

An Internship Report On

Liquidity Risk and Its Impact on Bank Profitability: An empirical study based on Commercial Banks in Bangladesh.



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Letter of Transmittal

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Subject: Submission of an intern report **Liquidity Risk and Its Impact on bank Profitability: An empirical study based on Commercial Banks in Bangladesh.**

Sir,

It is a matter of great pleasure for me that I have finally been able to complete the internship report on **Liquidity Risk and Its Impact on Bank Profitability: An empirical study Based on Commercial Banks in Bangladesh** as per the academic requirement for completing the BBA program from Department of Finance and Banking. I am highly grateful to you for as you have assigned me such a great task which has helped me to gain and enriched my knowledge regarding operating efficiency of public commercial banking sector in Bangladesh. I have given my utmost effort to comprehend and translate the knowledge, I have gained from the secondary sources, news, articles and data analysis, in writing this report. Therefore, I hope the study will be able to meet its standard and serve its purpose accordingly.

Sincerely,

Mst. Jakeia Sultana Chadni

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Session: 2020-2021

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Supervisor's Certificate

This is to certify that the internship report on regarding the topic **Liquidity Risk and Its Impact on Bank Profitability: An empirical study Based on Commercial Banks in Bangladesh** has been submitted successfully by Mst. Jakeia Sultana Chadni, ID: 12117012, Session: 2020-2021 Bachelor of Business Administration (BBA) Department of Finance and Banking Comilla University, Cumilla.

I found his sincere and hardworking regarding the study under my supervision. I wish his every success in all aspects.

Signature of Supervisor

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Student Declaration

I, hereby, declare that the work on the topic, **Liquidity Risk and Its Impact on Bank Profitability:An empirical study Based on Commercial Banks in Bangladesh** has been completed by me under the supervision of Dr. Mohammad Jashim Uddin. Furthermore, I also declare that this study has not been submitted to any other institution or university. There is no breach of copyright protection and quotation from different articles and newspapers have been properly referenced. I further take full responsibility if any copyright is breached or any sort of loss to the third party is done.

Signature of the Student

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First of all, I would like to express my gratitude to Almighty Allah for giving me the strength and patience to complete this study. Then I would like to especially thank my honorable supervisor of the internship report, **Dr. Mohammad Jashim Uddin**, Lecturer, Department of Finance and Banking, Faculty of Business Studies, Comilla University, for providing a helping hand in this sort of complex study. His friendly behavior paved the way for making this study pretty much easy. Finally, this paper is not free from limitations. There might still be some minor mistakes including typing errors despite utmost care, I apologize for all these errors.



Janata Bank PLC.
Kuliarchar Br.
Kishoregonj

জনতা ব্যাংক পিএলসি.

উন্নয়নে আপনার বিশ্বস্ত অংশীদার

কুলিয়ারচর শাখা, বিশোরাগঞ্জ
কুলিয়ারচর শপিং কমপ্লেক্স, কুলিয়ারচর
বিশোরাগঞ্জ।

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TO WHOM IT MAY CONCERN

This is to certify that Mst. Jakeia Sultana Chadni, BBA, Department of Finance and Banking, id no-12117012 of Comilla University is continuing her internship programme in our branch from 11-01-26.


29.3.26
Jibanta Kanti Das
Manager
Janata Bank PLC
Kuliarchar Branch, Kishoregonj.

Executive Summary

The study titled “**Liquidity Risk and Its impact on Bank Profitability:** An empirical study based on Commercial Banks in Bangladesh” aims to investigate liquidity risk and its impact on profitability of three commercial (Janata Bank PLC, Sonali Bank PLC, Rupali Bank PLC) banks in Bangladesh. Liquidity risk is a crucial factor affecting the bank financial position and profitability. Here, liquidity risk indicators like Loan to deposit ratio, Liquid Asset to Total Asset, Non-performing loan and macroeconomic determinants as GDP growth rate, Inflation rate are considered to investigate customer satisfaction. For that reasons, secondary data collected from annual reports of selected three commercial bank in Bangladesh over the period (2015-2024) and Bangladesh Bank. After that, STATA used for analysis data.

