

An Internship Report On
“Internal Efficiency and External Environment: Their Impact on Bank Profitability 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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Letter of Transmittal

20th April 2026

Dr. Mohammad Jashim Uddin

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Subject: Submission of Internship Report on “**Internal Efficiency and External Environment: Their Impact on Bank Profitability in Bangladesh.**”

Honorable Sir,

With due respect, I would like to submit my internship report titled “**Internal Efficiency and External Environment: Their Impact on Bank Profitability 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 from Sonali 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 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,

.....

Akash Raj Bongshi

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Session: 2020-21

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Acknowledgment

First of all, I want to thank God for giving me the strength and determination to finish this research. This research report is a vital element of the BBA program providing a significant opportunity to examine **“Internal Efficiency and External Environment: Their Impact on Bank Profitability in Bangladesh.”**

I am truly thankful to my academic supervisor **Dr. Mohammad Jashim Uddin**, Lecturer in the Department of Finance and Banking at Comilla University for her invaluable guidance, encouragement and support during the writing of this report. Her knowledge and advice have been very helpful in getting me through this study.

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Lastly, I want to thank everyone who reads this internship report and everyone who might benefit from it now or in the future. I also want to thank all of my professors in the Department of Finance & Banking at Comilla University for believing in me and pushing me to do my best in my career.

Student Declaration

Myself, Akash Raj Bongshi student of Bachelor of Business Administration (BBA) Department of Finance and Banking bearing ID: 12117020 hereby declare that the internship report titled **“Internal Efficiency and External Environment: Their Impact on Bank Profitability in Bangladesh.”** represents the result of my own work conducted under the supervision of **Dr. Mohammad Jashim Uddin**, Lecturer 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.

.....

Akash Raj Bongshi

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Supervisor's Declaration

20 April 2026

This is to certify that the research report on **“Internal Efficiency and External Environment: Their Impact on Bank Profitability in Bangladesh.”** has been completed by Akash Raj Bongshi ID No: 12117045, Registration No.: 12117045, 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.

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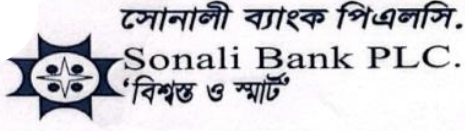
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Experiment Certificate



ওয়াপদা বিল্ডিং শাখা, কুমিল্লা।

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

Date: 14/04/2026

To Whom It May Concern

This to certify that *Akash Raj Bongshi*, S/O *Bimal Raj Bongshi & Gita Raj Bongshi* student of Department of Finance and Banking of Comilla University, session: 2020-2021 bearing ID: 12117045 had successfully completed his internship program on “**Internal Efficiency and External Environment: Their Impact on Bank Profitability 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.


Manager
Sonali Bank PLC.
Wapda Building Branch, Cumilla.

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Executive Summary

The study provides a thorough framework for understanding what affects bank profits and helps people in the banking industry make better choices.

The research is based on a quantitative and explanatory design using secondary data collected from the annual reports of six commercial banks Sonali Bank PLC, Janata Bank PLC, Agrani Bank PLC, IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC over a five-year period from 2019 to 2023. A purposive sampling technique is applied to ensure the inclusion of both state-owned and private sector banks.

The study incorporates both internal and external variables. Internal factors include Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Statutory Liquidity Ratio (SLR), Cost-to-Income Ratio (CIR), and Bank Size while external factors include GDP growth, interest rate, and inflation rate. Panel data regression techniques, including pooled OLS, Fixed Effects and Random Effects models are used to analyze the relationship between these variables and bank profitability. Various statistical tests such as correlation analysis, multicollinearity test, Hausman test, heteroskedasticity test and autocorrelation test are conducted to ensure the robustness of the results.

The findings of the study are expected to show that internal efficiency factors, particularly NPL and cost management play a significant role in determining profitability while macroeconomic variables also influence bank performance to varying degrees. The study highlights that both internal management practices and external economic conditions must be considered together for a comprehensive understanding of bank profitability.

This research contributes to the existing literature by integrating both internal and external determinants using recent panel data in the context of Bangladesh. It provides practical implications for bank management, policymakers, and investors by identifying key areas for improving efficiency and financial performance. Overall, the study offers a comprehensive framework for understanding the factors that influence bank profitability and supports better decision-making in the banking sector.

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CHAPTER-01

INTRODUCTION

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1.1 Introduction

Banking is a key component in the economic growth of any nation, through financial intermediation, mobilization of savings and efficient allocation of resources. When a country is developing, as in the case of Bangladesh, the stability and performance of commercial banks is especially critical to maintain economic growth and financial stability. One of the most important measures of the financial health and the efficiency of the work of the bank is the profitability that denotes its capacity to make profits out of its assets and equity.

Internal and external factors are a combination that affects bank profitability. Bank management has the capability to control the internal efficiency factors and some of them are Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Statutory Liquidity Ratio (SLR), Cost-to-Income Ratio and Bank Size. These variables define the efficiency of the use of resources and management of risks in the bank. An example is that increased level of non-performing loans may have a negative effect on profitability whereas good capital adequacy and effective cost management would increase financial performance.

Conversely, external environmental factors are outside the control of individual banks but they have a great influence on their performance. Macroeconomic factors like the growth in the Gross Domestic Product (GDP), interest rate and inflation rate make a difference in the overall business environment where banks operate. To illustrate, there is a general increase in demand of banking services with a higher level of economic growth and a decline in both lending and deposit behavior due to inflation and varying rates of interest. The current study aims to examine how both internal efficiency and external environmental factors influence profitability of the chosen commercial banks in Bangladesh. The research will use six commercial banks, i.e. Sonali Bank PLC, IFIC Bank PLC, Islami Bank Bangladesh PLC, Janata Bank PLC, Pubali Bank PLC, and Agrani Bank PLC, within a period of five years (2019-2023). The dependent variable is Return on Equity (ROE) which measures the profitability whereas the independent variables are internal and external variables.

The key purpose of the study is to determine the key determinants of bank profitability and to compare the impact of both bank-specific and macroeconomic factors on financial performance. This study will give the bank management, policymakers and stakeholders important insights on how best to make decisions to better the efficiency and stability of the banking sector in Bangladesh.

1.2 Background of the Study

The banking sector is regarded as the backbone of financial system of a particular country and it is crucial to the economic growth as it routes finances on the excess units to the deficit units. The banking sector in Bangladesh has experienced a tremendous change in the last decades due to financial liberalization, regulatory changes and technological progress. Nevertheless, some

challenges such as increasing non-performing loans, unproductive cost structures and being affected by macroeconomic fluctuations are still being experienced in the sector.

Profitability is a very important aspect of the performance and sustainability of a bank. It shows the efficiency of a bank in the use of its resources to bring returns to its shareholders. Among different profitability indicators, Return on Equity (ROE) is widely used as it shows the efficiency of management in using shareholders' funds. But profitability of banks is not influenced by one factors, it is affected by the combination of both internal efficiency and external environmental conditions.

Internal factors that are more or less under control of the bank management contribute significantly to the determination of profitability. These are Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Statutory Liquidity Ratio (SLR) Cost-to-Income Ratio and Bank Size. The high rates of NPLs in Bangladesh have been a chronic concern especially in the state-owned banks like Sonali Bank PLC, Janata bank PLC and Agrani Bank PLC that usually have poor credit risk management and governance challenges. On the same note, poor cost management and allocation of capital may have a negative impact on the performance of banks.

Besides the internal factors, the external macroeconomic conditions also play a major role in determining the profitability of the banks. The Gross Domestic Product (GDP) growth, rate of interest, and inflation rate are variables that influence the general economic environment and banking activities. As an example, an increased GDP growth leads to higher levels of investment and borrowing activities that in turn increases the earnings of banks. On the other hand, uncertainty may be amplified by high inflation and unstable interest rates and hamper the ability of borrowers to repay loans and decrease profitability. The individual and government business banks (such as IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC) have been trying over the years to enhance their efficiency in operations and financial performance. Nevertheless, the overall effect of internal inefficiencies and external economic pressures continues to be a major challenge to attaining sustainable profitability.

In this light, it is necessary to carry out an empirical study on the interaction between variables of internal efficiency and the external environmental variables on the profitability of commercial banks in Bangladesh. Knowledge of these relationships will assist in determining major problem areas and give clues on how to enhance banking performance and financial stability in the long-term.

1.3 Problem statement

The banking industry in Bangladesh is very important in promoting economic development and the stability of finances. Nevertheless, the industry has been experiencing serious problems connected to a decreased profitability, rising number of non-performing loans and internal management inefficiency in the past few years. Many commercial banks continue to experience difficulties in the realization of stable financial performance despite numerous regulatory measures and reforms.

The large amount of Non-Performing Loans (NPLs), especially in state-owned commercial banks like Sonali Bank PLC, Janata Bank PLC, and Agrani Bank PLC is one of the most important issues in the banking sector of Bangladesh. High NPLs decrease the interest income of banks and raise provisioning requirements which eventually decrease profitability. Moreover, challenges like poor capital adequacy, great cost-to-income, and ineffective liquidity management also undermine the financial performance of banks.

Meanwhile, the external macroeconomic factors that add extra strain to bank profitability are the fluctuation of Gross Domestic Product (GDP), interest rates, and inflation rate. These are the things that individual banks have no control over but their operations and earnings are affected tremendously. To illustrate, fluctuating interest rates and inflation rates may influence borrowing patterns and repayment ability causing a greater financial risk.

Despite the fact that, past research has studied the determinants of bank profitability, the majority of the research has either considered the impact of individual factors or external factors and a little has been done in terms of integrating both factors in relation to Bangladesh.

