An Internship Report
On
"An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh."

This Report is Submitted for partial fulfillment of the requirements for the Degree of Bachelor of Business Administration (BBA).

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<u>DATE OF SUBMISSION</u>
20th April 2026

Letter of Transmittal

Date: 20-04-2026

To
Dr. Md. Monzur Hossain
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Subject: Submission of Internship Report

Honorable Sir,

With due respect, I would like to submit my internship report titled **"An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh."** This report has been prepared as a partial fulfillment of the requirements for the completion of my internship program. I have completed my internship by collecting secondary data from annual financial reports of selected commercial banks, namely Sonali Bank PLC, IFIC Bank PLC, Islami Bank Bangladesh PLC, Janata Bank PLC, and Rupali Bank PLC. The study analyzes the impact of both internal and external factors on bank profitability using statistical tools such as Stata and Excel. While preparing this report, I have made every effort to ensure accuracy and sincerity. I have tried my best to incorporate relevant data, proper analysis, and meaningful interpretations to reflect a clear understanding of the topic.

I would like to express my sincere gratitude for your valuable guidance, support, and encouragement throughout the preparation of this report. Your suggestions have greatly helped me in completing this study successfully.

Therefore, I respectfully submit this report for your kind evaluation and consideration. I will be grateful if you accept this report and provide your valuable feedback.

Sincerely yours,

………………….
Md. Jahidul Islam
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Acknowledgment

First and foremost, I would like to express my deepest gratitude to the Almighty for giving me the strength and perseverance to complete this research. This research report is an essential component of the BBA program, and it has been a valuable opportunity to analyze “***An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh***”

I am sincerely grateful to my academic supervisor, **Dr. Md. Monzur Hossain, Assistant Professor**, Department of Finance and Banking, Comilla University, for her invaluable guidance, encouragement, and support throughout the preparation of this report. Her insights and expertise have been instrumental in helping me successfully complete this study.

I am also grateful to **Muhammed Abdul Kashem (Manager at Sonali Bank PLC., Wapda Building Branch, Cumilla)**, who played a crucial role in my internship experience. He provided invaluable guidance, helping me understand and resolve real-world business situations, which would have been difficult to grasp at this early stage without his support.

Finally, I express my sincere appreciation to everyone who reads this term paper and those who may benefit from it now and in the future. My heartfelt thanks also go to all my faculty members of the Department of Finance & Banking at Comilla University, who have believed in me and kept motivating me to pursue excellence in my career.

Student Declaration

I, Md. Jahidul Islam, a student of the Department of Finance and Banking, BBA 8th Batch, bearing ID: 12117020, hereby declare that the research report titled "**An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh**" represents the result of my own work, conducted under the supervision of **Dr. Md. Monzur Hossain, Assistant Professor**, Department of Finance and Banking, Comilla University, Cumilla.

I further declare that this report has been prepared for academic purposes as part of the BBA program, and I have used the current data and situation of the organization in this study.

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Supervisor's Declaration

20 April, 2026

This is to certify that the research report on "**An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh**" has been completed by Md. Jahidul Islam, ID No: 12117020, Reg. No: 12117020, Session: 2020-2021, as partial fulfillment of the requirements for the Bachelor of Business Administration (BBA) degree from the Department of Finance and Banking, Faculty of Business Studies, Comilla University, Cumilla.

This report has been prepared under my supervision and is a result of authentic work carried out successfully.

……………………

Dr. Md. Monzur Hossain

Assistant Professor,

Department of Finance & Banking

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Experiment Certificate

সোনালী ব্যাংক পিএলসি.
Sonali Bank PLC.
'বিশ্বস্ত ও স্মার্ট'

ওয়াপদা বিল্ডিং শাখা, কুমিল্লা।

No: SBPLC/Wapda/Cumilla/Intern/2026/

Date: 14/04/2026

To Whom It May Concern

This to certify that ***Md. Jahidul Islam***, S/O ***Md. Abdul Kuddus*** & ***Shahanara Begum*** student of Department of Finance and Banking of Comilla University, session: 2020-2021 bearing ID: 12117020 had successfully completed his internship program on **"An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh"**at Wapda Building Branch, Cumilla from 28/01/2026. He was found regular, sincere, and dutiful to his work.

During the period he had gone through the day-to-day operation of the different wings of the bank and gathered good knowledge about overall banking department.

I wish his every success in life.

15/04/26

Manager
Sonali Bank PLC.
Wapda Building Branch, Cumilla.

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Executive Summary

The banking sector of Bangladesh plays a crucial role in promoting economic growth, financial stability, and overall development. However, in recent years, commercial banks have faced various challenges, particularly in maintaining profitability due to internal inefficiencies and changing macroeconomic conditions. This report, titled *"**An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh**"* aims to examine how selected internal and external factors influence bank profitability.

The study is based on secondary data collected from the annual reports of five commercial banks—Sonali Bank PLC, IFIC Bank PLC, Islami Bank Bangladesh PLC, Janata Bank PLC, and Rupali Bank PLC—covering a five-year period from 2019 to 2023. Return on Assets (ROA) is used as the dependent variable to measure profitability, while Non-Performing Loans (NPL), Liquidity Ratio (LIQ), Cost-to-Income Ratio (CIR), Bank Size (SIZE), Gross Domestic Product (GDP), Interest Rate (INT), and Inflation Rate (INF) are used as independent variables. The analysis is conducted using Stata and Excel.

Chapter One introduces the background of the study, highlighting the importance of bank profitability in ensuring financial stability and economic growth. It outlines the research problem, objectives, scope, and research questions focusing on identifying key determinants of bank performance.

Chapter Two presents the literature review, summarizing previous empirical studies on bank profitability. It discusses both bank-specific and macroeconomic factors and provides a theoretical foundation for the study.

Chapter Three describes the research methodology, including research design, data sources, sampling, and analytical techniques. The study uses secondary data and applies econometric methods such as OLS and panel data analysis (Fixed Effects and Random Effects models).

Chapter Four provides data analysis and findings. Descriptive statistics, correlation analysis, and regression results reveal that NPL negatively affects profitability, while liquidity, GDP, and inflation have positive impacts. Diagnostic tests confirm the reliability of the model, and the Random Effects model is identified as the most appropriate.

Chapter Five presents the conclusion and recommendations. The findings emphasize the importance of managing non-performing loans and maintaining optimal liquidity. Practical recommendations are provided for improving bank performance and policy effectiveness.

Chapter Six highlights the limitations of the study and suggests directions for future research, including expanding the dataset, incorporating additional variables, and applying advanced methodologies.

Overall, the study concludes that internal management efficiency, particularly in credit risk and liquidity management, plays a crucial role in determining bank profitability in Bangladesh.

<u>Certificate of Anti-Plagiarism</u>

It is certified that the Internship Report titled "***An Empirical Study on Internal and External Factors Affecting the Profitability of Commercial Banks in Bangladesh"*** submitted by Md. Jahidul Islam (ID No.12117020) of the Department of Finance and Banking, Comilla University has been examined with the anti-plagiarism tool.

I undertake that:

I. The report has significant new work/knowledge as compared already published or are under consideration to be published elsewhere. No sentence, equation, diagram, table, paragraph or section has been copied verbatim from previous work unless it is placed under quotation mark and duly referenced.
II. The work presented is original and own work of the author i.e. there is no plagiarism. No ideas, processes, results or words of others have been presented as the author's own work.
III. There is no fabrication of data or results which have been compiled and analyzed.
IV. There is no falsification by manipulating research materials, equipment or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

N.B. Plagiarism Checker Report received from the Department of Finance and Banking, Comilla University is also enclosed along with this Summary of Results.

Date: 20-04-2026

Place: Cumilla

....……………….
Md. Jahidul Islam
(Student)

List of Abbreviation

Acronyms	Full meaning
ROA	Return on Assets
NPL	Non-Performing Loan
LIQ	Liquidity Ratio
CIR	Cost-to-Income Ratio
SIZE	Bank Size
GDP	Gross Domestic Product
INT	Interest Rate
INF	Inflation Rate
OLS	Ordinary Least Squares
VIF	Variance Inflation Factor
CSR	Corporate Social Responsibility
CSE	Small and Medium Enterprises
DSE	Dhaka Stock Exchange
CSE	Chittagong Stock Exchange
PLS	Profit and Loss Sharing
BB	Bangladesh Bank

Table of Content

Chapter Name	Particulars		Page
Chapter-01			
Introduction	1.1	Introduction	2
	1.2	Background of the study	3
	1.3	Problem Statement	4
	1.4	Scope of the study	4
	1.5	Research Question	4
	1.6	Objective of the study	5
	1.7	Organization of the report	5
Chapter-02			
Literature Review	2.1	Literature Review	7
	2.2	Dependent Variable	9
	2.3	Independent Variable	10
Chapter-03			
Research Methodology	3.1	Research Design	11
	3.2	Sampling Design	11
	3.3	Data Source and Collection	11
	3.4	Method of Data Analysis	12
	3.5	Model Specification	12
	3.6	Conceptual Framework	13
	3.7	Statistical Test	14
	3.8	Hypothesis Development	15
Chapter-04			
Organizational Overview	4.1	Introduction	17
	4.2	History of Sonali Bank PLC	17
	4.3	Vision of the Bank	18
	4.4	Mission of the Bank	18
	4.5	Strategic Objective	18
	4.6	Bank Profile	19
	4.7	Business Areas of Bank	20
	4.8	Service offered by Bank	20
	4.9	Credit Rating of Bank	21
	4.10	SWOT Analysis of Bank	22
	4.11	Overview of others Commercial Bank	23

