VOLATILITY OF BANK STOCKS IN INDIA DURING COVID-19

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Original Article

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Abstract

Investing in the stock market has always been regarded as risky. Market sentiment is a factor that influences stock prices. The purpose of this study is to assess the performance of selected banking stocks based on the risk and excess return generated by them during the study period. The study also determines the effect of certain financial variables on sample banking stocks during the COVID'19 crisis. Economic variables such as the BSE Sensex, rate of exchange, variation in FII (Foreign Institutional Investors), and coupon rate of the government sector (G-Sec) were analysed in conjunction with the analysis of banking stocks. The regression and correlation tests are used to determine the significance of variables using SPSS. Following the BSE's performance provides insight into future modifications throughout the price levels of bank shares. Following a sharp decline in the market, private sector bank stock prices are correct, but not public sector bank stock prices. Throughout the first part of the research, there is a direct relationship between the BSE, Sensex, and the selected stocks, but only a weak correlation with FII, the G-Sec coupon rate, and the exchange rate. In the second part of the research, the relationship between stock prices and economic variables varies widely between banks.

Keywords: Fluctuating Returns, FII; G-Sec Rate, Exchange Rate, Financial Sector, Bombay Stock   Exchange, COVID'19

Introduction

Since the bank segment is critical to economic expansion and offers financial resources to individuals, entrepreneurs, and underserved sectors, it is commonly referred to as the economy's "backbone." Since it is the cornerstone of the business, the banking segment is vital to the smooth running of every other industry. This industry's economic strength and the growth of the economy are strongly linked. By pooling private savings and lending them to underdeveloped businesses, the banking profession encourages commerce. The business borrows funds to meet its running capital needs in addition to financing the acquisition of new assets. This process collects idle money and reinvests it in profitable endeavours, which has two positive effects on the economy. As a result, the country gains new capital assets. A stable and robust economic system is essential for both long-term GDP growth and financial independence. The pandemic (COVID-19) has struck India at a time when the economy of the nation has shrunk to its lowest level. There isn't any business activity anymore. The main supporting pillar bank segment stepped up to support a few industries. To stimulate the flow of money and liquidity inside the economy, the RBI reduced "repo rates." Additionally, the central bank announced a break from loan payments. Stock market investing has traditionally been thought to be dangerous. Investing in stocks does not always result in a bigger return. The production and consumption of shares by the market cause fluctuations in stock prices. In the event of an unforeseeable incident, negative sentiments could lead to an unexpected price fluctuation.

Literature Review

Catastrophic events have a profound impact on investor behaviour and their decisions regarding stock investments. Fama et al.'s groundbreaking research in 1969 shed light on the correlation between such events and stock price volatility [1]. Previous studies have predominantly focused on examining the relationship between stock prices and various catastrophic occurrences, including natural disasters, terrorist attacks, political instability, and financial crises. For example, Kalra's study delved into the aftermath of the Soviet nuclear reactor accident [2]. A significant rise is also observed in stock values following the "9/11" incident [3].

Further investigations by scholars have explored the impact of events such as the Mexico crisis, financial crises of different years, and conflicts like the Iraq war on stock compensation practices and the volatility of American stock prices [4, 5]. It is also highlighted how events impeding consumer growth can affect stock market fluctuations [6]. Additionally, more research revealed that adverse events, such as the China-US trade war, tend to have a more prolonged effect on stock prices compared to positive events [7].

According to studies, the COVID-19 pandemic emerged as a significant disruptor that seriously and permanently damaged the global economy [8]. However, there remains a lack of comprehensive research on the pandemic's specific impact on share prices, particularly concerning the role of financial factors on bank shares during government-imposed lockdowns [9].

Many scholars have begun to explore the pandemic's effects on markets and oil markets, respectively [10, 11]. Meanwhile, it is conducting comparative analyses across nations to understand how COVID-19 affected various financial products [12]. This study aims to fill this gap by investigating how the values of bank stocks evolved during the pandemic.