The findings of this study provide valuable insights into the relationship between liquidity risk and profitability through mean, standard deviation, regression analysis, ANOVA, co-efficient and VIF test several key findings have emerged. The Regression analysis show that liquidity risk and bank profitability have statistically significant negative impact. Loan to Deposit Ratio and Non-performing loan has significantly negative impact on roa. When NPL increase bank profit decrease. Liquid Asset to Total asset and GDP growth rate show that their impact on roa is not statically significant. And Inflation Rate has significant positive impact. In this overall factors NPL has strong (-0.8077) negative correlation with roa. In this study show that overall Liquidity risk has negative impact on Roa. Its play significant role for accesing bank profitability. When liquidity risk increase bank profitability decrease. So, maintain balancing liquidity condition for reduce liquidity risk.

This study is recommended to more evaluate the relevance of liquidity risk indicator factors in today's modern bank sector and balance adequate liquidity position. Continuous monitoring liquidity risk factors and balancing amount of liquidity reserve to improve bank profitability.

Table of Content	Page No.
Chapter One: Introduction	1-5
1.1 Introduction	1-2
1.2 Background of The Study	2-3
1.3 Statement of The Problem	3-4
1.4 Scope of The Study	4
1.5 Research Gap	4
1.6 Research Question	5
1.7 Objective of The Study	5
Chapter Two: Literature Review	6-7
2.1 Literature Review	6-7
Chapter Three: Organizational Profile	8-10
3.1 Overview of Janata Bank PLC	8-9
3.2 Operations and Services	9-10
Chapter Four: Research Methodology	11-15
4.1 Research Type	11
4.2 Study Design	11
4.3 Population of The Study	11
4.4 Source of Data	11
4.5 Model Specification	12
4.6 Model Development	12
4.7 Description of Variables	13
4.8 Conceptual Framework	14

4.9 Data Analysis Tools	14-15
4.10 Research Hypothesis	15
Chapter Five: Data Analysis, Discussion and Findings	16-23
5.1.1 Trend Analysis of ROA	16
5.1.2 Descriptive Statistics	17
5.1.3 Correlation Analysis	18
5.1.4 Regression Analysis	18-19
5.1.5 ANOVA	19
5.1.6 POOLED OLS Regression Model	19-20
5.1.7 Multicollinearity Test (VIF)	20
5.1.8 Random Effect Model	20-21
5.1.9 Fixed Effect Model (FE)	21-22
5.1.10 Hausman Test	22
5.2 Findings and Discussion	23
Chapter Six: Limitations, Recommendations and Conclusion	24-25
6.1 Limitations of this Study	24
6.1 Recommendations	24-25
6.2 Conclusion	25
Reference	26-27

Chapter -01

Introduction

1.1 Introduction

Liquidity risk is a critical issue in the current banking sector. Liquidity risk is the potential loss due to failure to fulfill the Short-term financial need. Liquidity is a prime key for maintaining day to day activities in a bank. When can not manage liquidity risk then occurs insolvency, ruined investors confidence, high profile bank face crucial problem, operational shutdown. So liquidity important for financial stability and survival of a bank. Liquidity risk arises the liquidity gap in the bank it is defined the gap between to factors such as bank asset and bank liability. Bank face less income when occurs negative liquidity gap and when positive liquidity gap created bank has enough liquid asset cover its liability. On the other side, bank profitability plays a significant role in the economy sector of the bank. It is the ability to create earnings relative to its cost. When liquidity risk occurs it may impact on bank profitability. Therefore, effective liquidity risk management can balance financial soundness and develop performance of the bank.

