Impact of COVID-19 on the Profitability of Listed Commercial Banks in Bangladesh

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Abstract:

The COVID-19 pandemic, originating in Wuhan, China, causes widespread socio-economic disruptions, including in Bangladesh, which enters a lockdown from March 23 to May 30, 2020, halting trade and manufacturing. This study examines the extent of COVID-19's impact on the profitability of commercial banks listed in Bangladesh. Analyzing the trimestral financial statements of twenty-nine banks from Q1 2017 to Q4 2023, the study finds a significant decrease in profitability (ROA, ROE, and NIM) during the COVID-19 period (from Quarter 2, 2020 to Quarter 4, 2022), with partial recovery in the post-COVID period. The study finds that COVID-19 is inversely related to the profitability indicators ROA, ROE, and NIM. This inverse relationship is also evident between the independent variables, including size, Loan to Deposit ratio, LLP, and Leverage, and the before-mentioned dependent variables. The findings contribute to understanding the pandemic's impact on Bangladesh's banking sector and suggest that banks strengthening capital buffers, enhancing risk management, and investing in digital transformation will be better positioned for long-term profitability.

Keywords: COVID-19, banking sector, profitability, ROA, ROE, NIM, post-COVID recovery.

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1.0 Introduction

The COVID-19 pandemic, which began in Wuhan, China, causes widespread socio-economic losses globally, including in Bangladesh. The country, with a per capita GDP of BDT 25,424,826 million in 2018-2019, enters a lockdown from March 23 to May 30, 2020, halting trade and manufacturing. In response, the Government of Bangladesh announces stimulus packages, including special facilities for borrowers from banks and non-bank financial institutions, as banks, particularly commercial banks, provides the necessary liquidity. The Government and Bangladesh Bank introduce schemes for CMSME and large industries, totaling significant financial support. Interest rates on these schemes are partially subsidized by the government. Loan classifications are paused until December 31, 2020, with extended payment facilities for borrowers. Many researchers explore the impacts of these developments on Bangladesh's banking industry.

1.1 Objectives of the Study

The far-reaching objective of this analysis is to inspect the effect of COVID-19 on the profitability of listed banks in Bangladesh. Precise aims are:

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- To measure the effect of COVID-19 on profitability indicators for banks like Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM).
- To compare profitability indicators (ROA, ROE, and NIM) between non-COVID and COVID periods.

1.2 Contributions of the Study:

The study contributes to the works upon COVID-19's effect on the banking industry of Bangladesh by including the post-COVID period, whereas prior studies focus only on the period up to 2021.

1.3 Relevant Economic and Financial Theories

The profitability of banks is disturbed by the COVID-19 pandemic through various economic and financial theories, largely concentrating on credit, liquidity, and operational risk.

1.3.1 Credit Risk Theory

The concept of credit risk postulates that economic declines, such as those triggered by the pandemic, increase the probability of borrowers' default on loans. Widespread job-loss and business closings reduced the income of individuals as well as firms, making it challenging for them to pay their debts. Due to this, non-performing loans (NPLs) increases. In response, banks had to increase provisions for loan loss thar squeezed their profits. Research by Elnahass et al. (2021) and Gazi et al. (2022) has verified this relationship, presents that the main reason behind the banks' profit reduction is the increase in NPLs. Khan & Ahmad (2022) further emphasize on the interconnection between credit risks and liquidity risks.

1.3.2 Liquidity Risk Theory

The term "Liquidity risk" depicts that how the ability of a bank to combat short-term financial obligations falls under pressure during crisis. During pandemic both people and businesses demand back their money from banks that creates liquidity shortage. Moreover, businesses rely more on traditional credit lines that increases the demand for loans. To face these two opposite dimensional problem where declining deposits in banks to support the increased demand for loan, banks keep more liquid assets and reduce lending to avoid bank run. These two measures reduce the availability of funds for profitable investment resulting. In lower profits earned by banks during pandemic. This is evident in the research by Katusiime (2021) and Demir & Danisman (2021), where the authors show how the liquidity crisis hinders profitability particularly in low-income countries and the Europe.

1.3.3 Operational Risk Theory

Under operational risk concept, profitability is related with the risk of loss for internal process failure or from external events. The pandemic for the first time as external events compel banks to go through new restricted in-person operational process. Moreover, maintenance of new health cautions increases operational costs. All these increases operational risks and resulting in lower profits. Abdullah et al. (2023) and Qabajeh et al. (2023) find strong negative relations between the increasing operational costs and bank profitability and conclude that banks bottom line is affected seriously due to the need of the bank to cope up with the pandemic situation.

