

Performance Evaluation of Commercial Banks during Covid-19 Pandemic: Evidences from Bangladesh

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Abstract:- This study aims at investigating the performance of the commercial banks of Bangladesh with and without Covid-19 pandemic situation. For accomplishing this objective, this study collects panel data from annual reports of 26 commercial banks of Bangladesh considering period from 2010 to 2020 where only four banks are stated owned and the rest are private ownership. This study uses random effect model for statistical analysis by using STATA. Findings show that interest coverage ratio and inflation rate have significant positive ($p < 0.01$) effect on the performance of commercial banks with and without Covid-19 periods whereas GDP has significant negative ($p < 0.01$) influence on the performance of commercial banks in Bangladesh. This study also recommends that these factors should be managed with favorable policies which will improve the financial strength, profitability as well as the overall performance of the commercial banks in Bangladesh.

Keywords:- Commercial Bank, Covid-19, Random Effect Model, Interest Coverage Ratio, Inflation Rate.

I. INTRODUCTION

The banking industry is crucial to the actual economy's development and success of developing countries as like as Bangladesh. The well-being of a country's banking industry determines its financial advancement and strength. Banks are establishing a strategy centered on customer happiness, as they have become as essential element of the local community and the larger welfare economy. There are more than 60 banks in Bangladesh that are doing really well. Their current performance and financial condition is quite satisfactory. A competitive banking system enhance efficiency and is therefore essential for economic growth, but market forces are essential for the stability of the banking system (Sarker et al, 2017). Commercial banks control a significant portion of a country's economic operations (GAZI et al, 2021). Bank efficiency is determined by various bank-specific factors such as capitalization and profitability, as well as macroeconomic factors such as GDP growth, inflation rate, real interest rate, and ownership effect. Capitalization has a direct impact on bank efficiency, as it is a major concern to have high or low capitalization. This

is because a bank with low capitalization may be exposed to default risk, whereas a bank with large capitalization may have more costs and worse profitability. Whereas, capital adequacy ratios, asset quality, return on assets, and other solvency ratios gradually increased in position during COVID-19 (Almonifi et al, 2021).

The COVID pandemic has a significant influence on human health, the economy, education, and environment in all over the world (Mckibbin and Fernando, 2020). This epidemic can causes an economy to go into recession or depression because businesses are unable to operate at full capacity. This caused a significant drop in aggregate demand, production, foreign trade, sales capacity, and so on. Economic disruption and instability will result from a financial sector crisis, notably in the banking sector (Barua and Barua, 2020). In Bangladesh, the banking sector was mainly affected in the early stages of covid-19. Growth in loans and advances slowed significantly in March 2020 as banks remained cautious about lending growth due to adversity and uncertainty in the business environment. Undoubtedly, this pandemic has reduced bank profitability due to depositor withdrawals, less deposit collection from clients, and deferral of revenue collection, as many businesses were closed for an extended period during the strict lockdown period (Bangladesh Bank, 2020). Despite the fact that banks are reporting and revealing earning in interim financial statements, interest revenue is not collected (Sultana et al. 2021). Since the Bangladesh Bank has prolonged the lending moratorium until December 2020. However, as of December 2020 debt growth was generally on an upward trend, banks investment in various types of government bonds and securities have increased significantly. Overall, the banking sector in Bangladesh recorded moderate growth in loans, investments, and deposits till December, 2020 (Bangladesh Bank, 2020). This study will attempt to identify the scenario of the COVID-19 pandemic on Bangladesh's commercial bank's performance with and without reference period, considering the ROA, and EPS as performance of the commercial bank. The result of this study provided an opportunity for academics, researchers, and regulators to examine the impacts COVID-19 on the performance of commercial banks in Bangladesh.

