



# An Empirical Analysis of Financial Development and Economic Growth in Bangladesh

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## Letter of Transmittal

03<sup>rd</sup> January, 2026

Md. Ashraf Ali  
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**Subject: Submission of the project paper on ‘An Empirical Analysis of Financial Development and Economic Growth in Bangladesh’.**

Sir,

This study includes the role of financial development on growth an economy: evidence from Bangladesh. I am grateful to work on this topic under your supervision.

I have tried my best to get the findings. However, as a human being, I may have done some mistakes. Therefore, please consider my mistakes, if any, as humanly made errors.

Sincerely yours

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Md Sohag Miah  
Id.: ID No: MBA2501034018  
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## **Student's Declaration**

I, Md Soahg Miah, Id. No.: MBA2501034018, declare that the study paper titled 'An Empirical Analysis of Financial Development and Economic Growth in Bangladesh' is prepared by me under the supervision of Md. Ashraf Ali, Assistant Professor, Department of Business Administration, Sonargoan University. With assurance, I declare that the report has not been submitted to any other place and has been prepared by considering the academic guidelines. This paper is prepared only for academic purpose only.

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## **Certificate by the Supervisor**

This is to certify that the research paper on ‘An Empirical Analysis of Financial Development and Economic Growth in Bangladesh’ is fully prepared by Md Sohag Miah and is prepared under my supervision with due integrity. I also assure the originality of the work written and submitted as a requirement of the MBA degree from the department.

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Md. Ashraf Ali  
Assistant Professor  
Department of Business Administration  
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## Acknowledgement

First, I am grateful to Almighty Allah for enabling me to complete the thesis work. I would like to express my sincere gratitude to my supervisor Md. Ashraf Ali, Assistant Professor, Department of Business Administration, Sonargoan University, for his continuous support, patience, and motivation. His understanding and personal guidance have provided a good basis to conduct the study. His insightful feedback pushed me to sharpen my thinking. I could not have imagined having a better supervisor and mentor for my thesis work. I would also like to thank all my classmates and friends. Their rich patience, help, and enthusiasm help me complete this research easily. I also feel proud to express my best regards, sincerest gratitude to my differential teachers for their benevolent cooperation and best wishes for this work. I must express my profound gratitude to my parents and all other family members for their inspiration and blessing upon me. I would like to express my heartfelt thanks to all my well-wishers. I also like to thank my department for allowing me to conduct the research paper.

## Abstract Summary

The two most significant components for a country's progress are financial development and economic growth. These two elements have a straight causal role in a country's development. The GDP is heavily affected by financial factors such as bank deposits, bank loans and advances, government spending, and private investment. From 1980 to 2023, we can see the impact of various financial components on Bangladesh's GDP.

Some studies have found that banking and economic growth has a strong positive link both in the short run and in the long run, whereas some other studies show weak link between these two. One study found that OIC member countries have a positive link between banking sector and economic growth.

By examining T-test and F-test, I find out that if the data is statistically significant or not. Here, I found that most of the data are statistically significant which means that the financial development has been made over the period from 1980-2023.

The descriptive statistics, I try to show several statistical applications such as correlation and covariance matrix, multicollinearity problem, Heteroscedasticity, OLS regression model and unit root test and revised OLS regression model. From these tests, I found that there is no Heteroscedasticity problem and converting the non-stationary data into stationary through first difference. From OLS regression model, I can try to show that how much percentages contribute my independent variables to GDP, which is around 62.43% from 1<sup>st</sup> OLS regression model and 19.65% from revised OLS regression model.

In the conclusion I can conclude that Bangladesh's economic growth from 1980 to 2023 was boosted by variables related to financial development.

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## Chapter 01: Introduction and Objectives

### 1.1: Introduction and background of the study:

The two most significant components for a country's progress are financial development and economic growth. These two elements have a straight causal role in a country's development. The dispute about the relationship between financial sector development and a country's economic growth has been going on since 1971. Some economists, particularly Joseph Schumpeter, think that the expansion of the financial sector has a significant impact on a country's economic growth. The services supplied by financial intermediaries were identified by Schumpeter, and he believes that they are vital for growth. Patrick suggested two probable causal paths between financial progress and a country's growth (1966). The relationship between a country's financial sector development and growth has recently become a topic of intense study.

The supply-leading and demand-following hypotheses can be used to describe these relationships. The demand-following viewpoint assumes that economic growth leads to financial development. On the other hand, the supply-leading approach holds that financial development has a positive impact on a country's economic growth, suggesting that the construction of financial institutions and markets improves market following services and, as a consequence, leads to country growth.

The GDP is heavily affected by financial factors such as bank deposits, bank loans and advances, government spending, and private investment. From 1980 to 2023, we can see the impact of various financial components on Bangladesh's GDP. Year-over-year, GDP has also increased. The evolution of financial components will be studied in this research. "The role of financial development in Bangladesh's growth" will be the focus of my investigation. The purpose of this paper is to evaluate the impact of financial development on Bangladesh's economic growth.

### 1.2: Objective:

The primary objective of this study is to examine the link between Bangladesh's financial development and economic growth. Secondary goals include completing supervisor criteria and demonstrating the application of several statistical models to a panel data set, as well as increasing research knowledge. These are just a few examples.

- Deposit and L&A percentage GDP changes throughout time are examined.
- Examine the deposit-to-loans-and-advance ratio.

### **1.3: Scope and limitations:**

Financial development and growth will be the major focus of this article. The 44 years of financial growth and development from 1980 to 2023 will be examined in detail. The link between the dependent (GDP growth) and independent (Deposit percent GDP, L&A percent GDP, and the Ratio between deposit and loans and advances) variables will then be found using regression.

The following is the scope of this study:

- Despite my best efforts, I am unable to make my report as effective as possible.
- Due to a lack of time, it is impossible to write a lengthy and detailed paper.
- Resource constraint: There is a lack of all the necessary data and tools. Another problem is that some statistical instrument is unfamiliar to me.

This means that drawing conclusions from statistical study was quite challenging.

### **1.4: Methodology:**

I've conducted out a scientific study. As a result, I used a statistical tool to analyze time series data to arrive at this conclusion. I've spent around three months on this project.

**1.4:1: Sources of Data:** In order to expand the scope of my research, I used secondary data that I gathered from other sources. Consider the following examples:

Deposit % GDP, L&A % GDP and GDP per capita will be used to conduct this study. BSB (Bangladesh Statistics Bureau) and other private data providers, such as macro trends, would be used to acquire these data. The World Bank and Bangladesh Bank will also be considered. There will be no use of primary-level data acquired in the field here.

### **1.4:2: Regression Model and Equation:**

An annual panel data collection was employed to gather all of the information needed for this study. The Correlation Matrix and Variance inflation factors (VIFs) are used to check for multicollinearity before using the Random Effect Generalized Least Square Model or the Fixed Effect model. Additionally, the data set is tested for heteroskedasticity using the Breusch-Pagan Test.

Regression Equation:

$$\text{GDPPCG} = \alpha + \beta_1 \text{D\%GDP} + \beta_2 \text{L\&A\%GDP} + \beta_3 \text{LDR} + \varepsilon$$

**Dependent Variable:**

**GDP Per Capita Growth (GDPPCG):** GDP per capita is the sum of the gross value contributed by all resident producers in the economy, including any product taxes (less subsidies) not included in the valuation of production, divided by the mid-year population.

**Independent Variables:**

**Deposit %GDP (D%GDP):** Domestic deposit money banks' total demand, time, and savings deposits as a percentage of GDP. Banks that accept transferrable deposits, such as demand deposits, are known as deposit money banks.

**Loans & Advances %GDP (L&A%GDP):** Financial institutions lend money to businesses for a specific length of time while banks provide money to businesses to meet working capital needs for a specific period of time. L&A is a percentage of GDP at domestic banks.

**Ratio between Deposit to Loans & Advances (LDR):** The LDR (loan-to-deposit ratio) measures a bank's total loans to its total deposits over a given time period to determine its liquidity. The LDR is expressed as a percentage. This means that if the ratio is too high, the bank may not be able to satisfy any unexpected financial needs.

**1.4:3: Statistical tool:**

The statistical tools I have used to conduct this project paper are-

- Different graphs and charts to display the measurement ratio are the statistical tools I have utilized to execute this project paper.
- Mean variance can be analyzed using the T-test and the F test in MS Excel.
- Stata's Regression Analysis. Here, the relationship between the dependent variable and the independent variable has been demonstrated. It is our dependent variable that GDP per capita growth while deposit % GDP, L&A % GDP and Ratio between deposit to loans and advances are our independent variables.

