COVID-19's Impact on Bangladeshi Banking Sector
(Analysis on Profitability and Liquidity Ratio)

By

Md Mishor Vauiyan

BBA-1803015067

A internship report submitted to the Department of B.B.A in partial fulfillment for the degree of Bachelor of Business Adminstration

Department of B.B.A

Sonargaon University (SU)

147/I, Green Road, Dhaka-1215, Bangladesh

Section: Intern

Semester-Year: Fall-2022

Supervisor

MD SHAHBUB ALAM
Lecturer

Department of B.B.A

BOARD OF EXAMINERS

The thesis titled "COVID-19's Impact on Bangladeshi Banking Sector (Analysis on Profitability and Liquidity Ratio)" submitted by Student-**Md Mishor vauiyan**, Student No: **BBA-1803015067**, has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Business Administration on Date-of-Defense.

……

1. Name of the Supervisor — Chairman
   Designation
   Address

……

2. Internal / External Member — Member

……

3. Internal / External Member — Member

DECLARATION

It is hereby declared that this thesis/project or any part of it has not been submitted elsewhere for the award of any degree or diploma.

Md Mishor Vauiyan
BBA-18030150567

Dedicated

to

"MY HONORABLE TEACHERS"

ACKNOWLEDGEMENTS

Firstly ,
I want to express gratefulness and humbleness to Almighty Allah for His immense blessing upon our for the successful completion of this thesis work.

I also thank my parents for the unceasing encouragement and support.

I should also like to express our sincere gratitude to our supervisor lecture, Md Shabub Alam sir for his continuous support, patience, motivation, and immense knowledge. His guidance helped our in all the time of research and writing of this thesis.

I would like to thank the proper authority of Dept. of B.B.A Sonargaon University (su) who granted my permission to work on that. I really grateful and would like to thank the all my Teachers who helped me to create this project/thesis.

.

Abstract

This study focuses on the impact of COVID-19 on the Liquidity and Profitability of Banks in Bangladesh. The study is crucial because it demonstrates how the COVID-19 Pandemic has impacted the liquidity and profitability of banks in Bangladesh. In this study some key proxies are used such as, Liquidity Ratio (LR), Return on asset (ROA), Return on Equity (ROE) while pre-COVID-19 Pandemic Period (2019–2020) and COVID-19 Pandemic Period (2020–2021) were used as proxies for the COVID-19 Pandemic to determine the relationship of Profitability & Liquidity with COVID-19. To analyze this relationship two hypotheses were developed, and the test parameter is Paired Sample T-test and Wilcoxon Signed Rank Test. After The Fact design and data are used for the research. The study's findings demonstrate that at a level of significance of 5% COVID19 considerably impacted the performance of the banks in Bangladesh. This further shows how the government-imposed partial and whole lockdowns during the COVID-19 Pandemic significantly impacted the enterprises liquidity and profitability by making it more difficult for them to get inputs at local marketplaces.

Keywords: Bangladesh, COVID-19, Liquidity Ratio (LR), Profitability Ratio (ROA, ROE) Keywords Component, Formatting, Style, Styling, Insert (keywords)

TABLE OF CONTENT

ABSTRACT.....**Error! Bookmark not defined.**

LIST OF FIGURES .....**Error! Bookmark not defined.**

LIST OF TABLES..... ix

CHAPTER 1 1

INTRODUCTION 1

1.1 Objective of the study 2

1.2 Research Questions 1

CHAPTER 2 3

Statement of the problems .....**Error! Bookmark not defined.**

2.1 Introduction .....**Error! Bookmark not defined.**

2.2 Literature Review Overview .....**Error! Bookmark not defined.**

2.3 Summary.....**Error! Bookmark not defined.**

CHAPTER 3 4

Impact of covid-19 on World Economy .....**Error! Bookmark not defined.**

3.1 Impact on the banking sector of Bangladesh.....**Error! Bookmark not defined.**

CHAPTER 4 6

Research Hypothesis Formulation .....**Error! Bookmark not defined.**

4.1 Null Hypotheses .....**Error! Bookmark not defined.**

4.2 Alternatives.....**Error! Bookmark not defined.**

4.3 Decision Making .....**Error! Bookmark not defined.**

CHAPTER 5 6

Theoretical Framework of the study .....**Error! Bookmark not defined.**

5.1 Liquid Asset Theory .....**Error! Bookmark not defined.**

5.2 Rational Choice Theory.....**Error! Bookmark not defined.**

CHAPTER 6 8

Methodology 8

CHAPTER 7 9
Variable Measurement and Categorization 9
7.1 Data and Materials 9
7.2 Variables and their definitions 9
7.3 Measurement 11
7.4 Presentation of Data 11
CHAPTER 8 13
Test of Hypotheses 13
8.1 Result on impact of Covid-19 Pandemic on Profitability of banks in Bangladesh 13
8.1.1. Regression Analysis of ROA & ROE 13
8.1.2. Paired Sample T-test of ROA & ROE 14
8.1.3. Discussion for Paired Sample T-test for ROA & ROE 15
8.2. Wilcoxon Signed Rank Test for ROA & ROE 15
8.2.1 Discussion of Wilcoxon Signed Rank Tool for ROA and ROE 17
8.3 Result on impact of COVID-19 Pandemic on Liquidity of banks in Bangladesh 17
8.3.1. Regression Analysis of Liquidity Ratio 18
8.3.2 Paired Sample T-test for Liquidity Ratio 18
8.3.3 Discussion of Paired Sample T-test for Liquidity Ratio 19
8.4 Wilcoxon Signed Rank Tool Test For Liquidity Ratio 19
8.4.1 Discussion for Wilcoxon Signed Rank Tool Test for Liquidity Ratio 20
CHAPTER 9 21
Findings 21
9.1.1 The company's profitability ratio before and during the COVID-19 pandemic. 21
9.1.2 The Company's Liquidity Ratio Before and During The COVID-19 Pandemic 21
9.2 Contribution to Knowledge 22
CHAPTER 10 23
CHAPTER 11 24
Annual Report Links 24
CHAPTER 12 25
References 25