At present Bangladesh banking sector faces crucial moments of liquidity crisis as a result many bank faces loss and fall roa value. Although Janat bank is a very large state owned commercial bank in Bangladesh. For example in the last year (2024) Janata Bank Plc face negative roa (-2.09). Therefore, need for more study about liquidity risk factors context of Bangladesh based on three commercial bank in Bangladesh. Tabari et al (2013) provide that profitability is a measurable factor of a bank that indicate the competitive position in the market-based banking sector. This measurable factor helps banks to tolerate some risk. Profitability provides help against short-term problems that occur unable to meet. Recent studies shows that liquidity risk arises for inability of a bank to be unable to meet liabilities or to much fund increases in assets. A liquidity bank, which can not generate fund by increasing liabilities or converting asset. They can be satisfied by turn asset into liquidity through reasonable cost.

A important aspect of liquidity risk is strong connection with financial crises. The Global Financial Crisis clearly demonstrateds which weak liquidity management may contribute to the failures major financial institution. This period, more banks experience significant funding difficultie as they depende heavily on short-term source of finance. As result, profitability declined and overall financial system risk increased (Brunnermeier, 2009). This indicates liquidity risk not confined to individual bank but has broader implication for the stability of the overall economy.

Moreover, regulatory bodies place considerable importance on liquidity risk management by international frameworks such as Basel III, developed by the Basel Committee on Banking Supervision. Under Basel III guidelines, banks required to maintain key liquidity indicator the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) to withstand both short-

term and long-term financial pressures (BCBS, 2013). These regulatory standards design to enhance the resilience of banks and minimizing the chance of financial instability.

Additionally, liquidity risk closely associate with credit risk and the overall operational efficiency banks. Higher level of non-performing loan (NPL) reduce expected cash inflows that in weakens liquidity positions and adversely affect profitability (Louzis et al., 2012). Effective liquidity management allow banks to utilize resources efficiently, lower funding costs and improve financial performance. On the other hand, inadequate liquidity planning may compel bank obtain fund at higher expenses, dispose of assets under unfavorable conditions, thereby reduce profitability (Molyneux & Thornton, 1992).

Furthermore, empirical study from developing economies provide evidence a significant relationship between liquidity risk and bank profitability. Research findings advice that maintaining excessive liquidity can lower profitability due to limited returns on liquid assets, whereas insufficient liquidity increase the financial distress (Bourke, 1989).

According to previous study, liquidity risk and profitability have shown critical result. Some research study show positive impact, others study indicate negative impact based on the situation or factors. Shortage of proper liquidity bank may face bankruptcy. Therefore, my research aim is investigate the liquidity risk and its impact on profitability of commercial bank in Bangladesh. This study focus how liquidity risk exactly impact on profitability either negative or positive.

Determinants of profitability divided into two factors internal and external. Internal factors indicate liquidity risk factors and bank specific factors such as LDR, LATA, NPL. External factor measures two factors like GDP growth rate and inflation rate. And we consider ROA as a dependent variable of this study. All data collected from the annual reports of Three commercial banks (Janata Bank PLC, Sonali Bank PLC, Rupali Bank PLC) in Bangladesh.

The rest of the study structured as follows chapter 02 provide literature review. Chapter 03 describe the methodology of model. Chapter 04 provide the data analysis and result findings and dicussion of this study. Chapter 05 conclude the study and explain the further research scope.

1.2 Background of The Study

Liquidity risk is a strong aspect of banking activities, as it ascertains a bank's capacity to fulfill its short-term liabilities without suffering considerable losses.

Effective liquidity risk management plays an essential role in assure the stability, profitability of banks for ensuring modern financial rule. Inefficient liquidity risk management may lead to financial poorness, on the other side, exceeding liquidity can reduce profitability for unnecessary resources. Return on Assets (ROA) measured bank profitability. It is affected by internal factors such as Loan-to-Deposit Ratio (LDR), Liquid Asset to Total Asset Ratio (LATA), Non-Performing Loans (NPL), and other side, macroeconomic variables such as GDP growth rate, inflation rate. In developing countries such as Bangladesh, State-owned commercial bank, faces some barriers to keep up a favorable balance between liquidity and profitability. They faces notable liquidity risks in last few years. Its Liquidity Coverage Ratio (LCR) mostly falls under the least of 100% (ranging

from 87% to 118% in late 2024), It indicates a potential incapability to meet short-term liability. High non-performing loans (NPLs), high operating expenses, and strong reliance on customer deposits have a significant impact on bank's liquidity.