**1.4:4: Time frame of research:**

Data from 1980 to 2023 was used to calculate the % of GDP deposit, the % of GDP loans & advances, and the ratio of deposit to loans and advances.

**1.5: Structure of the thesis:**

This research paper will be organized obtaining standard research paper formation. Every chapter will be organized and discussed sequentially. This research paper will include the following chapters:

Chapter 01: Introduction and Objectives

Chapter 02: Literature Review

Chapter-3: Organizational Overview

3.1: About the Financial Institution

3.2: Vision & Mission

3.3: Hierarchy of the bank

3.4: Products and Services of the Bank

3.5: Management and Culture of the bank

Chapter-4: Internship Position and Duties

4.1: Internship Position

4.2: Duties perform in general banking

4.3: Overview from Loans and Advances department

4.4: Overview from Foreign Exchanges department

4.5: Overall Learning from Internship Period

Chapter-5: Analysis and Findings

Chapter-6: Recommendations and Conclusion

## Chapter 02: Literature Review

Arguments about banking's impact on economic growth have been going on a long time. Banking growth and economic growth have been discussed in a number of studies. Studies show a strong link between banking and economic growth, both in the short and long term, while others find that the link is weak.

Kabir et al. conducted study on financial development and economic growth in OIC member countries (2011). Panel regressions and variance decomposition techniques were therefore utilized. According to the findings of this study, financial development in OIC emerging countries is linked to economic growth. Short-term multivariate research further supports the one-way causality between financial development and economic growth.

Safiat (2013) examined the long- and short-term relationships between Sudan's financial development and economic growth from 1970 to 2011 using the (ARDL) regression analysis test. The credit to GDP ratio, the ratio of liquid liabilities to nominal GDP, and the broad money supply as a percentage of GDP were used to measure financial progress. There is a positive influence on real GDP per capita from private sector credit and liquid liabilities whereas money supply has a negative impact.

An analysis of Sudan's economic growth from 1970 to 2012 by Ahmed M. K. A. (2014) made use of the Johnson Co-integration Approach and the Vector Error Correction Model (VECM). Economic growth in Sudan was slightly boosted by the country's financial sector development, according to the study's findings.

For this study, Sufian (2012) used the ARDL model for co-integration to assess the impact of financial development on Sudan's economy during the period (1970-2007). According to the study's key findings, Sudan's financial improvement had minimal impact on the country's economic growth.

As part of their research, Frikha and McMillan (2016) employed the ordinary least square regression (OLS) to assess the influence of Islamic banking expansion on economic growth in the United Arab Emirates and other nations in the Gulf Cooperation Council. The researchers found that Islamic banks did not have the same impact on economic growth as conventional ones.

Abusharbeh (2017) used quarterly data from 2000 to 2015 and ordinary least square (OLS) regression to examine the impact of several banking sector indicators on GDP (credit given by banks, deposits, total number of branches, and interest rate). According to this analysis, it can be stated that the Palestinian economy's growth is linked to an increase in bank loans. There is little impact on economic growth from things like interest rates, customer deposits, or the number of branches.

As a way to measure economic development in Cameroon, Puatwoe et al. used three basic financial development indicators: broad money, deposit/GDP, as well as domestic loans to the private sector (2017). Auto Regressive Distributive Lag (ARDL) was employed in the study (ARDL). monetary mass (M2), government expenditures, and government expenditure were found to be positively associated with short-term economic growth. There is also a correlation between bank deposits, private investment, and economic growth in a short-term period. However, financial development has a positive and considerable impact on economic growth over the long term.

It has been shown that between 1990 and 2014, the Johansen cointegration model has an impact on Sudan's economic growth, according to Akol et al. (2020). Short-term and long-term effects on GDP growth can be found in the money supply and private sector bank loans, according to this research.

## **Chapter-3: Organizational Overview**

### **3.1: About the Bank:**

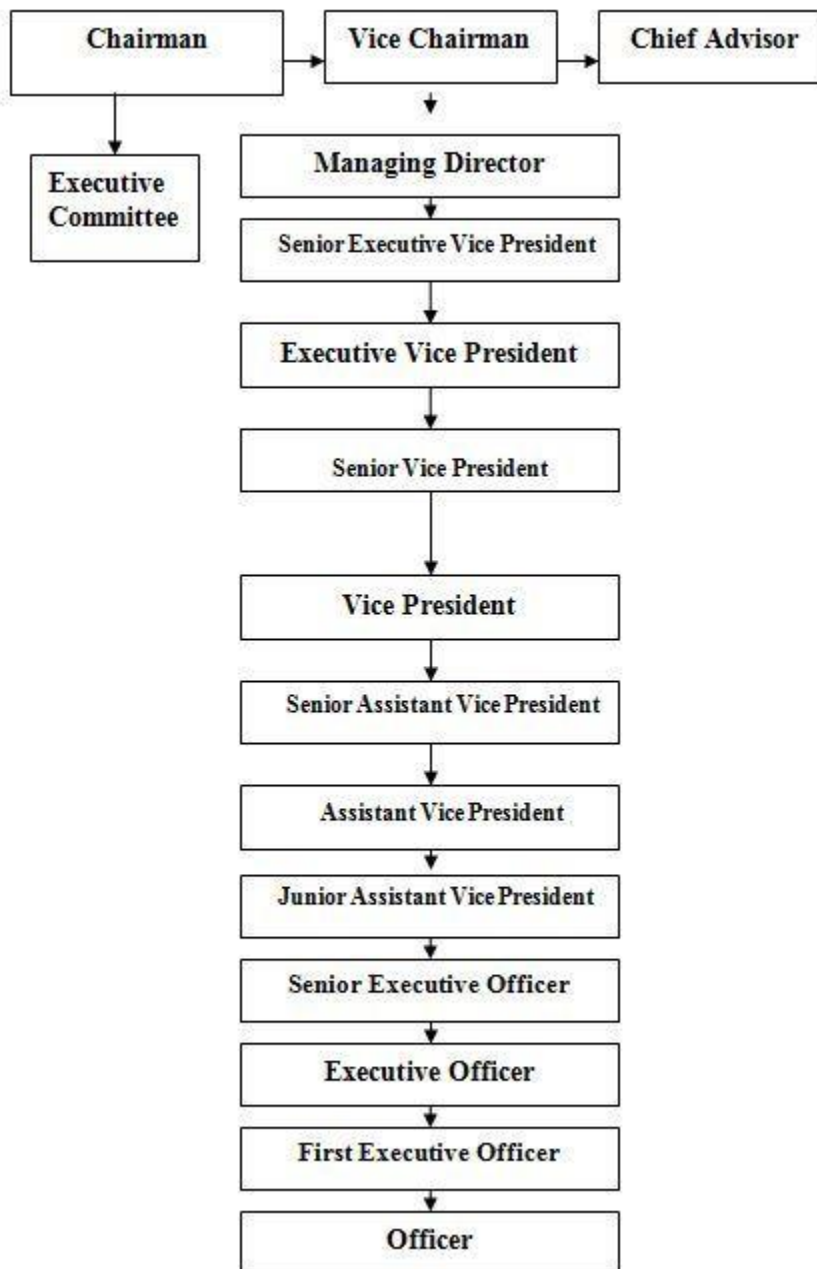
With its headquarters located in Dhaka, Bangladesh, Mutual Trust Bank PLC (MTB) is a third-generation private commercial bank. On September 29, 1999, it was founded as a public limited company. Later that year, after obtaining a license from Bangladesh Bank, it started conducting full banking operations.

### **3.2: Vision & Mission:**

To be the most reputable bank by offering excellence through innovation and sustainable banking products, surpassing changing client expectations across all segments.

To improve the lives and livelihoods of our clients by using creative and sustainable solutions, driven by a motivated and productive staff.