7.2 Variables and their definitions 9
7.3 Measurement 11
7.4 Presentation of Data 11

REFERENCES ..... **Error! Bookmark not defined.**
APPENDIX 12

LIST OF TABLE

7.3. Measurement

- **Table-1: Variable measurement formula.**

7.4. Presentation of Data

- **Table-2, Financial Ratios of 15 leading banks in Bangladesh**

8.1.1. Regression Analysis of ROA & ROE

- **Table:3 Regression Statistics of Profitability**

8.1.2. Paired Sample T-test of ROA & ROE

- **Table-4: Paired Samples Statistics**
- **Table-5: Paired Samples Correlations**
- **Table-6: Paired Samples Test**

8.2.Wilcoxon Signed Rank Test for ROA & ROE

- **Table-7: Descriptive Statistics**
- **Table-8: Ranks**
- **Table-9: Test Statistics[a]**
- **Table-10: Hypothesis Test Summary of ROA**
- **Table-11: Hypothesis Test Summary of ROE**

8.3.1. Regression Analysis of Liquidity Ratio

- **Table-12: Regression Statistics of Liquidity Ratio**

8.3.2. Paired Sample T-test for Liquidity Ratio

- **Table-13: Paired Samples Statistics of Liquidity Ratio**
- **Table-14: Paired Samples Correlations**
- **Table-15: Paired Samples Test**

8.4. Wilcoxon Signed Rank Tool Test For Liquidity Ratio

- **Table-16: Wilcoxon Signed Rank Test For Liquidity Ratio**
- **Table-17: Test Statistics[a]**
- **Table-18: Hypothesis Test Summary of LR**

CHAPTER 1
INTRODUCTION

At November,2019, COVID-19 detected at Wuhan City, Hubei, China for the first time. After that at March 11,2020, World Health Organization (WHO) declared it a global pandemic as it speared in the entire world. Since WHO declared COVID-19 as pandemic the entire world was working to address it. It speared so fast, and we can see the same scenario in case of Bangladesh. According to (Anwar, et al, 2020), it is a rapidly evolving and emerging situation. In communal activities have an effect on commercial operations, which subsequently have an effect on the economy (Hubert, 2022; Tuma, 2021). Bangladesh, a lower-middle-income nation with one of the densest populations on Earth, is battling the disease's spread. In the article, they described the COVID-19 situation as it is in Bangladesh and offer some suggestions for how the nation should fight this pandemic. (Anwar et al, 2020). Bangladesh is a developing country with an impoverished banking system with fifty-nine commercial banks, thirty-four non-banking financial institutions, and sixty-two insurance companies. Both these institutions and Bangladesh's industrial sector are extremely depending on one another. The financial sector is at a crisis condition as a result of the Covid-19 epidemic. The rate of Non-Performing Loan had increased for which banks went into a critical condition The current issue with non-performing loans points to dire conditions in the banking industry. The non-performing loan percentage in July 2019 was 11.69%, in October 2019 it was 11.99%, in January 2020 it was 9.30%, and in March it was 9%. Bangladesh Bank (BB), (Alam et al, 2020).

1.1. Objective of the study:

The purpose of this research is to investigate the influence of the COVID-19 pandemic on the liquidity and profitability of Bangladeshi banks. The specific aims include to, 1. Determine how the financial performance of banks in

Bangladesh impacted by COVID-19. 2. Also determine how COVID-19 affects the liquidity of the banks in Bangladesh.

1.2. Research Questions:

The research questions set for this paper are, • What is the impact of COVID-19 on the financial performance of Bangladeshi banks? • How does COVID-19 affect the liquidity of the banks in Bangladesh?

CHAPTER 2

Statement of the problems

Working capital management includes a crucial element known as liquidity management (Tasie et al, 2011; Waseem et al , 2011). On the other hand, profitability is viewed from the a priori assumptions of (Okeke, 2015) as a generic indicator of a firm's overall financial health during a certain time period. Existing research found that a number of studies on company profitability and liquidity management had been carried out in both developed and emerging market economies, but this was done before the COVID-19 outbreak. All sectors of Bangladesh have been damaged by the COVID-19 pandemic, the lockdown of the country's major cities as a result of the outbreak, and the present depreciation of the currency owing to a decline in the price of crude oil. As participants in banks and other financial institutions were permitted to continue operating after and throughout the lockdowns, this influence has been varied. As a result, it is crucial to look at how the COVID-19 Pandemic has affected Bangladeshi banks' liquidity and profitability. Banks also took advantage of and abused the benefit of quick bank operations. The government set a deadline for banks to function and offer services to the public. Despite the effects of the COVID-19 epidemic, we still don't fully understand how it has affected the liquidity and profitability of Bangladeshi banks. Furthermore, there is no study that has looked at how the COVID-19 Pandemic has affected bank liquidity and profitability in developing nations. The objective of this study is to experimentally examine how COVID-19 would affect Bangladeshi banks' liquidity and profitability.

CHAPTER 3

Impact of Covid-19 on World Economy

COVID-19 was designated a worldwide pandemic by the World Health Organization (WHO) in March 2020. (Golubeva et al. 2021 and Jackson et al. 2021). This worldwide epidemic has produced unprecedented disruptions in global economic and human life (Padhan et al. 2021 and Wahyuhadi et al. 2022). As a result, the world's global trade suffered greatly as a result of the COVID-19 pandemic in 2020, and the worldwide economy's growth trend is expected to stay low in comparison to the pre-pandemic state (Arriola et al. 2022). The International Monetary Fund (IMF) anticipated that COVID-19 will cost the global economy USD 3.86 trillion in 2020 (IMF, 2020). According to the World Bank Report, the global economy's growth would be limited to 5.2% owing to the pandemic's beginning time (Insaidoo et al. 2020). The International Monetary Fund (IMF) anticipated that COVID-19 will cost the global economy USD 3.86 trillion in 2020. (IMF, 2020). According to the World Bank Report, the global economy's growth would be limited to 5.2% owing to the pandemic's beginning time (Insaidoo et al. 2020). However, the effects of COVID-19 on company traits such corporate performance, corporate governance, capital structure, and payout policy have received very little research (dividend and share repurchase). However, there is relatively little research on the impact of COVID-19 on business performance (FP). The work of (Huayu et al. 2020), who discovered COVID-19 had a detrimental effect on the performance of listed firms in China, is one exception. They investigated the effect of COVID-19 on business performance using the financial information of listed Chinese enterprises. They demonstrated how COVID-19 has a detrimental effect on business performance. When a business's investment scale or sales income is smaller, COVID-19's detrimental effects on firm performance are more obvious. These findings provide some of the earliest empirical proof of the link between pandemics and company success. Many of the current research have centered on stock performance in assessing the pandemic's impact. For

instance, (Liu et al. 2020) looked at how stock performance during the COVID-19 epidemic was impacted by firm-level operating flexibility