Chapter-05			
Analysis & Findings	5.1	Descriptive Statistics	27
	5.2	Correlation Analysis	27
	5.3	Multicollinearity Test	28
	5.4	Regression Analysis (OLS)	29
	5.5	Hypothesis Summary	30
	5.6	Diagnostic Test	31
Chapter-06			
Conclusion and Recommendation	6.1	Conclusion	34
	6.2	Recommendations	35
	6.3	Contribution of the study	36
	6.4	Limitations of the study	36
	6.5	Direction for Future Report	37
	6.6	References	38
	6.7	Appendix	39
	6.8	Plagiarism Test Report	40

Chapter-01
Introduction

Chapter Name	Particulars		Page
Chapter-01			
Introduction	1.1	Introduction	2
	1.2	Background of the study	3
	1.3	Problem Statement	4
	1.4	Scope of the study	4
	1.5	Research Question	4
	1.6	Objective of the study	5
	1.7	Organization of the report	5

1.1 Introduction

Banking industry is generally known to be one of the most significant sectors of the economic system of a country. It is very crucial in mobilizing savings, making investment easy, encouraging trade and commerce, and in making sure that financial activities run smoothly. In third world economies such as Bangladesh, the commercial banks have even greater importance to play since they are the ones contributing directly to the economic growth, creation of employment and stability of finances. Commercial banks performance and profitability is therefore not only critical to the banks but also to the entire economy. One of the major indicators of financial performance and operational efficiency of a bank is profitability. It is a reflection of the level of efficiency with which a bank is making use of its resources to earn income. Return on Assets (ROA) is one of the most common measures of profitability due to its ability to show how effectively the bank management is utilizing the bank assets to earn profits. An increase in ROA means that management is doing a better job and using the resources effectively whereas a decrease in ROA means that the management is not efficient and may be weak financially. But the profitability of commercial banks is not determined by one factor. It is determined by a mix of both internal and external factors. Internal factors are variables that are bank specific and are under the control of the management like non-performing loans (NPL), liquidity ratio (LIQ), cost-to-income ratio (CIR) and bank size. As an example, the high non-performing loans may decrease the profitability due to the higher credit risk and loss of interest revenues. Equally, high cost-to-income ratio is an indication of poor cost management, which can impact negatively on the earnings of a bank.

External factors, on the other hand, are macroeconomic variables which the bank management cannot directly control but which affect the banking operations to a considerable extent. These are the Gross Domestic Product (GDP), interest rates (INT) and inflation rates (INF). Banking profitability is positively correlated with economic growth in general since more people require loans and financial services, which are provided by the banking sector. On the other hand, high inflation and variable interest rates may cause uncertainty and influence the behavior of lending and borrowing. The banking sector in Bangladesh has seen significant changes throughout the years. Although this has been achieved, the industry still experiences a lot of problems including growth of non-performing loans, management inefficiency, lack of proper governance and susceptibility to macroeconomic shocks. These issues are of concern regarding the sustainability and profitability of commercial banks in the long run. This research paper seeks to undertake an empirical research to determine the internal and external influences on profitability of the sampled commercial banks in Bangladesh. The article concentrates on the five banks, i.e., Sonali Bank, IFIC Bank, Islami Bank, Janata Bank, and Rupali Bank between 2019 and 2023. The study uses statistical software of Stata and Excel to analyze the relationship between variables using secondary data that was gathered through financial reports. This study is expected to have valuable implications to policymakers, bank management, and researchers in comprehending the main drivers of bank profitability.

1.2 Background of the Study

Banks have greatly developed in Bangladesh in recent decades, becoming one of the key elements of the financial system in the country. In financial intermediation, commercial banks, state-owned and privately owned, are very important in directing the money of the savers to the borrowers. Three economic activities supported by this process of intermediation include industrial growth, trade and development of infrastructure. Although the banking sector has been expanding, the issue of profitability is a key concern. The high rates of non-performing loans, ineffective cost structure, and insufficient risk management practices are common challenges facing banks in Bangladesh. These internal inefficiencies directly affect their ability to generate profits. Of these, the non-performing loans are of the utmost importance since they decrease the income and pose the threat of financial instability.

Another significant aspect that has an impact on profitability is liquidity management. Although having adequate liquidity is important in satisfying the short-term commitments, having too much may lead to idle resources that could be used to earn income. On the same note, cost-to-income ratio indicates the efficiency with which a bank is operating its operating costs. When the ratio is high, there is inefficiency and this lowers the overall profitability.

The size of bank is also regarded to be a significant predictor of profitability. The larger banks can enjoy the economies of scale, enhanced diversification, and access to financial resources. Nevertheless, bureaucracy and inefficiency may also be a challenge to them. Besides internal forces, external macroeconomic forces also have a strong impact on the performance of the bank. Since economic growth in the form of GDP often brings good environment to banking operations through demand credit, the economy can expand the credit demand.

Inflation impacts on the purchasing power of money and it may have an impact on interest rate and lending habits. In turn, interest rates have a direct influence on the income of a bank (through loans and investments). The time frame 2019-2023 is of special interest to analyze because it comprises economic shocks like the global pandemic and its recovery stages. All these events have resulted in a substantial influence on the internal affairs of banks and the external economic setting.

This paper will examine the five commercial banks chosen in Bangladesh, namely, Sona Bank, IFIC Bank, Islami Bank, Janata Bank and Rupali Bank to identify the effects of internal and external factors on profitability. The research will seek to give a holistic picture of the determinants of bank performance in Bangladesh through the analysis of these aspects.

1.3 Problem Statement

Commercial banks have been experiencing severe challenges in terms of profitability both because of internal inefficiencies and unfavorable external economic conditions in Bangladesh. Financial performance of most banks has been affected by high levels of non-performing loans, lack of proper cost management, and inefficient use of resources. Simultaneously, macroeconomic instability in the form of swings in the GDP growth, inflation and interest rates has also complicated the situation.

Although these factors are important, there is no empirical analysis which is in-depth and which explores internal and external determinants of bank profitability at the same time in the context of Bangladesh. This study, therefore, aims to fill this gap by exploring the influence of these factors on the profitability of the chosen commercial banks.

1.4 Scope of the Study:

This research will only examine the profitability of five chosen commercial banks in Bangladesh Sonali Bank, IFIC Bank, Islami Bank, Janata Bank and Rupali Bank. The research will span a five-year timeframe, beginning in 2019 and ending in 2023 which will lead to a panel dataset.

The study is based on internal (NPL, LIQ, CIR, and Bank size) and external (GDP, Interest rate, and Inflation rate) variables that influence profitability, which is in terms of ROA. The data that will be used in this research is of the secondary type and will be obtained on the annual financial reports of the chosen banks and other economic sources.

The research results are limited to the banks that have been chosen and the time frame and might not be applicable to all banks in Bangladesh.

1.5 Research Questions

1. How does non-performing loans (NPL) affect the profitability (ROA) of commercial banks?
2. What is the impact of internal factors such as liquidity, cost efficiency, and bank size on profitability?
3. How do external macroeconomic variables like GDP, interest rate, and inflation influence bank profitability?
4. Which factors are the most significant determinants of profitability among the selected variables?
5. Is there a combined effect of internal and external factors on bank profitability?

1.6 Objectives of the Study

General Objective:
To analyze the impact of internal and external factors on the profitability of commercial banks in Bangladesh.

Specific Objectives:

1. To examine the relationship between non-performing loans (NPL) and profitability (ROA).
2. To analyze the effect of liquidity ratio (LIQ), cost-to-income ratio (CIR), and bank size on profitability.
3. To evaluate the influence of macroeconomic variables such as GDP, interest rate (INT), and inflation (INF) on bank profitability.
4. To identify the most significant factors affecting profitability among the selected variables.
5. To provide recommendations for improving the profitability and performance of commercial banks.

1.7 Organization of the Report

The report is divided into 6 chapters to give the study a systematized and well-structured way of presentation. The other chapters are put in the following order, with the exception of this introduction chapter: In **Chapter One**, the background of the study, problem statement, research objectives, scope of the study and research questions are presented. It gives a general idea of the subject of research and its importance. **Chapter Two** gives the literature review of the study. It also talks about the theoretical and empirical research that is pertinent to the topic of bank profitability, and the gap in the research, with which the study was based. **Chapter Three** outlines the research methodology, such as research design, data sources, sampling techniques, description of variables and model specification. It details also the statistical tools and techniques of analyzing the data. **Chapter Four** includes data analysis and findings. It involves descriptive statistics, correlation analysis, regression analysis and diagnostic tests to investigate the effect of independent variables on profitability. **Chapter Five** gives the conclusion and recommendations of the findings of the study. It has outlined the most important findings and provided some practical recommendations on how the banks can be made more profitable. **Chapter Six** outlines the limitations of the study and suggests directions for future research to enhance the scope and depth of similar studies in the future. Therefore, the report is well organized to make it clear, logically flowed and thoroughly analyze the research topic.