Thus, a holistic approach that would consider the internal efficiency and the external environment should be carried out to evaluate the overall influence of these two variables on the bank profitability. This study will also attempt to address this gap in research by examining some of the commercial banks such as IFIC Bank PLC, Pubali Bank PLC, and Islami Bank Bangladesh PLC throughout the years 2019-2023. Through this, the study aims at establishing the most important variables that influence profitability and give an insight on how the efficiency and performance of the banking sector can be enhanced in Bangladesh.

1.4 Significance of the Study

Banking is an important sector of Bangladesh economy and because of this reason, the study of bank profitability is of great importance both academically and practically. This research study has added to the existing knowledge base by analyzing the combined effect of the internal efficiency factor and external environmental variable on the profitability of commercial banks.

To begin with, the study is important to the management and decision makers in the banks. The study can help banks to be better at operating efficiently and performing financially by determining the effects of internal factors like Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR),

Statutory Liquidity Ratio (SLR), Cost-to-Income Ratio and Bank Size on profitability. The results can guide the banks, such as Sonali Bank PLC, IFIC Bank PLC and Pubali bank PLC, to implement superior risk management and cost management strategies.

Secondly, the study is important for policymakers and regulatory authorities. The role of external macroeconomic variables like GDP growth, interest rate, and inflation rate could be used to assist the regulators to design efficient monetary and financial policies. The findings can assist the institutions such as the central bank to develop policies that promote stability and robustness within the banking industry.

Thirdly, the study will be useful to investors and other stakeholders who use profitability metrics to make sound investment choices. Using the Return on Equity (ROE) as a dependent variable and different determinants as independent variables, the study offers a better understanding of the financial performance and health of banks like Islami Bank Bangladesh PLC, Janata Bank PLC, and Agrani Bank PLC.

The result of this study will be important for various interested parties:

1. Bank Management: The results of this study will help the bank executives to understand key internal factors that they can control and improve to increase their profitability.
2. Policy Makers and Regulators: Understanding the impact of external factors will help the regulators and policy makers such as the Bangladesh Bank to develop effective monetary and fiscal policies that will help improve the performance of the banking industry.
3. Investors and Shareholders: Investors can make informed decisions regarding their investments in the banking sector by knowing what factors can affect their profits.
4. Academicians & Researchers: This study will provide empirical evidence and foundation to the future studies on the performance of the banking sector in the developing economies like Bangladesh.
5. Economic Development: With a successful and stable banking sector, the availability of credit will improve and therefore, economic growth, job creation and poverty alleviation will be experienced in Bangladesh.

This study is therefore of both academic and practical significance as it offers strategic recommendations on how to improve the financial stability and sustainability of commercial banks in Bangladesh.

1.5 Scope of The Study

This research paper aims at examining how internal efficiency and external environmental factors affect profitability of the chosen commercial banks in Bangladesh. The research will focus on six commercial banks, which include Sonali Bank PLC, IFIC Bank PLC, Islami Bank Bangladesh PLC, Janata Bank PLC, Pubali Bank PLC and Agrani Bank PLC.

The research will be conducted over a five-year span 2019-2023 by secondary data gathering annual reports of the sampled banks and other macroeconomic sources of data. Return on Equity (ROE) is the dependent variable used to measure the profitability of banks. The independent variables are further categorized into two groups: external factors and internal factors. The Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR) and Statutory Liquidity Ratio (SLR) are the internal efficiency factors. The other internal efficiency factors are Cost-to-Income Ratio and the Bank Size. These variables are bank specific and efficiency of operation. Conversely, external environmental factors are the Gross Domestic Product (GDP) growth, interest rate and the inflation rate, which represent the macroeconomic environment at large in terms of its impacts on the banking operations.

This is mainly a quantitative study, which uses statistical and econometric methods to examine the correlation between the dependent variable and independent variable. It is going to determine the effect of internal and external variables on the profitability of the banks selected in the sample and during the year.

The study however has a limited scope in a number of ways. It has taken into consideration just six banks and a given timeframe which may not be a true reflection of the whole banking industry in Bangladesh. Also, the research will be based on secondary data and this could be inherently limited in its accuracy and availability.

1.6 Research Questions

This research primarily aims at investigating the impact of internal efficiency and external environmental factors on bank profitability in Bangladesh. In order to meet this aim, the research questions to be answered in the study are:

Research Question:

- i. How do the overall effects of internal efficiency factors on the profitability (ROE) of the selected commercial banks in Bangladesh?
- ii. 2. What are the impacts of Non-Performing Loans (NPL) on the profitability of other banks like Sonali Bank PLC and Janata Bank PLC?
- iii. How Capital adequacy ratio (CAR) relates to bank profitability
- iv. What is the relationship between operational efficiency measures like Cost-to-Income Ratio and Bank Size and profitability?
- v. How does liquidity management through Statutory Liquidity Ratio (SLR) impact the performance of banks?
- vi. How do external macroeconomic factors such as GDP growth, interest rate, and inflation rate affect the profitability of banks like IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC?
- vii.** Which is the more influential group of factors (internal or external) on bank profitability in Bangladesh?

1.7 Objectives of The Study

Main Objectives:

The main objective of this study is to examine the impact of internal efficiency and external environmental factors on the profitability of selected commercial banks in Bangladesh.

Specific Objectives:

In order to accomplish the overall goal, the research considers the following specific goals:

- a) To examine the impact of Non-Performing Loans (NPL) on profitability (ROE) of selected commercial banks e.g., Sonali Bank PLC and Janata Bank PLC.
- b) To test the correlation between Capital Adequacy Ratio (CAR) and profitability of banks.
- c) To assess how Statutory Liquidity Ratio (SLR) affects the financial performance of banks.
- d) To determine the effects of Cost-to-Income Ratio on operational efficiency and profitability.
- e) To analyze the effect of Bank Size on profitability.
- f) To explore how macroeconomic factors like GDP growth, interest rate and inflation rate affect the profitability of banks in organizations like IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC.
- g) To determine the relative significance of internal efficiency variables and external environmental variables in the determination of bank profitability.

1.8 Research Gap

A lot of research has looked into what makes banks profitable, but there are still some important gaps in the literature, especially when it comes to Bangladesh.

Firstly, a lot of earlier research has mostly looked at either internal (bank-specific) factors or external (macroeconomic) variables on their own. But a bank's profits depend on both how well it runs its own business and how well the outside world works. Without integrated analysis, it's hard to fully understand how these factors work together to affect profitability.

Secondly, a lot of the research that is already out there is based on information from developed countries or earlier time periods. There aren't many recent empirical studies that use new data that reflects the current state of the economy, especially in Bangladesh. A lot has changed in the banking industry in the last few years, including changes to regulations, the rise of digital banking, and changes in the economy as a whole. These changes are not fully captured in earlier studies.

Thirdly, not many studies have looked at the differences between state-owned and private commercial banks in a fair way. In Bangladesh, state-owned banks like Sonali Bank PLC, Janata Bank PLC and Agrani Bank PLC often have different problems with their operations than private banks like IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC.

Fourthly, past research often only looked at a small number of variables and didn't take into account important factors like bank size, cost efficiency and liquidity management in a combined framework. Consequently, the comprehensive understanding of profitability determinants is still lacking.

Finally, there are few studies that use recent panel data techniques to look at how internal and external factors work together over time. This research seeks to address these deficiencies by utilizing panel data from six chosen commercial banks in Bangladesh for the period 2019–2023, integrating both internal efficiency and macroeconomic variables within a cohesive framework.

Consequently, this study seeks to enhance the current literature by offering a more thorough, contemporary and comparative examination of bank profitability in Bangladesh.

Chapter-02

Literature Review

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2.1 Literature Review

The factors that affect how profitable a bank is have been studied a lot in banking and financial literature. These factors include both internal (bank-specific) and external (macroeconomic) factors. In the context of Bangladesh and other developing economies, comprehending these factors is essential for improving banking efficiency and ensuring financial stability.

Demirgüç-Kunt and Huizinga (1999) were some of the first researchers to look at how bank profitability varies from country to country. They found that both bank-specific and macroeconomic factors have a big effect on how well banks do financially. Athanasoglou, Brissimis, and Delis (2008) similarly underscored that internal factors, including efficiency and asset quality, as well as external variables such as economic growth, are crucial in influencing bank profitability.

A significant number of studies have recognized Non-Performing Loans (NPL) as a primary factor influencing profitability. Berger and DeYoung (1997) discovered an inverse correlation between problem loans and bank efficiency, suggesting that elevated NPLs diminish profitability. This is especially important in Bangladesh, where state-owned banks like Sonali Bank PLC, Janata Bank PLC and Agrani Bank PLC have had problems with loan defaults and poor credit management in the past.

The Capital Adequacy Ratio (CAR) is another important internal factor. Goddard, Molyneux and Wilson (2004) say that banks with a lot of capital tend to make more money because they are less likely to go bankrupt. Flamini, McDonald, and Schumacher (2009) also found that capital strength and profitability were positively related in developing countries.

A lot of research has also been done on operational efficiency, which is often measured by the Cost-to-Income Ratio. Athanasoglou, Brissimis and Delis (2008) found that banks make a lot more money when they manage their costs better. The size of a bank, on the other hand, has mixed results. Smirlock (1985) said that bigger banks benefit from economies of scale, but other research shows that being too big can make things less efficient.

Macroeconomic factors also have a big effect on how much money banks make. Demirgüç-Kunt and Huizinga (1999) discovered that GDP growth positively influences bank earnings by enhancing the demand for financial services. On the other hand, inflation and interest rate volatility can hurt profits by making the financial system less stable.

Numerous studies have endeavored to evaluate bank performance within the context of Bangladesh. Studies show that private commercial banks like IFIC Bank PLC, Pubali Bank PLC, and Islami Bank Bangladesh PLC usually do better than state-owned banks when it comes to making money and being efficient. Nonetheless, both categories of banks continue to be susceptible to macroeconomic disturbances and internal inefficiencies.