Consequently, evaluating the effect of liquidity risk on bank profitability using data (2015–2024). By learning more about liquidity risk management system, balance optimal liquidity, investment management, liquid asset management maintain the financial earnings or profitability of a bank.

1.3 Statement of The Problem

In spite of selected three commercial bank popular state-owned commercial profitable bank in Bangladesh but they face some liquidity problems. Even though liquidity management is an important issue of all banks but many banks can not maintain optimal liquidity level that ensures high level profit. Excess liquidity reduces profitability, On the other side, insufficient liquidity increases risk and financial instability. They faces fluctuating profitability like ROA in the last few years. Therefore, evidence-based research on how liquidity risk indicators like LDR, LATA, and NPL and bank specific indicators and macroeconomic determinants such as GDP growth rate, inflation rate affect bank profitability is still limited.

In Bangladesh, banking regulatory environment is becoming more rigorous with institution expected adhere to international standards such as Basel III. It has increase the need of advanced liquidity management practice. However many local commercial banks still lack the necessary system, expertise, and infrastructure to fully implement these frameworks, that create additional challenges to maintaine long-term profitability.

Inefficient liquidity management do not only impcat individual bank performance but also influence overall financial system. When banks either maintain excessive idle liquidity and experiences liquidity shortages their ability to provide loan to productive sectors decline. As a result, this may slow down investment activities, negatively impact economic growth and development. The ongoing digital transformation banking sector has significantly altered customer behavior especially deposit and transaction patterns. This changes have made liquidity risk more volatile and less predictables compared to earlier period. Despite of this shifting there are remains limited research exmining how sepecific indicators affects the traditional balance between liquidity risk and profitability following the context of Bangladesh.

So the main problem of this study is to analyze how liquidity risk factors and other factors affect ROA of commercial banks in Bangladesh. To remain competitive in Bangladesh's banking industry and enhance balance liquidity Reserve and all liquidity bank specific factors, the bank must recognize and address these Question. Despite face significant challenges there are still clear lack of empirical studies that focus on the relationship between liquidity risk indicators such as the Loan-to-Deposit Ratio (LDR) and the Liquid Asset to Total Asset Ratio (LATA) the profitability of state-owned commercial banks within Bangladesh changing financial environment. This study aims to accesing this porblem by providing an evidence-based examination of how liquidity measures, with key macroeconomic variables, impcat the Return on Assets (ROA) of commercial

banks. Understanding this relationship is crucial, as without proper insight, banks can find it difficult to remain competitiveness, manage their liquidity efficiently, and gain long-term financial stability.

1.4 Scope of The Study

This report primarily aims to assess the liquidity risk and its impact on bank profitability or Return on Asset. The analysis serves as the Foundation for the findings and recommendations presented. Liquidity, as a concept within the banking sector, is still in its important stages of profitability, characterized by a limited scope and depth of consideration.

This research focus on three commercial banks in Bangladesh from 2015 to 2024. The study complete based on secondary data which collects the annual report of selected commercial banks. For the survival as well as the continuation of a bank's continuing operations, liquidity has its important role. Profitability may be supported by ensuring a strong situation, which also helps keep the bank durable by paying its current debt on a specific period. Liquidity and profitability is in a situation where an increase in one may decrease the other. They debunk the way to illustrate how the business is being performed at present as well as the potentiality for growth and stability, development, & sustainability in the long run with the best possible utilization of resources available to the industry.