Chapter-02
Literature Review

Chapter Name	Particulars		Page
Chapter-02			
Literature Review	2.1	Literature Review	7
	2.2	Dependent Variable	9
	2.3	Independent Variable	10

2.1 Literature Review

The issue of profitability of commercial banks has been a popular subject in the sphere of finance and banking. There are many empirical studies that studied internal and external determinants of bank profitability in various countries and economic settings. The chapter examines the literature concerning the factors of non-performing loans (NPL), liquidity, cost efficiency, bank size, and the macroeconomic variables such as GDP, interest rate, and inflation.

Athanasoglou, Brissimis, and **Delis (2008)** are the authors of one of the most powerful investigations of the determinants of the bank profitability in the Greek banking sector. They found that both bank-specific and macroeconomic factors are influential to a large extent in determining profitability. They discovered the efficiency of management and cost control is very important in improving the performance of the bank and macroeconomic stability is positively associated with profitability. In a similar study, **Dietrich and Wanzenried (2011**) have studied the factors which determine the bank profitability in Switzerland and stated that internal variables like cost-to-income ratio and quality of assets play a significant role in determining profitability. Their analysis stressed the fact that a greater operating efficiency translates to an improved financial performance, but poor asset quality, as reflected by high non-performing loans, adversely reflects on profitability.

Within the framework of developing countries, **Sufian and Chong (2008)** examined banks in the Philippines, and discovered that liquidity and credit risk are bank-specific variables that are major determinants of profitability. They came up with the conclusion that effective liquidity management and reduced credit risk positively affect the performance of the banks. These findings are especially applicable to Bangladesh where banks frequently face problems with liquidity management and the increase in non-performing loans. One of the most critical factors that have been found to impact the profitability of banks is the non-performing loans (NPL). **Louzis, Vouldis,** and **Metaxas (2012**) argue that an increased amount of NPL diminishes the profitability of the bank considerably because of higher provisioning levels and lower levels of interest income. This observation is found in both the developed and the developing economies and underscores the value of proper management of credit risk.

Another critical factor that determines the profitability of banks is liquidity. **Bourke (1989**) discovered that the more liquid the banks, the less profitable, since the banks end up with idle resources due to excess liquidity. Nevertheless, it needs a moderate amount of liquidity to be stable financially and able to fulfill the short-term commitments. Thus, it is essential to have an optimal liquidity level to increase profitability. One measure of operational efficiency, the cost-to-income ratio (CIR), is frequently used. According to studies like **Molyneux** and **Thornton (1992**), a lower CIR is linked to high profitability since it is an indicator of excellent cost management. Cost structures that are inefficient may severely decrease profits of a bank and hence cost control is crucial in financial performance.

Bank size is another factor that is important in determining profitability. **Goddard, Molyneux** and **Wilson (2004)** suggest that bigger banks may enjoy economies of scale, diversification and accessibility of financial markets, which may lead to increased profitability. But at some stage, it might result into inefficiencies and decreased performance because of the bureaucratic complexities. Besides the internal factors, the macroeconomic variables are also important in the determination of the bank profitability. Bank profitability is positively correlated with GDP growth, which represents a positive economic climate, which boosts demand of financial services. Other studies like **Bikker** and **Hu (2002)** established that economic growth results in the increase of loan demand and quality of assets and this increases profits.

Inflation has a mixed impact on bank profitability. **Perry (1992)** explains that when inflation is expected, the banks can readjust the interest rates and continue to make profits. But unexpected inflation may lead to adverse impact on profitability by raising expenses and creating uncertainties. Likewise, the bank earnings are directly affected by interest rates, which affect the lending and deposit rates. The changes in the interest rates may also make or break the profitability based on the management of the interest rates by the banks. With reference to Bangladesh, a number of studies have been done on the determinants of bank profitability. The study by **Rahman, Hamid,** and **Khan (2015)** revealed that non-performing loans and operating efficiency are key factors influencing the profitability of Bangladeshi banks. Their research revealed the need to enhance credit risk management and minimize the inefficiencies in operations. **Islam** and **Nishiyama (2016)** conducted another study that examined how both internal and external factors affect the profitability of banks in South Asian countries, which include Bangladesh. They found that asset quality and efficiency are bank-specific factors that are more important than macroeconomic variables in determining the profitability.

On the whole, the literature indicates that internal and external variables have a considerable impact on the bank profitability. Its internal factors like NPL, liquidity, cost efficiency, and bank size are directly influenced by bank management whereas external factors like GDP, inflation and interest rates are influenced by the overall economic environment. The majority of the researches highlight that internal factors are more likely to be stronger and direct in their effects on profitability whereas external factors are indirectly related to profitability. This paper is an improvement of the existing body of literature since it analyzes the joint impact of internal and external factors on the profitability of the considered commercial banks in Bangladesh during the years (**2019-2023**). Through the recent information and application of statistical analysis software like Stata, the research will offer a more up-to-date information on what influences the bank profitability in Bangladesh.

2.2 Dependent Variable

Return on Assets (ROA):
ROA measures a bank's profitability by indicating how efficiently it uses its assets to generate profit. A higher ROA reflects better performance.

2.3 Independent Variables

Non-Performing Loans (NPL):
Indicates credit risk. Higher NPL reduces profitability due to lower income and higher losses.

Liquidity Ratio (LIQ):
Measures the bank's ability to meet short-term obligations. Excess liquidity may lower profitability.

Cost-to-Income Ratio (CIR):
Represents operational efficiency. A higher ratio means higher costs and lower profitability.

Bank Size (SIZE):
Measured by total assets. Larger banks may benefit from economies of scale and higher profitability.

Gross Domestic Product (GDP):
Reflects economic growth. Higher GDP generally increases bank profitability.

Interest Rate (INT):
Affects lending and borrowing. Changes in interest rates influence bank income.

Inflation Rate (INF):
Shows the rise in price level. It can positively or negatively affect profitability depending on economic conditions.

Chapter-03
Research Methodology

Chapter Name	Particulars		Page
Chapter-03			
Research Methodology	3.1	Research Design	11
	3.2	Sampling Design	11
	3.3	Data Source and Collection	11
	3.4	Method of Data Analysis	12
	3.5	Model Specification	12
	3.6	Conceptual Framework	13
	3.7	Statistical Test	14
	3.8	Hypothesis Development	15

3.1 Research Design

The research paper will be based on a quantitative research design to investigate how internal and external factors affect profitability of commercial banks in Bangladesh. The study is empirical in nature, in that it is grounded on real data obtained through credible secondary sources. The research employs a panel data (a mixture of cross-sectional data (five banks) and time-series data (five years between 2019 and 2023).

The study has Return on Assets (ROA) as the dependent variable, which determines the profitability of the bank. The independent variables are both internal such as Non-Performing Loans (NPL), Liquidity Ratio (LIQ), Cost-to-Income Ratio (CIR), and Bank Size, and external variables such as Gross Domestic Product (GDP), Interest Rate (INT), and Inflation rate (INF).

The annual financial reports of the sampled banks and other pertinent economic sources have been used to gather secondary data. Statistical software like Stata and Microsoft Excel are used to analyze the data. Descriptive statistics, correlation analysis and regression analysis will be used to determine the relationship between variables and the extent to which they influence profitability. Generally, this research design is appropriate in determining cause and effect relationships and offer empirical data on what determines bank profitability.

3.2 Sampling Design

The research employs purposive sampling method to choose the sample banks. Five commercial banks have been sampled in Bangladesh; Sonali Bank, IFIC Bank, Islami Bank, Janata Bank, and Rupali Bank. Such banks have been selected as they are a sample of state-owned and private commercial banks and also, have accessible and uniform financial data.

The sample time frame includes five years, 2019 to 2023. Thus, it is a balanced panel dataset (25 observations (5 banks x 5 years)) comprising of 25 observations. The sampling design ensures that the selected banks provide a representative view of the banking sector in Bangladesh. The study, however, is restricted to these chosen banks and the time frame.

3.3 Data Source and Collection

This paper relies on secondary data gathered through credible and authentic sources. The financial information of the chosen banks is gathered on their published annual reports of 2019-2023. These reports give comprehensive data on the financial performance such as profitability, loans, assets and expenses.

There are macroeconomic statistics like Gross Domestic Product (GDP), interest rate (INT) and inflation rate (INF) that have been gathered through different official sources like the reports of Bangladesh Bank and also through other accepted economic publications. The data are presented in a panel structure, a cross-sectional (different banks) and time-series (different years) data. The analysis has been done using 25 observations (5 banks x 5 years).

3.4 Method of Data Analysis

The research takes the quantitative approach to research the data and determine the correlation between variables. Statistical software such as **Stata** and **Microsoft Excel** are used for data analysis. Analysis consists of the descriptive statistics to summarize data, correlation analysis to determine the relationship between variables and regression analysis to quantify the effect of independent variables on the dependent variable (ROA). The regression analysis helps to identify the significance and direction (positive or negative) of the relationship between profitability and the selected internal and external factors.