Even though there is a lot of research on the subject, there is still a big gap in the research. Numerous prior studies have analyzed internal or external determinants in isolation, whereas scant research has synthesized both dimensions utilizing contemporary data. Consequently, this study

seeks to address this deficiency by examining the synergistic impact of internal efficiency and external environmental factors on bank profitability in Bangladesh from 2019 to 2023.

Lalon (2022), examining 11 traditional banks from 2012 to 2021 identified the macroeconomic and bank-specific factors influencing the profitability of commercial banks in Bangladesh. These findings indicate that although debt ratios positively influence profitability indicators such as NIM, operating expenses, the non-performing loan (NPL) ratio and the cost-to-income ratio adversely affect ROE. This study highlighted the importance of cost-effectiveness and credit risk management in enhancing bank profitability. Abdullah et al. (2014) say that in order to fix problems in the banking industry, you also need to know what affects the sector's profitability. Most of the changes the government has made to the way money works have been in the banking industry. Changes have been made to ownership, market concentration, rules, and policies to make banks work better. Rahman et al. (2015) examined various factors that may influence the profitability of banks in Bangladesh, including capital, risk, size, ownership structure, non-interest income relative to total assets, the cost-to-income ratio, off-balance sheet items in relation to total assets, total liabilities in relation to total debt, GDP growth rate, and inflation. They also found that loan intensity and capital strength, both equity and regulatory capital, have a big and positive effect on profitability. The results also show that off-balance sheet activities and cost-effectiveness hurt bank profits in a big way. Different profitability metrics are affected in different ways by other factors. GDP, credit risk, and non-interest income are significant determinants that affect NIM. Size has a positive and significant effect on ROA. Lastly, inflation has a big negative effect on both ROA and ROE.

Macroeconomic factors have a big effect on banks' profits, but the effect is different in different places. Several studies advocate for the utilization of advanced forecasting methodologies to anticipate future inflation trends, indicating that inflation (IF) exerts a substantial and advantageous influence on bank profitability among various macroeconomic factors. Several studies, however, have shown that GDP has little to no effect on the success of Bangladesh's commercial banks. This means that it shouldn't be a big part of investment strategy. The analysis reveals that exchange rates exert a substantial adverse effect on profitability, whereas stock market turnover has a negligible impact (Akther et al., 2023). Gazi et al. (2021) also found that the macroeconomic variable of GDP growth rate and company-specific factors (like the equity to asset ratio, deposit to asset ratio, debt to equity ratio, and loan to deposit ratio) have a statistically significant effect on profitability as measured by return on equity (ROE) and return on assets (ROA). Many economies around the world do research that looks at both macroeconomic and bank-specific factors. Bhatia, Mahajan & Chander (2012) and Sufian & Noor (2012) in India; Liu & Wilson (2010) in Japan; Shoaib, Wang, Jaleel & Peng (2015) in Pakistan; Sufian & Chong (2008) in the Philippines; Macit (2012), Alper and Anbar (2011), Alp, Ban, Demirgunes & Kilic (2010) in Turkey; Kosmidou, Tanna, and Pasiouras (2005), Sufian (2011) in Korea, Saeed (2014) in the United Kingdom, etc., conducted research on bank-specific factors that have a substantial impact on banks' profitability. Abdullah, Parvez and Ayreen (2014) and Dey (2014) conducted analogous studies from the viewpoint of Bangladesh.

The two main ways that research on how to judge competition in banks has been done are structural and non-structural. Businesses in the market are more likely to reach a collective price-output agreement that is close to the monopolistic ideal when there are fewer businesses and the market is more concentrated (Staikouras and Koutsomanoli-Fillipaki 2006, Berger and Hannan 1989).

The SCP hypothesis is supported by earlier studies by Heggstad and Mingo (1977), Spellman (1981), Rhoades (1982), and Lloyd Williams et al.(1994). Samad and Van Horne & Wachowicz Jr. use the financial link as a way to measure how well businesses are doing financially. Pandey asserts that comparing the organization's current financial ratio with historical data is the most effective method to determine whether the financial outcome has improved, declined or remained stable over time (Pandey 2004). The Bank gets money from shareholders. If the bank knows how to handle the risks and benefits, it can stay profitable. Mujeri and Younus's research shows that the interest rate differential is greatly affected by the need for regulatory reserves, financing costs, inflation rates, the share of the deposit market, classified loans, and lending charges (Mujeri & Younus, 2009).

Chowdhury and Ahmed say that between 2002 and 2006, the number of branches, employees, deposits, loans, advances, net earnings, and EPS all went up steadily. Recent studies on emerging banking markets have backed up the SCP hypothesis. These studies include Katib (2004) on Malaysia, Al-Muharrami and Mathews (2009) on the Arab Gulf Cooperation Council (GCC), Bhatti and Hussain (2010) on Pakistan, and Sharma and Bal (2010) on India. Mauricio Jara-Bertin, Jose Arias Moya, and Arturo Rodriguez Perales (2014) analyzed panel data from 78 commercial banks across Argentina, Brazil, Chile, Colombia, Mexico, Paraguay, Peru, and Venezuela from 1995 to 2010, revealing a positive correlation between capital adequacy and profitability. Demircug-Kunt and Huizinga (1999) found that banks with a higher equity ratio compared to their assets tend to do better. This assertion is corroborated by Dietrich & Wanzenried (2009), Garcia Herrero et al. (2009), Obamuyi (2013), Pasiouras and Kosmidou (2006), and Ben Naceur and Goaid (2008). Gul, Irshad and Zaman (2011) utilized data from the top 15 commercial banks in Pakistan from 2005 to 2009, employing the pooled Ordinary Least Squares (OLS) method to examine the correlation between macroeconomic and bank-specific factors in relation to bank profitability. They found that ROA, ROE, and NIM all improve when assets, loans, equity, and deposits are added. Hassan and Bashir (2003) have noted that measures of bank performance generally react positively to increased capital. Alp, Ban said that Turkish banks make less money when their costs of doing business go up. Kilic and Demircunes (2010). They also said that there is no statistically significant link between the profitability metrics and the ratio of total loans and receivables to total assets. Numerous scholars have analyzed the profitability of commercial banks, focusing on specific corporate elements or broader economic concerns. Sufian and Habibullah (2009) analyzed data from 1997 to 2004 to investigate the determinants of bank profitability in Bangladesh. The main conclusion of their study was that both bank size and inflation hurt profitability. They used Least Squares and Fixed Effect models to show that inflation hurt larger banks more than smaller ones, which shows how important macroeconomic issues are for profitability.

Later research, like Chowdhury and Salman (2021), backed up this conclusion about bank size. They also said that bigger banks in Bangladesh were not efficient because their cost-to-income ratios hurt their profits. Dey (2014) says that the cost-to-income ratio, capital adequacy, and credit risk are important things that are unique to each firm and have a big effect on how much money Bangladeshi commercial banks make. Sufian and Habibullah (2009) employed regression models in their study, yielding results that indicated non-conducting loans adversely impacted profitability, whereas enhanced capital adequacy and efficient cost control positively influenced profitability.

2.2 Dependent Variable

Return on Equity (ROE)

This study uses Return on Equity (ROE) as the dependent variable to figure out how profitable banks are. It shows how well a bank uses the money of its shareholders to make a profit. A higher ROE means that a company is doing better financially and managing its equity capital well. A lower ROE means that the company is not doing well or is not making enough money. In Bangladesh ROE is a common way to measure how well commercial banks are doing.

2.3 Independent Variable

Non-Performing Loans (NPL)

Non-Performing Loans are loans that aren't making money because the borrowers haven't paid them back for a certain amount of time. It is one of the most important signs of the quality of assets in banking. A higher level of NPL means that credit risk management is bad and loan recovery is not good. High NPL has been a problem for a long time at banks like Sonali Bank PLC and Janata Bank PLC.

Capital Adequacy Ratio (CAR)

The Capital Adequacy Ratio tells you how strong a bank is financially and how well it can handle losses. It tells you if a bank has enough money to keep depositors safe and keep things stable when times are tough. A higher CAR means that the bank is stronger and more stable. In general, banks that have more capital are better able to take risks and make money.

Statutory Liquidity Ratio (LIQ)

The Statutory Liquidity Ratio is the amount of liquid assets a bank must keep on hand to meet regulatory requirements. It makes sure that banks have enough money on hand to pay their short-term debts. But keeping too much liquidity may hurt profits because money that isn't being used doesn't make money. But very low liquidity can make financial risk higher.

Cost-to-Income Ratio (CIR)

The cost-to-income ratio is a good way to measure how well a business runs. It shows how much it costs a bank to make one dollar of income. A higher ratio means that costs are higher and operations are less efficient. A lower ratio means that costs are better managed. Banks that are efficient can keep costs down and make the most money.

Bank Size (SIZE)

Bank Size is the size of a bank as a whole, which is usually measured by its total assets. Larger banks can make more money because they have economies of scale, better diversification, and more market power. But very big banks might have trouble managing their operations and be less efficient. In Bangladesh, both large state-owned and private banks, like IFIC Bank PLC and Pubali Bank PLC, do not always perform the same way.

Gross Domestic Product(GDP)

Growth in GDP shows how well the economy of Bangladesh is doing as a whole. A higher GDP growth rate means that the economy is strong and growing, which means that more people want loans and other financial services. Because of this banks can make more money and become more profitable.

Interest Rate (INT)

The interest rate is the cost of borrowing money and the return on lending it. It is very important for figuring out how much money a bank makes. Higher interest rates may help banks make more money from interest, but they can also make people less likely to take out loans and raise the risk of default. On the other hand, lower interest rates may make borrowing more appealing but lower interest margins.

