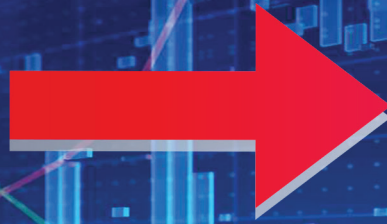


Covid - 19 Crisis



Stock Return



Impact of COVID-19 crisis on stock return of the listed banks in Bangladesh

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Abstract

The onset of the COVID-19 pandemic in December 2019 has ushered in unprecedented challenges globally, impacting public health and the economy at large. This study delves into the nuanced ramifications of the pandemic on the stock returns of commercial banks in Bangladesh, a pivotal sector within the nation's economic landscape. Leveraging a robust linear regression model, we meticulously examine weekly data spanning from 2020 to 2021, encompassing 30 listed commercial banks on the Dhaka Stock Exchange (DSEX). Our comprehensive analysis unveils a discernible negative effect of the COVID-19 crisis on individual bank stock returns, particularly during periods marked by heightened infection rates. Interestingly, while broader market trends exert a significant influence on bank stock returns, our findings suggest a marginal impact of weekly confirmed COVID-19 cases on these returns. This study contributes to the extant literature by shedding light on the intricate interplay between pandemics, market dynamics, and the performance of commercial banks, thereby offering invaluable insights for policymakers, regulators, and industry stakeholders navigating the complexities of global crises.

Keywords: COVID-19, Crisis, Stock Return, Bank, Bangladesh, Market Model.

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1.0 Introduction

Originating in Wuhan City, China, the novel coronavirus (COVID-19) spread all over the world in December 2019 (Shabir et al. 2023; Gautam et al., 2022; Zhou et al., 2021). The World Health Organization (WHO) declared COVID-19 as a global pandemic and public health emergency on March 11, 2020 (Gautam et al., 2022). The world was not ready for this sudden COVID-19 pandemic, which created chaos in countries worldwide and affected the world economy badly (Shabir et al. 2023; Duan et al., 2021; Fernandes, 2020); where the losses exceeded the losses of the global financial crisis (GFC) in 2008-09 (Hanif et al., 2021). The COVID-19 pandemic brings a dual crisis to the world, the first one is the health crisis, and the second one is the economic crisis (Baker et al., 2020). Feyen et al., (2021) found out that COVID-19 creates extreme pressure on the worldwide financial market and institutions. Previous studies prove that crises like the GFC 2008 and the European debt crisis, lead to the tail co-movements of banks which may

trigger the collapse of the whole financial system, but the COVID-19 crisis is unique so the impact on the financial system or bank is still under research. (Shabir et al. 2023; Duan et al., 2021). Throughout the world, financial markets have experienced remarkable stress and uncertainty because of the COVID-19 pandemic and related shutdowns (Shabir et al., 2023; Samitas et al., 2022; Demir and Danisman, 2021). Contemporary researchers are analysing the reactions of the financial market during the COVID-19 pandemic and One group of researchers empirically proved that the COVID-19 pandemic negatively affected the stock market return (Shabir et al. 2023; Samitas et al., 2022; Ashraf, 2020; Demir and Danisman, 2021; Demirgüç-Kunt et al., 2021; Topcu and Gulal, 2020; Wang and Enilov, 2020; Al-Awadhi et al., 2020) and increased stock return volatility (Baker et al., 2020; Zaremba et al., 2021), because of panic-selling by the investors (Dharani et al., 2022). The increase in the number of confirmed COVID-19 cases has shown negative reactions on the stock market and the reaction varies over time (Ashraf, 2020). Wang and Enilov (2020) further prove that the number of confirmed COVID-19 cases significantly reduces stock market returns in Canada, France, Germany, Italy, and the United States.

In the context of Bangladesh, the bank plays a significant role in the whole economy. Bangladesh's banking industry comprises 61 scheduled commercial banks among which 35 banks are listed in the capital stock market. According to the year of establishment, there are four different generations of banks in Bangladesh, First-generation banks (establishment year:1971–1990), Second-generation banks (establishment year:1991–2000), Third generation banks (establishment year:2001–2010), and lastly, fourth-generation banks (establishment year: 2011–present) (PWC, 2023). During the COVID-19 pandemic, Bangladesh has gone through multiple macro and microeconomic shocks, whereas the banking industry is highly correlated with the macroeconomic factors. This study focuses on the impact of the COVID-19 pandemic on the stock return of commercial banks in Bangladesh.

This study uses the linear regression model which measures the shock on bank stock return in Bangladesh due to the COVID-19 crisis, by measuring the coefficient of the crisis dummy variable and its significance level (using p-value < 0.05). We use 30

listed commercial banks of the Dhaka Stock Exchange (DSEX) from 2020 to 2021.