3.5 Model Specification

To examine the impact of internal and external factors on bank profitability, the following multiple regression model is used:

$$\mathbf{ROA} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 X_1} + \boldsymbol{\beta_2 X_2} + \boldsymbol{\beta_3 X_3} + \boldsymbol{\beta_4 X_4} + \boldsymbol{\beta_5 X_5} + \boldsymbol{\beta_6 X_6} + \boldsymbol{\beta_7 X_7} + \boldsymbol{\varepsilon}$$

Where:

$\boldsymbol{X_1}$= Non-Performing Loans (NPL)
$\boldsymbol{X_2}$= Liquidity Ratio (LIQ)
$\boldsymbol{X_3}$= Cost-to-Income Ratio (CIR)
$\boldsymbol{X_4}$= Bank Size (SIZE)
$\boldsymbol{X_5}$= Gross Domestic Product (GDP)
$\boldsymbol{X_6}$= Interest Rate (INT)
$\boldsymbol{X_7}$= Inflation Rate (INF)
$\boldsymbol{\beta_0}$= Intercept
$\boldsymbol{\varepsilon}$ = Error term

This model is used to estimate how each independent variable affects the profitability of commercial banks in Bangladesh.

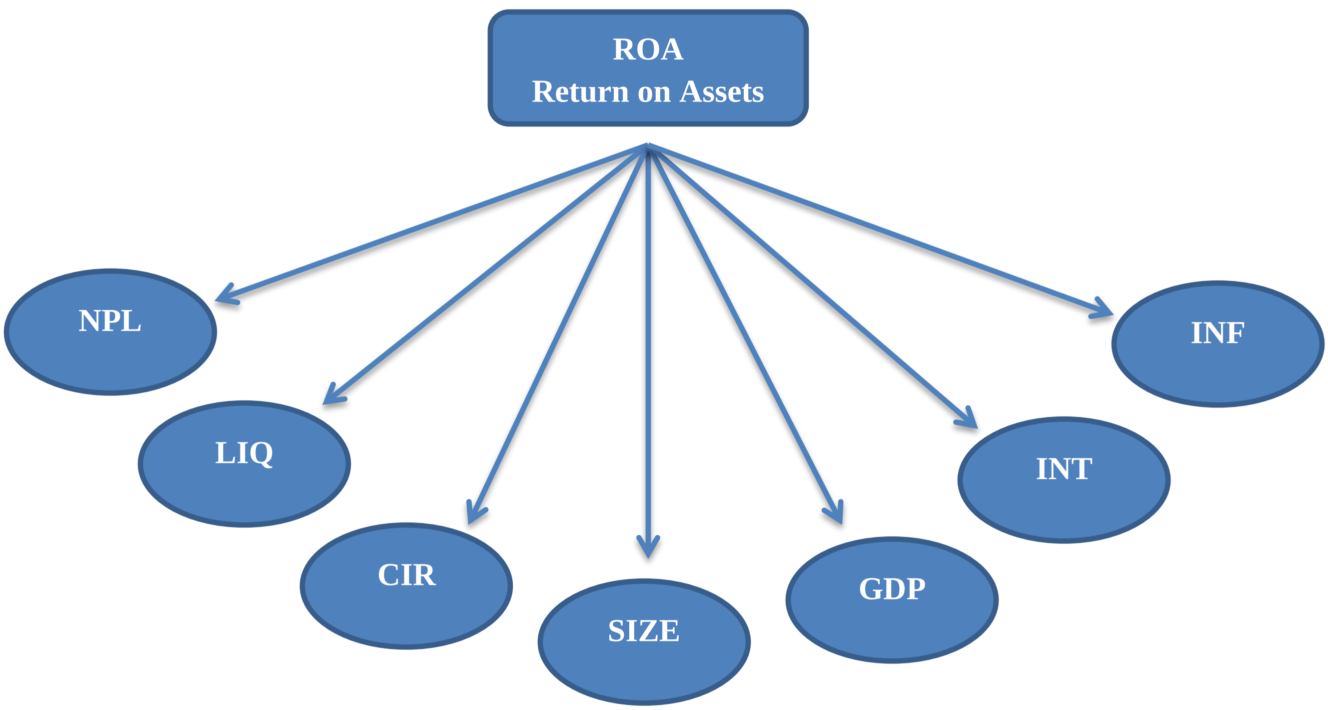
3.6 Conceptual Framework

This research has a conceptual framework that shows how the independent variables relate to the dependent variable. The dependent variable in this study is bank profitability, which is the **Return on Assets** (ROA).

The independent variables will be classified into two groups; internal factors and external factors. The **Non-Performing Loans** (NPL), **Liquidity Ratio** (LIQ), **Cost-to-Income Ratio** (CIR), and **Bank Size** (SIZE) are internal factors. Such variables directly depend on the inner processes of the bank and its efficiency in the sphere of management. **Gross Domestic Product** (GDP), **Interest Rate** (INT) and **Inflation Rate** (INF) are external factors which are the macroeconomic environment.

The model presupposes the direct influence of internal and external factors on the profitability of banks. The internal factors will have a more direct and regulable impact, whereas the external factors will influence profitability indirectly via economic conditions.

Dependent Variable



Independent Variable

Figure: Conceptual Framework

3.7 Statistical Tests

In the study, various statistical and econometric tests have been undertaken to ascertain the validity, reliability and robustness of the empirical results. The tests will assist in testing the association between variables and checking the assumptions of the regression model.

To start with, Descriptive Statistics help to present the fundamental characteristics of the data. Mean, maximum, minimum, standard deviation, skewness and kurtosis are calculated in order to interpret distribution and variability of the variables.

Secondly, the Correlation Analysis is performed to investigate the level and direction of relationship between variables (NPL, LIQ, CIR, SIZE, GDP, INT, INF) and the dependent variable (ROA). The test assists in determining the relationship between variables as being positive or negative and offers an initial insight into the relationship.

Thirdly, Variance Inflation Factor (VIF) Test is used to identify multicollinearity among independent variables. A VIF above 10 is a sign of severe multicollinearity. The VIFs in this research are all in the acceptable range, which means that the problem of multicollinearity is not severe.

Fourthly, Ordinary Least Squares (OLS) Regression Analysis is undertaken to determine the effects of independent variables on the profitability of the bank. The overall model significance is tested by the F-test and the significance of individual variable is tested by t-tests.

Diagnostic Tests are also conducted to make sure that regression results are reliable. To test heteroskedasticity, Breusch-Pagan/Cook-Weisberg test is applied, with the null hypothesis stating that the error terms can be of the same variance. The results indicate no heteroskedasticity problem. Also, the Wooldridge test of autocorrelation is used to test panel data to determine serial correlation. The results indicate that the problem of autocorrelation is not present in the model.

3.8 Hypothesis Development

Based on theoretical and empirical literature, the following hypotheses are developed to examine the relationship between independent variables and bank profitability:

H1: Non-Performing Loans (NPL) have a negative impact on ROA.

H2: Liquidity Ratio (LIQ) has a significant impact on ROA.

H3: Cost-to-Income Ratio (CIR) has a negative impact on ROA.

H4: Bank Size (SIZE) has a positive impact on ROA.

H5: Gross Domestic Product (GDP) has a positive impact on ROA.

H6: Interest Rate (INT) has a significant impact on ROA.

H7: Inflation Rate (INF) has a significant impact on ROA.

These hypotheses will be tested using regression analysis to determine whether the relationships are statistically significant.

Chapter-04
Organizational Overview

Chapter Name	Particulars		Page
Chapter-04			
Organizational Overview	4.1	Introduction	17
	4.2	History of Sonali Bank PLC	17
	4.3	Vision of the Bank	18
	4.4	Mission of the Bank	18
	4.5	Strategic Objective	18
	4.6	Bank Profile	19
	4.7	Business Areas of Bank	20
	4.8	Service offered by Bank	20
	4.9	Credit Rating of Bank	21
	4.10	SWOT Analysis of Bank	22
	4.11	Overview of others Commercial Bank	23

4.1 Introduction

This chapter provides an overview of **Sonali Bank Limited**, its history, organizational structure, key operations, and role in SME financing. Understanding the organizational background is essential to contextualize the study and interpret the impact of SME credit financing on the bank's profitability.

4.2 History of Sonali Bank PLC

Sonali Bank Limited is the largest state-owned commercial bank in Bangladesh, and its history is closely linked with the country's post-independence economic reconstruction. The bank was established in 1972 following the nationalization of major commercial banks after the independence of Bangladesh. It was formed through the merger of the East Pakistan operations of the National Bank of Pakistan, Bank of Bahawalpur, and Premier Bank.

Since its inception, Sonali Bank has played a significant role in supporting the economic development of Bangladesh. The bank has been actively involved in financing key sectors such as agriculture, industry, trade, and Small and Medium Enterprises. Through its lending activities, it has contributed to increasing production, generating employment, and promoting overall economic growth.

During the 1980s and 1990s, Sonali Bank expanded its branch network extensively across the country, ensuring access to banking services in both urban and rural areas. This expansion helped in enhancing financial inclusion and mobilizing savings from different segments of the population.

In the 2000s, with the advancement of technology in the banking sector, Sonali Bank gradually adopted modern banking systems, including computerized operations, online banking, and digital services. These developments improved operational efficiency and customer service quality.

In 2007, the bank was corporatized and transformed into a public limited company under the name Sonali Bank Limited. This transformation introduced a more structured corporate governance framework and improved operational management. In recent years, the bank has been operating as Sonali Bank PLC, aligning with modern corporate practices and regulatory standards.

