# BSE 30 Listed Companies Share Prices and Their Impact on Investor's Decision Making

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*Abstract*
*The paper study about COVID 19 on the 30 BSE listed companies to find the effect of the pandemic on the share price. India's financial markets are witnessing high fluctuation due to the fall in global markets. The data was analyzed by taking the stocks' daily share price, and dividing them into two stages: Pre-COVID 19 crisis stage and During COVID 19 crisis stage. The study used investment analysis tools such as Beta to know the stocks' sensitivity toward the market. Alpha is used to understand the returns that the investors would get more than the market return, and event a study was conducted to find out the set hypothesis. Investors' opinions were collected using set questionnaires of information regarding selecting stocks for investment and the pandemic effect. Other essential information was collected from the investors who regularly trade in the stock market daily. The study concluded that different opinions from the investors would lead to fluctuation in share price in the stock market.*
*Keywords: BSE, COVID -19, Decision Making, Event Study, Investors' Behaviour.*

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## I. INTRODUCTION:

One of the most critical sectors for raising capital is the stock market; it has a history of developing the economy. A stock market is a place where stocks, otherwise called shares, commodities are bought and sold and help the investors make better investment decisions. Making financing inequity brings vast returns, which will lead to capital appreciation. Behavioural finance and financial econometrics have an area that studies the relationship between trade volume and volatility, which shows that investors' trading activity affects the stock market volatility; this shows the essential implications on investors' regularity. Before any Investor chooses for security exchange, the primary thing that strikes each investor's brain is well-being, security and the search for the most extreme return from the ventures on value shares. The fundamental consideration of value among investors is better to yield (Uncommonly in the event of profit and capitalization), higher liquidity and choices to begin an exchange with minor speculation.

Volatility is a technique to measure the fluctuations in share price, standard deviation and simple moving average method. It also describes the unpredictable movement in share price, economic factors, interest rate and other government and fiscal policies. In the year 2019 December, the whole country woke up to the news illness, which was later declared COVID -19 and got spread worldwide in no time. The pandemic COVID 19 affected the world's economy, and India was also one of those countries; due to the lockdown announced by the government of India, everything came to be stagnant in this busiest nation. The global market economy collapsed, the prices for all goods and services became low, and the unemployment rate increased. India has a solid stock market that reacts well to the global situation. The first COVID-19 case was reported in India on January 30, 2020, and the government declared a lockdown on March 24 2020. There was a gap of 53 days, and the virus got spread to the population easily; there would be a chance if the government had declared the lockdown earlier, the spreading of the virus to the people would be less. To know the COVID 19 impact on BSE companies and find risk and return from stock investment, the calculation of Beta and Alpha was used. The event study analysis was used to find the coefficient (to see the variation from one data to another). T-test (was used to find any difference between pre-COVID and during COVID-19) and probability (to know the higher return or lower return based on the historical data in both periods). Primary data was collected from the investors who regularly trade stocks to understand the investors' decision-making.

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## II. REVIEW OF LITERATURE

Many studies are conducted on COVID 19 on the financial and stock markets at an advanced level. The existing research paper has completed the studies regarding the impact of COVID 19 on BSE 30 companies. Rajmohan and Sathish have surveyed the effect of the pandemic on the stock market to examine the stock value instability of vehicles and found a considerable impact of COVID -19 on returns on securities in the stock market, stating that irregularities have been increased in India. Hariharan and Abdul also researched the unpredictability of price in the stock market and investors' opinions and said irrational thought causes overabundance and market instability. Debaskshi bora and Daisy have conducted research for ten months, from (September 3, 19 to July 10, 20), to check the unpredictability of the stock market and its impact on the Indian stock market. They have used the hetroscadacity model to know the effect, and they conclude that earnings during COVID -19 were less when compared to before COVID 19. The study was conducted for 35 days. The articles speak about the time frame of COVID 19 and its impact on the stock market in India.

Noor, Shabbir and Karthik have tracked down the positive AR has affected the securities exchange in India. The paper has discussed the effect of a flare-up of COVID 19 on the financial business of G-20 nations and conducted a study for 43 days, and analyzed the difference during the period of increase in positive cases of COVID 19. Finally, Mr Bhanwar and Rosy gave their outcomes, the effect of board information and examined the affirm in the flexibility of securities exchange from the negative impact of COVID 19. The paper talks about the development of the declaration of lockdown by the Indian government, mainly in the FMCG sector. It was conducted for 40 days by examining it has before and after the order of COVID 19; Mr Abhishek and Mr Rakesh say that the paper gives the overall results that the impact of the declaration of lockdown because of the pandemic as caused effect on financial exchange but some investors have different portfolio options where they would make a profit out of it irrespective of a pandemic. The cause of COVID 19 was adversely and fundamentally affected securities exchanges worldwide. They have suffered a considerable loss. A study was conducted by considering the 26 developing business sectors by utilizing the standard occasion approach (Brown and Waren 1980-1985) with the market models assessment the speculation that COVID 19 cases don't affect the financial market exchange and COVID 19 affect the financial returns from the stock market.