II. REVIEW OF LITERATURE

The goal of the study of Almonifi et al, (2021) is to consider the influence COVID-19 on the performance of Al Rajhi bank in Saudi Arabia as an Islamic bank. A five years sample was taken to make a comparison between before and during this pandemic through some key ratios such as price earnings ratio, return on asset, return on equity, earning per share, capital adequacy ratio, liquidity ratio, dividend payout ratio, and cost to income ratio. Their study found a minor impact of this COVID pandemic on the performance. Ghosh and Saima. (2021) initiate to determine the flexibility and sustainability of financial position during this pandemic period of 18 listed commercial banks in Bangladesh. For this purpose HELLWIG and TOPSIS as the MCDM (multiple criteria decision making) tools are applied to analyze the data. Banks' related data obtain from the annual reports. Their study classified the study period (2020) as different phases. 1st phase is normal period (1 January to 25 March). 2nd phase is strict lockdown period (26 March to May 30). 3rd phase is de freezing period (1 June to 30 August). And the final phase is re freezing period (1 September to 31 December). Their study found a negative impact of COVID 19 in banks' financial stability. Obeidat et al. (2021) purpose to investigate the COVID-19 impacts on banks' performance of 13 Jordanian banks for taking 11 years of time period (2010 to 2020). To find out this impacts their study uses pooled EGLS or period seemingly unrelated regression model. Net interest margin, and return on asset are the proxy variable that represents the performance of bank. Data were calculated from the annual reports as the secondary source. Their study reveals that COVID-19 has reduced the return on asset in the year 2020 compared to the year 2019. To examine the financial performance of Bangladesh Commerce Bank limited (BCBL) Gazi et al., (2021) applied different financial ratios which indicates bank performance such as Return on Asset, Return on Equity, Price earnings ratio, Earning per Share, and Return on Investment. Their study also used a panel regression model, and various descriptive statistics tools such as mean, median, standard deviation, and coefficient of variation. Financial data came from the official website of BCBL for year of 2015 to 2019. A study about 20 private commercial bank in Bangladesh Rahman et al, (2020) inspect the COVID-19 impact on banks' by utilizing the pooled ordinary least square (Pooled OLS). The time period was March 8, 2020 to November 30, 2020. The data of COVID affected and death case was collected from the official website of Corona virus Resource Centre of John Hopkins University, and IEDCR of Bangladesh. They found a significant impact of COVID-19 on Banks' liquidity. Molla, (2020) studies about the linkage between capital structure and the bank performance in 30 scheduled commercial banks in BD. For this purpose they collect their data from World Bank database, as well as the particular audited financial statements for considering the five years period (2014 to 2018). A panel corrected standard error (PCSE) model, and regression model are utilized. Their findings reveal that capital structure has no significant impact on bank performance measured as ROE, ROA, and EPS. To consider the Return on Equity, and Return on

Asset as the indicators of banks' performance Chowdhury and Zaman, (2018) intend to measure the relationship between liquidity risk and performance of Islamic banks in Bangladesh, where they utilized regression and correlation analysis. Data were secondary in nature which was collected from the annual reports of 6 Islamic banks and the time period was 2012 to 2016. Their study found a significant negative relationship between liquidity and bank performance. Robin et al. (2018) seek to measure the financial performance of commercial banks before, during, and after the financial liberation period in Bangladesh. Their study considers 12 leading commercial banks which have the banking operation history before and after the financial reforms of this country. The selected time period of their study was from 1983 to 2012. The main data source of their study is from the annual reports of particular banks, where the macro economic data came from Bangladesh bank, Bangladesh Bureau of Statistics, WDI indicator, and Ministry of Finance. A panel regression, and correlation matrix were employed for their study. Their study result indicates that asset quality and capital plays the vital role in banks' profitability. The study of Banna et al., (2017) object to find out the impacts of world financial crisis on the proficiency of commercial banks in Bangladesh. A total 31 commercial banks were randomly selected for this study. Data were calculated from the nonconsolidated balance sheet and income statements of particular banks which is disclosed in their annual reports. The whole time period (2000 to 2013) is divided into two sections. 2007 to 2008 considers as crisis period and 2009 to 2013 are post crisis period. their empirical findings shows an evidence that bank size, return on average equity, capital adequacy ratio, real interest rate, and the crisis have a significant impact on banks' performance. By utilizing financial ratio analysis Sarker et al. (2017) want to examine the performance of Al- Arafahislami bank in Bangladesh. Their study collects data from the secondary sources such as annual reports, published journals, books, internet, and magazine. The financial data were only for 5 years (2010 to 2014). Secondary data were obtained from the Bankscope database for considering the period of 2003 to 2013 Noman et al., (2015) purposed to differentiate the performance between conventional banks and Islamic banks in Bangladesh. A binary logistic model was employed. In their study they distinguish some attributes for bank performance. Those are bank size, profitability, capital adequacy, efficiency, and liquidity both for the conventional and Islamic banks. A total seven Islamic banks, as well as twenty three conventional banks are considered for their study.