At present, Sonali Bank PLC operates with a wide network of over 1,200 branches across Bangladesh. It plays a vital role in handling government transactions, facilitating remittances, supporting foreign trade, and promoting SME financing.

Overall, the history of Sonali Bank PLC reflects its continuous contribution to the financial sector and economic development of Bangladesh, making it a key pillar of the country's banking industry.

4.3 Vision of the Bank

"Socially committed leading banking institution with global presence."

As the biggest state-owned commercial bank in Bangladesh, Sonali Bank PLC provides a comprehensive range of services comparable to those of Bangladesh Bank. The bank upholds a strong commitment to social responsibility and strives to maintain a global presence as it progresses toward growth and excellence.

Sonali Bank PLC is dedicated to pursuing excellence at every stage, fostering a culture of continuous improvement, guided by the belief that the journey toward excellence has no end. By implementing strategic planning and expanding its business network, the bank aims to enhance its competitive edge in an increasingly dynamic environment. Its focus on personalized, high-quality services, coupled with a commitment to constant improvement, serves as a cornerstone for achieving operational success.

4.4 Mission of the Bank

Sonali Bank PLC is dedicated to providing a wide array of high-quality products tailored to meet the varied needs of individuals, enhance lives, deliver value to stakeholders, and support the socio-economic development of the nation.

Slogan: "Credible and Smart"

4.5 Strategic Objectives of Sonali Bank PLC

The strategic objectives of Sonali Bank Limited are designed to ensure sustainable growth, financial stability, and effective contribution to the economic development of Bangladesh. These objectives guide the bank's long-term planning and operational activities.

1. **Enhancing Profitability and Financial Performance**
   The bank aims to improve its profitability by efficiently utilizing its resources, increasing interest income, and maintaining cost control.
2. **Strengthening SME Financing**
   A key objective is to expand credit facilities to Small and Medium Enterprises (SMEs) to promote entrepreneurship, employment, and economic growth.
3. **Reducing Non-Performing Loans (NPLs)**
   The bank focuses on improving credit risk management and reducing default loans to ensure financial stability and sustainability.
4. **Promoting Financial Inclusion**
   Sonali Bank seeks to extend banking services to rural and underserved areas, ensuring access to financial services for all segments of society.

5. **Digital Transformation and Technological Advancement**
   The bank aims to adopt modern banking technologies, including online and digital banking services, to enhance operational efficiency and customer experience.
6. **Improving Customer Service Quality**
   Providing efficient, reliable, and customer-centric services is a key strategic priority to increase customer satisfaction and loyalty.
7. **Ensuring Strong Corporate Governance**
   The bank is committed to maintaining transparency, accountability, and ethical standards in all its operations.

4.6 Sonali Bank Profile in a nutshell

CORPORATE PROFILE

Name of the Company	**Sonali Bank PLC**
Chairman	Muhammed Mahbubur Rahman
Managing Director & Chief Executive Officer	Md. Shawkat Ali Khan
Company Secretary	Md. Mahtab Hossain
Legal Status	Public Limited Company
Genesis	Sonali Bank PLC was established in 1972 as a nationalized commercial bank under the Bangladesh Bank (Nationalization) Order, 1972 (PO No. 26 of 1972), through the merger of the National Bank of Pakistan, Bank of Bahawalpur, and Premier Bank (Bangladesh Bank, 1972).
Date of Incorporation	03 June, 2007
Data of Vendor's Agreement	15 November, 2007
Registered Office	35-42, 44 Motijheel Commercial Area, Dhaka, Bangladesh
Authorised Capital	Taka 6000.00 Crore
Paid-up Capital	Taka 4530.00 Crore
Number of Employee	18,187
Number of Branchs	1234
Phone-PABX	0257161080-88
FAX	88-02-9561410, 9552007
SWIFT	BSONBDDH
Website	https://www.sonalibank.com.bd
E-mail	info@sonalibank.com.bd

4.7 Business Areas of Sonali Bank PLC

Sonali Bank Limited operates in several key business areas to provide a wide range of banking services in Bangladesh. The major areas are briefly described below:

- **Corporate Banking:** Provides loans and financial services to large businesses and industries.
- **SME Banking:** Offers credit facilities to small and medium enterprises to support business growth and employment.
- **Retail Banking:** Delivers services like savings accounts, deposits, and personal loans to individual customers.
- **Agricultural Banking:** Provides loans to farmers and agro-based businesses for rural development.
- **Foreign Exchange Business:** Handles import-export financing, remittances, and international trade services.
- **Government Banking:** Manages government transactions such as revenue collection, salaries, and pensions.
- **Treasury Operations:** Deals with investments, government securities, and liquidity management.
- **Digital Banking:** Offers online banking, ATM, and mobile banking services for customer convenience.

4.8 Service Offered by Sonali Bank PLC

Sonali Bank Limited provides a wide range of banking and financial products to serve individuals, businesses, and institutions across Bangladesh. The major products are categorized as follows:

1. Deposit Products	• **Savings Accounts** • **Current Accounts** • **Fixed Deposit Accounts (FDR)** • **Short Term Deposits (STD)**
2. Loan and Credit Products	• **Personal Loans** • **SME Loans** • **Agricultural Loans**. • **Industrial Loans** • **Consumer Credit**
3. SME Financing Products	• **Working Capital Loans** • **Term Loans for SMEs** • **Women Entrepreneur Loans**
4. Foreign Exchange and Trade Services	• **Import and Export Financing** • **Letter of Credit (LC) Services** • **Foreign Remittance Services**

5. Digital and Online Banking Services	• **ATM Services** • **Online Banking** • **Mobile Banking**
6. Government and Public Sector Banking	• **Handling government transactions, including salary disbursement, pensions, and revenue collection.**

4.9 Credit Rating of Sonali Bank PLC

Credit rating is an important indicator of a bank's financial strength, stability, and ability to meet its financial obligations. It provides stakeholders, including investors, depositors, and regulators, with an assessment of the bank's creditworthiness.

Sonali Bank PLC, being one of the largest state-owned commercial banks in Bangladesh, is regularly evaluated by recognized credit rating agencies such as Credit Rating Agency of Bangladesh Limited (CRAB) and Emerging Credit Rating Limited (ECRL). These agencies assess the bank based on various factors including asset quality, capital adequacy, management efficiency, earnings performance, and liquidity position.

According to recent available reports, Sonali Bank PLC has been assigned a **moderate to satisfactory credit rating**, reflecting its strong government backing but also indicating certain weaknesses in areas such as non-performing loans and operational efficiency. The bank typically receives a rating in the category of **"A" (Single A)** in the long term, which suggests adequate safety regarding timely repayment of financial obligations, although it may be somewhat vulnerable to adverse economic conditions.

For the short-term rating, Sonali Bank is often rated in the **"ST-2" or equivalent category**, indicating a satisfactory capacity for timely repayment in the short run.

The credit rating of Sonali Bank is supported by its large asset base, extensive branch network, and strong government ownership. However, challenges such as high levels of non-performing loans (NPLs), lower profitability, and operational inefficiencies have a negative impact on its rating. The credit rating reflects a balanced view of Sonali Bank's strengths and weaknesses. While the bank benefits from government support and market presence, it needs to improve its asset quality and operational efficiency to achieve a higher rating in the future.

Year	Long-Term Rating	Short-Term Rating
2023	A1	ST-2
2022	A+	ST-2
2021	A+	ST-2
2020	A	ST-2
2019	A	ST-2
2018	A+	ST-2
2017	A+	ST-2
2016	A+	ST-2
2015	A+	ST-2
2014	A+	ST-2

4.10 SWOT Analysis of Sonali Bank PLC

A SWOT analysis helps to evaluate the internal strengths and weaknesses, as well as external opportunities and threats of Sonali Bank PLC.

Strengths

- Sonali Bank is the **largest state-owned commercial bank** in Bangladesh with a strong market presence.
- It has an **extensive branch network** across urban and rural areas, ensuring wide customer coverage.
- The bank enjoys **strong government support**, which enhances its credibility and financial stability.
- It plays a key role in handling **government transactions, remittances, and large-scale financing**.

Weaknesses

- The bank suffers from a **high level of non-performing loans (NPLs)**, which negatively affects profitability.
- **Operational inefficiency and bureaucratic processes** slow down decision-making.
- Compared to private banks, Sonali Bank is relatively **less advanced in technology and digital services**.
- Lower profitability and **inefficient cost management** remain key concerns.

Opportunities

- Expansion of **digital banking and online services** can improve efficiency and customer satisfaction.
- Increasing demand for **SME and retail banking services** offers growth potential.
- Government development projects create opportunities for **large-scale financing and investment**.

- Adoption of **modern banking technologies** can enhance competitiveness.

Threats

- Intense **competition from private and foreign banks** with better service quality and innovation.
- Rising **non-performing loans** in the banking sector may increase financial risk.
- Changes in **government policies and regulations** may impact operations.
- Economic instability and inflation can negatively affect banking performance.

4.11 Overview of others Commercial Bank

4.11.1 Overview of IFIC Bank

IFIC Bank PLC is one of the prominent private commercial banks in Bangladesh. It was established in 1976 as a joint venture between the Government of Bangladesh and private sector entrepreneurs with the aim of promoting investment and economic development. Later, in 1983, the bank was converted into a full-fledged commercial bank as part of the government’s financial sector reforms.