2.0 Literature Review

The COVID-19 affects banking sectors worldwide, tests commercial bank's sustainability and profitability. With widespread disruptions to business activities, economic downturns, and shifts in monetary policy, commercial banks have experienced significant challenges. This paper equips research outcomes from top ranking academic journals, where different factors like NPLs, interest rate, govt. interventions, virtual platforms, and capital adequacy affecting commercial bank's profitability is examined during the pandemic.

The COVID-19 pandemic hinders banking operations worldwide, for which profitability has reduced to a great extent. According to Acharya et al. (2020), the crisis during pandemic creates financial pressure on banks. The reason behind this is the bad loan rising and downpour in economic activities. Businesses engaged with in-person interactions like groceries and shops in tourist spots is largely affected. Banks involved with these businesses are affected most. Ghosh (2021) sees that banks given money to SMEs and consumer loans face highest risks that reduced their profitability.

Laeven & Levine (2021) presents that NPLs rise due to the low economic activities during pandemic. Banks with high NPLs observe lower profitability due to additional provisions kept for the additional NPLs.

Hossain & Rahman (2021) shows the impact of pandemic on commercial banks of Bangledesh. They find businesses like real estate, and SMEs are highly affected along with other sectors. Banks involved largely in these sectors experience lower profitability.

Bank's profitability is also affected by Interest rates during the COVID-19 pandemic. In a study, Merton & Perold (2020) presents the central banks worldwide take actions to reduces interest rates to boostup aggregate demand where pandemic causes economic activities to decline significantly. Hossain & Rahman, (2021) reports that Bangladesh Bank also take monetary policies to reduce interest rate that affected banks in Bangladesh experience lower profitability.

During pandemic governments worldwide take many actions notably liquidity Injecting in the economy, reducing interest rates, and fiscal stimulation policy to protect banks from falling. Gorton (2021), emphasizes that government interventions, such as loan guarantees and refinancing schemes, help stabilize banks by ensuring that they have sufficient liquidity to continue operations despite economic disruptions. These measures provide short-term relief, but they don't address the core issues of increasing credit risk and reduced lending.

In Bangladesh, the central bank introduces several measures, including loan moratoriums and refinancing options for distressed sectors, to ease the financial burden on banks (Bangladesh Bank, 2020). These interventions are designed to provide banks with immediate relief from rising defaults and liquidity shortages. However, as Laeven & Levine (2021) note, while these measures help mitigate short-term impacts, they don't entirely shield banks from the longer-term profitability challenges arising from increased NPLs and a weaker economic environment.

The COVID-19 pandemic accelerates the digital transformation of banking sector. With physical branches facing restrictions, banks are forced to pivot quickly to online and mobile banking platforms to continue serving clients. According to Barth (2021), banks that have

already invested in digital infrastructure are better positioned to cope with the challenges posed by the pandemic.

COVID-19 enforces banks to invest more in digital platforms. Liu et al. (2021) and Rahman et al., (2020) see this as a major reason for bank's lower profitability. However, this action will benefit banks in the long-run.

Capital adequacy as well as strong risk management framework also affect banks profitability during COVID-19. Laeven & Levine (2021) finds that these two factors can give banks the buffer to fight against the crisis.

In Bangladesh, many banks with weaker capital positions face significant challenges during the pandemic. Hossain & Rahman (2021) report that banks with lower capital adequacy ratios struggle to absorb the financial losses resulting from higher loan defaults. Additionally, banks that lack effective risk management practices find it more difficult to mitigate the risks associated with the pandemic, leading to a more substantial impact on their profitability.

Kashem (2022) observes that without the relaxation of provision standards, banking sector profitability declines further. Most banks experience negative growth in profitability and interest earnings, with overall accumulated profit decreasing by about 4%. The decline in interest income is partially offset by an increase in fee-based income. The author conducts a correlation analysis using data from 2019 and 2020.

Rekha and Hossain (2022) find that elevated non-performing loans, additional liquid assets, and significant hedging funds reduce bank profitability, while apposite bank size, non-interest income, inflation rate, and population growth enhance performance. They analyze 14 banks from 2014 to 2021 using a random effect regression model.