Need for the Study
The banking industry in India plays a significant role in the nation's economy, and in order to make wise investment choices, investors in this industry must comprehend the performance of certain bank stocks. By shedding light on the relationship between economic indices like the BSE, exchange rate, and FII activities and bank stock prices in India, this study sought to close a research gap. It is also necessary to look into how sensitive bank stocks are to shifts in the economy and crises; this is especially important in light of the current 'COVID-19' outbreak and its effects on the economy.

Objectives

- To study the concept of risk and return
- To evaluate and appraise the risk associated with three bank stocks.
- To investigate the volatility of the chosen bank stocks before and after the onset of the 'COVID-19' pandemic.

Scope of the Study
The effect of economic pointers on bank scrip prices, including the BSE, exchange rate, and FII activities, as well as the connection between these indicators and bank scrip prices, will be examined in this study. In addition, the study sought to determine how sensitive bank stocks were to shifts in the economy and financial crises, as well as to offer advice to investors who wanted to diversify their holdings in Indian banks. The study's conclusion implies that in order to make wise investment choices, investors have to keep a careful eye on economic indicators and comprehend the performance of specific bank stocks. A few chosen stocks—"HDFC Bank (HDFC), State Bank of India (SBI), Kotak Mahindra (KM), ICICI Bank (ICICI), and Axis Bank (Axis)"—will be the focus. The study might measure return and risk using statistical methods like the standard deviation and arithmetic mean. Regression and correlation metrics will be included in this. The results could shed light on the chosen banks' exposure to macroeconomic variables as well as the dynamics of risk and return.

Research Methodology
A quantitative approach will be used in the study technique, with an emphasis on the chosen banks' risk and return profiles as well as the influence of macroeconomic factors on their stock values. Using statistical methods, identifying data sources, and taking ethical considerations into account, the methodology will overcome the study's flaws. The study examines how macroeconomic factors influence the stock prices of the chosen banks as well as their risk and return profiles.

Techniques Used

The study will use both descriptive and inferential statistics to examine the risk and return profiles of the chosen banks. The research may employ statistical instruments like correlation and regression to examine the effects of macroeconomic factors on the stock prices of the chosen banks and arithmetic mean and standard deviation to quantify risk and return.

Limitations

- This study is restricted to 'Bank Stocks' in India only.
- The study is limited to only five BSE- listed banks, namely "HDFC, SBI, Kotak Mahindra, ICICI, and Axis".
- The study will cover the period before and after the 'COVID-19' pandemic. However, the pandemic has had a significant impact on the overall economy and the bank sector, and the study may not fully capture its long-term effects on the selected banks.

Results

During the initial phase of the cycle, HDFC exhibited minimal fluctuations in stock prices, whereas SBI experienced the most significant variations in the latter half. Conversely, the highest fluctuations were observed in SBI and Axis during the first and second halves of the period, respectively. Table 1 & Figure 1 illustrate the price dispersion around the mean price over the period.

Table 1: Mean Deviation of Stock Prices before & After Pandemic

Name of the Bank	Mean Deviation Before Covid'19	Mean Deviation After Covid'19
HDFC	0.026	0.04
SBI	0.042	0.031
KM	0.029	0.044
ICICI	0.031	0.052
Axis	0.033	0.059

Source: Collected by author

Figure 1: Deviation
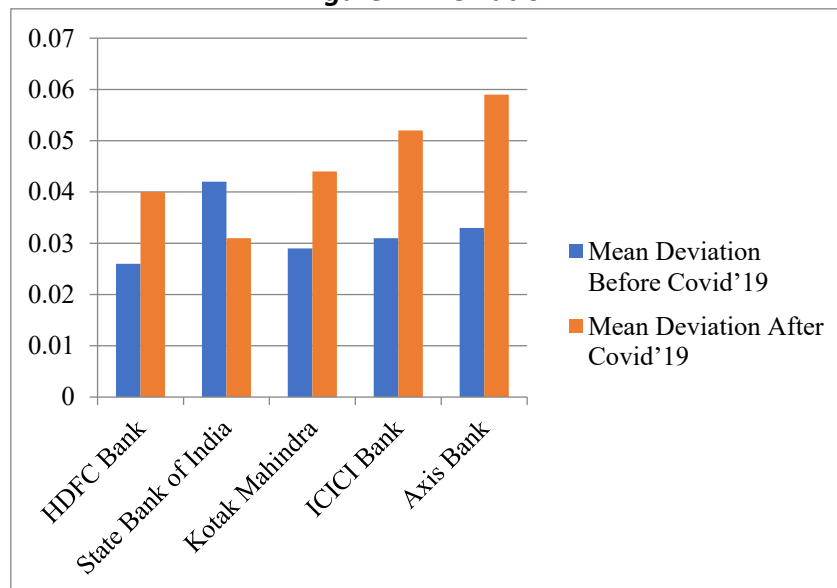
Irregular Returns & Beta