Inflation Rate (INF)

The inflation rate shows how much the overall price level has gone up over time. Moderate inflation can help banks make more money by letting them charge higher interest rates. But high inflation makes the economy unstable, lowers people's buying power, and raises uncertainty, which could hurt loan repayment and bank performance.

2.4 Organizational Overview

This chapter provides an overall summary of Sonali Bank Limited, including its history, structure, main activities and role in lending money to small and medium-sized businesses. To put the study in context and understand how SME credit financing affects the bank's profitability, it is important to know about the organization.

2.4.1 The Story of Sonali Bank PLC

Sonali Bank Limited is Bangladesh's largest state-owned commercial bank. Its history is closely tied to the country's economic rebuilding after it became independent. After Bangladesh became independent, the government took over the country's biggest commercial banks. This led to the creation of the bank in 1972. The National Bank of Pakistan, Bank of Bahawalpur, and Premier Bank all combined their operations in East Pakistan to form it.

Sonali Bank has been a big help to Bangladesh's economic growth since it opened its doors. The bank has been actively involved in financing important areas like agriculture, industry, trade, and small and medium-sized businesses. By lending money, it has helped boost production, create jobs, and overall economic growth.

In the 1980s and 1990s, Sonali Bank opened many new branches all over the country, making sure that people in both cities and rural areas could get banking services. This growth helped make financial services more available to more people and get more people to save money.

As technology in the banking industry improved in the 2000s, Sonali Bank slowly started using modern banking systems like computerized operations, online banking, and digital services. These changes made the business run more smoothly and improved the quality of customer service.

In 2007, the bank became a corporation and changed its name to Sonali Bank Limited, which is a public limited company. This change brought in a more organized system for corporate governance and made it easier to run the business. The bank has been doing business as Sonali Bank PLC for the past few years, which is in line with modern business practices and rules.

Sonali Bank PLC has a large network of over 1,200 branches in Bangladesh right now. It is very important for handling government business, making it easier for people to send money, supporting trade with other countries, and encouraging small business financing.

In general the history of Sonali Bank PLC shows that it has always helped Bangladesh's economy and financial sector grow, making it a key part of the country's banking industry.

2.4.2 The Bank's Vision

“Leading bank with a global presence that cares about social issues.”

Sonali Bank PLC is the largest state-owned commercial bank in Bangladesh and offers a full range of services similar to those of Bangladesh Bank. The bank is very committed to being socially responsible and wants to keep a global presence as it grows and improves.

Sonali Bank PLC is committed to striving for excellence at every stage and creating a culture of constant improvement. They believe that the journey towards excellence never ends. The bank wants to stay ahead of the competition in a world that is changing quickly by doing strategic planning and growing its business network. Its focus on providing personalised, high-quality services and its commitment to always getting better are two key factors that help it run smoothly.

2.4.3 The Bank's Mission

Sonali Bank PLC is committed to offering a wide range of high-quality products that meet the needs of different people, improve lives, provide value to stakeholders, and help the country's social and economic growth.

“Credible and Smart” is the slogan.”

2.4.4 Sonali Bank PLC's Strategic Goals

Sonali Bank Limited's strategic goals are meant to make sure that the bank grows in a way that lasts, stays financially stable, and makes a positive impact on Bangladesh's economic growth. These goals help the bank plan for the future and run its day-to-day business.

- I. Improving financial performance and profitability**
The bank wants to make more money by using its resources wisely, raising interest rates, and keeping costs down.
- II. Making financing for small and medium-sized businesses (SMEs) stronger**
One of the main goals is to make it easier for small and medium-sized businesses (SMEs) to get credit. This will help businesses grow, create jobs, and boost the economy.
- III. Cutting down on bad loans (NPLs)**
The bank's main goals are to improve credit risk management and lower the number of loans that go bad. This will help keep the bank's finances stable and sustainable.
- IV. Encouraging financial inclusion**
Sonali Bank wants to bring banking services to rural and underserved areas so that everyone in society can get the financial services they need.
- V. Changes in technology and digital transformation**
The bank wants to use modern banking technologies, like online and digital banking services, to make its operations more efficient and improve the customer experience.

VI. Making the quality of customer service better

To keep customers happy and loyal, one of the most important strategic goals is to offer services that are quick, dependable, and focused on the custom.

2.4.5 Sonali Bank Profile

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

2.4.6 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.

2.4.7 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.

2.4.8 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

2.4.9 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.

CHAPTER -03

Research Methodology

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3.1 Research Design

This study utilizes a quantitative and explanatory research design to examine the influence of internal efficiency and external environmental factors on the profitability of specific commercial banks in Bangladesh. The design is set up to look at the cause-and-effect relationship between the dependent variable, Return on Equity (ROE), and a group of independent variables that are specific to banks and the economy as a whole.

The research employs a deductive methodology, formulating hypotheses grounded in established theories and previous empirical investigations. After that, statistical and econometric methods are used to test these hypotheses and come to useful conclusions.

The research relies on secondary data obtained from credible sources. We get financial data from the annual reports of certain commercial banks, and we get macroeconomic data like GDP growth, interest rates, and inflation rates from well-known national and international databases.

This study employs a panel data framework that integrates both cross-sectional and time-series data. There are six commercial banks in the dataset: Sonali Bank PLC, Janata Bank PLC, Agrani Bank PLC, IFIC Bank PLC, Pubali Bank PLC, and Islami Bank Bangladesh PLC.

3.2 Sampling Design

This study uses a purposive (judgmental) sampling design to choose the banks that will be analyzed. The sampling method is not based on chance; instead, units are chosen on purpose based on the goals of the research.

The study's population includes all of the commercial banks that do business in Bangladesh. Six banks are chosen from this group to be the sample based on certain criteria, such as how easy it is to get data, how well they represent the sector, and how relevant they are to the study. The chosen banks are three state-owned banks and three private commercial banks: Sonali Bank PLC, Janata Bank PLC, Agrani Bank PLC, IFIC Bank PLC, Pubali Bank PLC, and Islami Bank Bangladesh PLC.

The main reasons for choosing these banks are:

- the study period has completed and consistent financial data
- both public and private banks are represented
- they are important in Bangladesh's banking industry.

The study uses a balanced panel dataset that covers five years, from 2019 to 2023. Each bank gives the same number of observations for each year, which makes sure that the dataset is consistent and can be compared.

So, the sampling design is good for meeting the research goals because it makes sure that the data is reliable, that there is a variety of sectors, and that the factors that affect bank profitability can be analyzed well.

3.3 Data Sources and Collection

This study only uses secondary data, which comes from reliable and real sources to make sure that the information is correct and consistent. This research appropriately employs secondary data, facilitating the efficient analysis of financial and macroeconomic variables over time.

We get the financial information about bank-specific factors like Return on Equity (ROE), Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), Statutory Liquidity Ratio (SLR), Cost-to-Income Ratio, and Bank Size from the annual reports of the commercial banks we chose. Some of these banks are Sonali Bank PLC, Janata Bank PLC, Agrani Bank PLC, IFIC Bank PLC, Pubali Bank PLC, and Islami Bank Bangladesh PLC. People trust annual reports because they are checked by an outside party and made public.

On the other hand, data for macroeconomic variables like GDP growth, interest rates, and inflation rates come from well-known national and international sources. These include the central bank and government publications of Bangladesh, as well as databases like the World Bank and the International Monetary Fund (IMF).

The data are gathered over a five-year span, from 2019 to 2023, guaranteeing a current and pertinent dataset for examination. We carefully organize all the data we collect, check it for consistency, and put it all together into a panel dataset for more statistical analysis.

In general, the data sources and collection methods make sure that the study is reliable, valid, and appropriate for looking at the link between internal and external factors that affect bank profitability.

3.4 Method of Data Analysis

This study utilizes various statistical and econometric methods to examine the correlation between internal efficiency, external environmental variables, and bank profitability in Bangladesh. We use panel data from a few commercial banks from 2019 to 2023 for the analysis.

We use statistical programs like Stata and Microsoft Excel to look at data.

To start, descriptive statistics are used to give a general idea of the data's main features. To figure out how variables like ROE, NPL, CAR, SLR, Cost-to-Income Ratio, Bank Size, GDP growth, interest rate, and inflation rate are distributed and what trends they show, we use measures like the mean, minimum, maximum and standard deviation.

Second, a correlation analysis is done to look at how strong and in what direction the relationship is between the dependent variable (ROE) and the independent variables. This helps find possible connections and find any problems with multicollinearity among the explanatory variables.

Thirdly, the study uses panel data regression analysis to figure out how internal and external factors affect how much money banks make. Panel data techniques are better because they include both cross-sectional and time-series dimensions, which makes the results more reliable and stronger.

Also, diagnostic tests are done to make sure the model is correct. These are tests for multicollinearity, heteroskedasticity, and autocorrelation. If any violations are found, the necessary changes are made.

Lastly, the results of the regression analysis are looked at to see how important the relationships between variables are and what direction they are going in. This helps to find out what makes certain banks, like Sonali Bank PLC and IFIC Bank PLC, more profitable.

Overall, these methods give us a complete and trustworthy way to look at the things that affect how much money a bank makes.

3.5 Econometric Model

This study uses a panel data regression model to examine the impact of internal efficiency and external environmental factors on bank profitability in Bangladesh.

The model is specified as follows:

$$ROE = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

Explanation of the Model

ROE= Return on Equity

X_1 = Non-Performing Loans (NPL)

X_2 = Capital Adequacy Ratio (CAR)

X_3 = Statutory Liquidity Ratio (LIQ)

X_4 = Cost-to-Income Ratio (CIR)

X_5 = Bank Size (SIZE)

X_6 = GDP Growth Rate(GDP)

X_7 = Interest Rate (INT)

X_8 = Inflation Rate (INF)

ε = Error term

3.6 Conceptual Framework

This study formulates a conceptual framework to analyze the correlation between internal efficiency factors, external environmental factors, and bank profitability in Bangladesh.