Begum et al. (2023) find a significant decline in bank profitability and financial stability over a short period. They suggest that adverse economic events greatly impact financial institutions. They analyze data from 23 listed private commercial banks before and during COVID-19, examining financial ratios, descriptive statistics, and correlations using linear regression.

Karim et al. (2023) analyze data from 15 commercial banks between Q1 2018 and Q4 2021 using a comparative quantitative methodology. They find that profitability, measured by ROA and ROE, is more volatile post-pandemic but shows similar trends, with no statistically significant difference. They also find significant differences in pre- and post-pandemic liquidity, confirming that COVID-19 substantially harmed bank liquidity.

Ghosh and Saima (2021) find that Eastern Bank Limited (EBL) and Dutch Bangla Bank Limited (DBBL) are the most resistant banks in managing the COVID-19 shock. They categorize 18 public listed commercial banks into three categories: Top, Moderate, and Low Resilient. The study considers nine DSE industries as determinants of the potential revenue loss from the pandemic.

Haider and Mohammad (2022) suggest that COVID-19 impacts bank's profitability differently across countries. Profitability declines for European banks but increases for South Asian banks. Their analysis shows the pandemic moderates the association between profitability and its determinants, making bank size and liquidity ratio more important than

credit quality and efficiency. The capital-ratio, a determinant of return on assets, decreases in the pandemic.

Karim and Shetu (2023) find that COVID-19 significantly reduces profitability in 30 listed banks in Bangladesh. On average, NIM, ROE, ROA, and stock prices decrease by 151%, 67%, 71%, and 7.42%, respectively. The decline is driven by the economic slump, interest rate ceiling, limited investment opportunities, liquidity crisis, excessive medical expenses, and reduced savings.

Saha and Hossain (2022) suggest that profit losses in selected banks are not as severe, as strategic actions guided by Bangladesh Bank help maintain performance similar to the previous two years. They analyze ROA, ROE, and NIM across several banks using a sample t-test with SPSS.

Das Gupta et al. (2024) study bank performance in the pre-COVID and COVID periods, and determinants of post-COVID performance. They find banks' stability is superior pre-COVID, with ROA and pre-tax profits decreasing during COVID. Surprisingly, COVID has no significant impact on ROE, but both revenue and human capital efficiency increase. The study also finds no notable impact of industry-specific variables on post-COVID performance, highlighting liquidity, bank size, operating efficiency, asset quality, corporate governance, inflation, and exchange rates as key factors.

Miah et al. (2021) find that Islamic banks in Bangladesh primarily invest in trade and merchant financing, with over two-thirds of investments and income focused on working capital and trade finance. These vulnerable sectors may impact the banks.

Hossain and Ahamed (2021) use a random effect model to analyze data from 23 Bangladeshi banks from 2005 to 2019, with ROA, ROE, and NIM as profitability proxies. They find that non-interest income, capital ratio, and GDP growth significantly relate to ROA, while non-interest income, market share, bank size, and real exchange rates significantly explain NIM. The study provides an extensive empirical analysis of all independent variables.

3.0 Research Hypotheses Development

3.1 Research Question

The key research questions are:

a) Does COVID-19 pandemic influence the profits earned by commercial banks listed in Bangladesh?

b) Do the profitability indicators change during the non-COVID and COVID-19 periods?

3.2 Hypotheses Development

Prior studies show that the COVID pandemic affects the banking industry through both specific banking and macroeconomic factors.

Hypotheses for first research question

H_1: There is an inverse relationship between profitability and the COVID period.

H_0: There is a positive relationship between profitability and the COVID period.

Hypotheses for second research question

H_1: There is no significant difference between the profitability in non-COVID and COVID periods.

H_0: There is significant difference between the profitability in non-COVID and COVID periods.

Profitability, measured by ROA, ROE, and NIM, is expected to be higher in the pre-COVID period, decrease during COVID, and increase again in the post-COVID period.

4.0 Methodology of the Study

4.1 Data Source

There are 62 banks in Bangladesh's banking industry, 36 of which are listed on the DSE. However, due to data unavailability for the study period (Q1 2017 to Q4 2023), 30 banks are selected, excluding ICB Islami Bank Limited due to its continuous negative equity. Sample data is collected from the quarterly and annual audited financial reports of the remaining 29 banks active in the capital market.