3.1.Impact on the banking sector of Bangladesh:

The new Coronavirus is still spreading rapidly and has had a significant impact on all enterprises worldwide. The COVID-19 outbreak has had a detrimental impact on the financial industry in Bangladesh (Karim et al. 2021).The COVID-19 pandemic has recently had an impact on all areas of human endeavor. The economic collapse brought on by this disease is already being assessed. According to, (Karim et al. 2021) discovered that reduced liquidity ratios and an unfavorable financial condition prior to the COVID-19 epidemic exacerbated the banks' financial position in Bangladesh during the COVID-19 era. In an article (Faria, 2021) examined the impact of pandemic threats on Bangladesh's financial system. Described how banks in Bangladesh suffer significant uncertainty and distrust, particularly when it comes to loan repayments from consumers when their economic activities are disrupted. She also identified non-performing loans that depart banks but do not reappear in their files; they are accused of a lack of monetary sufficiency. Both time and demand deposits are increasing in the banking sector. Demand and time deposits increased by 13.70% and 11.96%, respectively, in the first ten months of 2020, compared to the same period in 2019. Consumption reductions and future uncertainty raised deposits be cause customers are more willing to keep money to counteract uncertainty. Total deposits are proven to be important in banking sector profitability and in explaining variance in bank Return on Asset (Hossain et al, 2015).

CHAPTER 4

Research Hypothesis Formulation

The following hypotheses were formulated for the objective of the study

4.1. Null Hypotheses

• **Ho1 :** There has no significant impact of COVID-19 on Bank's profitability in Bangladesh.

• **Ho1** : There has no significant impact of COVID-19 on Bank's liquidity in Bangladesh.

4.2. Alternatives

• **Ha1 :** There has significant impact of COVID-19 on Bank's profitability in Bangladesh.

• **Ha2** : There has significant impact of COVID-19 on Bank's liquidity in Bangladesh. 4.3. Decision Making

4.3. Decision Making

• Indicators If probability or Sig. (2-tailed) > 5% significance level or 0.05, then Ho1 is accepted, and Ha is rejected.

• Indicators If Liquidity or Sig. (2-tailed) > 5% significance level or 0.05, then Ho1 is accepted, and Ha is rejected.

I discovered a substantial amount of study on the impact of COVID-19 on the global banking sector. Meanwhile, in Bangladesh, (Ghosh et al. 2021; Karim et al. 2021; Barua et al. 2022) investigated the critical impact of COVID-19 on the banking industry. They supplied vital information from the banks' and other stakeholders' perspectives. I developed this paper to add some value to the banking research in Bangladesh. Here I showed how COVID-19 create an impact on Bangladeshi bank's performance. I formulate the hypotheses. I showed

the regression analysis of bank's profitability and liquidity value. I considered the value of independent variable respectively 0 and 1. I also considered the value of dependent variable as per the annual reports and further calculation which is given on the Variable measurement part of my study. We showed the difference of pre-COVID19 and during-COVID19 period's liquidity and profitability through Ex Post Facto Design. I compared the means of both through Paired Sample T-test and the ranks through Wilcoxon Sign Rank statistical test.

CHAPTER 05

Theoretical Framework of the study

The theoretical framework defines a word in terms of COVID-19 Pandemic theories such as Liquid Assets Theory and Rational Choice Theory. It implies both understanding and acceptance of the theory on which this study is based.

5.1. Liquid Asset Theory:

According to this notion, banks must retain substantial quantities of liquid assets as reserves against probable depositor payment requests. The idea highlights the need of maintaining short-term assets as a sensible buffer in the face of many uncertainties in company operations and a firm's diverse demands. According to (Nzotta, 2004), the quantity of liquid assets is determined by a firm's perceived demand for liquidity, the volatility of its deposits, the health of the financial market, and the level and direction of the government's monetary policy. A sufficient quantity of liquidity is associated to corporate profitability.

5.2. Rational Choice Theory:

The Choice Theory is another name for the Rational Choice Theory. It is an economic idea based on the assumption that people always make sensible and reasonable decisions that give them with the most personal advantage or happiness. The idea is predicated on the notion that individuals actively seek to maximize their advantage in each scenario and, as a result, continually seek to minimize their losses (Hope et al. 2020)

CHAPTER 06

Methodology

In this study we followed Casual Comparative Design (Ex Post Facto Design) to compare the liquidity and profitability of pre-COVID19 pandemic period (year: 2019-20) and during COVID19 pandemic period (year: 2020-21) to determine the impact of COVID19 on profitability and liquidity of banks in Bangladesh. We have collected data from 15 leading banks of Bangladesh where, we listed 4 government banks (Shonali Bank, Janata Bank, Bangladesh Development Bank, Agrani Bank), 3 leading international banks (Standard Chartered Bank, HSBC Bank and CitiBank), and 8 leading private commercial banks (United Commercial Bank, IFIC Bank, Dutch Bangla Bank, Eastern Bank, Brac Bank, City Bank, Dhaka Bank and Trust Bank). Data for the study obtained from bank's annual financial report which are available on bank's website. All financial reports used here were audited by reputated leading CA-firms in Bangladesh. The researcher input the existing data into the computer and statistically examined it after obtaining the study data by examining the company's financial ratios. Utilizing an analytical method that tracks the data obtained is necessary for data analysis. If there is a significant difference between financial performance before and during the COVID-19 pandemic in banks, it can be demonstrated using the numbers listed in the table after the output from the Paired Sample T-Test analysis, subject to the following acceptance or rejection of the hypothesis: If the significance threshold is 5% or 0.05 for probability or Sig. (2-tailed), then there is no discernible difference between the two samples. if the probability or the 2-tailed significance level is less than 5% or 0.05. The two samples then differ significantly from one another (Ghozali, 2005; Hazudin et al., 2015). There are two types of data held in this study. The test was thus conducted using the test technique for the average difference between two matched samples (Paired Sample T-test). This test model examines the before-and-after research model. Samples are evaluated using additional tests throughout the course of two observational periods. After that, with the same significance value I conducted the Wilcoxon Statistical tool operated with SPSS (version 26).