This section looks at the selected banks' shares' level of uncertainty with respect to the BSE index during the course of the two-year data period. It also shows the abnormal returns and beta values of selected five stocks and assesses the return volatility within this time frame to see if the price has corrected itself after its March 2020 low. The beta and return volatility of each bank are shown in Table 2 below.

Table 2: Beta and Return of Prices before & After Pandemic

Bank	Item	Before	After
HDFC	Beta	0.78	1.3
	Abnormal Return	-2.17%	1.90%
SBI	Beta	0.98	1.05
	Abnormal Return	1.03	-0.97%
KM	Beta	0.88	1.27
	Abnormal Return	-1.25%	1.70%
ICICI	Beta	1.05	1.67
	Abnormal Return	-0.64%	3.81%
Axis	Beta	1.09	1.59
	Abnormal Return	0.66%	3.60%

Source: Collected by author

Interpretation

The beta analysis of a particular stock price demonstrates that bank stocks are rather erratic in times of crisis. The economic impact of the crisis is to blame for the stock price volatility, as it directly affects the banking services sector and, consequently, profitability. Because the actual return for SBI is higher than the projected return, the abnormal returns were positive during the pre-lockdown period. Even so, when stock prices decline below the anticipated threshold, it turns negative. The pre-period anomalous returns for Kotak Mahindra, HDFC, ICICI, and AXIS were negative because of real negative returns brought on by declining prices. The post-period positive abnormal return indicates that the data appears to have recovered from the prior fall. The most notable clarification may be seen in the over-3% increase in the price levels of ICICI and AXIS.

Correlation Analysis

This section looks at how specific bank stocks relate to other economic factors. This allows us to ascertain whether the direction of the movement of the underlying variables—such as the Sensex, exchange rate, movement of the FII, and G-Sec rate—corresponds to the movement in stock prices. The co-relation coefficient values before and after the lockdown are shown in Table 3 below.

Table 3: Pre-Lockdown Correlation in Stocks Prices and Economic Variables

Bank	BSE Sensex	Exchange Rate	FII Movement	Rate of G-Sec
HDFC	0.97	-0.87	0.65	0.24
SBI	0.95	-0.91	0.68	0.28
KM	0.94	-0.77	0.59	0.3
ICICI	0.97	-0.85	0.66	0.17
Axis	0.01	-0.87	0.66	0.19

Source: Collected by author

Interpretation

The correlation for all stocks is larger than 0.9, indicating a very robust link, as the association between the BSE and bank stocks shows. The correlation between the Sensex and bank equities, which are closely related, showed a similar pattern. Bank shares and the currency rate have a substantial negative association across the whole timeframe. This link shows that the stock price and exchange rate move in the opposite direction during a crisis. The swings in bank stock prices and the FII are somewhat correlated. (0.5–0.7) It suggests that there is a moderate connection between changes in FII activity and changes in stock prices. The correlation coefficient, which is less than 0.3, demonstrates the weak relationship between bank stocks and the G-Sec level. Changes in G-Sec rates could not have as much of an impact on stock values (refer to Table 4 below).