4.2 Sample Size

This study uses 810 observations from 29 listed banks, covering the first quarter of 2017 to the last quarter of 2023.

4.3 Dependent Variable

The dependent variables are ROA (Return Assets), ROE (return on Equity) and NIM (Net Interest Margin).

Table-1

Identification and measurement of dependent variables

Type	Variable	Measure
Dependent variables	ROE	$\frac{Net\ Income}{Total\ Equity}$
	ROA	$\frac{Net\ Income}{Total\ Asset}$
	NIM	$\frac{Net\ Ineterest\ Income}{Total\ Asset}$

4.4 Independent Variable:

The independent variables are COVID-19 period, Size, Loan Deposit, Loan Loss Provision and Leverage.

Table-2

Identification and measurement of independent variables

Type	Variable	Measure
Independent variables	Size	Log of $Total\ Asset$
	Loan_Deposit Ratio	$\frac{Loan}{Deposit}$
	Loan Loss Provision Ratio	$\frac{Loan\ Loss\ Provision}{Total\ Loans\ and\ Advances}$

	Leverage ratio	$\frac{Total\ liabilities}{Total\ Asset}$
	COVID	1 for Covid period (From Quarter 2, 2020 to Quarter 4, 2022) and 0 for Non-Covid period (From Quarter 1, 2017 to Quarter 1, 2020 and from Quarter 1, 2023 to Quarter 4, 2023

4.5 Profitability Models

Model-1: Model-1 examines the effect of the independent variables—COVID period, size, Loan_Deposit Ratio, Loan Loss Provision ratio, and leverage—on ROA (Return on Assets). The model is as follows:

$$ROA = \beta_{0+}\beta_1 COVID + \beta_2 Size + \beta_3 Loan\_Deposit + \beta_4 LLP + \beta_5 Leverage + \epsilon_i \dots\dots (1)$$

Model-2: Model-2 examines the effect of the independent variables—COVID period, size, Loan_Deposit Ratio, Loan Loss Provision ratio, and leverage—on ROE (Return on Equity). The model is as follows:

$$ROE = \alpha_{0+}\alpha_1 COVID + \alpha_2 Size + \alpha_3 Loan\_Deposit + \alpha_4 LLP + \alpha_5 Leverage + \epsilon_i \dots\dots (2)$$

Model-3: Model-3 examines the effect of the independent variables—COVID period, size, Loan_Deposit Ratio, Loan Loss Provision ratio, and leverage—on NIM (Net Interest Margin). The model is as follows:

$$NIM = \gamma_{0+}\gamma_1 COVID + \gamma_2 Size + \gamma_3 Loan\_Deposit + \gamma_4 LLP + \gamma_5 Leverage + \epsilon_i \dots\dots\dots (3)$$

Here, COVID period includes both non COVID and during COVID period.

4.6 Research Design:

The study period spans from the first quarter of 2017 to the last quarter of 2023, divided into three parts.

Table-3

Study Period: Non COVID and COVID

Type of Period		Starting Point	Ending Point
Non COVID	Pre COVID	First Quarter of 2017	First Quarter of 2020
	Post COVID	First Quarter of 2023	Last Quarter of 2023
COVID	During Covid	Second Quarter of 2020	Last Quarter of 2022

The authors use STATA to run the Fixed Effect Panel Regression Model, with robust standard errors clustered at the bank level to address heteroscedasticity and autocorrelation. The authors have used the results of this fixed effect model for interpretation. The authors have also used STATA to run the Random Effect Panel Regression Model, with robust standard errors and results are similar (The results are provided in Appendix A).

5.0 Analysis and Results

5.1 Descriptive Statistics

Table-4

Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Observations
ROA	0.0017	0.0027	-0.0556	0.0125	810
ROE	0.0249	0.0362	-0.6935	0.2378	810
NIM	0.0049	0.0033	-0.0123	0.0340	810
Covid	0.3929	0.4887	0.0000	1.0000	812
Size	26.6245	0.4167	25.7512	28.9454	810
Loan_Deposit	0.9386	0.1090	0.1849	1.2508	810
LLP	0.0022	0.0027	-0.0082	0.0341	810
Leverage	0.9300	0.0469	0.0000	0.9966	810

The table shows summary statistics for the dependent and independent variables based on 810 observations from 29 listed banks. The dependent variables are ROA, ROE, and NIM, while the independent variables include the COVID-19 period, Size, Loan to Deposit Ratio, Loan Loss Provision ratio, and Leverage. ROA has a minimum of -0.0556, a maximum of 0.0124, a mean of 0.0017, and a standard deviation of 0.0027. ROE has values from -0.6935 to 0.2378, averaging 0.0249 with standard deviation of 0.03621. NIM, representing income from core banking operations, has a mean of 0.0049, a standard deviation of 0.0033, and ranges from -0.0123 to 0.0340.