CHAPTER 07

Variable Measurement and Categorization

7.1. Data and Materials:

This study's research method was a quantitative one that employed information on banks that were listed on the Dhaka Stock Exchange. This study makes use of data gathering techniques, specifically data collection techniques used to acquire data by recording or duplicating documents, in order to get the necessary information. The material or data utilized by researchers for this study is in the form of financial statistics made available by banks on the official Dhaka Stock Exchange website, namely https://www.dsebd.org/ for the 2019–2020 timeframe. In this study, Profitability and liquidity of banks is dependent variable where, COVID19 is independent variable.

7.2. Variables and their definitions

Independent Variable: According to (Bhandari, 2022) In an experimental research, an independent variable is one that you change or alter to examine its effects. It is named "independent" because it is unaffected by any other research factors.

- Dependent Variable: (Bhandari, 2022) explained that, a dependent variable is one that is altered as a result of the modification of an independent variable. Your independent variable "depends" on the outcome you're interested in measuring
- Profitability Ratio: According to (HAYES, 2021) profitability ratios are a class of financial measurements that are used to evaluate a company's capacity to make profits in relation to its revenue, operating costs, balance sheet assets, or shareholders' equity over time. Financial ratios including total asset growth, loan growth rate, and profits growth rate are commonly used to measure profitability. The subjective appraisal of management systems, organizational discipline, control systems, staff quality, and many other factors are common ways that management performance is typically expressed as a story (Obim et al, 2020). The preceding research employed Net Assets Per Share (NAPS), Return on Equity (ROE), and Return on Assets (ROA) as a measure of profitability. (Raheman et al, 2014) used (ROA and

ROE), (Nahiba, 2017) used NAPS, (Brockman, 2015) used NAPS, (Oliveira et al, 2015) used ROE, (Abd. Hamid et al, 2017) used ROE and ROA, etc. For this study, Two accounting based measurement of Return on Asset and Return on Equity (ROE) were used as a measurement for profitability

- Return on Asset: Profitability is evaluated in relation to expenditures and expenses and compared to assets to determine how efficiently a business is using assets to produce sales and profits. The value of sales revenue remaining after all costs, expenditures, and taxes is referred to as net profit or net income when the term "return" is used in the ROA metric. Net income divided by total assets is known as ROA. A company may create more sales and potential profits the more assets it has accumulated. With economies of scale assisting in cost reduction and margin improvement, returns may rise faster than assets, hence raising ROA. (HAYES, 2021) Formula: NPAT/ Average Asset
- Return on Equity: As it gauges a company's capacity to generate a return on its equity investments, ROE is a crucial number for shareholders. Without more equity investments, ROE—calculated as net income divided by shareholders' equity—can rise. The ratio may increase as a result of increasing net income coming from a larger asset base that is financed by debt. (HAYES, 2021) Formula: NPAT/ Average Equity
- Liquidity Ratio: Assets that can be sold and changed into cash rapidly are seen as being highly liquid since that is how quickly an asset can be transformed into cash (and vice versa for assets with low liquidity). In the preceding research (Bunker et al, 2019) used Current Ratio and Quick Ratio, (Suzana et al, 2012) used Cash Ratio, Current Ratio, Net Working Capital % Revenue, etc. For this study, Only Current Ratio was used to measure Liquidity. Current Ratio Formula: Current Asset/ Current Liabilities

7.3. Measurement

Table-1: Variable measurement formula

S/N	Variables		Formula	Basic Ideas
1	Dependent			
	Liquidity		Current Asset/ Current Liabilities	*Suzana et al, 2012*
2	Profitability	ROA	NPAT/ Average Asset	*Raheman et al, 2014*
		ROE	NPAT/ Average Equity	
3	Independent		Measured by comparing the factors stated above before and after the COVID-19 Pandemic Period.	*Omaliko et al, 2021*

7.4 Presentation of Data

Data Summary of 15 leading banks in Bangladesh. The data shown on the table below were needed for the study and these data were used in the data analysis of the study.

All data used here collected from the annual reports which were uploaded in the website of the banks. All statements were perfectly audited and accurate. No inaccurate infor- mation about the banks used in this study.

Table-2, Financial Ratios of 15 leading banks in Bangladesh

Name of the Banks	**Liquidity Ratio** LR: (CurrentAsset/Current Liabilities		**Profitability Ratio** **ROA**: (Profit after Tax/ Avg. Of total assets **ROE**: (Profit after Tax/ Avg. Of total Equity			
	LR		ROA		ROE	
	2020	2019	2020	2019	2020	2019
Shonali Bank Ltd.	0.59	0.587	0.21	0.2	4.21	3.92

Janata Bank Ltd.	0.82	0.91	0.01	0.03	0.28	0.49
Bangladesh Devel-opment Bank Ltd.	1.56	3.22	0.08	0.11	0.34	0.24
Agrani Bank Ltd.	1.953	1.026	0.07	-0.21	1.77	-4.6
United Commercial Bank Ltd.	1.164	1.18	0.61	0.65	8.42	8.94
IFIC Bank Ltd.	0.95	0.944	0.81	0.17	2.3	10.5
Dutch Bangla Bank Ltd.	1.05	1.37	1.3	1.2	18.4	17.2
Eastern Bank Ltd.	2.447	3.042	1.22	1.3	15.04	16.52
Brac Bank Ltd.	1.008	1.118	1.18	1.64	10.58	15.6
City Bank Ltd.	0.902	0.871	1.1	0.7	14.8	9.9
Dhaka Bank Ltd.	0.87	0.9	0.7	0.56	9.28	11.28
Trust Bank Ltd.	0.582	0.696	0.5	0.73	11.18	14.6
Standard Chartered Bank Bangladesh Ltd.	1.114	1.08	3.34	3.21	20.62	22.71
HSBC Bank Ltd.	1.82	1.58	1.95	2.67	10.77	15.31
CitiBank	3.16	3.89	1.51	1.88	7.26	8.66

Source: [Annual Reports]

CHAPTER 08

Test of Hypotheses

To test the linier relationship between the independent and dependent variable, Paired Sample T-test and Wilcoxon Statistical Signed Rank Tool was developed. It was operated on SPSS(version-26) and the results are shown below.