The COVID – 19 pandemic has caused significant turbulence in the world's economic activity The price of the stock market changes due to demand and supply. The fall in price is due to demand and supply because people mostly prefer to sell the stock and make a profit rather than buy them. In this paper, the study focuses on the impact of the COVID 19 pandemic on the stock market and its significant effect on the day-to-day share price of BSE 30 companies. There are different sets of research articles conducted on various sectors and the effect of COVID 19. Only a few papers discuss the impact of the stock market due to COVID 19 on BSE 30 listed companies specifically by comparing the two situations before COVID 19 and during COVID 19. The paper studies the impact of COVID 19 for the periods before COVID 19 and during COVID 19 by using financial tools like alpha-beta and event research analysis.

**RESEARCH GAP**

To know the effect of the COVID 19 effect on BSE 30 Listed companies periods, i.e. pre-COVID stage ($1^{ST}$ Nov 2019 – March 31 2020) and during COVID crisis stage (April 1 2020 – August 31 2020), by collecting the secondary data from BSE website and to know the investors' behaviour for the variation happened stock performance and the returns, the study indicates that investors are confident on some companies returns during the pandemic which points out the positivity in the investors' behaviour.

**PROBLEM STATEMENT**

A study on the share price of bse-30 listed companies during COVID 19 and its impact on investors' decision-making behaviour. It involves personal, technical, business, and economic factors. The interplay of these factors in the stock market requires a deep study of the pattern process, procedures, and performance.

**HYPOTHESIS FOR THE STUDY**

H0: there is no effect of fluctuation in share price during pre-COVID -19 and COVID -19 crises. And there is no impact on investors' decision making.

H1: there is an effect of fluctuation in share price during the Pre-COVID -19 and COVID -19 crises. And there is an impact on investors' decision making.

**OBJECTIVE OF THE STUDY**

✓      To test the effect of changes in the share price of 30 BSE listed companies during pre- COVID -19 and COVID -19 crises.

✓      To know investors' decision-making behaviour for the changes in share price and investment decisions during both Pre-COVID -19 and COVID-19 crises.

## III. RESEARCH METHODOLOGY:

To conduct the study, the data was collected from a secondary source. The companies selected for the survey are Bombay Stock Exchange 30 listed companies. The study was conducted by analyzing the daily share price by dividing them into two stages: Pre – COVID 19 crisis stage and During COVID – 19 crisis stage. The companies selected for the study are 30 listed companies on the Bombay Stock Exchange based on their market capitalization based on their daily price of the stocks. For the study, the data was taken equally for both stages. Different investment tools and portfolio management were used to conduct this study. Calculation of Beta was undertaken to help us know the sensitivity of stock towards the market. Alpha, also known as abnormal returns, was calculated to see the percentage of returns that each store gave over the market return. The study further estimated "Event study analysis" by considering five months each for Pre COVID 19 and During COVID 19, stages which help us know the effect of COVID 19 on the stock. To understand whether the fluctuation in the stock market has impacted and give their opinion in selecting the stocks for investment, primary data was collected from 100 investors who trade in the stock market daily.

| COMPANIES | SECTORS |
|---|---|
| ASIAN PAINTS | Furniture Furnishing Paints |
| AXIS BANK | Banks |
| BAJAJ FINSERV | Holding Companies |
| BHARTHI AIRTEL | Telecommunications |
| DR. REDDYS LAB | Pharmaceuticals |
| HCL TECHNOLOGIES | Software |
| HDFC BANK | Banks |
| HDFC | Housing Finance |
| HUL | Personal Products |
| ICICI BANK | Banks |
| INDUSIND BANK | Banks |
| INFOSYS | Software |
| ITC | Cigarettes And Tobacco Products |
| KOTAK MAHINDRA BANK | Banks |
| L & T | Construction And Engineering |
| M&M | Cars And Utility Vehicles |
| MARUTHI SUZUKI | Cars And Utility Vehicles |
| NESTLE | Packaged Foods |
| NTPC | Electric Utilities |
| POWER GRID | Electric Utilities |
| RELIANCE INDUSTRIES | Integrated Oil And Gas |
| SBI | Banks |
| SUN PHARMA | Pharmaceuticals |
| TATA STEEL | Iron Steel Interm Products |
| TCS | Software |
| TECH MAHINDRA | Software |
| TITAN | Other Apparels And Accessories |
| ULTRATECH CEMENT | Cement And Cement Product |
| WIPRO | Software |
| BAJAJ FINANCE | FINANCE (INCLUDING Nbfcs) |