The Loan to Deposit Ratio represents the proportion of deposits invested in loans and advances. The value of this ratio falls within 0.1848 and 1.2508, averaging 0.9386 with standard deviation scoring 0.1090. Leverage (liabilities to assets) indicates the debt level relative to assets. This ratio scored 0 to 0.9966, has a mean 0.9299 with standard deviation 0.0469.

5.2 Correlation Analysis

Table-5

Pearson's Correlation Matrix

	ROA	ROE	NIM	Covid	Size	Loan-Deposit	LLP	Leverage
ROA	1							
ROE	.95	1						
NIM	.49	.44	1					
Covid	-.06	-.05	-.22	1				
Size	-.13	-.09	-.14	.25	1			
Loan_Deposit	-.02	-.02	.09	.00	.01	1		
LLP	-.15	-.18	.08	-.10	-.08	-.18	1	
Leverage	-.10	.03	-.15	.06	.08	-.03	-.03	1

The correlation matrix shows the relationships among the variables, particularly the independent ones. A coefficient below 0.80 indicates no multicollinearity.

The Pearson's Correlation Matrix stipulates the correlation coefficients between various variables. ROA and ROE are highly correlated (0.95), signifying that banks with higher returns on assets also have higher returns on equity. COVID-19 has weak or no significant correlation with most financial variables, with the strongest relationship being a weak negative correlation with NIM (-0.22). Size has minimal impact on most variables, though it does show a slight positive correlation with COVID-19 (0.25). Leverage and LLP show weak correlations with other variables, indicating that they don't strongly affect the other factors in this analysis. Overall, the correlations are generally weak, suggesting that these variables do not strongly influence each other, with a few exceptions (e.g., ROA and ROE).

5.3 Multicollinearity Analysis

Table 6

Multicollinearity Test

Variable	VIF	1/VIF
Covid	1.08	0.9288
Size	1.08	0.9298
LLP	1.05	0.9534
Loan_Deposit	1.04	0.9648
Leverage	1.01	0.9903
Mean VIF	1.05	

The Variance Inflation Factor (VIF) measures the association among independent variables, with a tolerable level of 10. The VIFs for COVID-19 period, Size, LLP, Loan to Deposit Ratio, and Leverage are all below 10, indicating no multicollinearity among the independent variables.

5.4 Fixed Effect Panel Regression Analysi0073

Table-7

Fixed Effect panel Regression for ROA, ROE, and NIM

	(1) ROA	(2) ROE	(3) NIM
Covid	-0.0004**	-0.0052***	-0.0009***
	(0.0184)	(0.0017)	(0.0000)
Size	-0.0003	-0.0009	-0.0021***
	(0.2682)	(0.8221)	(0.0000)
Loan_Deposit	-0.0034***	-0.0473***	0.0049***
	(0.0074)	(0.0092)	(0.0002)
LLP	-0.2064***	-3.2400***	0.1965***
	(0.0018)	(0.0007)	(0.0044)
Leverage	-0.0067	-0.0307	-0.0064
	(0.2512)	(0.5023)	(0.2573)
Constant	0.0194**	0.1315	0.0617***
	(0.0401)	(0.3239)	(0.0000)
Adjusted R-Squared	0.0497	0.0498	0.1458
No. of Observations	810	810	810

5.4.1 Fixed Effect panel Regression for ROA

The table reports the effect of COVID-19 on Return on Assets (ROA). COVID-19 is negatively related to ROA, indicating lower profitability during the pandemic. The independent variables, including size, Loan to Deposit ratio, LLP, and Leverage, are also negatively related to ROA. P-values are denoted in parentheses in Table 7. ***,** and * indicates statistical significance at 1%, 5% and 10% level of significance respectively.

The p-value for COVID-19 is 0.018, which is less than 0.05, making it statistically noteworthy at the 5% level. Similarly, the p-values for Loan to Deposit ratio and LLP are less than 0.01, indicating statistical significance at the 1% level of significance.