8.1. Result on impact of COVID-19 Pandemic on Profitability of banks in Bangladesh

The regression analysis of Profitability ratio which are ROA and ROE(2019 and 2020) is given below. I considered COVID19 as independent variable and Profitability ratio of 2019 and 2020 are dependent variable where ROA is X1 ROE is X2 . In this analysis I set the value of Before and During COVID as respectively 0 and 1. The result of regression analysis have calculated through Microsoft Excel (2019th Edition). After that the Paired Sample T-test and Wilcoxon Signed Rank test have been calculated through SPSS (ver-sion-26).

8.1.1. Regression Analysis of ROA & ROE

Table:3 Regression Statistics of Profitability

Regression Statistics of ROA	
Multiple R	0.079147812
R Square	0.006264376
Adjusted R Square	-0.029226182
Standard Error	0.515925561
Observations	30

Results from MS Ex-cel2019

Regression Statistics ROE	
Multiple R	0.18560264
R Square	0.03444834
Adjusted R Square	-3.56477E-05
Standard Error	0.508556692
Observations	30

8.1.2. Paired Sample T-test of ROA & ROE

Table-4: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	ROA before COVID19	.98933	15	.999653	.258109
	ROA during COVID19	.97267	15	.872251	.225214
Pair 2	ROE before COVID19	10.08467	15	7.450526	1.923718
	ROE during COVID19	9.01667	15	6.427991	1.659700

Table-6: Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	ROA before COVID19 - ROA during COVID19	.016667	.340119	.087818	-.171685	.205018	.190	14	.852
Pair 2	ROE before COVID19 - ROE during COVID19	1.068000	3.650764	.942623	-.953725	3.089725	1.133	14	.276

Table-5: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	ROA before COVID19 & ROA during COVID19	15	.943	.000
Pair 2	ROE before COVID19 & ROE during COVID19	15	.872	.000

8.1.3. Discussion for Paired Sample T-test for ROA & ROE

Here, two different profitability ratios are calculated. Return on Asset (ROA) and Return on Equity are two examples (ROE). The results of the Paired Sample T-Test are generat-ed as three outputs: Paired Sample Statistics, Paired Sample Correlations, and Paired Sample Tests. The average (mean) of ROA and ROE for 2019 are 0.98933 and 10.08467, and descriptive data from the variable pairs that were evaluated are presented in the first output. The standard deviation value obtained for ROA and ROE are 0.999653 and 7.450526 with a mean, standard error of 0.258109 and 1.923718, and the average (mean) of ROA and ROE in 2020 are 0.97267 and 9.01667. The standard deviation value ob-tained are 0.872251 and 6.427991 with a mean, standard error of 0.225214 and 1.659700. The second output shows the results of the correlation between the two variables. Based on the output above, it is known that the correlation value of ROA and ROE are 0.943 and 0.872 with a significance value of 0.000 <0.05 for both, so it can be said that there is a relationship between the profitability ratio before the pandemic and the profitability ra-tio during the pandemic. The final output is the most important because it shows the tests' results. Based on the Paired Samples Test, Sig's value is known. For ROA the result is 0.276> 0.05 and for ROE the result is 0.852> 0.05, it can be concluded that in both cases (ROA and ROE) there is no significant difference between the financial performance of banks before and during the COVID-19 pandemic when viewed from the profitability ra-tio. As a result I accepted the null hypotheses (Ho2 = There has no significant impact of COVID-19 on Bank's Profitability in Bangladesh).

8.2.Wilcoxon Signed Rank Test for ROA & ROE

Table-7: Descriptive Statistics

		Percentiles		
	N	25th	50th (Median)	75th
Return on Asset 2019-20	15	.17000	.70000	1.64000
Return on Equity 2019-20	15	3.92000	10.50000	15.60000
Return on Asset 2020-21	15	.21000	.81000	1.30000
Return on Equity 2020-21	15	2.30000	9.28000	14.80000

Table-8: Ranks

		N	Mean Rank	Sum of Ranks
Return on Asset 2020-21 - Return on Asset 2019-20	Negative Ranks	8[a]	7.75	62.00
	Positive Ranks	7[b]	8.29	58.00
	Ties	0[c]		
	Total	15		
Return on Equity 2020-21 - Return on Equity 2019-20	Negative Ranks	10[d]	8.50	85.00
	Positive Ranks	5[e]	7.00	35.00
	Ties	0[f]		
	Total	15		

a. Return on Asset 2020-21 < Return on Asset 2019-20

b. Return on Asset 2020-21 > Return on Asset 2019-20

c. Return on Asset 2020-21 = Return on Asset 2019-20

d. Return on Equity 2020-21 < Return on Equity 2019-20

e. Return on Equity 2020-21 > Return on Equity 2019-20

f. Return on Equity 2020-21 = Return on Equity 2019-20

Table-9: Test Statistics[a]

	Return on Asset 2020-21 - Return on Asset 2019-20	Return on Equity 2020-21 - Return on Equity 2019-20
Z	-.114[b]	-1.420[b]
Asymp. Sig. (2-tailed)	.910	.156

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table-10: Hypothesis Test Summary of ROA

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between ROA during COVID19 and ROA before COVID19 equals 0.	Related-Samples Wilcoxon Signed Rank Test	.910	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

Table-11: Hypothesis Test Summary of ROE

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between ROE during COVID19 and ROE before COVID19 equals 0.	Related-Samples Wilcoxon Signed Rank Test	.156	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

This is supported by a P-value of 0.156, as indicated in table-5; the test is statistically sig- nificant. As a result, the null hypothesis was rejected, as shown by the decision rule in the table

8.2.1. Discussion of Wilcoxon Signed Rank Tool for ROA and ROE

The result we find after the test in this analysis by using the Wilcoxon Signed Rank Tool which were operating with the SPSS (Version-26) is expressed as follows:

- • Ho1 = There has no significant impact of COVID-19 on Bank's profitability in Bangladesh.

The analysis shown on the table- the result we got has a significant negative difference in the Profitability Ratio (ROA,ROE) of the banks before COVID19 pandemic period and the Profitability Ratio (ROA,ROE) during COVID19 pandemic period which confirms that COVID19 outbreak does not affect the Liquidity of banks in Bangladesh. This could be This is supported by a P-value of ROA and ROE respectively, 0.910,0.156, as indicated in table-7,8,9; the test is statistically significant. As a result, the null hypothesis was not rejected, as shown by the decision rule in the table.