Table 4: Post-Lockdown Correlation in Stocks Prices and Economic Variables

Bank	BSE	Sensex	Exchange Rate	FII Movement	G-Sec Rate
HDFC	0.83	0.87	-0.12	0.36	-0.37
SBI	-1.3	-1.8	0.22	-0.14	0.12
KM	0.14	0.21	-0.39	0.13	0.14
ICICI	0.66	0.7	-0.03	0.2	-0.33
Axis	0.72	0.73	-0.23	0.16	-0.53

Source: Collected by author

Interpretation

Upon analysing BSE and bank stocks, it's notable that HDFC and AXIS exhibit a considerable correlation, while ICICI's correlation with other banks appears moderate. Kotak Mahindra, on the other hand, displays a correlation that's relatively weak. SBI, however, shows a negative correlation, indicating a lack of market correction during the post-period. Research on abnormal returns confirms this observation, indicating favourable volatility in certain banks post-period, with SBI having a lesser impact. The negative correlation of SBI, alongside the weaker correlations of Kotak Mahindra, contrasts with the positive correlations observed in HDFC, ICICI, and AXIS, reflecting broader trends seen in the Sensex and Nifty indices. Concerning post-period correlations with exchange rates, Kotak Mahindra and HDFC demonstrate negative correlations, whereas the other banks show slight decreases in correlation. Except for SBI, where a negative association is apparent, there is minimal correlation between FII movement and bank equities throughout the post-

period. Furthermore, during the post-period, there's an insignificant correlation between the G-Sec coupon rate and SBI and Kotak Mahindra Bank.

Regression

To ascertain the impact, daily bank stock prices were monitored for the selected years 2019 and 2020 and then regressed against the rates of particular elements during that time (refer to Table 5 & Figure 2 below).

Table 5: Values of Regression in Stocks Returns with BSE Sensex Returns

Bank	Pre-Covid'19	Post Covid'19
HDFC	0.07	0.00
SBI	0.32	0.00
KM	0.56	0.00
ICICI	0.32	0.00
Axis	0.31	0.02

Source: Collected by author

Figure 2: Regression Values of Stocks Returns with BSE Sensex Returns
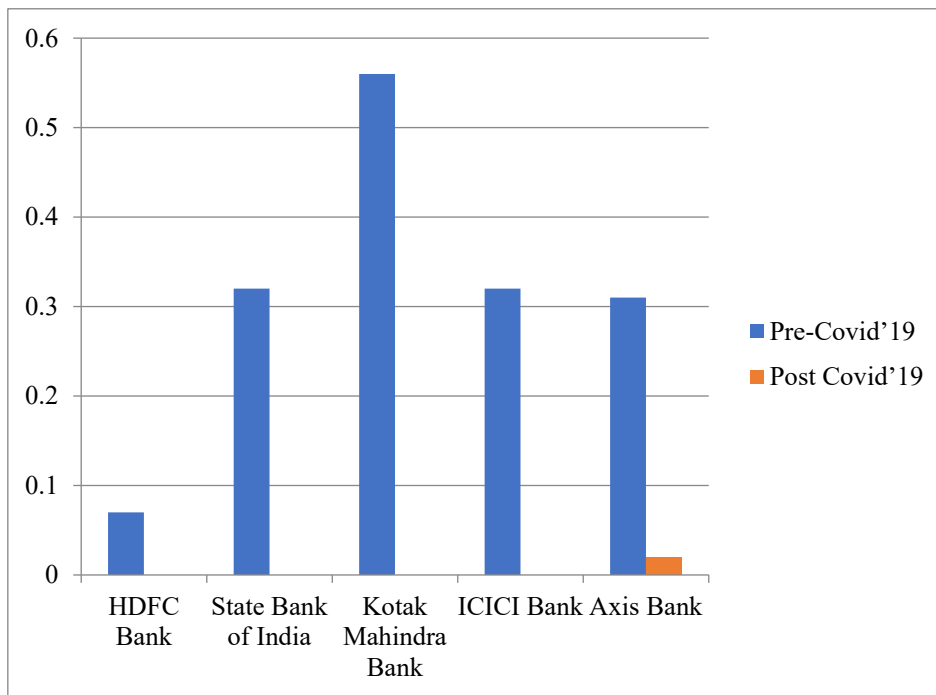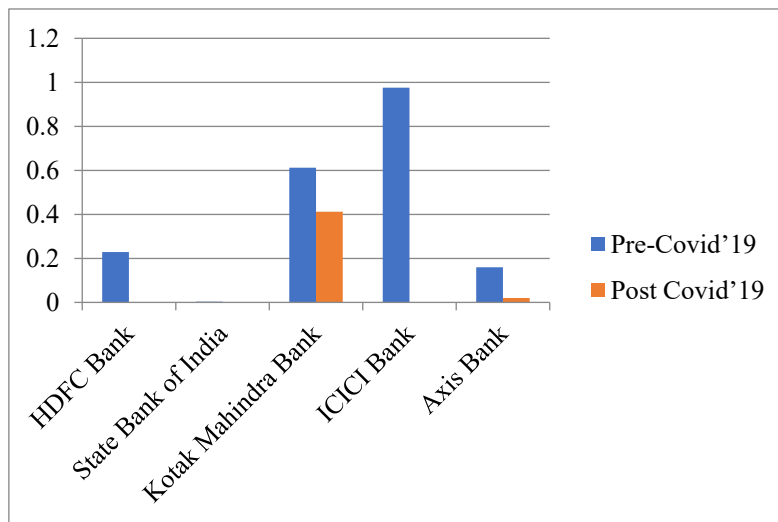

