	4.5423%	4.3228%
Feb-20	-0.6962%	1.3342%	1.3342%	1.5334%	1.1929%	1.0152%	2.4954%	1.6088%	1.2273%
Average	0.1140%	2.4011%	2.4011%	1.9236%	2.5474%	1.4028%	2.3692%	2.3111%	1.9338%

Source: - Author Calculation Based on Secondary Data

The above table reflects the Pre and Post Covid Standard Deviation of different sector. For the study purpose here, researcher has taken eight key sectors. The Average is calculated month wise and even as per sector wise. Pre Covid Higher standard deviation is seen in moth of September that is 2.1698 and Post Covid it is in March 2020. On the other hand if we see sector wise Pre Covid it is high in Metal sector 1.6278 and post covid it is highest in Finance and Pharma Sector with 2.4011.

Hypothesis Testing
Paid Sample T-Test on Pre and Post Return of Sectoral Indices

t-Test: Paired Two Sample for Means	Variables	Mean	Variance	Pearson Correlation	t Stat	P(T<=t) one-tail	t Critical one-tail	P(T<=t) two-tail	t Critical two-tail	
Auto Sector	Pre	-0.0002	0.0000	0.0470	-0.2790	0.3933	1.8331	0.7866	2.2622	Accept
	Post	0.0006	0.0001							
Finance Sector	Pre	0.0007	0.0000	-0.3906	0.2333	0.4104	1.8331	0.8207	2.2622	Accept
	Post	0.0000	0.0001							
Pharma	Pre	-0.0006	0.0000	-0.1730	-1.3964	0.0980	1.8331	0.1961	2.2622	Accept
	Post	0.0020	0.0000							
Information Technology	Pre	0.0001	0.0000	-0.2151	-0.6957	0.2521	1.8331	0.5042	2.2622	Accept
	Post	0.0013	0.0000							
Bank	Pre	0.0001	0.0000	-0.3617	0.0315	0.4878	1.8331	0.9756	2.2622	Accept
	Post	0.0000	0.0001							
FMCG	Pre	0.0001	0.0000	0.3183	-0.2192	0.4157	1.8331	0.8314	2.2622	Accept
	Post	0.0003	0.0000							
Metal	Pre	-0.0008	0.0000	0.0862	-0.6348	0.2707	1.8331	0.5414	2.2622	Accept
	Post	0.0009	0.0001							
Reality	Pre	0.0010	0.0000	-0.1537	0.5786	0.2885	1.8331	0.5770	2.2622	Accept
	Post	-0.0007	0.0001							

Degree of freedom = 9, Mean Difference = 0 and Observation = 10
Source: - Calculated on the basis of Secondary data using MS-Excel 2019 Version

Interpretation: - The above table reflects the hypothesis testing of Pre and Post Covid return of Sectorial Indices. The results reflect in all sectors the hypothesis is accepted. **It means there is no significant difference between the return of sectoral indices pre and Post Covid.** The criteria for acceptance and rejection is as P Two tail value is less than Critical Value. Critical value is 2.262 and Return critical value of all sector is less than 2.262. therefore null hypothesis is accepted.