8.3. Result on impact of COVID-19 Pandemic on Liquidity of banks in Bangladesh

The regression analysis of Liquidity ratio(2019 and 2020) is given below. I considered COVID19 as independent variable and Liquidity ratio of 2019 and 2020 are dependent variable. In this analysis I set the value of Before and During COVID as respectively 0 and 1. The result of regression analysis have calculated through Microsoft Excel (2019th Edition). After that the Paired Sample T-test and Wilcoxon Signed Rank test have been calculated through SPSS (version-26).

8.3.1. Regression Analysis of Liquidity Ratio

Table-12: Regression Statistics of Liquidity Ratio

Regression Statistics of LR	
Multiple R	0.09378592
R Square	0.008795799
Adjusted R Square	-0.026604351
Standard Error	0.515268013
Observations	30

8.3.2. Paired Sample T-test for Liquidity Ratio

Table-13: Paired Samples Statistics of Liquidity Ratio

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	LR before COVID-19	1.49427	15	1.021670	.263794
	LR during COVID-19	1.28047	15	.789984	.203973

Table-14: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	LR before COVID-19 & LR during COVID-19	15	.826	.000

Table-15: Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	LR before COVID-19 - LR during COVID-19	.213800	.577728	.149169	-.106135	.533735	1.433	14	.174

8.3.3.Discussion of Paired Sample T-test for Liquidity Ratio

Three outputs—Paired Sample Statistics, Paired Sample Correlations, and Paired Sample Tests—are produced from the findings of the Paired Sample T-Test. The average (mean) liquidity ratio for 2019 is 1.49427, and descriptive data from the variable pairs that were evaluated are presented in the first output. The standard deviation value obtained is 1.021670 with a mean, standard error of 0.263794, and the average (mean) liquidity ratio in 2020 is 1.28047. The standard deviation value obtained is 0.789984 with a mean, standard error of 0.203973. The second output shows the results of the correlation be-tween the two variables. Based on the output above, it is known that the correlation value is .826 with a significance value of 0.000 <0.05, so it can be said that there is a relation-ship between the liquidity ratio before the pandemic and the liquidity ratio during the pandemic. The final output is the most important because it shows the tests' results. Based on the Paired Samples Test, Sig's value is known. From the liquidity ratio of 0.174> 0.05, it can be concluded that there is no significant difference between the financial perfor-mance of banks before and during the COVID-19 pandemic when viewed from the liquid-ity ratio. As a result I accepted the null hypotheses (Ho2=There has no significant impact of COVID-19 on Bank's liquidity in Bangladesh).

8.4. Wilcoxon Signed Rank Tool Test For Liquidity Ratio

Table-16: Wilcoxon Signed Rank Test For Liquidity Ratio

		N	Mean Rank	Sum of Ranks
Liquidity Ratio 2020-21 - Liquidity Ratio 2019-20	Negative Ranks	9[a]	9.44	85.00
	Positive Ranks	6[b]	5.83	35.00
	Ties	0[c]		
	Total	15		

a. Liquidity Ratio 2020-21 < Liquidity Ratio 2019-20
b. Liquidity Ratio 2020-21 > Liquidity Ratio 2019-20
c. Liquidity Ratio 2020-21 = Liquidity Ratio 2019-20

Table-17: Test Statistics[a]

	Liquidity Ratio 2020-21 - Liquidity Ratio 2019-20
Z	-1.420[b]
Asymp. Sig. (2-tailed)	.156

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Table-18: Hypothesis Test Summary of LR

	Null Hypothesis	Test	Sig.	Decision
1	The median of differences between LR during COVID-19 and LR before COVID-19 equals 0.	Related-Samples Wilcoxon Signed Rank Test	.156	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.

8.4.1. Discussion for Wilcoxon Signed Rank Tool Test for Liquidity Ratio

 Ho2 = There has no significant impact of COVID-19 on Bank's liquidity in Bangladesh.

The analysis shown on the table- the result we got has a significant negative difference in the Liquidity Ratio of the banks before COVID19 pandemic period and the Liquidity Ratio during COVID19 pandemic period which confirms that COVID19 outbreak does not affect the Liquidity of banks in Bangladesh. This could be This is supported by a P-value of 0.156, as indicated in table-4,5; the test is statistically significant. As a result, the null hy-pothesis was not rejected, as shown by the decision rule in the table.

CHAPTER 09

Findings

9.1.1. The company's profitability ratio before and during the COVID-19 pandemic.

A profitability ratio is a statistic used to evaluate a company's capacity for profit-seeking. This ratio also gauges how well a company's management is performing. The profit made from operational revenue and investment income serves as a sign of this. Whether the measurements have been successful or not, they can be utilized as a tool to assess manage-rial performance. They are said to have followed for a number of periods if they are suc-cessful in reaching the planned goal. If it fails to meet the planned objective, on the other hand, management will learn a valuable lesson for the future. It is known that there are variances in the ratio levels of each sample bank if you compare the ratio levels between 2019 before the pandemic and 2020 when the epidemic was active based on the examina-tion of financial performance using the profitability ratio. Many banks' profitability ratios fell during the pandemic in comparison to the ratio from the prior year. This is because the present pandemic's economic conditions have resulted in low income levels, which eventu-ally have a negative impact on net income and cause it to decline as well. However, we can observe that the pandemic's effects were not more pronounced in Bangladesh's banking industry. Furthermore, the profitability ratios are not substantially different, according to the findings of the analyses utilizing the Paired Sample T-Test. This indicates that the company's profitability ratios are different. However, it has little impact both before and after the COVID-19 epidemic. Behind this in the result of Wilcoxon Signed Rank test we find the same scenario there. Analyzing the profitability ratios of fifteen sample banks through Wilcoxon Statistical tool we finds, there has no significant difference between be-fore COVID19 and during COVID19 period. This is demonstrated by the analysis of the profitability ratios of the fifteen sample banks, of which four had a government majority, three were foreign banks, and eight were privately owned. The analysis reveals that the two ratios used have a downward trend but are not far from the ratio results in 2019.