Interpretation

During the pre-pandemic phase, the value of bank stocks is higher than the critical value, with the exception of Axis Bank. Thus, the null hypothesis is justified. Therefore, over this time, the Sensex's fluctuations have not significantly affected the stock rates of banks, with the exception of Axis. In the post-COVID period, the value of all bank shares would be below the crucial threshold. Consequently, the null hypothesis is disproved. As such, it proves that variations in the Sensex have an impact on bank stock prices. H0: There is no appreciable impact of the exchange rate on the selected bank stocks (refer to Table 6 & Figure 3 below).

Table 6: Values of Regression in Stocks Returns and Exchange Rate

Bank	Pre-Covid'19	Post Covid'19
HDFC	0.229	0.00
SBI	0.003	0.00
KM	0.612	0.412
ICICI	0.976	0.00
Axis	0.16	0.02

Source: Collected by author

Figure 3: Regression Values of Stocks Returns with Exchange Rate Motion

Interpretation

Changes in the exchange rate have a significant impact on SBI's price because its quality is less than 0.05. The null hypothesis, which states that there was no impact of the exchange rate shift on bank stocks in the pre-period, is accepted for the remaining four banks. Because the values were greater than 0.05, changes in the currency rate had an impact on Kotak Mahindra's stock prices after the pandemic. On the other hand, the null hypothesis was rejected for the remaining four banks, suggesting that the post-period bank stocks were unaffected by the exchange rate shift. Thus, for all four banks, with the exception of Kotak Mahindra, the null hypothesis (H0: There is no appreciable effect of FII movement on the selected bank shares) has been negated (refer to Table 7 & Figure 4 below).
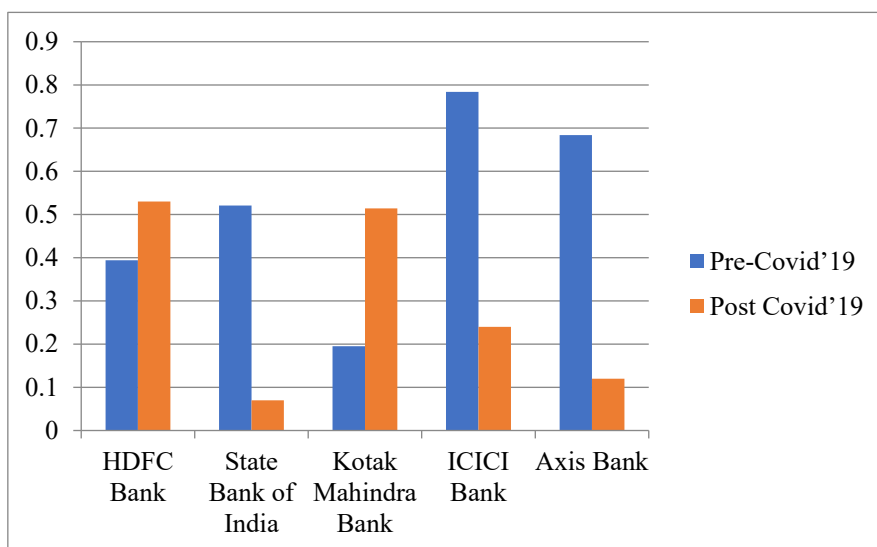
Table 7: Regression Values of Stocks Returns with FII Movement