This study contributes to the literature by identifying how the listed banks' stock return in Bangladesh responds to the shock that arose from the COVID-19 outbreak. The remainder of the paper is structured as follows: The following section reviews the relevant literature and discusses the hypothesis. Section 3 discusses the formation of the dependent and the independent variables with an overview of the whole model. The next two parts show the result and the conclusion of the paper.

2.0 Literature Review and Hypothesis Development

Since the outbreak of the COVID-19 pandemic, varied research is going on to find out the present and potential impact of it on the global financial system. It is empirically proved that the prolonged duration of the COVID-19 pandemic creates financial volatility throughout the world (Shabir et al., 2023). Like any other country, industries in Bangladesh are also impacted by the COVID-19 pandemic. After the reporting of its first official COVID-19 confirmed cases on March 8, 2020, Bangladesh took several measures such as general holidays, restricted movements, closures, and the mandatory wearing of masks, etc. to control the spread of infection (IMF, 2020). Therefore, economic activities among all the sectors shrank and GDP dropped to 5.24 percent in FY20 from 8.15 percent in FY19. To protect the banking industry as well as the whole economy Bangladesh Bank also took a wide range of monetary and macroprudential policies. As a policy measure, Bangladesh Bank reduces the Cash Reserve Ratio (CRR), Repo rate, Reverse repo rate, bank rate, increases Advance to Deposit Ratio (ADR) and Investment to Deposit Ratio (IDR) (Bangladesh Bank, 2021). Even though the banking industry in Bangladesh has a high percentage of nonperforming loans (NPL) (Barua and Barua, 2021), which is 2nd largest in Asia and the 24th largest in the world (Mia, 2023; Islam, 2020) Bangladesh Bank eases loan classification, loan rescheduling, late payment, and interest calculation of credit card bills (Bangladesh Bank, 2021). The crisis during the COVID-19 pandemic transformed the financial service industry in three ways; lowering interest rates, increasing prudential requirements,

and the enormous implementation of digital banking technologies with the new entrants in the market. The banking industry in Bangladesh has gone through all three transformations during the COVID-19 pandemic by implementing the policy measures of Bangladesh Bank.

Researchers have found out the impact of the COVID-19 pandemic on the banking industries in different countries. Çolak and Öztekin (2021) have investigated that bank loan growth declines due to the COVID-19 pandemic and the detrimental effect of slow loan growth depends on the severity of the pandemic on the specific country. Demirgüç-Kunt et al. (2021) further prove that liquidity support, borrower assistance programs, and monetary easing lessen the effect of the crisis on the banking sector. Most empirical evidence proves that banks underperformed during the COVID-19 crisis due to the increase in non-performing loans which caused an inverse effect on bank capital, profit, and solvency (Shabir et al. 2023; Beck and Keil, 2021; Demir and Danisman, 2021; Duan et al., 2021MI). On the other hand, Mirzaei et al. (2022) showed that Islamic banks generated 10-13% more stock returns than their conventional counterparties during the COVID-19 crisis by utilizing the pre-crisis bank efficiency.

Not many studies have been conducted on the bank stock return during the COVID-19 outbreak in Bangladesh. Even though some contemporary researchers found out the banking industry in Bangladesh generated less profit (Gazi et al., 2022), less risk-weighted asset values, capital adequacy ratio, and interest income at the individual bank level and sectoral levels (Barua and Barua, 2021) during the COVID-19 outbreak. Some other researchers also empirically prove that, due to the COVID-19 epidemic, all the industries listed in the Dhaka Stock Exchange generate abnormal negative stock returns (Adnan and Johani, 2023; Shaturaev, 2023) except the printing and paper industries (Adnan and Johani, 2023). However, the impact of the COVID-19 pandemic on the bank stock return is still undiscovered, so based on the analysis we make the following hypothesis:

H0 = Stock return of listed banks in Bangladesh was not influenced by the COVID-19 pandemic.

3.0 Sample construct, variable definition, and empirical model:

3.1 Data and Sample

To investigate the impact of the COVID-19 crisis on the stock returns of listed banks in Bangladesh, we collected weekly data on stock returns for 30 banks listed on the Dhaka Stock Exchange (DSE) from January 2020 to December 2021. This dataset provides a comprehensive view of the banking sector's performance during the pandemic period. Additionally, we obtained data on the DSE broad market index weekly returns and the weekly number of confirmed COVID-19 cases in Bangladesh during the same timeframe. The choice of weekly frequency data was driven by the need for timely and granular information to capture the dynamic nature of market reactions to the pandemic.