9.1.2. The Company's Liquidity Ratio Before and During The COVID-19 Pandemic.

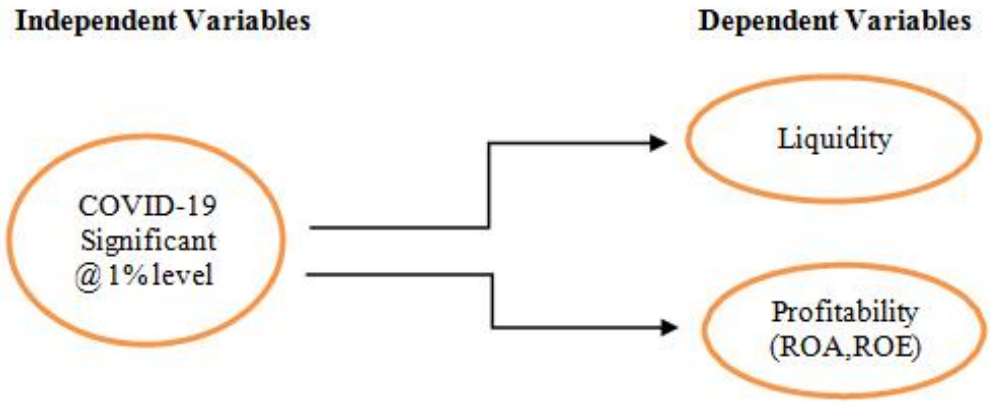
The level of a company's liquidity indicates how well it can fulfill its immediate commit-ments. The higher the ratio of current assets, particularly cash, to current liabilities, the better a company's liquidity is at meeting its short-term commitments to creditors. The li-quidity ratio, which summarizes the firm's financial performance in terms of short-term li-abilities, can have an impact on the public's perception, particularly that of investors who may decide to participate in the company. Let's assume that the business still has a strong capacity to use current assets to pay its short-term (one-year) obligations. In such instance, it might be argued to be liquid, meaning investors do not need to be concerned about in-vesting their money if anything unexpected occurs. When the public notices that a bank's liquidity ratio is sound, they won't hesitate to deposit money there. It is

known that there are variances in the amount of the liquidity ratio of each sample bank, whether it is rising or decreasing, based on the examination of financial performance using the company's li-quidity ratio. However, if you compare the ratio levels between 2019 the year before the epidemic and 2020 the year the pandemic began you'll see that some banks were still able to fulfill their short-term obligations. However, having an excessive amount of cash fi-nances also means that money is not being used as efficiently as it could be. The only thing the deposited cash funds create is bank interest. The corporation should allocate these cash to get better profits. Because if the business invests in productive assets, it will produce and grow earnings for the business and raise shareholder value. The similar situation is seen here in the Wilcoxon Signed Rank test results. When we use the Wilcoxon statistical method to analyze the liquidity ratios of fifteen sample banks, we see that there is no dis-cernible change between the periods before and after COVID19.

9.2. Contribution to Knowledge

I. This study adds significant new empirical analysis of the impacts of the COVID-19 Pandemic on the liquidity and profitability of banks in Bangladesh at a time when there is an abundance of conceptual papers and opinion pieces on other aspects of the impact of COVID19 but still scarce evidence on the effect of the COVID-19 Pandemic on the liquid-ity and profitability of banks, particularly in developing countries like Bangladesh.

II. The conceptual model established and built for the study also added to knowledge. It is depicted below as



CHAPTER 10

Conclusion

The statistical research reveals that the COVID-19 Pandemic had no substantial influence on the Liquidity and Profitability of Bangladeshi banks.

CHAPTER 11

Annual Report Links

- Standard Chartered Bank LTD.
  https://www.sc.com/bd/financial-statements/
- HSBC Bank LTD
  https://www.about.hsbc.com.bd/hsbc-in-bangladesh
- CitiBank LTD.
  https://www.citigroup.com/citi/about/countries-and-jurisdictions/bangladesh.html#corporate-docume nts

- Shonali Bank LTD.
  https://www.sonalibank.com.bd/annualreport
- Agrani Bank LTD.
  https://www.agranibank.org/index.php/financial/annual
- Bangladesh Development Bank LTD.
  https://www.bdbl.com.bd/annualReport.php
- Janata Bank LTD.
  https://www.jb.com.bd/about_us/annual_report
- Eastern Bank LTD.
  https://www.ebl.com.bd/annual-reports
- City Bank LTD.
  https://www.thecitybank.com/report/annualreports
- Brac Bank LTD.
  http://www.bracbank.com/annual-reports
- Dhaka Bank LTD.
  https://dhakabankltd.com/financial-statements-reports/

- United Commercial Bank LTD.
  https://www.ucb.com.bd/know-ucb/investor-relations/financial-statements
- IFIC Bank LTD.
  https://www.ificbank.com.bd/annual-report
- Dutch Bangla Bank LTD.
  https://www.dutchbanglabank.com/investor-relations/financial-statements.html

- Trust Bank LTD.
  https://www.tblbd.com/about-us/financial-statements

CHAPTER 12

References

- Saeed Anwar, Mohammad Nasrullah and Mohammad Jakir Hosen (2020). COVID-19 and Bangla-desh: Challenges and How to Address Them. https://www.frontiersin.org/articles/10.3389/fpubh.2020.00154/full
- Tuma, F., Kamel, M. K., Shebrain, S., Ghanem, M., & Blebea, J. (2021). Alternative surgical training approaches during COVID-19 pandemic. https://doi.org/https://doi.org/10.1016/j.amsu.2021.01.057
- Md. Shahbub Alam, Md. Jafor Ali, Dr. Abul Bashar Bhuiyan, Dr. Mohammad Solaiman,Dr. Mohammad Abdur Rahman (2020). THE IMPACT OF COVID -19 PANDEMIC ON THE ECONOMICGROWTH IN BANGLADESH: A CONCEPTUAL REVIEW. http://cribfb.com/journal/index.php/aesr/article/view/844
- Tasie, C. and Akinyomi, O. (2011). Effect of working capital management on the profitability of Nigerian manufacturing firms, International Journal of Management and Enterprise Development,8(1), 57-62
- Okeke, N. (2015). Financial performance synergies, empirical review. European Accounting Review, 1(3), 55–59.
- Waseem, J., Malik, M., & Kifayat, U. (2011). Working capital management and profitability an analysis of firms of textile industry of Pakistan, Journal of Managerial Sciences https://www.researchgate.net/publication/344283687_Working_Capital_Management_and_Profitabi lity_An_Analysis_of_Firms_of_Textile_Industry_of_Pakistan
- Golubeva, O. Firms' performance during the COVID-19 outbreak: International evidence from 13countries. Corp. Gov. 2021, 21, 1011–1027. http://doi.org/10.1108/CG-09-2020-0405
- Padhan, R.; Prabheesh, K.P. The economics of COVID-19 pandemic: A survey. Econ. Anal. Policy2021, 70, 220–237. http://doi.org/10.1016/j.eap.2021.02.012
- Wahyuhadi, J.; Efendi, F.; Al Farabi, M.J.; Harymawan, I.; Ariana, A.D.; Arifin, H.; Adnani, Q.E.S.;Levkovich, I. Association of stigma with mental health and quality of life among Indonesian
  COVID-19 survivors. PLoS ONE 2022, 17, e0264218.