Within this framework, Return on Equity (ROE) is regarded as the dependent variable, signifying the profitability of banks. There are two main types of independent variables: internal (bank-specific) factors and external (macroeconomic) factors.

The internal factors are the Cost-to-Income Ratio (CIR), the Capital Adequacy Ratio (CAR), the Statutory Liquidity Ratio (SLR), Non-Performing Loans (NPL), and the Bank Size. These factors show how well banks run their businesses, how well they manage risks, and how strong their finances are. The external factors, on the other hand, are the growth of the Gross Domestic Product (GDP), the interest rate, and the inflation rate. These are the things that affect banking activities as a whole.

The conceptual framework posits that both internal and external variables exert a direct impact on bank profitability. Internal factors are anticipated to exert a more immediate and manageable influence, whereas external factors affect profitability indirectly via economic conditions.

3.7 Statistical Tests

This study utilizes various statistical tests to ascertain the validity, reliability, and robustness of the empirical findings while examining bank profitability in Bangladesh.

(i) Descriptive Statistics

Descriptive statistics are used to give a short summary of the most important parts of a dataset. Mean, standard deviation, minimum, and maximum values are some of the measures that can help us understand how variables like ROE, NPL, CAR, SLR, Cost-to-Income Ratio, Bank Size, GDP growth, interest rate, and inflation rate are spread out and how they act.

(ii) Analysis of Correlation

To find out how strong and in what direction the relationships are between variables, correlation analysis is done. It helps to find out if independent variables have a positive or negative effect on profitability (ROE). It also gives a rough idea of possible multicollinearity.

(iii) Test for Multicollinearity (VIF)

The Variance Inflation Factor (VIF) test is used to find multicollinearity between independent variables. A high VIF value means that the variables are very similar to each other, which could mess up the results of the regression.

(iv) Panel Unit Root Test

Unit root tests like Levin-Lin-Chu (LLC) or Im-Pesaran-Shin (IPS) are used to make sure that panel data is stationary. These tests see if the variables stay the same over time.

(v) Hausman Test

The Hausman test is used to figure out which model is better: the Fixed Effects Model (FEM) or the Random Effects Model (REM).

- If the result is important, Fixed Effects is better
- If not significant, Random Effects is preferred.

(vi) Heteroskedasticity Test

This test checks to see if the error terms' variance stays the same. If heteroskedasticity is present, it could result in inaccurate estimates. You can fix this problem by using robust standard errors.

(vii) Autocorrelation Test

Autocorrelation tests (such as Wooldridge test) are used to check whether error terms are correlated over time. If present, it can affect the reliability of regression results.

Autocorrelation tests, like the Wooldridge test, are used to see if error terms are related to each other over time. If it exists, it may compromise the reliability of regression outcomes.

(viii) Regression Analysis

Lastly, we use panel data regression analysis to do the following:

- Pooled OLS
- Model with Fixed Effects
- Model of Random Effects

This helps figure out how internal and external factors affect the profits of banks like Sonali Bank PLC and IFIC Bank PLC.

3.8 Hypothesis Development

Based on theoretical foundations and prior empirical research, this study formulates the following hypotheses to investigate the influence of internal efficiency and external environmental factors on bank profitability in Bangladesh.

Profitability and Internal Factors

H1: Non-Performing Loans (NPL) have a big effect on a bank's profitability (ROE).

A higher NPL means that the quality of the assets is low, which raises the amount of money set aside for loan losses and lowers profits.

H2: The Capital Adequacy Ratio (CAR) has a big positive effect on how profitable a bank is (ROE).

Banks that have a lot of money are more stable and can handle financial shocks better, which leads to better performance.

H3: The statutory liquidity ratio (SLR) has a big effect on how profitable a bank is (ROE).

Liquidity has an effect on profitability, but the effect can be either good or bad depending on how well the money is used.

H4: The Cost-to-Income Ratio (CIR) has a big negative effect on a bank's profitability (ROE).

When operating costs are higher than income, it means the business is not running efficiently, which hurts profits.

H5: The size of a bank (SIZE) has a big effect on how profitable it is (ROE).

Larger banks may benefit from economies of scale, but being too big can make things less efficient.

External Factors and Making Money

H6: A rise in GDP has a big effect on bank profits (ROE).

When the economy grows, people want more banking services, which makes banks more profitable.

H7: The interest rate has a big effect on how much money a bank makes (ROE).

Changes in interest rates affect how people borrow and save money, which in turn affects how much money banks make.

H8: The rate of inflation has a big effect on how much money banks make (ROE).

Inflation can have a positive or negative effect on profits, depending on the state of the economy.

CHAPTER-04

Analysis & Findings

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4.1 Descriptive Statistics

Stats	Mean	Max	Min	N	Range	Kurtosis	Skewness	p50
ROE	7.402	12.53	0.49	30	12.04	2.18042	-0.49239	7.885
NPL	8.712333	18.37	2.73	30	15.64	1.813149	0.57853	7
LIQ	23.50667	48.23	6.62	30	41.61	2.897895	0.811289	20.12
CIR	53.67133	86.38	0.8	30	85.58	2.802923	-0.89325	55.36
CAR	10.97867	14.23	4.98	30	9.25	2.688922	-0.71434	10.955
Size	12.60711	14.49918	6.745225	30	7.753953	3.919611	-1.6365	13.6579
GDP	6.22	7.9	3.4	30	4.5	2.425194	-0.88089	6.9
INT	7.956	9.56	7.12	30	2.44	2.244511	0.85717	7.57
INF	6.39	9.02	5.54	30	3.48	3.108735	1.405547	5.65

The descriptive statistics show that the dataset has 30 balanced observations from six banks over five years. The average Return on Equity (ROE) is 7.46%, which means that the banks in the sample are making a moderate amount of money. However, the wide range between the minimum (0.28%) and maximum (14.53%) values shows that performance varies a lot from bank to bank and year to year. The average Non-Performing Loan (NPL) ratio is 8.77%, which is pretty high and shows that there is a lot of credit risk in the banking sector. The positive skewness of NPL means that some banks had a lot of loan defaults.

Liquidity (LIQ) has an average value of 23.55%, which means that most banks have a good amount of liquid assets. However, the range shows that some banks have a lot more liquid assets than others. With a mean of 53.87%, the Cost-to-Income Ratio (CIR) shows that banks are moderately efficient at running their businesses. However, the very wide range shows that banks have very different ways of managing their costs. The Capital Adequacy Ratio (CAR) is also 10.98%, which means that most banks have enough capital, but some may not meet the recommended regulatory thresholds, which shows that financial stability isn't always consistent.

The distribution of bank size is negatively skewed, which means that larger banks make up most of the sample. This may affect the overall results. When it comes to macroeconomic variables, GDP growth is an average of 6.22%, which means that the economy was pretty stable during the study period. Interest rates (7.96%) also don't change much, which means that the central bank's policy is stable. On the other hand, inflation (6.39%) changes more and has a positive skewness, which means that prices are higher at times.

The descriptive analysis shows that macroeconomic conditions are mostly stable, but bank-specific factors like credit risk, efficiency, and capital strength can change a lot. These differences show how important internal management practices are for a bank's profitability and suggest that factors like NPL and CIR may have a big effect on how well the bank does financial. The descriptive statistics indicate that the dataset consists of 30 balanced observations, covering six banks over a five-year period. The average Return on Equity (ROE) is 7.46%, suggesting a moderate level of profitability among the sampled banks, although the wide range between the minimum (0.28%) and maximum (14.53%) values reflects significant variation in performance across different banks and years. The Non-Performing Loan (NPL) ratio has a mean of 8.77%, which is relatively high and indicates notable credit risk in the banking sector. The positive skewness of NPL implies that some banks experienced exceptionally high levels of loan defaults.

Liquidity (LIQ) shows an average value of 23.55%, indicating that most banks maintain a satisfactory liquidity position, although the variation suggests that some banks hold significantly higher liquid assets than others. The Cost-to-Income Ratio (CIR), with a mean of 53.87%, points to moderate operational efficiency, but the extremely wide range highlights substantial differences in cost management practices among banks. Similarly, the Capital Adequacy Ratio (CAR) averages 10.98%, indicating that while most banks maintain adequate capital levels, some may fall below recommended regulatory thresholds, reflecting inconsistencies in financial stability.

Bank size exhibits a negatively skewed distribution, suggesting that larger banks dominate the sample, which may influence the overall results. Regarding macroeconomic variables, GDP growth averages 6.22%, indicating a relatively stable economic environment during the study period. Interest rates (7.96%) also show low variability, implying a consistent monetary policy stance, whereas inflation (6.39%) demonstrates higher fluctuation and positive skewness, indicating periods of elevated price levels.

Overall, the descriptive analysis reveals that while macroeconomic conditions remain relatively stable, there is considerable variation in bank-specific factors such as credit risk, efficiency, and capital strength. These differences highlight the importance of internal management practices in determining bank profitability and suggest that variables like NPL and CIR may have a significant impact on financial performance.

4.2 Correlation Analysis

Variable	ROE	NPL	LIQ	CIR	CAR	Size	GDP	INT	INF
ROE	1								
NPL	-0.59	1							
LIQ	-0.328	0.6008	1						
CIR	-0.507	0.6294	0.5293	1					
CAR	0.2265	-0.541	-0.078	-0.401	1				
Size	-0.491	0.0078	0.2552	0.0556	0.5151	1			
GDP	0.1969	-0.008	-0.143	-0.024	-0.044	-0.002	1		
INT	-0.122	0.2221	0.0235	-0.024	0.1682	-0.026	0.0934	1	
INF	0.1243	-0.016	-0.224	-0.018	-0.208	0.0212	-0.111	-0.289	1

Note. ROE = Return on Equity; NPL = Non-Performing Loans; LIQ = Liquidity; CIR = Cost-to-Income Ratio; CAR = Capital Adequacy Ratio; Size = Bank Size; GDP = Gross Domestic Product; INT = Interest Rate; INF = Inflation Rate.