3.2 Measurements of Variables

The key variables in our analysis include:

Dependent Variable:

- ❖ Weekly stock returns of individual banks listed on the DSE.

Independent Variables:

- ❖ DSE broad market index weekly returns: Reflects general market trends and economic conditions.
- ❖ Weekly confirmed COVID-19 cases: Represent the magnitude of the pandemic's impact on public health and economic activities.
- ❖ Crisis dummy variable: In this study, we follow Elnahass et al. (2021) and Çolak and Oztekin (2021) and use a binary dummy to distinguish high and low COVID-19 infection periods, allowing for the identification of crisis periods in the banking sector.

3.3 Empirical Framework

To quantify the influence of the COVID-19 pandemic on bank returns while controlling for broader economic conditions, the Market model is the most widely utilized and offers a high level of predictability (Armitage, 1995). The market model was utilized in this work. The approach uses a regression analysis of stock return versus the crisis dummy variable, and market index performance. This norm is based on the return model (Berger, 1963). This method involves

comparing the stock's return to the market index's return using a regression analysis.

The crisis dummy variable serves a pivotal role in capturing the impact of the COVID-19 pandemic on bank returns. It is inspired by established methodologies in financial research, where crisis dummy variables are commonly employed to discern periods of financial turbulence and economic downturns (Berger and Bouwman, 2013). Acting as a binary indicator, the crisis dummy variable takes the value of 1 during periods characterized by elevated COVID-19 infection rates and 0 otherwise. This strategic inclusion aligns with prior research that utilized similar dummy variables to identify shifts in competitive dynamics during crises in the banking sector (Hanggraeni, 2018).

The model is structured as follows:

$$\text{STOCKRETURN}_{it} = \alpha_i + \beta_1 \text{CRISISDUMMY}_{it} + \beta_2 \text{DSEIndexreturns}_t + \beta_3 \text{COVIDCASES}_{it} + \epsilon_{it}$$

Where:

- ❖ STOCKRETURN_{it} represents the weekly stock returns of individual banks.
- ❖ α_i is the intercept term capturing the average return of bank i over the sample period.
- ❖ CRISISDUMMY_{it} is the crisis dummy variable, distinguishing periods of elevated COVID-19 infection rates.
- ❖ DSEIndexreturns_t is the DSE broad market index weekly returns, representing general market trends.
- ❖ COVIDCASES_{it} denotes the weekly number of confirmed COVID-19 cases in Bangladesh during the specified period.
- ❖ ϵ_{it} is the error term capturing unexplained variation in bank stock returns.

This framework allows us to assess the specific impact of the COVID-19 crisis on bank returns while controlling for market fluctuations and other relevant factors.

Overall, our methodology provides a robust framework for analyzing the relationship between the COVID-19 crisis and stock returns of listed banks in Bangladesh, incorporating data collection procedures, variable measurements, and an empirical model to guide our analysis.

4.0 Result and Discussion:

Table 1: Descriptive Statistics for variables used in the model

	N = 2850	
	Mean	Std. Deviation
STOCKRETURN	.516585	5.5479292
CRISISDUMMY	.72	.451
COVIDCASES	16377.08	20769.188
DSEIndexreturns	.527706	2.2624690

Table 1 presents descriptive statistics for all the variables used in the regression model. The mean weekly stock return of individual banks (STOCKRETURN) is 0.516585 reflecting substantial variability with a standard deviation of 5.5479292. The average value of the crisis dummy variable (CRISISDUMMY) is 0.72 suggesting that the occurrence of crises significantly influences market behavior, with a relatively narrow dispersion of 0.451. The mean number of weekly confirmed COVID-19 cases (COVIDCASES) is 16377.08 implying potential economic disruptions due to the ongoing pandemic, given the substantial standard deviation of 20769.188. The mean DSE broad market index weekly returns (DSEIndexreturns) are 0.527706 indicating the market's performance, yet the relatively moderate standard deviation of 2.2624690 suggests a degree of stability amidst fluctuating market conditions.

Table 2: Pearson Correlation Matrix

	STOCKRETURN	CRISISDUMMY	COVIDCASES	DSEIndexreturns
STOCKRETURN	1.000			
CRISISDUMMY	.024	1.000		
COVIDCASES	.009	.462*	1.000	
DSEIndexreturns	.404*	.312*	.165*	1.000*

*Correlation is significant at the 0.05 level (1-tailed)

Table 2 presents a correlation matrix among the variables used in the regression model. The Pearson correlation coefficient between weekly stock returns and the crisis dummy variable is 0.024, indicating a very weak positive correlation. However, the p-value is greater than 0.05, suggesting the correlation is not statistically significant. There is a moderate positive correlation of 0.404 between weekly stock returns and DSE broad market index weekly returns, which is statistically significant ($p < 0.05$). This indicates that changes in the broad market index are associated with corresponding fluctuations in individual bank stock returns, underscoring the interconnectedness of individual bank performance with broader market trends. The correlation between weekly stock returns and weekly confirmed COVID-19 cases is negligible at 0.009, and the p-value is greater than 0.05, indicating a lack of statistical significance. This suggests that the impact of COVID-19 cases on weekly stock returns is minimal and does not significantly influence market behavior, indicating perhaps the existence of other driving forces behind stock market movements during the pandemic.