The bank is listed on both the Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE), and its ownership structure includes government, institutional, and individual investors. IFIC Bank operates through a wide network of branches and sub-branches across the country, ensuring financial services reach both urban and rural areas.

IFIC Bank offers a comprehensive range of banking services including retail banking, corporate banking, SME financing, and Islamic banking. In recent years, the bank has emphasized digital transformation by introducing mobile banking, internet banking, and agent banking services to improve customer convenience and operational efficiency.The bank is also known for its financial inclusion initiatives, particularly through innovative products designed for low-income customers. Its strategic focus includes improving asset quality, strengthening risk management, and enhancing customer service.

IFIC Bank operates under a structured corporate governance framework and follows regulatory guidelines set by Bangladesh Bank. Over time, it has achieved steady growth in deposits, loans, and customer base. IFIC Bank plays an important role in the banking sector of Bangladesh by contributing to financial stability, supporting economic activities, and adapting to modern banking practices.

4.11.2 Overview of Islami Bank

Islami Bank Bangladesh PLC is one of the leading and largest private commercial banks in Bangladesh, operating based on Islamic Shariah principles. It was established in 1983 as the first Islamic bank in South Asia, with the objective of providing interest-free banking services and promoting ethical financial practices.

The bank follows a profit-and-loss sharing (PLS) system instead of conventional interest-based operations. It offers a wide range of services including investment (loan) facilities, deposit schemes, foreign trade financing, and remittance services, all in compliance with Islamic Shariah. Its investment portfolio mainly focuses on sectors such as agriculture, industry, small and medium enterprises (SMEs), and trade.

Islami Bank has a strong presence across Bangladesh with a large network of branches, sub-branches, and agent banking outlets. This wide coverage enables the bank to provide financial services to both urban and rural populations. In recent years, the bank has also expanded its digital services, including mobile banking and online banking platforms, to improve customer accessibility and service efficiency. The bank places strong emphasis on social welfare and financial inclusion. It supports various socio-economic development programs, including poverty alleviation, education, and healthcare initiatives.

In terms of performance, Islami Bank has shown steady growth in deposits, investments, and customer base over the years. It operates under a robust corporate governance structure and is regulated by Bangladesh Bank. Islami Bank Bangladesh PLC plays a significant role in the country's banking sector by offering Shariah-based financial services, promoting ethical banking, and contributing to economic development.

4.11.3 Overview of Janata Bank

Janata Bank PLC is one of the largest state-owned commercial banks in Bangladesh. It was established in 1972 under the Bangladesh Banks (Nationalization) Order following the independence of the country. The bank was formed through the merger of several banks that operated in the then East Pakistan, with the objective of strengthening the banking system and supporting economic development.

Janata Bank plays a vital role in the financial sector by providing a wide range of banking services, including general banking, corporate banking, SME financing, agriculture loans, and foreign trade services. The bank is particularly known for its involvement in financing large-scale industries, export-import businesses, and government projects.

The bank has an extensive branch network across Bangladesh, including rural and remote areas, which helps in promoting financial inclusion and supporting grassroots economic activities. It also operates overseas branches to facilitate remittance inflows, which are an important source of foreign exchange for the country.

Janata Bank operates under the direct supervision of the Government of Bangladesh and follows the regulatory guidelines of Bangladesh Bank. In recent years, the bank has taken steps to modernize its operations by introducing online banking, automation, and digital services to improve efficiency and customer service.

However, like many state-owned banks, Janata Bank faces challenges such as high non-performing loans and operational inefficiencies. Despite these challenges, it continues to play a significant role in supporting the country's economic growth and development. Janata Bank PLC remains a key contributor to Bangladesh's banking sector through its wide service coverage, government support, and commitment to economic progress.

4.11.4 Overview of Pubali Bank

Pubali Bank PLC is one of the oldest and largest private commercial banks in Bangladesh. It was established in 1959 as Eastern Mercantile Bank Limited during the period of East Pakistan. After the independence of Bangladesh in 1971, the bank was nationalized and later privatized in 1983, becoming Pubali Bank Limited. Since then, it has been operating as a private commercial bank with a strong reputation in the banking sector.

The bank provides a wide range of financial services, including general banking, retail banking, corporate banking, SME financing, agriculture loans, and foreign trade services. Pubali Bank is particularly known for its strong involvement in trade finance and support for small and medium enterprises, which contribute significantly to the country's economic development.

Pubali Bank has an extensive branch network across Bangladesh, including urban, semi-urban, and rural areas. This wide coverage allows the bank to provide banking services to a large number of customers and promote financial inclusion. In recent years, the bank has introduced modern banking technologies such as online banking, ATM services, and mobile banking to improve efficiency and customer convenience.The bank operates under a structured corporate governance framework and follows the regulations of Bangladesh Bank. It emphasizes stability, customer satisfaction, and sustainable growth.

Over the years, Pubali Bank has achieved steady growth in deposits, loans, and profitability. Despite facing challenges such as increasing competition and changing economic conditions, the bank continues to maintain a strong position in the banking sector. Pubali Bank PLC plays an important role in the financial system of Bangladesh by providing reliable banking services and supporting economic activities across the country.

Chapter-05
Analysis & Findings

Chapter Name	Particulars		Page
Chapter-05			
Analysis & Findings	5.1	Descriptive Statistics	27
	5.2	Correlation Analysis	27
	5.3	Multicollinearity Test	28
	5.4	Regression Analysis (OLS)	29
	5.5	Hypothesis Summary	30
	5.6	Diagnostic Test	31

5.1 Descriptive Statistics

Stats	Mean	Std. Dev.	Max	Min	N	Range	Kurtosis	Skewness	p50
ROA	0.3816	0.250	0.81	0.03	25	0.78	1.954661	0.338443	0.34
NPL	8.528	5.918	18.37	2.73	25	15.64	1.741027	0.6310582	5.61
LIQ	24.552	12.669	48.23	6.62	25	41.61	2.427199	0.5788666	22.32
CIR	54.7736	30.042	86.38	0.8	25	85.58	2.535513	-0.9413001	62.85
Size	13.7736	0.579	14.4992	12.7849	25	1.71426	1.718641	-0.3870529	13.9479
GDP	6.22	1.593	7.9	3.4	25	4.5	2.425194	-0.8808875	6.9
INT	7.956	0.920	9.56	7.12	25	2.44	2.244511	0.8571702	7.57
INF	6.39	1.360	9.02	5.54	25	3.48	3.108735	1.405547	5.65

Table-01: Discriptive Statistics

This section presents the descriptive statistics of the variables of the study. The average ROA of 0.3816 indicates that there is an average level of profitability among the commercial banks, and the standard deviation of 0.250 indicates that there is not much fluctuation. The means of NPL are 8.528 with a standard deviation of 5.918, which implies that there is high variability of credit risk across banks. The average liquidity ratio (LIQ) has been 24.552 with a standard deviation of 12.669 to indicate a significant variation in the liquidity position across banks.

The mean of the cost to income ratio (CIR) is 54.77 with a large standard deviation of 30.042, indicating that there is a wide range of operational efficiency. The standard deviation of bank size (SIZE) is low at 0.579, which means that the sizes of the sampled banks are not too different. The standard deviation of the macroeconomic variables is 1.593, the standard deviation of interest rate (INT) and inflation (INF) are 0.920 and 1.360, respectively, which means that there are moderate changes in the economic environment.

5.2 Correlation Analysis:

Variables	ROA	NPL	LIQ	CIR	Size	GDP	INT	INF
ROA	1							
NPL	-0.6872	1						
LIQ	-0.2228	0.6315	1					
CIR	-0.3195	0.6616	0.5301	1				
Size	-0.5227	0.4347	0.3062	-0.173	1			
GDP	0.1656	0.0055	-0.1418	-0.0309	-0.0058	1		
INT	-0.036	0.1488	-0.0035	-0.0228	-0.1213	0.0934	1	
INF	0.0617	0.0263	-0.2324	0.0085	0.0982	-0.1106	-0.2887	1

Table 2: Correlation Matrix

The correlation table shows the relationship of the dependent variable (ROA) and the independent variables that were employed in the study.

The findings reveal that NPL (-0.6872), CIR (-0.3195) and SIZE (-0.5227) have negative relationships with ROA, meaning that an increase in non-performing loans, operating expenses and bank size is related to a decrease in profitability. Among them, NPL is the most negatively correlated with ROA, which implies that credit risk has a potent negative impact on the performance of the bank.

Conversely, ROA is positively related with LIQ (0.2228) and GDP (0.1656) which means that better liquidity and economic growth is positively correlated with the profitability of banks. Interest rate (INT = -0.036) however, exhibits a very weak negative correlation whereas inflation (INF = 0.0617) has a weak positive correlation with ROA.

Some of the independent variables have moderate correlations (e.g., NPL with LIQ = 0.6315, and NPL with CIR = 0.6616), though none of them surpass the critical value, which means that there is no serious problem of multicollinearity.

5.3 Multicollinearity Test (VIF)

Variable	VIF	1/VIF
NPL	5.31	0.188227
CIR	4.45	0.224775
Size	3.05	0.327745
LIQ	2.27	0.440699
INT	1.44	0.696825
INF	1.33	0.753372
GDP	1.07	0.931061
Mean VIF	2.7	

Table-03: Multicollinearity Test

Variance Inflation Factor (VIF) test was used to investigate the existence of multicollinearity amongst the independent variables.