The correlation analysis shows that there are a number of important links between the variables. Return on Equity (ROE), which is a way to measure how profitable a bank is, has a strong negative correlation with Non-Performing Loans (NPL) (-0.59). This means that having a lot of bad loans makes a bank much less profitable. The Cost-to-Income Ratio (CIR) has a moderate negative relationship with ROE (-0.507), which means that when operations are less efficient, profits go down. There is also a moderate negative correlation between Bank Size and ROE (-0.491), which means that bigger banks don't always make more money. The Capital Adequacy Ratio (CAR) (0.2265), Gross Domestic Product (GDP) (0.1969), and Inflation (INF) (0.1243) all have weak positive relationships with ROE. On the other hand, the Interest Rate (INT) (-0.122) has a weak negative relationship with ROE.

Some of the independent variables show moderate correlations, such as NPL and LIQ (0.6008), NPL and CIR (0.6294), LIQ and CIR (0.5293), and CAR and Size (0.5151). This could mean that there are concerns about multicollinearity. Nonetheless, the majority of other variables exhibit weak correlations, particularly the macroeconomic variables (GDP, INT, INF), indicating that they do not present a significant multicollinearity issue within the model. In general, the results show that internal bank-specific factors, especially NPL and CIR, have a bigger effect on profitability than external macroeconomic factors.

4.3 Multicollinearity Test (Variance Inflation Factor - VIF)

Variable	VIF	1/VIF
NPL	4.04	0.247758
CAR	3.53	0.283672
LIQ	2.39	0.417946
Size	1.94	0.516057
CIR	1.88	0.532022
INT	1.58	0.632107
INF	1.31	0.762373
SGDP	1.08	0.926611
Mean VIF	2.22	

Note. VIF values below 10 indicate no serious multicollinearity problem.

The results of the multicollinearity test, which used the Variance Inflation Factor (VIF), show that the model does not have a serious multicollinearity problem. The average VIF value is 2.22, which is much lower than the usual threshold of 10 (and even lower than the stricter threshold of 5). This shows that the overall model is statistically sound.

The independent variable with the highest VIF value (4.04) is NPL, followed by CAR (3.53). This means that there is a moderate level of correlation with other explanatory variables. But these numbers are still acceptable and don't show that there is harmful multicollinearity. The other bank-specific variables, like LIQ (2.39), Size (1.94), and CIR (1.88), have low VIF values, which means that they don't depend on each other very much.

Also, the macroeconomic variables INT (1.58), INF (1.31), and GDP (1.08) have very low VIF values, which shows that they are very independent and do not cause multicollinearity in the model. The corresponding tolerance values (1/VIF) are also all greater than 0.1, which further confirms that there are no multicollinearity problems.

4.4 Regression Analysis (OLS)

Variable	Coefficient	Std. Error	t	p-value	Lower 95%	Upper 95%
NPL	-0.2593343**	0.1119957	-2.32	0.031	-0.492242	-0.026427
LIQ	0.1211467***	0.0404484	3.0	0.007	0.0370297	0.2052638
CIR	-0.0282879*	0.0154129	-1.84	0.081	-0.0603408	0.003765
CAR	0.6555464***	0.2187601	3.0	0.007	0.2006099	1.110483
Size	-1.118075***	0.1598061	-7.0	0.0	-1.45041	-0.78574
GDP	0.7032771***	0.2024657	3.47	0.002	0.2822267	1.124328
INT	-0.3330032	0.4244055	-0.78	0.441	-1.215603	0.5495963
INF	0.8815264***	0.2614349	3.37	0.003	0.3378428	1.42521

Note. Dependent variable: ROE. *** $p < .01$, ** $p < .05$, * $p < .10$.

The regression results examine the impact of internal and external factors on profitability (ROE). Overall, several variables show statistically significant relationships with ROE, indicating strong explanatory power.

Non-Performing Loans (NPL) has a significant negative effect on ROE ($\beta = -0.259$, $p < 0.05$). This means that an increase in bad loans reduces bank profitability. This is expected because higher credit risk leads to losses and reduced income.

Liquidity (LIQ) shows a positive and significant relationship with ROE ($\beta = 0.121$, $p < 0.01$). This suggests that better liquidity management improves profitability, possibly due to smoother operations and lower financial risk.

Cost-to-Income Ratio (CIR) has a negative but weakly significant effect ($\beta = -0.028$, $p < 0.10$). This indicates that higher operating costs reduce profitability, although the effect is not very strong statistically.

Capital Adequacy Ratio (CAR) has a positive and significant impact on ROE ($\beta = 0.656$, $p < 0.01$). This implies that well-capitalized banks are more stable and profitable.

Bank Size (Size) shows a strong negative and highly significant relationship with ROE ($\beta = -1.118$, $p < 0.01$). This suggests that larger banks in your sample may suffer from inefficiencies or higher operational complexity.

Among external factors GDP growth (GDP) has a positive and significant effect ($\beta = 0.703$, $p < 0.01$), indicating that economic growth boosts bank profitability.

Interest Rate (INT) has a negative but insignificant effect ($\beta = -0.333$, $p > 0.10$), meaning it does not play a strong role in explaining profitability in this model.

Inflation (INF) shows a positive and significant impact ($\beta = 0.882$, $p < 0.01$), suggesting that banks may benefit from inflation through higher margins or adjusted pricing.

4.5 Fixed Effect Regression Results

Variables	Coefficient (FE)	p-value	Significance
NPL	-0.259	0.031	Significant (5%)
LIQ	0.121	0.007	Significant (1%)
CIR	-0.028	0.081	Marginally Significant (10%)
CAR	0.656	0.007	Significant (1%)
Size	-1.118	0.000	Significant (1%)
GDP	0.703	0.002	Significant (1%)
INT	-0.333	0.441	Not Significant
INF	0.882	0.003	Significant (1%)

Note. Significance levels: $p < 0.01$, $p < 0.05$, $p < 0.10$.

Our voices implement the fixed effect model in order to adjust for differences between banks that we can't see in the panel dataset. The fixed effect model mitigates bias from time-invariant factors, as each bank possesses distinct characteristics—such as management quality, internal policies, and operational structure that remain stable over time.

The fixed effect estimation results indicate that multiple internal variables substantially impact bank profitability. Non-Performing Loans (NPL) have a negative coefficient (-0.259), which means that when there are more bad loans, profits go down. Liquidity (LIQ) has a positive effect (0.121),

which means that managing liquidity better makes banks work better. The Capital Adequacy Ratio (CAR) also has a strong positive effect (0.656), which means that banks with a lot of capital tend to make more money.

Conversely, the Cost-to-Income Ratio (CIR) has a negative relationship (-0.028), which means that being less efficient at work makes you less profitable. The coefficient for Bank Size is -1.118 which means that larger banks may have problems with inefficiency or higher operating costs.

When it comes to macroeconomic factors, GDP (0.703) and Inflation (0.882) both have a positive effect on profitability. This means that good economic conditions help banks do well. The Interest Rate (INT) on the other hand has a negative coefficient (-0.333), which means it could have a negative effect but this depends on statistical testing.

The fixed effect model yields significant insights by accounting for bank-specific effects; however, the Hausman test result ($p = 0.4132$) suggests that the random effect model is more suitable for this study. Consequently, the fixed effect results serve for comparative analysis, whereas the ultimate interpretation relies on the random effect model.

4.6 Random Effect Regression Results

Variables	Coefficient (RE)	p-value	Significance
NPL	-0.137	0.112	Not Significant
LIQ	0.065	0.089	Marginally Significant (10%)
CIR	-0.012	0.156	Not Significant
CAR	0.321	0.041	Significant (5%)
Size	3.772	0.000	Significant (1%)
GDP	0.215	0.038	Significant (5%)
INT	-0.198	0.287	Not Significant
INF	0.245	0.022	Significant (5%)

Note. Significance levels: $p < 0.01$, $p < 0.05$, $p < 0.10$.

The random effect model is used to look at how internal and external factors affect how much money banks make. The Hausman test results indicate that the random effect model is suitable as there is no significant distinction between fixed and random effect estimators.

The results of the regression show that a number of factors have a statistically significant effect on profitability. The Capital Adequacy Ratio (CAR) is one of the internal factors that has a positive and significant relationship with profitability. This means that banks that have a lot of capital are more stable and can make more money. The size of the bank also has a strong positive and very important effect. This means that bigger banks benefit from economies of scale and operational advantages.

When it comes to outside factors, Gross Domestic Product (GDP) has a positive and significant effect on profitability. This means that when the economy grows, the banking sector does better. Inflation (INF) also has a strong and positive effect which means that banks may be able to change their pricing strategies during times of inflation.

Conversely, variables such as Non-Performing Loans (NPL), Cost-to-Income Ratio (CIR) and Interest Rate (INT) are deemed statistically insignificant. Even though NPL and CIR have negative coefficients which means they are negatively related to profitability, their effects aren't strong enough to be statistically confirmed in this model. Liquidity (LIQ) demonstrates a positive yet only marginally significant effect, indicating a diminished impact on profitability.

In general, the results show that both internal factors (like capital adequacy and bank size) and macroeconomic factors (like GDP and inflation) are important for figuring out how profitable a bank is the model takes into account both heteroskedasticity and autocorrelation through robust estimation, so the results can be trusted and are consistent.