Table 3: Regression Result

Variable	Dependent Variable = STOCKRETURN _{it}			
	Expected Sign	Coefficient	t-stat	Significance
CRISISDUMMY	-	-1.303**	-5.315	.000
COVIDCASES	-	-3.816E-006	-.744	.457
DSEIndexreturns	+	1.076**	24.484	.000
Constant	?	.944**	5.266	.000
Observations	2850			
R ²	.174			
Adjusted R ²	.174			
F	200.506**			

** Significance at the 5% level

Table 3 presents the regression results of the crisis dummy variable with the weekly stock return of the selected banks. The coefficient of the crisis dummy variable has a statistically significant negative coefficient of -1.303, suggesting that during periods of elevated COVID-19 infection rates, weekly stock returns of individual banks decrease by approximately 1.303 units, holding other variables constant. This result confirms the rejection of the null hypothesis, as the regression results show that the stock return of the selected banks was negatively impacted by the crisis dummy variable (distinguishing periods of elevated COVID-19 infection rates). This result is consistent with some prior studies (Albaity et al, 2022; Balboula and Metawea, 2021; Demir and Danisman, 2021) which documented a negative effect of elevated COVID-19 infection rates on bank's stock return. The model including DSE broad market index weekly returns, weekly confirmed COVID-19 cases, and the crisis dummy variable explains approximately 17.4% of the variance in weekly stock returns, which indicates the contribution of other factors due to the rise in substandard loans and sudden withdrawal of deposits in the banking sector. This finding is also in line with the prior work done by research of Goodell's (2020) highlighting the negative influence of COVID-19 on the financial sector. The F-test for overall model significance yields a significant result ($F = 200.506$, $p < 0.05$), indicating that the regression model is statistically significant. The coefficients for DSE broad market index weekly returns and the crisis dummy variable are statistically significant ($p < 0.05$), except for weekly confirmed COVID-19 cases, which is not significant ($p > 0.05$).

Overall, the regression analysis suggests that while controlling for fluctuations in the DSE broad market index weekly returns, the crisis dummy variable has a significant impact on the weekly stock returns of listed banks in Bangladesh. However, the number of weekly confirmed COVID-19 cases does not appear to have a significant direct effect on bank stock returns in this analysis.

5.0 Conclusion

The study aimed to find out the influence of the COVID-19 pandemic on the stock return of the listed banking institutions in Bangladesh. Our empirical analysis revealed that the COVID-19 crisis had a significant impact on the stock returns of individual banks listed on the Dhaka Stock Exchange (DSE). Through the utilization of a Market model regression framework, we were able to quantify this influence while controlling for broader economic conditions represented by the DSE broad market index weekly returns. Furthermore, the inclusion of a crisis dummy variable allowed us to distinguish between periods of elevated COVID-19 infection rates, providing valuable insights into crisis periods in the banking sector. Over the sample period, there was significant variability in stock returns and the average value of the crisis dummy variable suggests that periods of elevated COVID-19 infection rates were prevalent. Furthermore, weekly stock returns show a moderate positive correlation with DSE broad market index weekly returns, which is statistically significant. On the other hand, weekly stock returns exhibit a weak positive correlation with the crisis dummy variable and a negligible correlation with the weekly confirmed COVID-19 cases, both are statistically insignificant. The regression model, incorporating DSE broad market index weekly returns, weekly confirmed COVID-19 cases, and the crisis dummy variable, explains approximately 17.4% of the variance in weekly stock returns, which is significant.

The findings of the study are only based on the banking institution so the outcome should not be generalized to the other sectors. Further studies may be conducted to see the COVID-19 influence on the stock return of the other non-banking industries. Despite these limitations, the empirical findings support the hypothesis that the COVID-19 pandemic has influenced the stock returns of listed commercial banks in Bangladesh. However, the impact appears to be primarily driven by broader market trends rather than the direct effect of weekly confirmed COVID-19 cases. These findings underscore the importance of understanding the complex interplay between pandemics, market dynamics, and bank performance, providing valuable insights for policymakers, regulators, and industry stakeholders in navigating the challenges posed by global crises.

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