The findings indicate that there is no single value of VIF that are exceeding the critical value of 10. The value of VIF is maximum with NPL (5.31), then with CIR (4.45) and SIZE (3.05), the rest of the variables have even smaller values. The average VIF is 2.7 and this is also acceptable. Such findings suggest that none of the explanatory variables has a severe issue of multicollinearity. Thus, it is appropriate that all variables can be included in the regression model.

5.4 Regression Analysis (OLS)

ROA	Coefficient	Std. err.	t	P>t	[95% conf.	interval]
NPL	-0.03447	0.0117595	-2.93	0.009	-0.059281	-0.0096599
LIQ	0.0123824	0.0035901	3.45	0.003	0.0048079	0.019957
CIR	-0.00146	0.00212	-0.69	0.5	-0.005933	0.0030124
Size	-0.176921	0.0911046	-1.94	0.069	-0.369135	0.0152932
GDP	0.0437031	0.0196384	2.23	0.04	0.0022697	0.0851364
INT	0.0281216	0.0393014	0.72	0.484	-0.054797	0.1110404
INF	0.060901	0.0255703	2.38	0.029	0.0069523	0.1148497
Constant	2.003656	1.419258	1.41	0.176	-0.990716	4.998028

Number of obs	**25**
F(7,17)	7.40
Prob > F	0.0004
R-squared	0.7528
Adj R-squared	6510
Root MSE	0.14793

Table-04: Regression Analysis

The Ordinary Least Squares (OLS) regression model was employed to analyze the impact of internal and external determinants on the profitability (ROA) of commercial banks in Bangladesh.

According to the results of the regression analysis, Non-Performing Loans (NPL) has a statistically significant negative influence on ROA (, = -0.0345, p = 0.009). It means that a rise in loan defaults strongly lowers the level of bank profitability and therefore the proper management of credit risks is essential.

On the other hand, Liquidity Ratio (LIQ) has a positive and significant correlation with ROA (= 0.0124, p = 0.003) indicating that more liquid banks are in a better position to make profits.

Cost to Income Ratio (CIR) however, has a negative albeit not significant impact on profitability (15 = -0.0015, p = 0.500) meaning that operating efficiency does not play a crucial role in ROA in this model.

Likewise, the Bank Size (SIZE) has a negative correlation with ROA (0.1769) and is of low significance (0.069). This indicates that increased profitability in the larger banks may decline, though it is not strong.

Among the macroeconomic variables, Gross Domestic Product (GDP) is significantly affects ROA (b = 0.0437, p = 0.040) indicating that economic growth positively affects the profitability of banks.

The Interest Rate (INT) has a positive and not statistically significant relationship with the ROA (= 0.0281, p = 0.484). This implies that the effect of interest rate variations on the profitability of banks in this research is not strong and consistent.

Conversely, there is a positive and statistically significant impact of Inflation rate (INF) on ROA (= 0.0609, p = 0.029) whereby moderate inflation can help result in higher bank earnings, which could be due to higher interest margins.

All in all, regression results indicate that internal and external factors do affect the bank profitability where NPL has a negative effect and the other three variables the LIQ, GDP and INF have a positive effect on the ROA.

5.5 Hypothesis Summary:

This section summarizes the hypotheses developed in the study and their empirical results based on the regression analysis.

Hypothesis	Relationship	Result
H1: NPL → ROA	Negative	**Accepted (Significant)**
H2: LIQ → ROA	Positive	**Accepted (Significant)**
H3: CIR → ROA	Negative	**Rejected (Insignificant)**
H4: SIZE → ROA	Negative	**Rejected (Insignificant)**
H5: GDP → ROA	Positive	**Accepted (Significant)**
H6: INT → ROA	Positive	**Rejected (Insignificant)**
H7: INF → ROA	Positive	**Accepted (Significant)**

The empirical evidence shows NPL has a considerable adverse effect on the profitability of banks, which proves that increasing credit risk decreases ROA. Conversely, liquidity (LIQ) has a strong positive correlation implying that liquidity management is positively related to profitability.

Among the macroeconomic variables, GDP and inflation (INF) are positively related to ROA, which means that the economic growth and average inflation enhance the performance of banks. However CIR and SIZE are statistically insignificant meaning that the operational efficiency and bank size do not have a very strong impact on profitability in the given model. On the same note, interest rate (INT) is not significant, implying that it is not a significant factor in the determination of ROA.

5.6 Diagnostic Tests

To ensure the validity and reliability of the regression model, diagnostic tests for heteroskedasticity and autocorrelation were conducted.

5.6.1 Heteroskedasticity Test

H0: Constant variance	
chi2(1)	2.81
Prob > chi2	0.0938

Table-06: Heteroskedasticity test

Breusch-pagans/cook-weisberg test was used to test the existence of heteroskedasticity on the model.

The chi-square value results in the test are that, Chi-square = 2.81 and p-value = 0.0938 which is more than the p-value = 0.05. Thus the null hypothesis of equal variance cannot be rejected. This shows that the model does not exhibit any heteroskedasticity issue, and the error terms are homogeneous.

5.6.2 Autocorrelation Test

H0: no first-order autocorrelation	
F(1, 4)	1.277
Prob > F	0.3217

Table-07: Autocorrelation Test

Wooldridge autocorrelation test in panel data was used to test whether there is serial correlation among the error terms.

The result of the test indicates that the F-value is **1.277**, and the p-value is **0.3217**, which is more than **0.05**. Thus, the null hypothesis of the absence of first-order autocorrelation cannot be rejected. This implies that the panel data does not have the autocorrelation issue.

On the whole, the findings of the diagnostic tests prove that the model does not have heteroskedasticity and autocorrelation problems. Therefore, regression estimates are valid and can be used to further analyse the panel data.

Chapter-06
Conclusion and Recommendation

Chapter Name	Particulars		Page
Chapter-06			
Conclusion and Recommendation	6.1	Conclusion	34
	6.2	Recommendations	35
	6.3	Contribution of the study	36
	6.4	Limitations of the study	36
	6.5	Direction for Future Report	37
	6.6	References	38
	6.7	Appendix	39
	6.8	Plagiarism Test Report	40

6.1 Conclusion

The present study has been carried out to analyze how the internal and external factors influence profitability of the selected commercial banks in Bangladesh during the 2019-2023. The study is informed by panel data gathered on five banks; Sonali Bank, IFIC Bank, Islami Bank, Janata Bank, and Rupali Bank, based on the secondary data derived on the annual financial reports. Profitability is represented by the Return on Assets (ROA) and other explanatory variables include Non-Performing Loans (NPL), Liquidity Ratio (LIQ), Cost-to-Income Ratio (CIR), Bank Size (SIZE), Gross Domestic Product (GDP), Interest Rate (INT), and Inflation rate (INF).

The findings of the descriptive statistics indicate that the bank-specific variables are more varied than the macroeconomic variables; NPL, LIQ, and CIR. This implies that internal factors vary greatly among banks, and they are critical in the financial performance. The correlation analysis also supports that there is a negative relationship between NPL and CIR and profitability and a positive correlation between SIZE and GDP and ROA.

The OLS model regression analysis shows that the general model is statistically significant and has good explanatory power based on the value of the R-squared. NPL is among the independent variables that affect profitability negatively and thus, an increased level of non-performing loans will lower the earnings of a bank. This observation underscores the need to ensure credit risk is well addressed in order to ensure financial stability.

Liquidity Ratio (LIQ) has been found to positively and statistically significantly affect ROA, meaning that effective management of liquidity leads to increased profitability. Nevertheless, too much liquidity can also cause underutilization of resources indicating the possibility of a balanced liquidity. Despite negative correlation with profitability, the Cost-to-Income Ratio (CIR) proves to be statistically insignificant, which is why operational efficiency might not be a powerful factor in this model. Bank Size (SIZE) demonstrates discrepant findings in various models. Although it does not play a major role in the OLS regression, it is significant in the Fixed Effects model, which implies that bigger banks might have economies of scale when individual bank characteristics are taken into account.

GDP and Inflation (INF) are macroeconomic variables that affect profitability positively and significantly, implying that good economic performance and moderate inflation boost bank performance. Interest Rate (INT), on the other hand, does not reveal any significant effect, which means that its impact on profitability is not that strong in this research.

The diagnostic tests reveal that the model is not affected by any significant econometric problems like heteroskedasticity and autocorrelation, and the results are reliable. Moreover, the Hausman test shows that the Random Effects model is more suitable in this analysis, and therefore, individual bank-specific effects are not highly correlated with the explanatory factors.

In general, the results of this paper indicate that internal variables, especially non-performing loans and liquidity management have a stronger and direct effect on the profitability of banks than external macroeconomic factors. Credit risks and liquidity management is thus critical in enhancing the financial performance of the commercial banks in Bangladesh. Meanwhile, macroeconomic stability is also supportive in increasing profitability.

Finally, the paper offers empirical data to support the claim that internal efficiency as well as external economic environment are significant determinants of the bank profitability. Nevertheless, more focus should be put on enhancing internal management practices in order to achieve sustainable growth and stability within the banking sector.

6.2 Recommendations

Considering the empirical results of this research, some recommendations can be offered to enhance the profitability of commercial banks in Bangladesh. These suggestions are concerned with the internal management practice and external policy considerations.