  http://www.ncbi.nlm.nih.gov/pubmed/35196326
- Jackson, J.K.; Weiss, M.A.; Schwarzenberg, A.B.; Nelson, R.M.; Sutter, K.M.; Sutherland, M.D. Global Economic Effects of COVID-19; Congressional Research Service: Washington, DC, USA,2021.
- Arriola, C.; Kowalski, P.; Kowalski, P.; Tongreen, F.V. International Trade during the COVID-19 Pandemic: Big Shifts and Uncertainty. Organisation for Economic Co-Operation and Development.2022. https://www.oecd.org/coronavirus/policy-responses/international-trade-during-the-covid-19-pandemi c-big-shifts-and-uncertainty-d1131663/
- Insaidoo, M.; Arthur, L.; Amoako, S.; Andoh, F.K. Stock market performance and COVID-19 pan-demic: Evidence from a developing economy. J. Chin. Econ. Foreign Trade Stud. 2021, 14, 60–73 https://www.emerald.com/insight/content/doi/10.1108/JCEFTS-08-2020-0055/full/html
- Huayu Shen, Mengyao Fu, Hongyu Pan, Zhongfu Yu & Yongquan Chen; (2020) The Impact of theCOVID-19 Pandemic on Firm Performance https://doi.org/10.1080/1540496X.2020.1785863

- Liu, H., Yi, X., & Yin, L. (2020). The impact of operating flexibility on firms' performance duringthe COVID-19 outbreak: Evidence from China. Finance Research Letters, October, 101808. https://doi.org/10.1016/j.frl.2020.101808
- Karim, R.; Shetu, S.A.; Razia, S. COVID-19, liquidity and financial health: Empirical evidence fromSouth Asian economy. Asian J.Econ. Bank. 2021, 5, 307–323 http://doi.org/10.1108/AJEB-03-2021-0033

- Faria Jahan Nusrat, Impact of COVID-19 on the Banking Sectors of Bangladesh. Brac University 2021. http://dspace.bracu.ac.bd/xmlui/handle/10361/16631
- MS Hossain, F Ahamed (2015) A study on the banking sector of Bangladesh. https://duap.du.edu.bd/upload/download/4 Md_Saimum_Hossain_Faruque_Ahamed.pdf

—

- Nzotta, S. M. (2004). Money, Banking and Finance: Theory and Practice (2nded.). Owerri: Hudson-Jude Nigeria Publishers. https://www.researchgate.net/publication/346673317_296-Article_Text-885-1-10-20200422_1

- Hope, O., Saidu, M., & Success, A. (2020). Coronavirus pandemic outbreak and firms performance in Nigeria, Management and Human Resource Research Journal, 9(4), 15-25
- SF Hazudin, SA Mohamad, I Azer, R Daud; (2015) Discovering Small Business Start up Motives,Success Factors and Barriers. https://www.sciencedirect.com/science/article/pii/S2212567115011314
- Ghozali, I. (2005). Aplikasi Analisis Multivariate dengan SPSS.
- Dhaka Stock Exchange *https://www.dsebd.org/*

- Pritha Bhandari. Feb 3, 2022. Independent vs. Dependent Variables | Definition & Examples https://www.scribbr.com/methodology/independent-and-dependent-variables
- International Monetary Fund. World Economic Outlook, October 2020: A Long and Difficult Ascent. Retrieved from International Monetary Fund. 2020. Available online: https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economicoutlook-october-2020
- Omaliko Emeka L. Amnim, Aipma, Okeke Prince C., Obiora Fabian C., 04 March 2021. Impact ofCovid-19 Pandemic on Liquidity and Profitability of Firms in Nigeria. 10.6007/IJARBSS/v11-i3/9229

- Bunker, Randall B, PhD, CPA; Cagle, Corey, PhD, CMA, CFM, CPA, CGMA, CFE; Harris, Dan, PhD, JD, CPA., (2019) A Liquidity Ratio Analysis of Lean vs. Not-Lean Operations. https://www.proquest.com/openview/d6a480cd575d87e5734e48d9e000bb3a/1?pq-origsite=gscholar &cbl=42470
- Suzana Bareša, Siniša Bogdan, Saša Ivanović. 21 November 2012. MEASURING LIQUIDITY ON STOCK MARKET: IMPACT ON LIQUIDITY RATIO https://hrcak.srce.hr/clanak/138302
- Nahiba, M. (2017). Non financial disclosures and performance of manufacturing firms in India, Journal of Empirical Literature
- Raheman, Salleh, Afza and Chek, I. (2014). Non-Financial Information Disclosure Influence and itsinfluence on Firms' Profitability in Malaysia. International Journal of Academic Research in Ac- counting, Finance and Management Sciences. Pg: 297-306
- ADAM HAYES, July 11, 2022. Profitability Ratios: What They Are, Common Types, and How Businesses Use Them. https://www.investopedia.com/terms/p/profitabilityratios.asp

- Obim, S. M., Takon, E. N., & Mgbado, M. U. (2020). The impact of liquidity on banks profitability in Nigeria, International Journal of Banking and Finance Research, pg-95-111

- The World Bank. The Global Economy: On Track for Strong but Uneven Growth as COVID-19 StillWeighs. 2021. Available online: https://www.worldbank.org/en/news/feature/2021/06/08/the-global-economy-on-track-for-strong-but-unevengrowth-as-covid-19-still-weighs

- Barua, B.; Barua, S. COVID-19 implications for banks: Evidence from an emerging economy. SNBus. Econ. 2021, 1, 19 http://doi.org/10.1007/s43546-020-00013-w

- Ghosh, R.; Saima, F.N. Resilience of commercial banks of Bangladesh to the shocks caused by COVID-19 pandemic: An application of MCDM-based approaches. Asian J. Account. Res. 2021, 6,281–295. https://www.emerald.com/insight/content/doi/10.1108/AJAR-10-2020-0102/full/html

-