1.5 Research Gap

Although many studies have evaluated liquidity risk and profitability, most of them have emphasized private banks or over all banking sector. Very few limited studies have examined liquidity risk and its impact on profitability of public commercial banks and most have not covered the recent year 2024. Most of them are study focus on only liquidity risk factors they can not provide combined impact on others factors so I will examined in this research how liquidity risk factor, bank specific factor and macroeconomic determinants effects on bank profitability combinedly. Previous research studies show the mixed relationship between liquidity risk and bank profitability, some showing the positive impact and others suggest the negative impact, In point of fact there is no clear result how liquidity risk affects profitability. And most of the study focuses on foreign country based banks. Ergo, this study aims to fill up the previous research gap with provide updated data by context of Bangladesh's commercial banks and show how actually liquidity risk impact on Bank profitability.

1.6 Research Question

This study find out the following question ;

- Does liquidity risk have any significant relationship (positive /negative) on the ROA?
- How does LDR impact on ROA?
- What is the impact of liquid asset to total asset (LATA) on bank profitability?
- Is there any significant impacts NPL with Bank profitability (ROA)?
- Is there any relationship between macroeconomic determinants (GDP, Inflation rate) and ROA?

1.7 Objectives of Study

Main Objective ;

To determine whether the liquidity risk impacts on Bangladesh commercial bank profitability.

Specific Objective of This Study;

- To identify the significant relationship Loan to deposit ratio(LDR) and Janat Bank bank profitability (ROA.)
- Evaluate the Liquid asset to Total Asset that can impact on ROA.
- To evaluate the effect of Non-performing Loan on bank profitability.
- To determine the relationship between macroeconomic determinants (GDP, Inflation) and Bank profitability.

Chapter -02

Literature Review

2.1 Literature Review

Liquidity risk is a financial risk in which an entity (individual, company, bank) can not meet their short- term financial need due to enough Liquid assets. It ultimately positively and negatively affects profitability.

Diamond and Dybvig (1983) Highlights that liquidity risk has issued as leading concern in modern banking sector because of its direct implications of financial stability and profitability. Liquidity risk occurs when banks fail to convert assets into cash, also when they transform Short term deposits into long term loan for making sudden withdrawals.

Alim, Ali, and Metla (2021) show that accurate liquidity management increases bank profitability (ROA/ROE). While, overplus liquidity can reduce profitability. Also highlighted that maintaining optimum level of liquidity help maintain positive effect on Bank performance. So, a bank must need to balance liquidity.

Muriithi and Waweru, (2017) highlights that liquidity risk negatively affects bank profitability, while the liquidity coverage ratio (LCR) has no significant impact. The result showed that poor liquidity management system reduce bank profitability. For better financial performance need effective liquidity risk management strategies.

Meliza et al. (2024) study that the relationship between liquidity risk and bank profitability, with a focus on the Capital Adequacy Ratio (CAR) in the Indonesian banking system. Highlight that, CAR as a moderating variable to assess its influence on this relationship. Additionally, he suggested that increased lending activities improve bank income. CAR can not direct influence profitability, it enhancing the benefits of liquidity management.

Athanasoglou et al. (2005) described inflation as a macroeconomic definite of bank profitability and its effect depends on whether inflation is anticipated or not. Expected that inflation may positively influence profitability, whereas unexpected inflation can negatively affect bank performance. High or moving inflation affects liquidity predictability and fund stability.

Efemena and Augustine (2024) examined that how bank liquidity influences financial performance, specifically focus on Loan to Deposit Ratio (LDR), and bank size. LDR is described as a determinant of a bank's liquidity and lending behavior. Higher LDR increases liquidity risk

and reduces bank profitability. They suggested that deposit money banks carefully manage their LDR ratio for supporting profitability.

Tabari et al. (2013) provide the mixed relationship between liquidity risk and financial performance. While moderate liquidity risk can enhance profitability, on the other side excessive liquidity risk can negatively affect bank financial performance due to higher funding cost. They also suggested that GDP as a macroeconomic determinates and reflects the all over economic situation of a country and directly affects banking activities, also play an important role determining the profitability and risk stability.