- **Firstly,** reducing Non-Performing Loans (NPL) should be the top priority for banks. Banks need to enhance their credit risk management systems since NPL has a big negative effect on profitability. This can be done by ensuring that there is proper borrower evaluation, stringent loan approval procedures, periodic monitoring of loans and proper recovery strategies. Modern risk assessment tools and enhancement of internal control mechanisms should also be incorporated by banks in attempts to minimize the risk of default.
- **Secondly,** banks need to concentrate on effective management of liquidity. The research concludes that the liquidity is positively affecting profitability, i.e., it is good to have sufficient liquidity. Nonetheless, when the liquidity is too high, it can cause stagnant capital and low returns. As a consequence, banks ought to strive to have the right amount of liquidity by striking a balance between safety and profitability. It should then be managed by proper asset-liability management techniques that would ensure efficient utilization of funds.
- **Thirdly,** there is no statistical significance in the Cost-to-Income Ratio (CIR), but it shows efficiency in operations. Banks ought to make the appropriate moves to cut operating expenses through embracing recent technology, automation of banking services, and enhancing managerial effectiveness. Increased profitability in the long term can be achieved with cost control measures.
- **Fourthly,** banks need to leverage the benefits of bigger bank size. Economies of scale and diversification as well as access to financial resources can be enjoyed by the larger banks. Thus, banks ought to pay attention to expansion strategies, innovation, and digital banking services in order to enhance efficiency and competitiveness.

- **Fifthly,** macroeconomic factors such as GDP and inflation have a positive influence on profitability. Banks cannot influence these factors, but it is necessary to pay closer attention to economic trends and change the strategies. To illustrate, banks are able to increase their lending activities during boom times, and on the other hand, during inflationary times, the banks ought to be keen with the interest rates, and costs.
- **Lastly,** banks ought to invest in new technology and qualified human resources to improve on efficiency and quality of service. Online transformation and employee education can enhance the performance of operations and customer satisfaction significantly and eventually result in increased profitability.

Also, the management of interest rates should be enhanced. Although in this study interest rates are established to be insignificant, changes in interest rates can still have impacts on banking activities. Banks ought to devise strategies of dealing with interest rate risks like having a balanced portfolio of assets and liabilities.

Politically, policy makers through regulatory bodies such as Bangladesh Bank ought to have stricter regulations to curb non-performing loans as well as the transparency of the banking activities. Close oversight and sound policy execution can enhance the general stability of the banking industry. To sum up, internal management practices especially in credit risk and liquidity management and adjusting to the macroeconomic conditions are the key to increasing the profitability and sustainability of commercial banks in Bangladesh.

6.3 Contribution of the study

This paper is relevant to comprehending the determinants of the profitability of banks in Bangladesh through the analysis of internal and external factors. It applies recent panel data (20192023) of five commercial banks, which is why the findings are very relevant and up to date.

The analysis utilizes the use of higher order econometric methods like OLS and diagnostic test that increases the credibility of findings. It also determines some of the key determinants of profitability such as non-performing loans and liquidity. Also, the results can contribute to the better financial performance and decision-making of bank management and policymakers. The research can also be used in the future as a reference in this field.

6.4 Limitations of the Study

Despite the fact that this research offers a lot of insights on the determinants of bank profitability in Bangladesh, it is limited in a number of ways that must be noted.

- **Firstly,** the study is based on a small sample size, as it includes only five commercial banks. Thus, the results might not be completely reflective of the whole banking industry in Bangladesh. More banks might be included to give a more generalizable result.

- **Secondly,** the research deals with a short time span (20192023). A longer time horizon would be able to include more economic cycles and would be more robust. The chosen time also comprises some unusual economic circumstances, including the COVID-19 pandemic, which might have affected the outcomes.
- **Thirdly,** the analysis is completely based on secondary data gathered by annual reports and published sources. The quality of the results will depend on the reliability and consistency of these data sources. Any mistakes or discrepancies in the reported data can have an impact on the findings.
- **Fourthly,** the research takes into account only a few variables. Although some of the major internal and external factors are captured, other critical variables like the quality of management, competition in the market, changes in the regulations and technological developments are not factored in since there is no data available. Also, the research relies solely on quantitative research methods and lacks qualitative research. This study does not capture factors like managerial choices, corporate governance, and organizational culture that also could affect profitability.
- **Fifthly,** the applied econometric models (OLS, Fixed Effects, and Random Effects) presuppose some statistical assumptions. Despite the diagnostic tests, some factors that influence profitability and are not embedded in the model might be unobservable.
- **Finally,** although the research presents valuable results, these limitations indicate that the findings are to be viewed with some hesitation. The possible ways to overcome these limitations in future research are the involvement of more banks, prolonged time, more variables, and mixed research methods.

6.5 Direction for Future Report

The current study can be further developed in a number of ways to further the knowledge on the profitability of banks in Bangladesh. Future studies can involve using a bigger sample size by involving more commercial banks in order to enhance the generalization of the findings.

A longer period of time can also be taken into account by the researchers to represent various economic cycles and offer more solid findings. Moreover, the variables can be increased in the future research by incorporating additional variables like corporate governance, market competition, and technological innovation to obtain deeper insights.

In addition, this might be enhanced by integrating quantitative and qualitative methods which would give a more detailed analysis of the performance of banks. Further econometric methods can be also used to obtain more precise results. On the whole, further studies can enhance this study by providing a broader range of data, methodology, and coverage to understand the determinants of bank profitability.

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Websites:

Serial Number	Name of Website	Website Link
1	Bangladesh Bank	https://www.bb.org.bd/en/index.php
2	Sonali Bank PLC	https://www.sonalibank.com.bd/
3	IFIC Bank PLC	https://ificbank.com.bd/
4	Islami Bank Bangladesh PLC	https://www.islamibankbd.com/
5	Janata Bank PLC	https://www.jb.com.bd/
6	Google Scholar	https://scholar.google.com/
7	ResearchGate	https://www.researchgate.net/

6.7 Appendix:

Banks Name	Year	ROA	CAR	NPL	LIQ	CIR	Size	GDP	INT	INF
Sonali Bank Ltd.	2023	0.35	10.07	13.25	40.27	67.87	14.50	5.8	7.57	9.02
Sonali Bank Ltd.	2022	0.21	10.05	14.83	48.23	73.9	14.40	7.1	7.12	6.15
Sonali Bank Ltd.	2021	0.21	10.04	17.32	48.22	75.67	14.35	6.9	7.23	5.54
Sonali Bank Ltd.	2020	0.21	10.02	18.37	50.02	74.61	14.28	3.4	8.3	5.65
Sonali Bank Ltd.	2019	0.2	10.09	20.32	41.57	77.74	14.20	7.9	9.56	5.59
IFIC Bank Ltd.	2023	0.51	11.82	7.99	13.69	70.46	13.17	5.8	7.57	9.02
IFIC Bank Ltd.	2022	0.68	12.78	5.61	15.86	62.85	13.05	7.1	7.12	6.15
IFIC Bank Ltd.	2021	0.52	13.1	6.09	18.04	55.72	12.91	6.9	7.23	5.54
IFIC Bank Ltd.	2020	0.17	12.24	3.97	18.49	69.21	12.78	3.4	8.3	5.65
IFIC Bank Ltd.	2019	0.81	12.8	5.37	19.09	51.13	12.67	7.9	9.56	5.59
Islami Bank Ltd.	2023	0.32	12.62	4.32	6.04	0.82	13.95	5.8	7.57	9.02
Islami Bank Ltd.	2022	0.34	12.54	3.7	6.62	0.8	14.16	7.1	7.12	6.15
Islami Bank Ltd.	2021	0.3	13.54	3.3	19.84	0.81	14.31	6.9	7.23	5.54
Islami Bank Ltd.	2020	0.35	13.55	3.41	19.86	0.82	14.42	3.4	8.3	5.65
Islami Bank Ltd.	2019	0.5	12.95	3.82	6.88	0.75	14.52	7.9	9.56	5.59
Janata Bank Ltd.	2023	0.04	6.75	16.8	13.82	92.28	14.14	5.8	7.57	9.02
Janata Bank Ltd.	2022	0.09	7.83	8.67	15.84	86.38	14.06	7.1	7.12	6.15
Janata Bank Ltd.	2021	0.24	8.98	9.47	31.96	84.7	14.04	6.9	7.23	5.54
Janata Bank Ltd.	2020	0.01	10.05	14.7	30.69	82.14	13.86	3.4	8.3	5.65
Janata Bank Ltd.	2019	0.03	10.03	18.09	23.28	85.8	13.71	7.9	9.56	5.59
Pubali Bank Ltd.	2023	0.89	13.87	2.86	22.32	49.75	13.61	5.8	7.57	9.02
Pubali Bank Ltd.	2022	0.79	13.84	2.62	23.44	55	13.48	7.1	7.12	6.15
Pubali Bank Ltd.	2021	0.65	14.23	3.05	27.41	53.08	13.35	6.9	7.23	5.54
Pubali Bank Ltd.	2020	0.7	14.73	2.73	30.13	54.27	13.24	3.4	8.3	5.65
Pubali Bank Ltd.	2019	0.48	13.8	4.38	23.4	48.63	13.08	7.9	9.56	5.59