### 3.3: Hierarchy of the bank:



### **3.4: Products and Services of the Bank**

#### **Deposit Products:**

1. Brick by Brick Savings Scheme
2. Monthly Benefit Plan
3. Unique Savings Plan
4. Festival Savings Plan
5. Education Plan
6. Double Saver Plan
7. Triple Saver Plan
8. Millionaire Plan
9. Best Invest Plan

#### **Loan Products:**

1. Small Business Loan
2. Home Loan
3. Home Repair Loan
4. Auto Loan
5. MTB Life Line
6. CC Hypo

#### **Visa Card:**

1. Local Classic Credit Card
2. Local Gold Credit Card
3. Prepaid International Travel Money Card
4. Prepaid Local Gift Card
5. Visa Electron Debit Card

#### **And Foreign Exchanges Trade Services**

### **3.5: Management and Culture of the bank**

Based on the importance of their work, their accountability, and the nature of their tasks, all Bank personnel have been roughly categorized into three groups and assigned grades:

#### **Executive Level: Deputy Managing Director to First Assistant Vice President**

The efficient operation of the banking functions is the responsibility of all executives, including the functional heads. They are highly autonomous and make their own decisions based on clearly defined responsibilities as stated in their individual. Any decision made outside of these specified categories must be referred upward.

**Officer Grade: Assistant Cash Officer/Trainee Assistant Officer to Senior Principal Officer**

Officers are workers who handle routine tasks; despite their independence, they are only able to make decisions after receiving specific permission from their superiors. They carry out the duties outlined in their specific job descriptions.

**Support staffs:**

Support staffs includes Assistants, telephone/SWIFT/computer operators, receptionists, go-down keepers, caregivers, electricians, security guards, messengers, and peons.

Support staff are workers that handle everyday tasks; despite their independence, they are only able to make decisions after receiving specific permission from their supervisors. The duties outlined in each employee's job description will be explained to them on an individual basis.

## **Chapter-4: Internship Position and Duties**

### **4.1: Internship Position:**

I got an internship opportunity in Mutual Brust Bank where I have perform some duties in general and customer services division. I also got the opportunity to make detail overview on their loans and advances division, Foreign Exchanges division.

### **4.2: Duties perform in general banking**

#### **4.2.1. Account Opening Section**

During the internship period, I assisted the officials in the account opening section. My responsibilities included:

Providing customers with account opening forms

Assisting in filling up forms correctly

Checking required documents (NID, photographs, introducer's details)

Helping in opening Savings, Current, Fixed Deposit (FDR), and Special Deposit Scheme accounts

Verifying specimen signatures and customer information

Maintaining account opening registers and files

#### **4.2.2. Remittance Section**

In the remittance department, my duties included:

- Assisting in issuing Pay Orders (PO), Demand Drafts (DD), and Telegraphic Transfers (TT)
- Helping customers fill remittance application forms
- Checking required documents and fee calculations
- Recording transactions in remittance registers

#### **4.2.3. Customer Service Desk**

At the customer service desk, I:

- Answered customer queries regarding account information

- Assisted in ATM card, cheque book, and online banking requests
- Guided customers about bank products and services
- Helped maintain customer service registers

### **4.3: Overview from Loans and Advances department**

#### **4.3.1. Introduction**

The Loans and Advances Department is one of the most important functional areas of a commercial bank. It plays a vital role in income generation and economic development by providing financial assistance to individuals, businesses, and industries. Through this department, banks mobilize deposits into productive investments while managing credit risk and ensuring profitability.

#### **4.3.2. Objectives of Loans and Advances**

The main objectives of the Loans and Advances Department are:

- To provide credit facilities to eligible customers
- To support trade, industry, agriculture, and SME sectors
- To earn interest income for the bank
- To ensure proper utilization and recovery of funds
- To maintain asset quality and minimize credit risk

#### **4.3.3. Types of Loans and Advances**

Commercial banks offer various credit facilities, including:

##### **a) Funded Credit Facilities**

- Term Loan – Long-term financing for fixed assets
- Continuous Loan – Cash Credit (Hypothecation/Pledge)
- Demand Loan – Loan repayable on demand
- Overdraft (OD) – Withdrawal beyond account balance
- House Building Loan (HBL)
- Car Loan / Personal Loan

##### **b) Non-Funded Credit Facilities**

- Letter of Credit (L/C)

- Bank Guarantee
- Bid Bond and Performance Guarantee

#### **4.3.4. Credit Policy and Principles**

The department follows strict credit policies guided by Bangladesh Bank. Key principles include:

- Safety of funds
- Liquidity
- Profitability
- Diversification of risk
- Compliance with regulatory guidelines

Banks also evaluate borrowers using the **Five C's of Credit**:

- Character
- Capacity
- Capital
- Collateral
- Conditions

#### **4.3.5. Loan Processing Procedure**

The typical loan processing steps are:

1. Loan Application Submission
2. Preliminary Screening
3. Credit Appraisal & Risk Analysis
4. Credit Information Bureau (CIB) Report Collection
5. Loan Approval by Competent Authority
6. Documentation & Charge Creation
7. Disbursement of Loan
8. Monitoring and Follow-up
9. Recovery and Adjustment

#### **4.3.6. Credit Appraisal**

Credit appraisal involves:

- Financial statement analysis
- Cash flow analysis
- Business and industry risk assessment
- Security valuation
- Borrower's repayment capacity evaluation

#### **4.3.7. Documentation and Security**

Proper documentation ensures legal protection of the bank. Common securities include:

- Mortgage of land and building
- Hypothecation of stock and receivables
- Pledge of goods
- Personal and corporate guarantees
- Post-dated cheques

#### **4.3.8. Monitoring and Recovery**

Loan monitoring includes:

- Regular account review
- Stock inspection and site visits
- Classification of loans (Standard, SMA, Sub-standard, Doubtful, Bad/Loss)
- Follow-up for overdue installments
- Legal action in case of default

#### **4.3.9. Role of Internship Exposure**

During internship, interns usually:

- Observe loan file preparation
- Assist in documentation checking
- Learn CIB reporting procedures
- Help maintain loan registers
- Understand credit risk management practices

#### **4.3.10. Importance of Loans and Advances Department**

- Major source of bank income
- Supports economic growth and employment
- Encourages entrepreneurship
- Strengthens financial inclusion

#### **4.4: Overview from Foreign Exchanges department**

##### **4.4.1. Introduction**

The Foreign Exchange Department of a commercial bank deals with international trade transactions and foreign currency operations. It plays a crucial role in facilitating import, export, and inward/outward remittance services while ensuring compliance with Bangladesh Bank, Foreign Exchange Regulation Act (FERA), and international trade rules.

##### **4.4.2. Objectives of the Foreign Exchange Department**

The main objectives of this department are:

- To facilitate international trade payments and receipts
- To ensure smooth foreign currency transactions
- To earn foreign exchange related income for the bank
- To comply with central bank and international regulations
- To support exporters, importers, and expatriates

##### **4.4.3. Major Functions of the Foreign Exchange Department**

The department is mainly divided into three sections:

1. Import Section
2. Export Section
3. Foreign Remittance Section

##### **4.4.4. Import Section**

The import section handles all activities related to the import of goods.

**Key Functions:**

- Opening Letter of Credit (L/C) on behalf of importers
- Scrutinizing import documents (Proforma Invoice, IRC, LCAF)
- Amendment of L/Cs
- Lodgment of import bills
- Retirement of import bills
- Reporting to Bangladesh Bank (IMP Form)
- Ensuring compliance with UCP 600 and foreign exchange guidelines

**4.4.5. Export Section**

The export section manages export-related transactions and documentation.

**Key Functions:**

- Advising and confirming Export L/C
- Scrutinizing export documents (Invoice, Packing List, B/L)
- Negotiation and collection of export bills
- Monitoring export proceeds realization
- Reporting export transactions (EXP Form)
- Providing pre-shipment and post-shipment finance

**4.4.6. Foreign Remittance Section**

This section deals with inward and outward foreign currency remittance.

**Key Functions:**

- Handling inward remittance from expatriates
- Processing outward remittance for education, travel, medical purposes
- Issuing foreign currency drafts and TT
- Maintaining Nostro accounts
- Converting foreign currencies
- Compliance with AML and KYC regulations

**4.4.7. Regulatory Compliance**

The Foreign Exchange Department strictly follows:

- Bangladesh Bank Circulars
- Foreign Exchange Regulation Act (FERA), 1947
- Anti-Money Laundering (AML) guidelines
- International Chamber of Commerce (ICC) rules
- Uniform Customs and Practice for Documentary Credits (UCP 600)

#### **4.4.8. Risk Management**

Key risks managed by this department include:

- Exchange rate risk
- Country risk
- Document discrepancy risk
- Compliance and AML risk
- Settlement risk

#### **4.4.9. Role of Internship Exposure**

During internship, interns generally:

- Observe L/C opening and documentation
- Assist in checking import/export documents
- Learn about foreign exchange reporting forms (IMP, EXP)
- Help maintain foreign exchange registers
- Gain practical exposure to trade finance operations

#### **4.4.10. Importance of the Foreign Exchange Department**

- Supports international trade and economic growth
- Ensures foreign currency inflow to the country
- Helps maintain balance of payments
- Enhances bank profitability through trade finance income

## **4.5: Overall Learning from Internship Period**

### **4.5.1. Practical Understanding of Banking Operations**

One of the most significant learnings was gaining practical insight into daily banking activities. I learned how:

- General banking operations are conducted
- Accounts are opened and maintained
- Cash, clearing, and remittance functions are performed
- Banking software is used for transaction processing

This experience helped me understand the operational workflow of a commercial bank.