## IV. DATA ANALYSIS

**BETA AND ALPHA**

The table below represents the calculation of Beta and Alpha by considering the sum of both Pre COVID 19 period and During the COVID 19 crisis period. By using the below formula in excel.

$$Beta = \frac{(n\sum xy) - (\sum x \cdot \sum y)}{(n \sum x) - (\sum x)}$$

Whereas: N = Number of observation, X = Independent return, Y = Dependent Return,

Alpha = Ri – Rm*B

Ri = Individual stock return, Rm = Market return B = Beta

Table – 1 shows the sum of both periods, representing the values of Beta. The data was collected in two periods: pre-COVID (1-11-2019 TO 31-03-2020) and COVID crisis (1-04-2020 – 31-08-2020). It clearly states that if the return is less than 0.05%, it indicates that companies have no risk, but if the market reaches 1%, it indicates that the companies are affected. The analyzed data demonstrates that companies are involved in both stages. Banks like axis bank, bajajfinserv, hdfc bank, hdfc, IndusInd bank, Kotak Mahindra Bank are showing less risk during the COVID crisis stages, which indicates that banking sectors were financially performing good, as per the data collected for both, the period the all the stocks are impacted by market fluctuation.

**TABLE – 1**
**CALCULATION OF BETA FOR PRE COVID (1-11-19 TO 31-03-20) AND DURING COVID (1-04-2020-31-08-2020)**

| COMPANIES | BETA PRE COVID (1-11-19 TO 31-03-20) | COVID CRISIS (1-4-20 TO 31-8-20) |
|---|---|---|
| ASIAN PAINTS | 7.56193 | 6.33369 |
| AXIS BANK | 2.98198 | 1.55959 |
| BAJAJ FINSERV | 3.80188 | 2.0738 |
| BHARTI AIRTEL | 1.99131 | 2.01847 |
| DR. REDDY'S LAB | 1.26013 | 1.50575 |
| HCL TECHNOLOGIES | 2.23899 | 2.18279 |
| HDFC BANK | 5.15815 | 3.7332 |
| HDFC | 9.68674 | 6.52128 |
| HUL | 8.79718 | 8.05586 |
| ICICI BANK | 1.97405 | 1.29909 |
| INDUSIND BANK | 5.43457 | 1.76029 |
| INFOSYS | 3.09068 | 2.90131 |
| ITC | 9.54379 | 7.02729 |
| KOTAK MAHINDRA BANK | 6.88026 | 4.80922 |
| L & T | 5.39885 | 3.37174 |
| M&M | 2.20273 | 3.60187 |
| MARUTHI SUZUKI | 2.91668 | 3.83617 |
| NESTLE | 6.39918 | 6.21752 |
| NTPC | 4.76350 | 3.42509 |
| POWER GRID | 7.97378 | 6.29104 |
| RELIANCE INDUSTRIES | 6.13019 | 6.3828 |
| SBI | 1.3156 | 6.2871 |
| SUN PHARMA | 1.79122 | 1.79893 |
| TATA STEEL | 1.78498 | 1.23466 |
| TCS | 8.94099 | 7.69553 |
| TECH MAHINDRA | 3.22163 | 2.18854 |
| TITAN | 4.65892 | 3.65944 |
| ULTRATECH CEMENT | 1.77486 | 1.39666 |
| WIPRO | 1.01343 | 1.84537 |
| BAJAJ FINANCE | 1.76125 | 1.02398 |

Table 2 represents the abnormal return, otherwise called Alpha. Investors get more than the market return is known as abnormal return or Alpha, which represents abnormal returns of the stock price of both pre COVID. During the COVID period, nearly 90% of the companies have a negative abnormal return. This would have been caused due to financial weakness and a harmful impact on the economy, causing the companies' poor performance.

### ABNORMAL GAINS= Ri-(B*Rm)

Whereas, Ri = Returns of Individual Stock, B = Beta, Rm = Market Returns.