5.4.2. Fixed Effect panel Regression for ROE

The table reports the influence of COVID-19 on Return on Equity (ROE). COVID-19 is negatively related to ROE, indicating lower profitability during the pandemic. The independent variables, including size, Loan to Deposit ratio, LLP, and Leverage, are also negatively related to ROE.

The p-value for COVID-19 is 0.002, which is statistically significant at the 1% level. The p-values for Loan to Deposit ratio, LLP, and Leverage are less than 0.01, making them statistically noteworthy at the 1% level. Size has a p-value of 0.822, which is statistically substantial at the 10% level.

5.4.3 Fixed Effect panel Regression Results for NIM (Net Interest Margin)

The table reports the impact of COVID-19 on Net Interest Margin (NIM). COVID-19 is negatively related to NIM, indicating lower profitability during the pandemic. Size and Leverage are also negatively related to NIM, while Loan to Deposit Ratio and Loan Loss Provision have a affirmative association with NIM.

The p-values for COVID-19, Size, and Loan to Deposit Ratio are 0.000, statistically significant at the 1% level. The p-values for Size (0.0000), Loan to Deposit Ratio (0.0002), and LLP (0.0044) are statistically significant at the 5% level.

Table-8

Comparison of profitability indicators

Variable	Non-Covid	Covid	Difference
ROA	0.00183	0.00148	0.00035**
			(0.0361)
ROE	0.02643	0.02256	0.00387*
			(0.0687)
NIM	0.00553	0.00401	0.00152***
			(0.0000)

The table compares the profitability indicators—ROA, ROE, and NIM—between the non-COVID and COVID periods. ROA decreased from 0.00183 in the non-COVID period to 0.00148 during COVID, with a statistically significant difference of 0.00035 at the 5% level. This indicates a slight decline in asset profitability during the pandemic.

ROE also shows a decrease from 0.02643 in the non-COVID period to 0.02256 during COVID, with a difference of 0.00387, statistically significant at the 10% level. While the drop is noticeable, the significance is weaker compared to ROA, suggesting a less pronounced impact on equity returns during COVID.

The most significant impact is observed in NIM, which decreased from 0.00553 in the non-COVID period to 0.00401 during COVID, with a difference of 0.00152, statistically significant at the 1% level. This highlights a considerable reduction in banks' core income from lending and investments, indicating that COVID-19 had a substantial negative effect on banks' net interest margin.

The results are consistent with existing literature which has been depicted in details in the literature review sections. Studies worldwide finds in general a negative impact of COVID pandemic on banks profitability though the extent of the effect were of different degrees. The factors that facilitate the impact are poor governance in banks, liquidity shortages, investment in businesses highly affected by the pandemic, increasing NPLs as well as loan loss provision for problem banks.

6.0 Conclusion

The pandemic caused by COVID-19 presents considerable impact on listed commercial banks profitability, with increased credit risk, low interest rates, and disrupted business activities driving down profitability. While government interventions provide temporary relief, they don’t fully shield banks from the longer-term challenges of rising NPLs and economic slowdowns. Digital transformation, though initially costly, has proven essential for banks to maintain operations and reach customers during periods of restricted physical interaction. Moving forward, banks that can strengthen their capital buffers, enhance their risk management capabilities, and invest in digital infrastructure are more likely to recover from the pandemic’s effects and achieve long-term profitability.

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Appendix

Random Effect panel Regression for ROA, ROE, and NIM

	(1) ROA	(2) ROE	(3) NIM
Covid	-0.0003	-0.0044*	-0.0010***
	(0.1349)	(0.0937)	(0.0000)
Size	-0.0006*	-0.0050	-0.0018***
	(0.0814)	(0.2634)	(0.0000)
Loan_Deposit	-0.0024**	-0.0335**	0.0045***
	(0.0446)	(0.0345)	(0.0010)
LLP	-0.1933***	-3.0353***	0.1882***
	(0.0000)	(0.0000)	(0.0000)
Leverage	-0.0062***	-0.0151	-0.0066***
	(0.0018)	(0.5725)	(0.0012)
Constant	0.0260***	0.2130*	0.0553***
	(0.0039)	(0.0753)	(0.0000)
No. of Observations	810	810	810

Appendix A: Random Effect panel Regression