Most of the previous study considered only the COVID-19 pandemic situation and they did not take into consideration earning per share as performance of the commercial banks. Almonifi et al., (2021), Obeidat et al. (2021) used ordinary least square method for analysis of bank performance with and without COVID-19 period and they did not consider earning per share. Rahman et al., (2020) used pool OLS method and took death cases due to COVID-19 as proxy variable. Sultana et al., (2021) used SEM model with consideration of only COVID-19 situation. Similarly Ichsan et al., (2021) consider only

COVID-19 period with ROA and ignored EPS. Ghosh and Saima (2021) applied multiple criteria decision making tool for analysis with only COVID-19 period. But this study has contribution in sense that it considers before and during COVID- 19 period with random effect model where performance of commercial banks is measured by earning per share.

III. PERFORMANCE OF COMMERCIAL BANKS

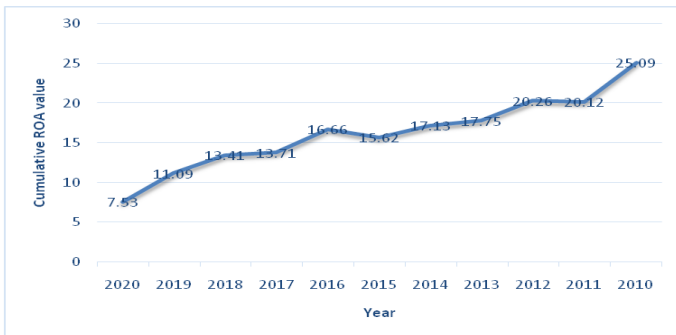


Fig. 1: Year wise cumulative ROA value

Figure 1 shows Year wise cumulative ROA value. From the above table it depicts that the highest ROA value which is 25.09 in the year 2010. The lowest ROA occurs in the year 2020 which is 7.53. Notably we can see that the value is decreased significantly after the year 2019. That means COVID has significant impacts on ROA of commercial banks in Bangladesh.

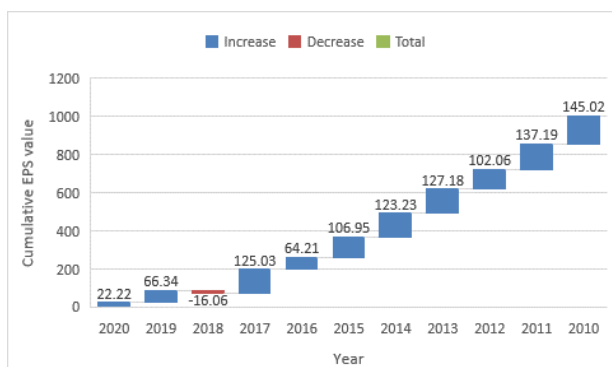


Fig. 2: Year wise cumulative EPS value

Figure 1 shows Year wise cumulative EPS value. From the above table it depicts that the highest EPS value which is 145.02 in the year 2010. The lowest ROA occurs in the year 2020 which is 22.22. In this figure it is seen that in the year 2018 the commercial banks in Bangladesh faces negative EPS. Notably we can see that the value is decreased significantly after the year 2019. That means COVID also has significant impacts on EPS of commercial banks in Bangladesh.