### **4.5.2. Knowledge of Core Banking Departments**

During the internship, I became familiar with major departments such as:

- General Banking
- Loans and Advances
- Foreign Exchange

Each department plays a critical role in the overall banking system, and observing their coordination improved my understanding of integrated banking services.

### **4.5.3. Understanding of Banking Rules and Regulations**

The internship provided practical exposure to:

- Bangladesh Bank guidelines
- KYC and AML compliance requirements
- Foreign Exchange Regulation Act (FERA)
- Internal bank policies and procedures

This knowledge emphasized the importance of regulatory compliance in banking operations.

#### **4.5.4. Customer Service and Communication Skills**

Interacting with customers improved my:

- Communication and interpersonal skills
- Ability to handle customer queries professionally
- Problem-solving and service delivery skills
- Understanding of customer satisfaction and relationship management

#### **4.5.5. Professional Work Ethics and Discipline**

The internship instilled strong professional values, including:

- Punctuality and time management
- Teamwork and coordination
- Confidentiality and ethical behavior
- Responsibility and accountability

These traits are essential for a successful banking career.

#### **4.5.6. Risk Awareness and Decision-Making**

I learned how banks assess and manage:

- Credit risk
- Operational risk
- Compliance risk
- Foreign exchange risk

Understanding risk management practices enhanced my analytical thinking and decision-making abilities.

#### **4.5.7. Application of Academic Knowledge**

The internship allowed me to apply theoretical concepts such as:

- Credit appraisal techniques
- Financial statement analysis
- Time value of money
- Banking laws and principles

This practical application reinforced classroom learning.

#### **4.5.8. Personal and Career Development**

The internship helped me:

- Build professional confidence
- Develop a positive work attitude
- Understand career opportunities in banking
- Identify areas for skill improvement

It also strengthened my interest in pursuing a career in the banking sector.

## Chapter-5: Analysis and Findings

### 5.1: DEPOSIT %GDP

The mean of deposit from 1980 to 2023 is **23.55** and standard deviation is 13.60. As the T ratio is 1.73 which is less than 2.96. So I can say that this T ratio is not statistically significant. First of all, I divide the total period of observations (from 1980 to 2023) into two periods. First period from 1980 to 2001 and Second period from 2002 to 2023 and sub-divide these two period. Then I find out, there exists either equal variance or unequal variance through F-Test:

#### **From 1980 to 2001 Vs from 2002 to 2023: T-Test and F-Test**

I found that there are 22 observations in each period, As the second period of deposit % GDP (from 2002 to 2023) has higher variance so I used the 2<sup>nd</sup> period observations as a 1<sup>st</sup> variable in F-test. I can see that the P value (**2.36802E-05**), which is less than .05, So there exist two sample unequal variances. Now I test the significance level of data through T-Test:

I found that mean of deposit (from 1980 to 2001) for the 1<sup>st</sup> period is **11.86110591** and 2<sup>nd</sup> period (from 2002 to 2023) is **35.2492**. As the two tail P value (**7.48925E-12**) is less than .05. So the difference between the two samples mean is statistically significant.

**From 1980 to 1990 Vs 1991 to 2001:** First and foremost, the F-Test shows that there is either equal or unequal variance: populations have the same variance.

From my F-Test, I found that each period had 11 observations. Because the second period of deposit % GDP (from 1991 to 2001) has a greater variance, I used the second period observations as the first variable. The P value (**0.002581191**), which is smaller than .05, may be seen in the table above. As a result, there are two sample unequal variances. Now I use the T-Test to determine the relevance of the data:

The first period's (from 1980 to 1990) mean of deposit is **9.147711818**, and the second period's (from 1991 to 2001) mean is **14.5745**, as shown in the T-test table. Since the P value for the two tails (**3.51368E-05**) is less than .05. As a result, the difference in the means of the two samples is statistically significant.

**From 2002 to 2012 Vs from 2013 to 2023:** In the first step, I conduct an F-Test to see if the variance is equal or not:

I found that each period had 11 observations. Because the first period (From 2002 to 2012) has the highest variance, I used the first period observations as the first variable. I can see from the F-test table that the P value (**0.000687864**), which is less than .05, indicates that there are two samples with unequal variances. Now I use the T-Test to determine the significance of the data:

The first period's mean of deposit %GDP (From 2002 to 2012) is **28.65410909**, and the second period's mean (from 2013 to 2023) is **41.84429091**, as seen in the T-test table. Since the P value for the two tails (**0.000252605**) is less than .05. As a result, the difference in the means of the two samples is statistically significant.

## **5.2:** Loans and Advances %GDP:

The average of L&A from 1980 to 2023 is 21.49 and standard deviation is 13.53. As the T ratio is 1.59, which is less than 2.96. So I can say that this T ratio is not statistically significant. First and foremost, I divide the entire observation period (from 1980 to 2023) into two phases. Subdivide the first period from 1980 to 2001 and the second period from 2002 to 2023. Then, using the F-Test, I determine whether there is equal variance or unequal variance:

### **From 1980 to 2001 Vs from 2002 to 2023: T-Test and F-Test:**

Based on the F-test table, I observed that each period had 22 observations. Because the second period of L&A (from 2002 to 2023) has a higher variance, I used the second period observations as the first variable. The P value (**0.007048932**), which is smaller than .05, can be seen in the table above. As a result, there are two sample unequal variances. Now I use the T-Test to determine the significance of the data:

From the T-test table, I found that mean of L&A 1<sup>st</sup> period (From 1980 to 2001) is **10.5463636** and mean of L&A (from 2002 to 2023) 2<sup>nd</sup> period is **32.43931818**. As the two tail P value (**0.000252605**) is less than .05. So the difference between the two samples mean is statistically significant.

**From 1980 to 1990 Vs 1991 to 2001:** First of all, I find out, there exists either equal variance or unequal variance through F-Test:

I found that each period had 11 observations, therefore I used the first period (from 1980 to 1990) observations as the first variable. Because the first period has the highest variance, I used the first period observations as the first variable. The P value (**0.171142912**), which is greater than .05, can be seen in the table. As a result, there are two sample equal variances. Now I use the T-Test to determine the significance of the data:

The first period's mean of L&A (from 1980 to 1990) is **5.78636364**, while the second period's mean (from 1991 to 2001) is **15.30636364**, as seen in the T-test table. Because the P value for the

two tails (6.86E-08) is less than .05. As a result, the difference in the means of the two samples is statistically significant.

**From 2002 to 2012 Vs from 2013 to 2023:** First, I conduct the F-Test to determine whether there is equal variance or unequal variance:

The F-test table shows that each period had 11 observations. Because the second period of L&A%GDP (from 2012 to 2023) has a greater variance, I used the second period observations as the first variable. The P value (**0.274197933**), which is greater than .05, can be seen in the table. As a result, there are two sample equal variances. Now I use the T-Test to determine the significance of the data:

I can see the T-test table is that the first period's mean of L&A (from 2002 to 2012) is **24.0423636** and the second period's mean (from 2013 to 2023) is **40.83627273**. Because the P value for the two tails (**2.7716E-08**) is less than .05. As a result, the difference in the means of the two samples is statistically significant.

### **5.3:** Deposit %GDP Vs L&A%GDP:

First of all, I divide the total period of observations both deposit % GDP and L&A % GDP (from 1980 to 2023) into two periods. First period from 1980 to 2001 and Second period from 2002 to 2023. Then equally sub-divide these two periods. Then I find out, there exists either equal variance or unequal variance by F-Test:

**1<sup>st</sup> period of deposit %GDP (1980-2001) Vs 1<sup>st</sup> period of L&A % GDP (1980-2001):** In the first step, I conduct an F-Test to see if the variance is equal or not:

The L&A % GDP has a larger variance, thus I used it as a first variable in my model, as seen in the table above. The P value (**0.016828728**), which is smaller than .05, indicates that there are two samples with unequal variances. T-Test is now used to determine the significance level of the data.