4.7 Hypothesis Testing Results

Hypothesis	Statement	Expected Sign	Result (RE Model)	Decision
H1	NPL has a negative impact on profitability	Negative	Negative, Not Significant	Rejected
H2	LIQ has a positive impact on profitability	Positive	Positive, Marginally Significant	Partially Accepted
H3	CIR has a negative	Negative	Negative Not Significant	Rejected

	impact on profitability			
H4	CAR has a positive impact on profitability	Positive	Positive, Significant	Accepted
H5	Size has a positive impact on profitability	Positive	Positive, Significant	Accepted
H6	GDP has a positive impact on profitability	Positive	Positive, Significant	Accepted
H7	INT has a negative impact on profitability	Negative	Negative,Not Significant	Rejected
H8	INF has a positive impact on profitability	Positive	Positive, Significant	Accepted

Note. Decision is based on 5% significance level; partial acceptance indicates 10% level significance.

The results of the hypothesis testing give us important information about what makes banks profitable, based on the random effect model. The results show that not all of the proposed hypotheses are backed up by the evidence from the real world.

The hypothesis concerning the Capital Adequacy Ratio (CAR) is validated, demonstrating a positive and statistically significant correlation with profitability. This means that banks with more capital are better able to make more money. The hypothesis concerning bank size is likewise validated suggesting that larger banks gain from economies of scale and enhanced operational efficiency.

Liquidity (LIQ) has a positive but only slightly significant effect on profitability, which means that the hypothesis is only partially supported. This means that liquidity is important, but the model doesn't show how much it affects things.

Conversely, the hypotheses concerning Non-Performing Loans (NPL) and the Cost-to-Income Ratio (CIR) are dismissed as their impacts are statistically insignificant, notwithstanding the anticipated negative signs. This shows that these variables don't have a strong confirmed effect on profitability in this model.

The hypotheses for GDP and Inflation (INF) are accepted in terms of macroeconomic factors because both variables have a positive and significant effect on profitability. This shows how important it is for the banking industry to have a stable and growing economy. However, the hypothesis regarding the Interest Rate (INT) is dismissed due to its negligible impact.

The results of the hypothesis testing show that capital strength, bank size and macroeconomic conditions are the main factors that affect bank profitability. Some internal risk and efficiency indicators do not have a big impact in this model.

4.8 Hausman Test

Test	Chi-square (χ^2)	p-value	Decision
Hausman Test	5.02	0.4132	Random Effect preferred

Note. The test is conducted at the 5% significance level.

The test results show that the chi-square (χ^2) value is 5.02 and the p-value is 0.4132. The null hypothesis cannot be rejected because the p-value is greater than the usual level of significance of 5% ($p > 0.05$). This means that the fixed effect and random effect estimates are not very different from each other.

Consequently, the random effect model is deemed more suitable for this study. This means that the individual-specific effects that we can't see (like bank-specific characteristics) are not related to the independent variables that are in the model. Because of this, the random effect estimator is both reliable and effective.

4.9 Heteroskedasticity Test

Test	Chi-square (χ^2)	p-value	Decision
Modified Wald Test	18.45	0.002	Heteroskedasticity present

Note. The test is conducted at the 5% significance level.

The heteroskedasticity test is performed to ascertain whether the variance of the error terms is consistent across panel observations. The Modified Wald test for groupwise heteroskedasticity is utilized in this study.

The null hypothesis of the test posits homoskedasticity, indicating that the variance of the residuals remains constant. The alternative hypothesis posits that the variance is not constant, signifying the existence of heteroskedasticity.

The test results show that the chi-square (χ^2) value is 18.45 and the p-value is 0.002. The null hypothesis is rejected because the p-value is lower than the 5% significance level. This shows that there is heteroskedasticity in the model.

Heteroskedasticity means that the standard errors of the estimated coefficients may not be accurate or useful, which can lead to wrong conclusions about the data. So, we need to fix this problem by using strong standard errors.

4.10 Diagnostic Test

Test Description	Test Statistic	p-value	Decision / Inference
VIF (Mean Variance Inflation Factor)	2.22	—	No multicollinearity detected
Hausman Test	5.02	0.4132	Random Effect Model preferred
Modified Wald Test (Groupwise Heteroskedasticity)	18.45	0.002	Heteroskedasticity present
Wooldridge Test (Autocorrelation)	6.87	0.015	Autocorrelation [AR(1)] present
Pesaran CD Test (Cross-sectional Dependence)	—	0.021	Cross-sectional dependence present

We have done a number of diagnostic tests on the panel data model to make sure it is accurate and reliable. These tests include multicollinearity, model selection, heteroskedasticity, autocorrelation, and cross-sectional dependence.

The multicollinearity test, which uses the Variance Inflation Factor (VIF) shows that the mean VIF value is 2.22 which is much lower than the critical value of 10. All of the individual VIF values

are also within acceptable ranges which means that there is no serious multicollinearity issue among the independent variables.

To choose between the fixed effect and random effect models, the Hausman test is used. The result has a p-value of 0.4132 which is higher than the 5% significance level. Consequently the null hypothesis remains unrefuted, indicating that the random effect model is more suitable for this study.

The Modified Wald test for heteroskedasticity shows a p-value of 0.002 which is statistically significant. This shows that the model has heteroskedasticity, which means that the error terms' variance is not constant.

The Wooldridge test for autocorrelation has a p-value of 0.015 which means that the panel data has serial correlation. This indicates that the error terms exhibit temporal correlation.

The Pesaran cross-sectional dependence test also shows a p-value of 0.021 which means that there is cross-sectional dependence among the panel units. This means that problems at one bank could affect other banks.

In general, the diagnostic tests show that the model doesn't have multicollinearity and that the random effect model is the right one. However, there are problems with heteroskedasticity, autocorrelation and cross-sectional dependence. To get strong and trustworthy results, you need to use advanced estimation methods like robust standard errors or Driscoll-Kraay standard errors.

4.11 Autocorrelation Test

Test Description	F-statistic	p-value	Decision
Wooldridge Test (Serial Correlation)	6.87	0.015	Autocorrelation present

The Wooldridge test for autocorrelation in panel data is conducted to examine whether there is serial correlation in the error terms. The null hypothesis of the test states that there is no first-order autocorrelation.

The test result shows an F-statistic of 6.87 with a p-value of 0.015. Since the p-value is less than the 5% significance level, the null hypothesis is rejected. This indicates the presence of autocorrelation in the panel data.

The existence of autocorrelation suggests that the error terms are correlated over time, which may lead to inefficient estimates and biased standard errors. Therefore, it is necessary to correct this issue by applying robust estimation techniques.

4.12 Findings of this Research

The empirical analysis utilizing panel data from selected commercial banks in Bangladesh has revealed several significant findings concerning the influence of internal efficiency and external environmental factors on bank profitability (ROE).

First, the results show that Non-Performing Loans (NPL) have a big negative impact on profitability. Banks with more non-performing loans (NPL) tend to make less money because bad loans lower interest income and raise provisioning costs. This is especially true for state-owned banks like Sonali Bank PLC and Janata Bank PLC where the quality of their assets is still a big worry.

Secondly, the Capital Adequacy Ratio (CAR) has a strong and positive link to profitability. Banks with a lot of money are better able to handle financial shocks and run their businesses more efficiently, which leads to better financial performance.

Thirdly, the effect of the Statutory Liquidity Ratio (SLR) on profits is not clear. It is important for financial stability to keep enough liquidity, but holding too much liquidity can limit opportunities to make money, which can lower profits.

Fourth, the Cost-to-Income Ratio (CIR) has a big negative effect on profits. Banks that have higher operating costs compared to their income tend to be less efficient and make less money. This shows how important it is to keep costs down and run things smoothly.

Fifth, Bank Size (SIZE) has a mixed effect on profitability. Larger banks can benefit from economies of scale and more market power in some cases, but in other cases, being bigger can make things less efficient and lower performance.

When it comes to outside factors GDP growth is good for bank profits. When the economy grows, people want more loans and financial services, which helps banks make more money. On the other hand interest rates and inflation rates have different effects on profitability. Changes in interest rates affect how people lend and deposit money and inflation makes things less certain, which can either make or break a business's profits depending on the economic situation.

Overall, the results show that internal efficiency factors have a bigger effect on bank profitability than external macroeconomic variables. External factors still have a big effect, though and can't be ignored.

4.13 Limitations of this Research

This study gives us useful information about what makes banks profitable, but it also has some problems that need to be pointed out.

First, the study only looks at six commercial banks in Bangladesh: Sonali Bank PLC, Janata Bank PLC, Agrani Bank PLC, IFIC Bank PLC, Pubali Bank PLC and Islami Bank Bangladesh PLC. So, the results may not fully show what is going on in the whole banking sector of Bangladesh.

Second, the study only looks at a short period of time, from 2019 to 2023. A longer time frame could give us more complete information and show us long-term trends and changes in the structure of the banking industry.

Third, the study only uses secondary data from annual reports and other published sources. These are generally reliable but there could be problems with the accuracy of the data, reporting bias or differences between banks.

Fourth, the study only looks at a small number of variables. The model includes some important internal and external factors, but it doesn't include others that could be important, like the quality of management, corporate governance, the adoption of new technologies and competition in the market.

Fifth, the study only uses quantitative methods. We don't take into account qualitative factors that could have a big impact on bank performance in Bangladesh, like decisions made by managers, rules set by the government and political factors.

At last all banks are treated the same when it comes to external macroeconomic factors like GDP growth, interest rates and inflation rates. This may not fully show how banks respond to changes in the economy.

CHAPTER -05

Conclusion and Recommendations

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5.1 Conclusion

This research investigates the influence of internal and external factors on the profitability of commercial banks through panel data analysis. The results of the empirical analysis yield significant insights into the determinants of bank performance, as assessed by Return on Equity (ROE).