Paired Sample T-Test on Pre and Post Standard Deviation of Sectoral Indices

t-Test: Paired Two Sample for Means	Variables	Mean	Variance	Pearson Correlation	t Stat	P(T<=t) one-tail	t Critical one-tail	P(T<=t) two-tail	t Critical two-tail	
Auto Sector Standard Deviation	*Pre*	0.014	0.000	-0.004	3.742	0.002	1.833	0.005	2.262	Accept
	Post	0.001	0.000							
Finance	*Pre*	0.011	0.000	0.087	-2.627	0.014	1.833	0.028	2.262	Accept
	Post	0.024	0.000							
Pharma	*Pre*	0.011	0.000	0.087	-2.627	0.014	1.833	0.028	2.262	Accept
	Post	0.024	0.000							
IT	*Pre*	0.009	0.000	-0.354	-2.553	0.016	1.833	0.031	2.262	Accept
	Post	0.019	0.000							
Bank	*Pre*	0.012	0.000	-0.033	-2.660	0.013	1.833	0.026	2.262	Accept
	Post	0.025	0.000							
FMCG	*Pre*	0.008	0.000	0.026	-1.712	0.060	1.833	0.121	2.262	Accept
	Post	0.014	0.000							
Metal	*Pre*	0.016	0.000	-0.354	-1.691	0.063	1.833	0.125	2.262	Accept
	Post	0.024	0.000							
Reality	Pre	0.015	0.000	0.148	-2.728	0.012	1.833	0.023	2.262	Accept
	Post	0.023	0.000							

Degree of freedom = 9, Mean Difference = 0 and Observation = 10
Source: - Calculated on the basis of Secondary data using MS-Excel 2019 Version

Interpretation: - The above table reflects the hypothesis testing of Pre and Post Covid Risk of Sectorial Indices. The results reflect in all sectors the hypothesis is accepted**. It means there is no significant difference between the risk of sectoral indices pre and Post Covid**. The criteria for acceptance and rejection is as P Two tail value is less than Critical Value. Critical value is 2.262 and Risk critical value of all sector is less than 2.262. therefore, null hypothesis is accepted.

CONCLUSION: -

On the given evidence it is concluded that we are not in position to reject the null hypothesis for sectorial indices of Automobile, Finance, Pharma, Information Technology, Banks, FMCG, Metal and reality. So, we have accepted Null hypothesis because of their p value are not significant difference i.e. **(Automobile: - 0.7866, Finance – 0.8207, Pharma-0.1961, Information Technology -0.5042, Bank -0.9756, FMCG-0.8314, Metal-0.5414 and Reality 0.5770)** on the other hand in case of P value of standard deviation of different sector is also less. So it is concluded that in case of the standard deviation of sectoral indices the Null Hypothesis is accepted in all sector as P value is less than critical value. **(Automobile: - 0.005, Finance – 0.028, Pharma-0.028, Information Technology - 0.031, Bank -0.026, FMCG-0.121, Metal-0.125 and Reality 0.023)** These values are compared with the critical value i.e 2.262. From above analysis we infer that the Covid 19 crisis have not deeply affected the sectorial indices. So we can says that Covid 19 crisis does not result into high changes in risk and return of the sectorial indices.

REFERENCES: -

[1]. Adebayo, O. &. (n.d.). An Analysis of the Impact of Mergers and Acquisitions on Commercial Banks Performance in Nigeria. *Research Journal of Finance and Accounting.* .
[2]. Iliana G. Chatzi, M. N. (2015). Performance of the Greek banking sector pre and throughout the financial crisis. *Journal of Risk & Control*, 45-69.
[3]. Larry Lang, S. C. (2017). *Corporate Growth, Financing, and Risks in the Decade before East Asia's Financial Crisis.*
[4]. Nidhi Jain 1*, N. B. (2016, January). Financial Performance of the Luxury Market:A Study of Pre and Post Financial Crisis 2007-08. *10*(1).

[5]. Oino, I. (2018). Impact of regulatory capital on European banks financial performance: A review of post global financial crisis. *Research in International Business and Finance, Elsevier, 44(c)*, 309-318.

[6]. Shehzad, T. F. (2014). An Analysis of Impact of Merger and Acquisition of Financial Performance of Banks: A case of Pakistan. *Journal of Poverty, Investment and Development - An Open Access International Journal, 5*, 29-36. Retrieved 2014

[7]. Sri Indrastuti S., L. H. (2017, November). Comparative Analysis Of Financial Performance Banking Before And After The Global Economic Crisis In 2008. *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH, 6*(11).

[8]. Xiao, B. O. (2012). Financial Behaviors Before and After the Financial Crisis: Evidence from an Online Survey.