Mean of deposit % GDP of 1st period is **11.86110591** and L&A % GDP of first period is **10.54636364**, according to the T-test table. Due to the fact that the two-tail P-value (**0.350465714**) is above .05. This means that the difference in average values between the two groups isn't significant.

**2<sup>nd</sup> period of deposit %GDP (2002-2023) Vs 2<sup>nd</sup> period of L&A % GDP (2002-2023):** Using F-Test, I determine whether or not the variance is equal or unequal.

From the F-test table, I found that there are 22 observations in each period, As the L&A %GDP has higher variance so I input the L&A %GDP as a 1<sup>st</sup> variable. From the table, I can see that the

P value (**0.368997108**), which is greater than .05, So there exist two sample equal variances. Now I test the significance level of data through T-Test.

From the T-test table, I can see that mean of deposit %GDP of 2<sup>nd</sup> period is **35.2492** and L&A %GDP of 2<sup>nd</sup> period is **32.43931818**. As the two tail P value (**0.322640856**) is greater than .05. So the difference between the two samples mean is not statistically significant.

**Deposit %GDP Vs L&A %GDP (From 1980 to 1990):** Using F-Test, I determine whether or not the variance is equal or unequal.

When I looked at the data from F-test table, I noticed that each period had 11 observations, so I entered the L&A % GDP as the first variable. The P value (**0.001001888**) is less than .05, hence there are two samples with unequal variances, as shown in the table above. T-Test is now used to determine the significance level of the data.

There is a mean of **9.147711818** for the deposit % of GDP, and **5.786363636** for the L&A % of GDP. P-values for the two tails (**0.004956534**) are below .05. As a result, there is a statistically significant difference in the mean of the two samples.

**Deposit %GDP Vs L&A %GDP (From 1991 to 2001):** First of all I find out, there exists either equal variance or unequal variance through F-Test:

From the F-test table, I found that there are 11 observations in each period, As the deposit % GDP has higher variance so I enter the deposit %GDP as a 1<sup>st</sup> variable. From the table, I can see that the P value (**0.275627169**), which is greater than .05, So there exist two sample equal variances. Now I test the significance level of data through T-Test.

From the T-test table, I can see that mean of deposit %GDP is **14.5745** and L&A %GDP is **15.30636364**. As the two tail P value (**0.501670684**) is greater than .05. So the difference between the two samples mean is not statistically significant.

**Deposit %GDP Vs L&A %GDP (From 2002 to 2012):** First of all I find out, there exists either equal variance or unequal variance through F-Test:

From the F-test table, I found that there are 11 observations in each period, As the deposit %GDP has higher variance so I input the deposit %GDP as a 1<sup>st</sup> variable. From the table, I can see that the P value (**0.01875093**), which is less than .05, So there exist two sample unequal variances. Now I test the significance level of data through T-Test.

From the T-test table, I can see that mean of deposit %GDP is **28.65410909** and L&A %GDP is **24.04236364**. As the two tail P value (**0.112603811**) is greater than .05. So the difference between the two samples mean is not statistically significant.

**Deposit %GDP Vs L&A %GDP (From 2013 to 2023):** Using F-Test, I determine whether or not the variance is equal or unequal.

Using the data, I observed that each period has a total of 11 observations. I used the L&A % GDP as the first variable because it has a higher variance. The P value (**0.030632884**), which is smaller than .05, can be seen in the table above. As a result, there are two distinct variances in each sample. T-Test is now used to determine the significance level of the data.

To summarize, the average deposit share of GDP is **41.84429091**, with L&A's share of GDP coming in at **40.83627273**. Two tail p values of **0.557112184** are greater than 0.05 (0.557112284). As a result, there is no reason to believe that the difference in means between the two samples is significant.

## 5.4: Statistical analysis

For this statistical analysis, GDP Per Capita is the dependent variable where Deposit % of GDP, L&A %GDP and Ratio between Deposit and L&A are the independent variables. This chapter covers the statistical analysis, statistical models and the conclusions drawn from the results of those statistical analyses.

The descriptive statistics of these variables is presented below where the average Deposit% GDP 23.55. Moreover, the L&A%GDP and Ratio between Deposit to L&A have an average value of 21.49 and 0.88. The table includes average values, standard deviation, minimum values and maximum values.

```
. summarize DEPOSITGDP LAGDP RATIOBETWEENDEPTOLA GDPPERCAPITA
```

Variable	Obs	Mean	Std. Dev.	Min	Max
DEPOSITGDP	44	23.55515	13.5983	7.8991	44.9075
LAGDP	44	21.49284	13.52984	1.917	47.411
RATIOBETWE~A	44	.8801474	.2341395	.2426859	1.238195
GDPPERCAPITA	44	3.258091	1.879182	.142	7.831

```
.
```

### Correlation Matrix:

Before running the regression analysis, we have to see how each of the variables is related to other. If any of the variables is highly correlated with any other variable, then it may distort the result of the regression. I have used the command: `correlate DEPOSITGDP LAGDP RATIOBETWEENDEPTOLA GDPPERCAPITA`.

Stata gives us the correlation matrix which look like this:

```
. correlate DEPOSITGDP LAGDP RATIOBETWEENDEPTOLA GDPPERCAPITA
(obs=44)
```

	DEPOSI~P	LAGDP	RATIOB~A	GDPPE~A
DEPOSITGDP	1.0000			
LAGDP	0.9612	1.0000		
RATIOBETWE~A	0.2445	0.4531	1.0000	
GDPPERCAPITA	0.5803	0.5119	-0.2758	1.0000

A rule of thumb is that if any two variables are correlated to each other by .70 to -.70 then they create a problem to the regression. Here in the correlation matrix, we observe that deposit% GDP and L&A% GDP are highly correlated with other variables to the stated extend. So, it's an indication that the variables are not free from multicollinearity problem and so, Variance Inflation Factor (VIF) Test should be conducted to test the multicollinearity.

### OLS Regression Analysis:

It is time to run the regression analysis. In stata we have to identify the dependent variable and independent variables. To regress my dependent variable GDP Per Capita versus the other three independent variables I have used the command: regress GDPPERCAPITA DEPOSITGDP LAGDP RATIOBETWEENDEPTOLA.

The regression result is shown below.

```
. regress GDPPERCAPITA DEPOSITGDP LAGDP RATIOBETWEENDEPTOLA
```

Source	SS	df	MS	
Model	94.8018132	3	31.6006044	Number of obs = 44
Residual	57.0450824	40	1.42612706	F( 3, 40) = 22.16
Total	151.846896	43	3.53132315	Prob > F = 0.0000

R-squared = 0.6243  
Adj R-squared = 0.5961  
Root MSE = 1.1942

I have run the regression with 44 observations for each variable. We see that R-square value is .6243. It indicates that in the regression model I have established, the three independent variables explains 62.43% variability of the dependent variable GDP Per Capita. That is rest 37.57% variability is not explained by the variable I have chosen. So, there may be other variables that have much more impact on the dependent variable that are needed to be considered. Also the F value is 22.16. It indicates that my model is statistically significant.

GDPPERCAPITA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DEPOSITGDP	-.1549161	.0771645	-2.01	0.051	-.3108714	.0010392
LAGDP	.2779238	.0843554	3.29	0.002	.1074352	.4484124
RATIOBETWEENDEPTOLA	-7.290008	1.386065	-5.26	0.000	-10.09135	-4.488667
_cons	7.350073	1.210585	6.07	0.000	4.90339	9.796755

Here the coefficient column indicates to what extent the dependent variable will move according to the one unit change in the specific independent variable. Negative coefficient means that the dependent variable is inversely related to the specific independent variable. Here, change in each independent variables have greater or lower impact on the dependent variable. But, all the independent variables are not statistically significant. Looking at the p value we can see that only L&A%GDP, Ratio between deposit to L&A are statistically significant as they have a p value lower than .05. The other independent variable (Deposit%GDP) is statistically insignificant.

#### **Variance Inflation Factor (VIF) Test:**

We have another alternative tool to see whether any multicollinearity exist. It is called Variance Inflation Factor (VIF), where the chosen independent variable serves as the dependent variable and the remaining independent variables serve as independent variables. A VIF of 10 or more is regarded unsatisfactory, implying that the independent variable should be changed. Our Stata VIF tool gives us the results given below:

. vif

Variable	VIF	1/VIF
LAGDP	39.28	0.025461
DEPOSITGDP	33.20	0.030122
RATIOBETWE~A	3.18	0.314901
Mean VIF	25.22	

We can see that the independent variables (L&A%GDP DEPOSIT%GDP) have a VIF higher than 10. Another one has a very lower VIF factor 3.18. Since there has a multicollinearity problem so we can use two independent variables (L&A%GDP and Ratio between Deposit to L&A) in our further regression. The average VIF factor is 25.22.