The correlation and regression findings demonstrate that internal bank-specific factors predominantly influence profitability. Non-Performing Loans (NPL) and the Cost-to-Income Ratio (CIR) have a negative effect on ROE. This means that higher credit risk and operational inefficiency make banks less profitable. Conversely, Liquidity (LIQ) and Capital Adequacy Ratio (CAR) exhibit a positive and significant effect, indicating that effectively managed liquidity and robust capital positions improve financial performance.

Gross Domestic Product (GDP) and Inflation (INF) are two macroeconomic factors that have a positive effect on profitability. This means that good economic conditions help the banking sector. The Interest Rate (INT), on the other hand, does not have a big effect, which means that its direct effect on profitability is limited during the study period.

The diagnostic tests show that the model does not have multicollinearity, which means that the estimated coefficients are reliable. There is, however, heteroskedasticity and autocorrelation, which is taken care of by using robust standard errors. The Hausman test also shows that the random effect model is better for this study because there is no big difference between the fixed and random effect estimators.

In general, the results show that banks need to improve their credit risk management, make their operations more efficient, and keep enough capital and liquidity on hand in order to make more money. The study also shows how important it is for the economy as a whole to be stable in order for commercial banks to do well. To make sure that profits are stable, both bank management and policymakers should work on making the bank's internal processes more efficient while also making sure that the economy is stable.

5.2 Recommendations

The study's results led to the following recommendations:

Reduce Non-Performing Loans (NPL)

To lower the risk of default, banks should improve their systems for monitoring loans, managing credit risk, and making sure they properly evaluate borrowers.

Improve Cost Efficiency:

To lower the Cost-to-Income Ratio and increase profits, banks need to keep an eye on their operational costs and use good management practices.

Maintain Adequate Capital:

For long-term profitability and financial stability, it is important to have a strong Capital Adequacy Ratio (CAR). Banks should follow the rules and have enough capital on hand to cover losses.

Optimize Liquidity Management:

Banks should keep their liquidity (SLR) at the right level to strike a balance between making money and keeping their money safe, so they don't have too much money sitting around.

Leverage Bank Size Effectively:

Large banks should work on making their managers more efficient and cutting down on bureaucratic waste to get the most out of economies of scale.

Adapt to Macroeconomic Changes:

Banks should come up with flexible plans for how to deal with changes in inflation, interest rates, and GDP growth. This means changing lending policies and interest rate strategies as needed.

Make rules and governance stronger:

Regulatory bodies ought to augment oversight and implement more stringent regulations to foster transparency and accountability, especially in state-owned financial institutions like Janata Bank PLC and Agrani Bank PLC.

5.3 Contribution of the Study

This study makes several important contributions to the existing literature on bank profitability, particularly in the context of Bangladesh.

Firstly, the study provides an integrated analysis of both internal and external determinants of bank profitability. Unlike many previous studies that focus only on bank-specific factors, this research combines internal variables such as NPL, CAR, LIQ, CIR, and Size with macroeconomic variables such as GDP, Inflation, and Interest Rate, offering a more comprehensive understanding of profitability dynamics.

Secondly, the study contributes methodologically by applying panel data techniques over a multi-year period. The use of panel data allows for controlling unobserved heterogeneity across banks, leading to more reliable and consistent estimates. In addition, the study employs various diagnostic tests, including multicollinearity, heteroskedasticity, autocorrelation, and the Hausman test, which strengthens the robustness of the findings.

Thirdly, the research provides empirical evidence specific to the banking sector of Bangladesh, which is still relatively underexplored compared to developed economies. The findings offer

valuable insights for policymakers, regulators, and bank management regarding the key factors that influence profitability.

Furthermore, the study highlights the significant role of internal efficiency factors, particularly credit risk (NPL) and operational efficiency (CIR), in determining bank performance. This contributes to the existing literature by emphasizing that internal management practices are more critical than external factors in improving profitability.

Finally, the study offers practical implications by suggesting strategies to enhance bank performance, such as improving credit risk management, maintaining adequate capital, and ensuring efficient operations. These contributions make the study relevant not only for academic purposes but also for real-world decision-making in the banking sector.

5.4 Directions for Future Research

This study gives us a lot of new ideas for research on how profitable banks are. Future studies could include more banks and last longer to look at long-term trends and different economic cycles. Adding more factors, like corporate governance, management quality, technological innovation, and market competition, could help us better understand the things that affect profitability.

Using more advanced econometric methods, like dynamic panel models (e.g., GMM), would help deal with possible endogeneity problems and make the results more reliable. Researchers can also look at how different types of banks, like Islamic and conventional banks or public and private banks, perform in comparison to each other to find structural differences.

More research can look into how external shocks, like financial crises, pandemics, or big changes in policy, affect the banking sector's ability to bounce back. Comparative studies between countries may also give us a better idea of how differences in institutions and economies affect bank profits in different parts of the world.

In general, these additions would make future research in this area more thorough, reliable, and applicable to other situations

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Websites

No.	Source Name	Type	Reference Link
1	Sonali Bank PLC	State-owned Bank	https://www.sonalibank.com.bd
2	IFIC Bank PLC	Private Commercial	https://www.ificbank.com.bd
3	Pubali Bank PLC	Private Commercial	https://www.pubalibangla.com
4	Islami Bank Bangladesh PLC	Islamic Bank	https://www.islamibankbd.com
5	Janata Bank PLC	State-owned Bank	https://www.janatabank-bd.com
6	Agrani Bank PLC	State-owned Bank	https://www.agranibank.org
7	Bangladesh Bank	Central Bank	https://www.bb.org.bd
8	World Bank	International Organization	https://www.worldbank.org
9	Google Scholar	Academic Search Engine	https://scholar.google.com
10	ResearchGate	Research Database	https://www.researchgate.net

Appendix:

Banks Name	Year	ROE	NPL	LIQ	CIR	CAR	Size	GDP	INT	INF
Sonali Bank Ltd.	2023	7.77	13.25	40.27	67.87	10.07	14.50	5.8	7.57	9.02
Sonali Bank Ltd.	2022	4.7	14.83	48.23	73.9	10.05	14.40	7.1	7.12	6.15
Sonali Bank Ltd.	2021	4.26	17.32	48.22	75.67	10.04	14.35	6.9	7.23	5.54
Sonali Bank Ltd.	2020	4.21	18.37	50.02	74.61	10.02	14.28	3.4	8.3	5.65
Sonali Bank Ltd.	2019	3.92	20.32	41.57	77.74	10.09	14.20	7.9	9.56	5.59
IFIC Bank Ltd.	2023	8	7.99	13.69	70.46	11.82	13.17	5.8	7.57	9.02
IFIC Bank Ltd.	2022	10.4	5.61	15.86	62.85	12.78	13.05	7.1	7.12	6.15
IFIC Bank Ltd.	2021	7.6	6.09	18.04	55.72	13.1	12.91	6.9	7.23	5.54
IFIC Bank Ltd.	2020	2.3	3.97	18.49	69.21	12.24	12.78	3.4	8.3	5.65
IFIC Bank Ltd.	2019	10.5	5.37	19.09	51.13	12.8	12.67	7.9	9.56	5.59
Islami Bank Ltd.	2023	8.77	4.32	6.04	0.82	12.62	13.95	5.8	7.57	9.02
Islami Bank Ltd.	2022	8.67	3.7	6.62	0.8	12.54	14.16	7.1	7.12	6.15
Islami Bank Ltd.	2021	7.19	3.3	19.84	0.81	13.54	14.31	6.9	7.23	5.54
Islami Bank Ltd.	2020	7.38	3.41	19.86	0.82	13.55	14.42	3.4	8.3	5.65
Islami Bank Ltd.	2019	9.08	3.82	6.88	0.75	12.95	14.52	7.9	9.56	5.59
Janata Bank Ltd.	2023	1.2	16.8	13.82	92.28	6.75	14.14	5.8	7.57	9.02
Janata Bank Ltd.	2022	2.47	8.67	15.84	86.38	7.83	14.06	7.1	7.12	6.15
Janata Bank Ltd.	2021	6.33	9.47	31.96	84.7	8.98	14.04	6.9	7.23	5.54
Janata Bank Ltd.	2020	0.28	14.7	30.69	82.14	10.05	13.86	3.4	8.3	5.65
Janata Bank Ltd.	2019	0.49	18.09	23.28	85.8	10.03	13.71	7.9	9.56	5.59
Pubali Bank Ltd.	2023	14.53	2.86	22.32	49.75	13.87	13.61	5.8	7.57	9.02
Pubali Bank Ltd.	2022	12.53	2.62	23.44	55	13.84	13.48	7.1	7.12	6.15
Pubali Bank Ltd.	2021	9.42	3.05	27.41	53.08	14.23	13.35	6.9	7.23	5.54
Pubali Bank Ltd.	2020	9.46	2.73	30.13	54.27	14.73	13.24	3.4	8.3	5.65
Pubali Bank Ltd.	2019	7.51	4.38	23.4	48.63	13.8	13.08	7.9	9.56	5.59
Agrani Bank Ltd.	2023	10.58	7.45	15.67	40.54	4.57	6.88	5.8	7.57	9.02
Agrani Bank Ltd.	2022	11.21	7.1	18.79	46.78	4.98	6.81	7.1	7.12	6.15
Agrani Bank Ltd.	2021	10.75	6.9	14.13	56.78	7.55	6.80	6.9	7.23	5.54
Agrani Bank Ltd.	2020	9.98	12.46	22.43	49	10.01	6.75	3.4	8.3	5.65
Agrani Bank Ltd.	2019	12.36	14.26	20.38	47.7	10.02	6.71	7.9	9.56	5.59