IV. METHODOLOGY

A. Data Collection

This study is based on the secondary panel data collected from the financial statements of the commercial banks in Bangladesh. For obtaining the objective of the study that is evaluating the performance of private and state-owned commercial banks of Bangladesh during corona virus pandemic situation, financial statement of the banks from 2010 to 2020 for case with covid-19 periods and financial statement of the banks from 2010 to 2019 without covid-19 periods have been considered that have been taken from 26 commercial banks including 4 state owned commercial banks namely Janata Bank Limited, Sonali Bank Limited, Rupali Bank Limited and Agrani Bank Limited.

B. Model Specification

This study uses the random effect model for panel data by ensuring hausman specification test which is widely used for preferring the best suited model for panel data. Here dependent variables that are the performance of the commercial banks are measured by the Return on Asset (ROA) and Earnings per Share (EPS). The desired model is:

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + u_i$$

Where,

Y= Return on Asset (ROA)/ Earnings per Share (EPS);

x₁= Cash Ratio measured as the ratio of cash to total liabilities that a bank holds;

x₂= Interest Coverage Ratio measured as the earnings before tax to the interest rate;

x₃ = Inflation Rate measured by Consumer Price Index (CPI);

x₄ = Gross Domestic Product (GDP) measured by Growth rate of Gross domestic product;

u= Standard error and βs are the unknown parameters to be estimated.

C. Hausman Test for Model Selection

For selecting an appropriate model from random and fixed effect, this study uses the widely accepted hausman test where both the dependent variables have insignificant (table 2) value indicating the rejection of alternative hypothesis and accepts the null hypothesis that is random effect is efficient for this panel data.

Variables	chi ² (λ ²)	Prob>chi ²	Decision
ROA	7.97	0.240	Accept null hypothesis
EPS	2.85	0.826	Accept null hypothesis

Table 2: Model selection by Hausman test

Source: Author’s own calculation

V. RESULT AND DISCUSSION

A. Descriptive Statistics

The table 1 shows the summary statistics of the study variables where return on asset has average value of -0.182 having minimum value of -5 and maximum of 1.

Variable	Mean	Std. Dev.	Min	Max
ROA	-0.182	0.996	-5.00	1.00
EPS	1.099	0.984	-3.912	4.587
Cash Ratio	0.198	0.232	-.274	1.157
Interest Coverage Ratio	0.228	0.392	-3.145	1.01
Inflation Rate	1.888	0.214	1.707	2.433
GDP	1.581	0.428	0.303	1.952

Table 1: Summary Statistics

Source: Author’s own calculation

Similarly, earning per share has mean value of 1.099 indicating that average earning per share of the banks is 1.09 which has maximum of -3.912 and minimum of 4.587, mean of cash ratio is 0.198, mean for interest coverage ratio is 0.228, mean value of inflation rate is 1.888 and for GDP is 1.581.

B. Unit root Test

For obtaining the stationary of the data, this study uses the Augmented Dicky Fuller (ADF) test where all of the variables are found to be stationary at level by indicating statistically significant at 1 % level in below table 3.

Variables	t statistics	P value	Decision
ROA	-3.883	00.00	Stationary of data
EPS	-6.793	00.00	Stationary of data
Cash Ratio	-7.566	00.00	Stationary of data
Interest Coverage Ratio	-11.583	00.00	Stationary of data
Inflation Rate	-2.099	00.017	Stationary of data
GDP	-41.434	00.00	Stationary of data

Table 3: ADF test for unit root of data (level and intercept)

Source: Author’s own calculation

C. Results of Random effect model

Random effect is used for panel analysis except individual analysis with fixed effect model. Table 3 results the random effect model of the study postulated in the methodology section which depicts that interest coverage ratio and inflation rate have significant positive effect on the performance of commercial banks in Bangladesh with Covid-19 pandemic period. This certainly indicates no significant adverse shocks in the performance of commercial banking in Bangladesh, whereas GDP has statistically significant negative influence on the performance of banks with Covid-19 pandemic period as reference at 1% level of significance. These findings are the conflicting that is opposite to the findings of Obeidat et al.,

(2021) where GDP has positive influence on the performance of banks.