Table 2 represents the calculation of Alpha, otherwise called abnormal return, which means the investors would get above the market return. The table clearly states that 95% of the companies have negative returns during COVID 19 stage, which signifies that companies are highly affected. Poor financial inflow to the companies may be the reason for these negative abnormal returns.

### TABLE 2
### CALCUATION OF ALPHA PRE COVID AND DURING COVID PERIOD (1-11-2019 – 31-03-2020 TO 1-04-2020 – 31-08-2020)

| COMPANIES | PRE- COVID ALPHA | DURING COVID ALPHA |
|---|---|---|
| ASIAN PAINTS | 2.37293 | -2.1728 |
| AXIS BANK | 9.357450 | -5.3502272 |
| BAJAJ FINSERV | 1.19303 | -7.11426 |
| BHARTI AIRTEL | 6.24872 | -6.924438 |
| DR. REDDY'S LAB | 3.95428 | -5.16554 |
| HCL TECHNOLOGIES | 7.02596 | -7.488167 |
| HDFC BANK | 1.61863 | -1.28069 |
| HDFC | 3.0397E | -2.23715 |
| HUL | 2.76055 | -2.7636 |
| ICICI BANK | 6.19456 | -4.456566 |
| INDUSIND BANK | 1.70537 | -6.038741 |
| INFOSYS | 9.69854 | -9.9530503 |
| ITC | 2.560106 | -2.182023917 |
| KOTAK MAHINDRA BANK | 2.15903 | -1.64982 |
| L & T | 1.69416 | -1.15669 |
| M&M | 6.91217 | -1.23564 |
| MARUTHI SUZUKI | 9.15254 | -1.31601 |
| NESTLE | 2.00806 | -2.13295 |
| NTPC | 1.118570 | -0.93011473 |
| POWER GRID | 2.2882746 | -1.980786456 |
| RELIANCE INDUSTRIES | 1.92365 | -2.18965 |
| SBI | 4.128364462 | -1.975641805 |
| SUN PHARMA | 5.62085801 | -6.171287 |
| TATA STEEL | 5.601254544 | -4.2355445 |
| TCS | 2.80568 | -2.63998 |
| TECH MAHINDRA | 1.01095 | -7.50789 |
| TITAN | 1.46197 | -1.25538 |
| ULTRATECH CEMENT | 5.56951 | -4.7913 |
| WIPRO | 3.180127 | -0.2088854 |
| BAJAJ FINANCE | 5.52681 | -3.51279 |

**TABLE 3**
**REPRESENTS THE EVENT STUDY OF PRE COVID (1-11-19 TO 31-03-2020) AND COVID CRISIS (1-04-2020 TO 31-08-2020)**

| COMPANIES | CO-EFFICIENT | T - TEST | NULL HYPOTHESIS | PROBABILITY |
|---|---|---|---|---|
| ASIAN PAINTS | -50.21102 | -3.758281 | Reject null hypothesis | 0.0002 |
| AXIS BANK | -2.55123 | -19.29205 | Reject null hypothesis | 0.000 |
| BAJAJ FINANCE | -3049.232 | -17.95169 | Reject null hypothesis | 0.000 |
| BAJAJ FINSERV | -3049.232 | -17.95169 | Reject null hypothesis | 0.000 |
| BHARTI AIRTEL | 81.80993 | 14.49398 | Reject null hypothesis | 0.000 |
| DR REDDY LAB | 1089.723 | 34.08424 | Reject null hypothesis | 0.000 |
| HCL TECHNOLOGIES | 34.73884 | 3.798721 | Reject null hypothesis | 0.0002 |
| HDFC BANK | -1776215 | -10.98368 | Reject null hypothesis | 0.000 |
| HDFC BANK | -433.6968 | -15.13998 | Reject null hypothesis | 0.000 |
| HUL | 92.96692 | 5.923054 | Reject null hypothesis | 0.000 |
| ICICI BANK | -139.9373 | -18.2715 | Reject null hypothesis | 0.000 |
| INDUSIND BANK | -728.27 | -19.18862 | Reject null hypothesis | 0.000 |
| INFOSYS | 1.65217 | 0.205583 | Accept Null Hypothesis | 0.8373 |
| ITC | -3.544205 | -0.879602 | Accept Null Hypothesis | 0.3801 |
| KOTAK MAHINDRA BANK | -290.0982 | -16.58047 | Reject null hypothesis | 0.000 |
| L & T | -292.0453 | -15.7263 | Reject null hypothesis | 0.000 |
| MAHINDRA AND MAHINDRA | -1.358237 | -0.106129 | Accept Null Hypothesis | 0.9156 |
| MARUTHI SUZUKI | -875.3278 | -8.045496 | Reject null hypothesis | 0.000 |
| NESTLE | 1822.198 | 17.8558 | Reject null hypothesis | 0.000 |
| NTPC | -13.64256 | -11.5344 | Reject null hypothesis | 0.000 |
| POWER GRID | -10.18323 | 1.400175 | Reject null hypothesis | 0.000 |
| RELIANCE INDUSTRIES | 314.537 | 34.62879 | Reject null hypothesis | 0.000 |
| SBI | -115.0653 | -22.69355 | Reject null hypothesis | 0.000 |
| SUN PHARMA | 70.77093 | 17.42898 | Reject null hypothesis | 0.000 |
| TATA STEEL | -70.18283 | -8.475575 | Reject null hypothesis | 0.000 |
| TCS | 30.17589 | 1.347766 | Accept Null Hypothesis | 0.1792 |
| TECH MAHINDRA | 1300.569 | 47.71836 | Reject null hypothesis | 0.000 |
| TITAN | -171.6689 | -11.9798 | Reject null hypothesis | 0.000 |
| ULTRATECH CEMENT | -317.1014 | -6.644837 | Reject null hypothesis | 0.000 |
| WIPRO | -6.406471 | -1.478436 | Accept Null Hypothesis | 0.1408 |