Bank	Pre-Covid'19	Post Covid'19
HDFC	0.394	0.53
SBI	0.521	0.07

KM	0.195	0.514
ICICI	0.784	0.24
Axis	0.684	0.12

Source: Collected by author

Figure 4: Regression Values of Stocks Returns with Exchange Rate Motion
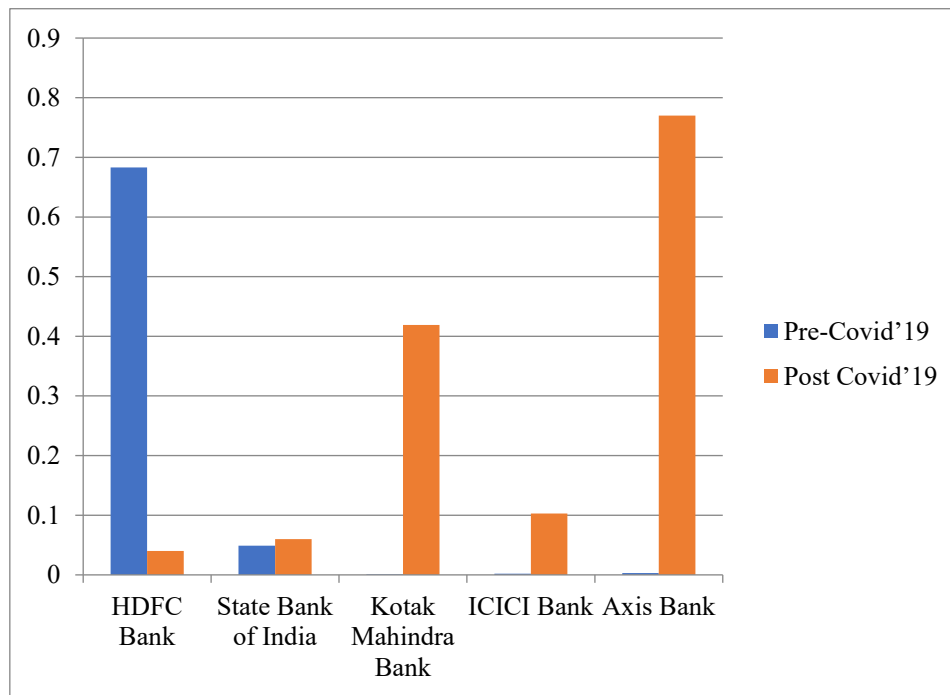

Interpretation

Regressing each bank stock against the FII mobility factor for both the pre- and post-period yields values that, at a 5% significance level, are greater than the critical value of 0.05. Changes in FII activity, therefore, have no appreciable impact on the selected bank shares. Fifth Theory: Changes in the G-Sec rate does not have a significant impact on the chosen bank shares (see Table 8 below).

Table 8: Regression Values of Stocks with G-Sec Coupon Rate

Bank	Pre-Covid'19	Post Covid'19
HDFC	0.683	0.04
SBI	0.049	0.06
KM	0.001	0.419
ICICI	0.002	0.103
Axis	0.003	0.77

Source: Collected by author

Figure 5: Regression Values of Stocks with G-Sec Coupon Rate

Interpretation

The pre-pandemic value of SBI and HDFC is more than 0.05. The null hypothesis has been accepted as a consequence. As a result, throughout this time, FII mobility changes have not significantly affected stock prices, but they have (less than 0.05) affected the share prices of the remaining banks. The value of HDFC *p* 0.05 shows that the G-Sec rate has an impact on HDFC stock prices over the post-crisis period. On the other hand, the remaining four bank stocks are unaffected (see Figure 5 above).