Goddard et al. (2004) highlighted that bank size has a positive relationship with bank profitability. On the other side, excessively huge banks suffer from inefficiencies. Larger size banks may benefit for better access to financial resources.

Louzis et al. (2012) proposed that Non-performing Loan (NPL) expressed credit risk and directly negative impact on Bank profitability. High NPL ratio minimizing bank financial soundness though increasing (LLP) Loan Loss Provisions and decreasing interest income.

Bourke (1989) studied that Liquid asset to total asset (LATA) is a important determinates of bank liquidity condition, holding enough liquid asset improve bank capacity to meet unexpected withdrawals. And its increasing customers satisfaction, financial stability. Liquid asset generate lower returns compared with loans and investment.

Overall literature review showing that the relationship between liquidity risk and profitability is complex and dependent on the specific context also it provides mixed evidence. Some studies suggest positive or other suggest negative relationship, overall dependent on the amount of liquidity and economic scale.

Chapter-03

Organizational Profile

3.1 Overview of Janata Bank PLC

Janata Bank PLC is recognized as one of the largest state-influenced commercial banks in Bangladesh, contributing significantly to the country's financial intermediation and economic sustainability. Since its origin in 1961 and subsequent restructuring after the independence of Bangladesh, the bank has evolved through several institutional transformations. The transition into a public limited company reflects a broader effort to align its operations with modern banking practices, improve governance standards, and ensure greater efficiency in service delivery. The bank plays a crucial role in mobilizing savings and channeling funds into productive sectors of the economy. By offering diversified financial products and services, Janata Bank PLC supports individuals, businesses, and government initiatives. Its operations are not limited to conventional banking; rather, the bank actively participates in facilitating economic activities such as industrial development, export promotion, and rural financing.

Key Details:

- Headquarters: Dhaka, Bangladesh
- Ownership: Public Limited Company (formerly state-owned)
- Founded: 1961
- Total Assets: Approximately BDT 1.3 trillion (as of 2023)
- Branches: Over 900 branches nationwide
- Employees: Over 10,000
- Ticker Symbol: JBNL (Listed on Dhaka Stock Exchange)

Vision: To be the most trusted and innovative financial institution in Bangladesh, providing exceptional value to customers, employees, and shareholders.

Mission: To provide high-quality banking services that meet the needs of individuals, businesses, and institutions in Bangladesh, through continuous innovation, operational excellence, and commitment to financial inclusion.

Strategic Goals:

- Expand digital banking solutions for greater customer accessibility.
- Enhance financial inclusion by reaching underserved communities.

- Improve operational efficiency and reduce non-performing loans.
- Ensure a strong capital position and sustained profitability.

Recent Development : Expansion of digital banking services, with a focus on mobile banking apps. Introduction of new products aimed at micro, small, and medium-sized enterprises (SMEs). Strengthening corporate governance practices and compliance with international standards.

Institutional Structure and Management

Janata Bank PLC operates under a structured organizational framework designed to ensure efficient decision-making and effective implementation of policies. The bank is governed by a Board of Directors, which is responsible for setting strategic objectives and overseeing overall performance. The board consists of experienced professionals, including representatives appointed by the government, reflecting its public ownership background. The executive management team, led by the Managing Director and Chief Executive Officer (MD & CEO), is responsible for the day-to-day operations of the bank. Various divisions and departments are established to handle specialized functions such as credit management, treasury operations, human resources, information stability

3.2 Operations and Services

Financial Performance and Stability

Janata Bank PLC maintains a strong financial base, supported by its large asset portfolio and extensive customer base. The bank's performance is often evaluated using key financial indicators such as Return on Assets (ROA), Return on Equity (ROE), and cost-to-income ratio. Efforts are continuously made to improve profitability and operational efficiency. Cost management strategies, improved asset utilization, and enhanced revenue generation mechanisms contribute to the bank's financial sustainability. At the same time, the bank remains committed to maintaining adequate capital levels in accordance with regulatory requirements set by Bangladesh Bank. This ensures resilience against financial shocks and promotes long-term stability.