**OLS Regression Analysis:**

As there has a multicollinearity problem so it is time to run the 2<sup>nd</sup> time regression analysis. In stata we have to identify the dependent variable and independent variables. To regress my dependent variable GDP Per Capita versus the other two independent variables (Deposit%GDP and Ratio between Deposit to L&A). I have used the command: regress GDPPERCAPITA DEPOSITGDP RATIOBETWEENDEPTOLA

. regress GDPPERCAPITA DEPOSITGDP RATIOBETWEENDEPTOLA

Source	SS	df	MS	
Model	79.3213468	2	39.6606734	Number of obs = 44
Residual	72.5255489	41	1.76891583	F( 2, 41) = 22.42
Total	151.846896	43	3.53132315	Prob > F = 0.0000

R-squared = 0.5224  
Adj R-squared = 0.4991  
Root MSE = 1.33

I have run the regression with 44 observations for each variable. We see that R-square value is .5224. It indicates that in the regression model I have established, the three independent variables

explains 52.24% variability of the dependent variable GDP Per Capita. That is rest 47.76% variability is not explained by the variable I have chosen. So, there may be other variables that have much more impact on the dependent variable that are needed to be considered. Also the F value is 22.42. It indicates that my model is statistically significant.

GDPPECAPITA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
DEPOSITGDP	.0952105	.0153823	6.19	0.000	.0641453	.1262758
RATIOBETWEENDEPTOLA	-3.565822	.8933718	-3.99	0.000	-5.370023	-1.761621
_cons	4.153842	.8064895	5.15	0.000	2.525103	5.78258

Here the coefficient column indicates to what extent the dependent variable will move according to the one unit change in the specific dependent variable. Negative coefficient means that the dependent variable is inversely related to the specific independent variable. Here, change in each independent variables have greater or lower impact on the dependent variable. But, all the independent variables are statistically significant. Looking at the p value we can see that only Deposit%GDP, Ratio between deposit to L&A are statistically significant as they have a p value lower than .05.

#### **Variance Inflation Factor (VIF) Test:**

We have another alternative tool to see whether any multicollinearity exist. It is called Variance Inflation Factor (VIF), where the chosen independent variable serves as the dependent variable and the remaining independent variables serve as independent variables. A VIF of 10 or more is regarded unsatisfactory, implying that the independent variable should be changed. Our Stata VIF tool gives us the results given below:

```
. vif
```

Variable	VIF	1/VIF
DEPOSITGDP	1.06	0.940210
RATIOBETWE~A	1.06	0.940210
Mean VIF	1.06	

We can see that the independent variables have a VIF lower than 10. So there is no multicollinearity problem. The average VIF factor is 1.06.

### Heteroskedasticity Test

Heteroscedasticity (sometimes spelt "heteroskedasticity") is a pattern in a model's residuals in which the degree of variability is consistently bigger for some subsets of the residuals than for others. Non-constant variance is another name for it. In a linear regression model, the Breusch Pagan Study checks for heteroskedasticity by assuming the error components are normally distributed. The variance of the regression errors is examined to see if the independent variable values affect it.

```
. hettest
```

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
```

```
Ho: Constant variance
```

```
Variables: fitted values of GPPERCAPITA
```

```
chi2(1) = 0.16
```

```
Prob > chi2 = 0.6865
```

The null hypothesis of this test is that the data set has no problems with heteroskedasticity. The Breusch-Pagan Test indicates that the Alternate hypothesis should be rejected. Here,  $\chi^2$  value is 0.16. So, there is no issue with heteroskedasticity.

## Unit Root Test

The statistician will conduct a unit root test if a time series variable is non-stationary and has a unit root. The null hypothesis is always the existence of a unit root, regardless of the test used to find out if the data exhibits one. Using the unit root test, we aim to reject the null hypothesis.

### Deposit % GDP:

```
. dfuller DEPOSITGDP
```

```
Dickey-Fuller test for unit root          Number of obs   =          43
```

Test	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Statistic			
Z(t)	0.326	-3.628	-2.950

```
MacKinnon approximate p-value for Z(t) = 0.9785
```

From the above table, I can see that the P-value (**0.9785**) which is greater than 0.5 and test statistics is also greater than critical value (**0.326 > -2.950**). so, I cannot reject the null hypothesis. As the data is not stationary, so I convert the data into stationary by using the following command: `gen dDEPOSITGDP = d.DEPOSITGDP`. Then I again do the unit root test. The result is the following table.



```
. gen dLAGDP = d.LAGDP
(1 missing value generated)
```

```
. dfuller dLAGDP
```

```
Dickey-Fuller test for unit root           Number of obs   =       42
```

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-6.442	-2.952	-2.610

```
MacKinnon approximate p-value for Z(t) = 0.0000
```

From the above table, I can see that the P-value (**0.0000**) which is less than 0.5 and test statistics is also less than the critical value (**-6.442 < -2.952**). so, I can reject the null hypothesis and defined the data is stationary at the 1<sup>st</sup> differentiation.

### LDR Ratio:

```
. dfuller RATIOBETWEENDEPTOLA
```

```
Dickey-Fuller test for unit root           Number of obs   =       43
```

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-2.601	-2.950	-2.608

```
MacKinnon approximate p-value for Z(t) = 0.0928
```

To summarize, the P-value (**0.0928**) and test statistics (**-2.601 > -2.950**) are both higher than 0.5, as seen in the table above. so, I can't rule out the null hypothesis at this point. I use the command: `gen dRATIOBETWEENDEPTOLA = d.RATIOBETWEENDEPTOLA` to make the data stationary since the data is not stationary. Unit root testing is then repeated. The following table shows the outcome of the test.

```
. gen dRATIOBETWEENDEPTOLA = d.RATIOBETWEENDEPTOLA
(1 missing value generated)
```

```
. dfuller dRATIOBETWEENDEPTOLA
```

```
Dickey-Fuller test for unit root           Number of obs   =           42
```

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-3.634	-2.952	-2.610

MacKinnon approximate p-value for Z(t) = 0.0000

It's clear that the P-value (**0.0000**) is less than 0.5, as well as the test statistic (**-5.126 < -2.952**), which is also less than the critical value (-6.442). The data is stationary, thus I may reject the null hypothesis.

### GDP Per Capita Growth:

```
. dfuller GDPPERCAPITA
```

```
Dickey-Fuller test for unit root           Number of obs   =           43
```

Test Statistic	Interpolated Dickey-Fuller		
	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-3.628	-2.950	-2.608

MacKinnon approximate p-value for Z(t) = 0.0112

From the above table, I can see that the P-value (**0.0112**) which is less than 0.5 and test statistics is also less than critical value (**-3.393 < -2.950**). so, I cannot reject the null hypothesis and defined the data is stationary.

### Revised OLS Regression:

After examining the unit root test and convert the data stationary which are non-stationary, then I run the revised regression in Stata:

```
.
. regress GPPERCAPITA dDEPOSITGDP dLAGDP dRATIOBETWEENDEPTOLA
```

Source	SS	df	MS	Number of obs =	43
Model	25.6272933	3	8.5424311	F( 3, 39) =	3.18
Residual	104.821791	39	2.68773823	Prob > F =	0.0345
				R-squared =	0.1965
				Adj R-squared =	0.1346
Total	130.449084	42	3.10593058	Root MSE =	1.6394

As can be seen, the R-squared value is **0.1965**. In the regression model I built, the three independent variables account for **19.65 %** in GDP Per Capita. My selection of variable cannot explain for a total of **80.35 %** of the data. As a consequence, other factors having a stronger impact on the dependent variable may be investigated. In addition, the F value is **3.18**. This data shows that my model is statistically significant.

GPPERCAPITA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
dDEPOSITGDP	-.6399038	.244075	-2.62	0.012	-1.133592	-.1462156
dLAGDP	.8067188	.3027355	2.66	0.011	.1943785	1.419059
dRATIOBETWEENDEPTOLA	-15.82276	5.22826	-3.03	0.004	-26.39791	-5.247605
_cons	3.118385	.3313527	9.41	0.000	2.448161	3.788609

To illustrate, the coefficient column in this example indicates how much an increase or decrease in the dependent variable changes the dependent variable by one unit. A positive coefficient, for example, indicates a close relationship between the independent and dependent variables. It's necessary to keep in mind that the dependent variable is affected in a different way by each of the independent variables. There are all the three independent variables statistically significant.

## Chapter-6: Recommendations and Conclusion

### 6.1: Recommendations:

#### 1. Improvement of Deposit Mobilization Efficiency:

Although deposit as a percentage of GDP has increased over the study period, the empirical results show mixed statistical significance. Therefore, financial institutions should focus on improving the efficiency of deposit mobilization by encouraging long-term savings and ensuring that deposited funds are channelled into productive investment activities to support economic growth.

#### 2. Productive Utilization of Loans and Advances:

The study finds that loans and advances as a percentage of GDP have a significant impact on GDP per capita growth. Hence, banks should ensure that credit facilities are directed toward productive sectors such as small and medium enterprises (SMEs), agriculture, manufacturing, and export-oriented industries to promote sustainable economic development.

#### 3. Maintenance of an Optimal Loan-to-Deposit Ratio:

Since the loan-to-deposit ratio significantly influences economic growth, commercial banks should maintain an optimal balance between deposits and loans. An appropriate loan-to-deposit ratio will help ensure sufficient liquidity, financial stability, and effective credit expansion.

#### 4. Diversification of the Financial Sector:

The presence of multicollinearity between deposit % GDP and loans and advances % GDP indicates reliance on similar banking indicators. Therefore, financial sector development should be diversified through the expansion of capital markets, bond markets, Islamic banking products, and non-bank financial institutions to strengthen overall financial depth.

#### 5. Strengthening Financial Regulation and Supervision:

Effective regulation and supervision by Bangladesh Bank are essential to improve governance, transparency, and credit management in the banking sector. Reducing non-performing loans (NPLs) will enhance financial stability and strengthen the contribution of financial development to economic growth.

#### 6. Expansion of Financial Inclusion and Digital Banking:

Financial inclusion should be expanded through agent banking, mobile banking, and digital financial services. Increased access to formal financial services, especially for rural and low-income populations, will deepen financial development and support inclusive economic growth.

#### 7. Inclusion of Additional Growth Determinants:

Since the revised regression model explains only a limited portion of GDP per capita growth, policymakers should also consider other important determinants such as human capital development, foreign direct investment (FDI), technological advancement, infrastructure development, and trade openness.

#### 8. Ensuring Macroeconomic Stability:

Macroeconomic stability, including stable inflation, controlled fiscal deficits, and exchange rate stability, is essential to strengthen the relationship between financial development and economic growth. Stability increases investor confidence and improves the effectiveness of financial intermediation.

#### 9. Development of Skilled Human Resources in the Financial Sector:

Training and capacity-building programs should be strengthened for banking professionals to improve skills in credit appraisal, risk management, and financial innovation. Skilled human resources will enhance the efficiency and performance of financial institutions.

#### 10. Scope for Future Research:

Future studies may apply advanced econometric techniques such as ARDL, VECM, or Granger Causality tests to examine both short-run and long-run relationships more comprehensively. The inclusion of capital market variables and extended datasets may further improve the robustness of future research.

## 6.2: Conclusion:

This study investigates the relationship between financial development and economic growth in Bangladesh by using time-series data covering the period from 1980 to 2023. The empirical results reveal that financial development has a significant influence on economic growth. Specifically, loans and advances as a percentage of GDP and the loan-to-deposit ratio demonstrate a statistically significant effect on GDP per capita growth, while deposit mobilization supports economic growth indirectly through the process of financial intermediation.

The regression outcomes indicate that financial development indicators explain a considerable proportion of economic growth; however, the revised regression model suggests that GDP per capita growth is also affected by additional factors beyond the variables included in this study. These findings highlight the importance of an efficient and well-regulated financial system in achieving sustainable economic development in Bangladesh.

In conclusion, strengthening the banking sector, improving the allocation of credit, maintaining financial stability, and expanding financial inclusion can further enhance the contribution of financial development to economic growth. The study confirms that financial development has played a positive role in Bangladesh's economic growth during the period from 1980 to 2023 and emphasizes the necessity of continued financial sector reforms for long-term economic progress.

Furthermore, the results of this study indicate that economic growth is positively influenced by financial development. Statistical significance was examined using t-tests and f-tests, and most of the variables were found to be statistically significant. The descriptive analysis shows that the average deposit-to-GDP ratio and loans and advances-to-GDP ratio are 23.55 percent and 21.49 percent, respectively. The initial regression model demonstrates that the three independent variables jointly explain 62.43 percent of the variation in GDP per capita.

However, correlation and covariance analyses, along with the Variance Inflation Factor (VIF) test, reveal the presence of multicollinearity, particularly involving loans and advances as a percentage of GDP. To address this issue, an additional OLS regression model excluding this variable was estimated, which explains 52.24 percent of the variation in GDP per capita. Subsequent VIF testing confirms the absence of multicollinearity, while the heteroskedasticity test indicates no heteroskedasticity problem in the model.

Finally, unit root tests were conducted to examine data stationarity, and non-stationary variables were transformed into stationary form using first-difference techniques. A revised OLS regression model was then estimated, yielding an R-squared value of 0.1965. This result suggests that 19.65 percent of the variation in GDP per capita is explained by the selected variables, while the remaining portion is influenced by other factors not included in the model. Overall, the findings confirm that Bangladesh's economic growth from 1980 to 2023 has been positively driven by variables related to financial development.

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## Appendices

Appendix 1: Data Table

YEAR	DEPOSIT % GDP	L&A% GDP	RATIO BETWEEN DEP. TO L&A	GDP PER CAPITA
1980	9.37521	2.612	0.278607093	7.831