Table 3 represents the summary of the eventt study analysis, which includes regression co-efficient to know the relationship between a dependent variable and independent variable and compare means of groups, i.e. pre COVID and COVID crisis, and the probability of accepting or rejecting the null hypothesis. It indicates that when stocks have -1, it is showing perfectly negative and 1 is a perfectly positive coefficient, BHARATHI AIRTEL (81.80993); DR REDDY LAB (1089.723) HCL TECHNOLOGIES (34.73884) TCS (30.1758) TECH MAHINDRA (1300.569) SU PHARMA (70.77093) etc.. are some of the companies which have a perfectly positive coefficient, ASIAN PAINTS (-50.21102) AXIS BANK (-2.55123) TATA STEEL (-70.18283) SBI (-115.0653) etc.. companies which are negatively coefficient which indicates that stocks always move in the same direction but is unpredictable whether they are perfectly positive or negative coefficient. The T-Test is acceptable when the values are greater or lesser than two. If the value is more significant, it indicates more excellent reliability. Suppose it is lesser than it shows lower reliability. In the given table, INFOSYS (0.205583) and probability (0.8373), which means to accept the hypothesis, TCS (1.347766) and possibility is (0.1792) so take the null hypothesis.

## INVESTORS' OPINION ON DECISION MAKING

The age group between18-25 is (85.4%) is the people who have invested in the stock market, which specifies that youths are more interested in the stock market. 34.1% of people got to know about the stock market through the internet, indicating the importance of the internet in today's world. At present, 80.5% are invested in the stock market, which means people trust the stock market. 80.5% of people suggest that the stock market is best for investment opportunities that bring good returns. As per the data, 46% of people invested to earn dividends. As per this data, most of them support making the dividend. 69.5% of people say they haven't used derivatives till now. Among all the mentioned companies, Infosys (36.6%) of respondents have suggested

best for the investment. Followed by Wipro, TCS, HDFC BANK Reliance etc., are most recommended by the respondents for investments. As per the study, 62.2% responded has it is negatively affected, and 37.8% responded has pandemic has positively affected post and pre COVID have bought many changes in the stock market people are very selective and think a lot to invest in buying any share because in the present situation it is highly unpredictable about the things that are happening in and around us. So it is better to analyze the past data and take expert advice before investing or trading in the stock market.

## V. CONCLUSION

The study has fulfilled the objectives. From the data presented in the paper, it can be concluded that there is a significant impact of a pandemic on the stocks listed on the BSE stock market. Calculation of Beta has analyzed that companies are affected in both the stages, but banks sectors, are showing less risk during the COVID crisis stages, which indicates that banking sectors were financially performing good. As per the data collected for both periods, market fluctuation impacts the stocks. By calculating Alpha, the study concludes that 95% of the companies have negative returns during COVID 19, which signifies that companies are highly affected. It is due to poor financial inflow to the companies. Eventt study analysis witnessed a significant impact in both stages, but during COVID 19 stage, there was high volatility in the stock market. The study also highlights some aspects of investors' decision-making in investment based on economic factors, political factors, and other information through media and announcements. Hence it is concluded that the decision making of the investors and the change in the price of the stocks are interrelated.

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