Variables	2010-2020		2010-2020	
	ROA		EPS	
	Coef.	t-value	Coef.	t-value
Cash Ratio	00.01 (0.253)	0.04	0.022 (0.228)	0.10
Interest Coverage Ratio	00.50 (0.153)	3.26***	0.354 (0.138)	2.56**
Inflation Rate	01.519 (0.226)	6.72***	1.201 (0.204)	5.90***
GDP	-00.305 (0.112)	-2.73***	-0.422 (0.101)	-4.18***
Constant	-2.719 (0.58)	-4.69***	-0.43 (0.523)	-0.82
Extra Statistics				
R ²	0.217		R ²	0.209
Chi2	61.760		Chi2	61.186
Prob>Chi2	0.000		Prob>Chi2	0.000
No. of obs	286.000			

Table 3: Random effect model for performance of bank (2010-2020)

*** $p < .01$, ** $p < .05$, * $p < .1$; Figures in brackets are standard errors

The goodness of fit is 0.21 (table 3) indicating a 21 percent of the variation of the predicted variable is explained by the explanatory variables which is 20 % for regress and earning per share. These are also found to be as 16% for ROA and 12 % for EPS without pandemic period in table 4.

Variables	2010-2019		2010-2019	
	ROA		EPS	
	Coef.	t-value	Coef.	t-value
Cash Ratio	0.177 (0.238)	0.74	0.177 (0.232)	0.76
Interest Coverage Ratio	0.371 (0.138)	2.68***	0.289 (0.136)	2.13**
Inflation Rate	1.379 (0.219)	6.29***	1.133 (0.208)	5.45***
GDP	-0.336 (0.107)	-3.16***	-0.435 (0.101)	-4.31***
Constant	-2.366 (0.561)	-4.22***	-0.303 (0.551)	-0.55
Extra Statistics				
R ²	0.161		R ²	0.124
Chi2	65.286		Chi2	62.375
Prob>Chi2	0.000		Prob>Chi2	0.000
No. of obs	260.000			

Table 4: Random effect model for performance of bank (2010-2019)

*** $p < .01$, ** $p < .05$, * $p < .1$

Table 4 represents the random effect model of the study (2010-2019) postulated in the methodology section without consideration of the pandemic period which depicts

that interest coverage ratio and inflation rate have significant positive effect on the performance of commercial banks in Bangladesh with Covid-19 pandemic period. This certainly indicates no significant adverse shocks in the performance of commercial banking in Bangladesh, whereas GDP has statistically significant negative influence on the performance of banks with Covid-19 pandemic period as reference at 1% level of significance which is also similar the results considering the pandemic period of COvid-19.

D. Lagrangian multiplier test for random effects

This study uses the Lagrange multiplier test known as Breusch and Pagan Lagrange multiplier test for ensuring that the random effect is best suited and also for validity of the result. The test result shows that estimation provided by the random effect model is valid and efficient with acceptance of alternative hypothesis at 1% level of significance.

Variables	Chi-bar2	Prob>chibar2	Decision
ROA	49.01	0.0000	Random effect is suited best
EPS	178.07	00.000	Random effect is suited best

Table 5: Lagrangian multiplier test for random effects

Source: Author's own calculation

VI. CONCLUSION

This present study uses random effect model for analyzing the panel data on 26 commercial banks with focusing the performance of commercial banks during Covid-19 pandemic periods. The findings show that interest coverage ratio, inflation rate and GDP are the significant influential for performance of the commercial banks with and without Covid-19 period, whereas interest coverage ratio and inflation rate have significant positive influence on the performance of the banks as they increase, the profitability of the commercial banks are also increased whereas the opposite relation is found for GDP. However that study is limited to considering only commercial banks and does not consider other variables that may affect the financial strategy of banks which interns affect the their performance as a whole. This study can further enhanced with including these variables such as net interest margin, provisions, investment in government securities ect. Moreover this study suggests that better management of the influential factors can improve the profitability and performance of the banks more. So, government and the policy makers should take policies regarding these instruments with suitable strategy which is favorable for the betterment of the banking industry in Bangladesh.

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