1981	7.8991	1.917	0.242685876	5.901
1982	8.40452	2.965	0.352786358	3.322
1983	8.80807	4.99	0.566525925	0.142
1984	8.74375	4.534	0.518541816	4.255
1985	9.42057	5.339	0.566738531	1.991
1986	8.34923	5.771	0.691201464	1.853
1987	8.83856	6.777	0.76675386	4.443
1988	9.07124	7.156	0.788866792	0.5
1989	9.93138	9.034	0.909641963	1.216
1990	11.7832	12.555	1.065500034	2.108
1991	12.9818	13.04	1.0044832	0.669
1992	12.9818	12.743	0.981605016	1.464
1993	12.9818	13.215	1.017963611	1.079
1994	12.9818	14.415	1.110400715	0.207
1995	12.9818	15.97	1.230183796	0.274
1996	12.9818	16.074	1.238195011	3.087
1997	12.9818	15.92	1.22633225	1.107
1998	12.9818	14.546	1.120491765	3.114
1999	18.5739	15.294	0.8234135	2.466
2000	18.4651	16.271	0.88117584	1.69
2001	19.4261	20.882	1.074945563	2.901
2002	19.618	18.912	0.964012641	2.32
2003	20.1983	19.987	0.989538724	2.307
2004	20.1537	20.497	1.017034093	3.015
2005	20.7828	20.697	0.995871586	2.574
2006	22.6472	21.492	0.948991487	3.257
2007	28.5089	23.86	0.836931625	3.114
2008	33.9809	25.864	0.76113346	1.96
2009	35.3842	25.694	0.726143307	2.942
2010	36.7626	27.556	0.749566135	3.553
2011	37.9919	29.03	0.764110245	4.966
2012	39.1667	30.877	0.788348265	5.245
2013	39.8235	31.787	0.798197044	5.753
2014	40.7055	33.818	0.830796821	4.806

2015	38.7458	35.985	0.928745825	3.879
2016	37.4747	40.768	1.087880623	4.391
2017	40.1541	42.259	1.05242055	5.254
2018	41.7857	42.778	1.023747359	5.299
2019	43.783	41.581	0.949706507	4.795
2020	44.9075	43.513	0.968947281	4.856
2021	44.8963	44.204	0.984580021	5.367
2022	44.3797	45.095	1.01611773	5.947
2023	43.6314	47.411	1.086625687	6.136

Appendix 2: Table of t-test and f-test of Deposit

F-Test Two-Sample for Variances

	<i>DEP.%GDP</i>	<i>DEP.%GDP</i>
Mean	35.2492	11.86110591
Variance	80.30971503	11.79779745
Observations	22	22
df	21	21
F	6.807178658	
P(F<=f) one-tail	2.36802E-05	
F Critical one-tail	2.084188623	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEP.%GDP</i>	<i>DEP.%GDP</i>
Mean	11.86110591	35.2492
Variance	11.79779745	80.30971503
Observations	22	22
Hypothesized Mean Difference	0	
df	27	
t Stat	-11.43032676	
P(T<=t) one-tail	3.74462E-12	
t Critical one-tail	1.703288423	
P(T<=t) two-tail	7.48925E-12	
t Critical two-tail	2.051830493	

F-Test Two-Sample for Variances

	<i>DEPOSIT % GDP</i>	<i>DEPOSIT % GDP</i>
Mean	14.5745	9.147711818
Variance	7.49635376	1.081504405
Observations	11	11
df	10	10
F	6.931413061	
P(F<=f) one-tail	0.002581191	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEPOSIT % GDP</i>	<i>DEPOSIT % GDP</i>
Mean	9.147711818	14.5745
Variance	1.081504405	7.49635376
Observations	11	11
Hypothesized Mean Difference	0	
df	13	
t Stat	-6.145394716	
P(T<=t) one-tail	1.75684E-05	
t Critical one-tail	1.770933383	
P(T<=t) two-tail	3.51368E-05	
t Critical two-tail	2.160368652	

F-Test Two-Sample for Variances

	<i>DEPOSIT % GDP</i>	<i>DEPOSIT % GDP</i>
Mean	28.65410909	41.84429091
Variance	66.05958354	6.901324999
Observations	11	11
df	10	10
F	9.572014585	
P(F<=f) one-tail	0.000687864	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEPOSIT % GDP</i>	<i>DEPOSIT % GDP</i>
Mean	28.65410909	41.84429091
Variance	66.05958354	6.901324999
Observations	11	11
Hypothesized Mean Difference	0	
df	12	
t Stat	-5.121556969	
P(T<=t) one-tail	0.000126303	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.000252605	
t Critical two-tail	2.178812827	

### Appendix 3: Table of t-test and f-test of L&A

#### F-Test Two-Sample for Variances

	<i>L&amp;A%GDP</i>	<i>L&amp;A %GDP</i>
Mean	32.43931818	10.54636364
Variance	93.10213718	30.66552491
Observations	22	22
df	21	21
F	3.036052292	
P(F<=f) one-tail	0.007048932	
F Critical one-tail	2.084188623	

#### t-Test: Two-Sample Assuming Unequal Variances

	<i>L&amp;A %GDP</i>	<i>L&amp;A%GDP</i>
Mean	10.5463636	32.43931818
Variance	30.6655249	93.10213718
Observations	22	22
Hypothesized Mean Difference	0	
df	33	
t Stat	-9.2302215	
P(T<=t) one-tail	5.7842E-11	
t Critical one-tail	1.69236026	
P(T<=t) two-tail	1.1568E-10	
t Critical two-tail	2.03451529	

F-Test Two-Sample for Variances

	<i>L&amp;A % GDP</i>	<i>L&amp;A % GDP</i>
Mean	5.786363636	15.30636364
Variance	9.463047655	5.087834655
Observations	11	11
df	10	10
F	1.859936161	
P(F<=f) one-tail	0.171142912	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Equal Variances

	<i>L&amp;A % GDP</i>	<i>L&amp;A % GDP</i>
Mean	5.78636364	15.30636364
Variance	9.46304765	5.087834655
Observations	11	11
Pooled Variance	7.27544115	
Hypothesized Mean Difference	0	
df	20	
t Stat	-8.2772987	
P(T<=t) one-tail	3.4291E-08	
t Critical one-tail	1.72471822	
P(T<=t) two-tail	6.86E-08	
t Critical two-tail	2.08596344	

F-Test Two-Sample for Variances

	<i>L&amp;A % GDP</i>	<i>L&amp;A % GDP</i>
Mean	40.83627273	24.04236364
Variance	24.09043262	16.30459505
Observations	11	11
df	10	10
F	1.47752413	
P(F<=f) one-tail	0.274197933	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Equal Variances

	<i>L&amp;A % GDP</i>	<i>L&amp;A % GDP</i>
Mean	24.0423636	40.83627273
Variance	16.3045951	24.09043262
Observations	11	11
Pooled Variance	20.1975138	
Hypothesized Mean Difference	0	
df	20	
t Stat	-8.7636331	
P(T<=t) one-tail	1.3858E-08	
t Critical one-tail	1.72471822	
P(T<=t) two-tail	2.7716E-08	
t Critical two-tail	2.08596344	

Appendix 4: Table of t-test and f-test of Deposit vs L&A

F-Test Two-Sample for Variances

	<i>L&amp;A%GDP</i>	<i>DEP.%GDP</i>
Mean	10.54636364	11.8611059
Variance	30.66552491	11.7977975
Observations	22	22
df	21	21
F	2.599258466	
P(F<=f) one-tail	0.016828728	
F Critical one-tail	2.084188623	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	11.86110591	10.54636364
Variance	11.79779745	30.66552491
Observations	22	22
Hypothesized Mean Difference	0	
df	35	
t Stat	0.946335173	
P(T<=t) one-tail	0.175232857	
t Critical one-tail	1.68957244	
P(T<=t) two-tail	0.350465714	
t Critical two-tail	2.030107915	

F-Test Two-Sample for Variances

	<i>L&amp;A%GDP</i>	<i>DEP.%GDP</i>
Mean	32.43931818	35.2492
Variance	93.10213718	80.309715
Observations	22	22
df	21	21
F	1.159288601	
P(F<=f) one-tail	0.368997108	
F Critical one-tail	2.084188623	

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	35.2492	32.43931818
Variance	80.30971503	93.10213718
Observations	22	22
Pooled Variance	86.7059261	
Hypothesized Mean Difference	0	
df	42	
t Stat	1.000829288	
P(T<=t) one-tail	0.161320428	
t Critical one-tail	1.681952358	
P(T<=t) two-tail	0.322640856	
t Critical two-tail	2.018081679	

F-Test Two-Sample for Variances

	<i>L&amp;A %GDP</i>	<i>DEP. % GDP</i>
Mean	5.786363636	9.14771182
Variance	9.463047655	1.08150441
Observations	11	11
df	10	10
F	8.749892843	
P(F<=f) one-tail	0.001001888	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEP. % GDP</i>	<i>L&amp;A %GDP</i>
Mean	9.147711818	5.786363636
Variance	1.081504405	9.463047655
Observations	11	11
Hypothesized Mean Difference	0	
df	12	
t Stat	3.43317369	
P(T<=t) one-tail	0.002478267	
t Critical one-tail	1.782287548	
P(T<=t) two-tail	0.004956534	
t Critical two-tail	2.178812827	

F-Test Two-Sample for Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	14.5745	15.3063636
Variance	7.49635376	5.08783465
Observations	11	11
df	10	10
F	1.473387849	
P(F<=f) one-tail	0.275627169	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Equal Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	14.5745	15.30636364
Variance	7.49635376	5.087834655
Observations	11	11
Pooled Variance	6.292094207	
Hypothesized Mean Difference	0	
df	20	
t Stat	-0.684248581	
P(T<=t) one-tail	0.250835342	
t Critical one-tail	1.724718218	
P(T<=t) two-tail	0.501670684	
t Critical two-tail	2.085963441	

F-Test Two-Sample for Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	28.65410909	24.0423636
Variance	66.05958354	16.3045951
Observations	11	11
df	10	10
F	4.051593022	
P(F<=f) one-tail	0.01875093	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	28.65410909	24.04236364
Variance	66.05958354	16.30459505
Observations	11	11
Hypothesized Mean Difference	0	
df	15	
t Stat	1.685359235	
P(T<=t) one-tail	0.056301905	
t Critical one-tail	1.753050325	
P(T<=t) two-tail	0.112603811	
t Critical two-tail	2.131449536	

F-Test Two-Sample for Variances

	<i>L&amp;A%GDP</i>	<i>DEP.%GDP</i>
Mean	40.83627273	41.8442909
Variance	24.09043262	6.901325
Observations	11	11
df	10	10
F	3.490696732	
P(F<=f) one-tail	0.030632884	
F Critical one-tail	2.978237016	

t-Test: Two-Sample Assuming Unequal Variances

	<i>DEP.%GDP</i>	<i>L&amp;A%GDP</i>
Mean	41.84429091	40.83627273
Variance	6.901324999	24.09043262
Observations	11	11
Hypothesized Mean Difference	0	
df	15	
t Stat	0.600539537	
P(T<=t) one-tail	0.278556142	
t Critical one-tail	1.753050325	
P(T<=t) two-tail	0.557112284	
t Critical two-tail	2.131449536	