Findings

These are the study's outcomes:

- In a crisis period, bank stocks show volatility, showing negative abnormal returns in the lead-up to the crisis and positive abnormal returns in the follow-up.
- The BSE and bank stock prices have a strong positive correlation, suggesting that changes in the overall market have a big effect on bank stock prices.
- Bank stocks have a strong negative correlation with the currency rate during times of emergency, making them vulnerable to shifts in the economy and crises.
- In the first half of the period, HDFC Bank's stock price divergence was the lowest, while SBI's remained the largest.
- Changes in the Sensex have an impact on the prices of bank shares, whereas exchange rate fluctuations have a big impact on SBI's stock price.
- A correlation coefficient ranging from 0.5 to 0.7 indicated a moderate effect of FII activities on bank stocks.
- Regression revealed that while there was no significant effect on the prices of four out of five bank stocks in the pre-period, exchange rate variations had a substantial impact on the share prices of Kotak Mahindra Bank in the post-period.
- For investors aiming to diversify their portfolios, the study presents insights into how particular bank stocks behave at various points in the economic cycle.

Discussion

The epidemic known as 'COVID-19' caused significant difficulties and transformations to occur within India's banking industry and stock market. The Reserve Bank of India acted swiftly to put into place measures like loan moratoriums in order to lessen the financial strain that borrowers were experiencing and to maintain liquidity within the financial framework [13]. Despite this, worries about the quality of assets persisted, and the slowdown in the economy made them worse. This put pressure on loan portfolios, particularly in sectors where regulatory restrictions were most severe [11]. While all of this was going on, there was a noticeable increase in the number of customers using digital banks. This was because customers were looking for remote ways to conduct financial transactions, which forced banks to speed up their efforts to digitalize their operations. At the same time, the stock market experienced unprecedented volatility, which was characterised by sudden swings that reflected concerns surrounding economic forecasts and the performance of corporations. Despite the fact that certain industries were experiencing a period of unprecedented growth, others were presented with severe obstacles, which caused oscillations in investor sentiment and prompted revisions in investing strategies [10]. Despite this, the crisis was responsible for bringing about long-lasting changes, with robust businesses and forward-thinking industries emerging as potential winners in the environment that followed the epidemic. Throughout the ordeal, interventions and adaptive methods were implemented in order to stabilise the financial apparatus and navigate a route towards recovery. This exemplifies the resilience and malleability of India's financial ecosystem when it comes to dealing with challenging conditions [14].

Suggestions

This study recommends:

- To make wise investment selections, investors in the Indian banking sector should keep a close eye on economic indices like the BSE, exchange rate, and FII activities.
- During times of crisis, investors should be prepared for potential fluctuations in bank stock prices and consider diversifying their portfolios to mitigate risks.
- The results of the research urge investors to keep a close eye on how specific bank stocks perform at different points in the economic cycle, as this can reveal chances for risk reduction and diversification.
- Further research could focus on analysing the impact of other economic indicators and events on bank stock prices in India, as well as investigating the trend of bank stocks in other countries and regions.
- Banks themselves could also use the insights from this study to develop strategies to manage their own risks and optimize their performance during different phases of the economic cycle.

Conclusion

During emergency situations, it was found that bank stocks showed a substantial negative correlation with the exchange rate, demonstrating their vulnerability to changes in the economy and crises. Furthermore, the analysis discovered a strong positive correlation between the BSE and bank stocks, indicating that shifts in the market as a whole had a significant impact on bank stock prices. Regression research revealed that changes in the Sensex had an effect on bank stock prices, and exchange rate fluctuations have a considerable impact on SBI's stock price. The correlation coefficient, which varied between 0.5 and 0.7, indicated a moderate impact of FII activity on bank stocks. HDFC Bank had the least stock price difference over the first half of the period, while SBI had the most. The study highlights how important it is to keep a close eye on economic indicators and understand the behaviour of specific bank stocks in the Indian banking sector to make informed investment decisions. The results of the research can be helpful to investors looking to lower risks and diversify their holdings in the Indian banking sector. In addition to analysing how bank stocks behave across different countries and regions, future research in this area may look at how other economic indicators and events impact bank stock values.

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Conflict of Interest

The authors declare that they have no conflict of interests.

Acknowledgement

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