Liquidity risk management

Liquidity risk is a critical aspect of banking operations, particularly in service-oriented activities where maintaining the balance between inflows and outflows of funds is essential. For a large commercial bank like Janata Bank PLC, liquidity risk arises when the institution is unable to meet its short-term financial obligations or customer withdrawal demands without incurring significant losses. From a service perspective, liquidity risk directly affects the bank's ability to provide uninterrupted banking services such as cash withdrawals, fund transfers, loan disbursements, and

trade financing. Janata Bank PLC manages liquidity risk through a combination asset management (ALM) practices and regulatory compliance measures. The bank maintains a sufficient level of liquid assets, including cash reserves and highly marketable securities, to meet unexpected demand for funds. In addition, the bank closely monitors key liquidity indicators such as the loan-to-deposit ratio (LDR), liquidity coverage ratio (LCR), and cash reserve requirements set by Bangladesh Bank. By maintaining these ratios within prescribed limits, the bank ensures that it has enough funds available to support its service operations. Another important strategy involves diversifying funding sources. Janata Bank PLC collects deposits from a wide range of customers, including individuals, businesses, and government entities. This diversification reduces dependency on a single source of funding and enhances liquidity stability. The bank also accesses interbank markets and central bank facilities when necessary to manage short-term liquidity needs. Technology plays a significant role in liquidity management as well. Through real-time monitoring systems and automated reporting tools, the bank can track cash flows and anticipate potential liquidity shortages. However, liquidity risk can still be influenced by external factors such as economic downturns, sudden withdrawal of deposits, or changes in monetary policy. Therefore, the bank adopts a proactive approach by conducting stress testing and scenario analysis to assess its ability to withstand adverse conditions. Effective liquidity risk management not only ensures operational continuity but also enhances the overall efficiency of banking services. It enables Janata Bank PLC to meet customer demands promptly, support lending activities, and maintain financial stability. As a result, strong liquidity management practices contribute to improved performance indicators such as profitability and cost efficiency.

Future Outlook

Looking ahead, Janata Bank PLC aims to strengthen its position as a modern and customer-oriented financial institution. The bank plans to further expand its digital services, improve asset quality, and enhance operational efficiency.

Strategic priorities include: Increasing digital banking adoption, Strengthening risk management practices, Enhancing customer satisfaction, Expanding financing in priority sectors, Improving overall financial performance, By adapting to technological advancements and changing customer expectations, Janata Bank PLC is well-positioned to remain a key player in Bangladesh's banking industry.

Chapter -04

Research Methodology

4.1 Research Type

This research uses a quantitative research approach. It uses numerical data and statistical tools to measure the impact of liquidity risk and bank profitability.

Overall this study conducts a descriptive, quantitative, explanatory approach, which together provide a strong methodological base for analyzing the liquidity risk and its impact on profitability of commercial banks in Bangladesh.

4.2 Study Design

This study conducts an explanatory research approach to determine the impact of independent variables (LDR, LATA, NPL, GDP, Inflation Rate) on the dependent variable (ROA). It is a panel data study that uses ten years of financial and macro-economic data (2015–2024) of three commercial banks in Bangladesh.

This research study was completed by maintaining a methodical and sequential process. Firstly, the formulation of the research problem. Second, a study design chosen. and information collected from secondary sources. The last organizing and analyzing data to meet the objective of the study.

4.3 Populations of The Study

A specific representative sample is taken from the population, which is a bigger subject. The financial statement, and annual report of banks for the period (2015-2024).

4.4 Sources of Data

This research was conducted thoroughly on secondary data. Data collected selected three commercial bank annual reports, Financial report, income statement over the period (2015-2024).

- Janata Bank annual reports (2015–2024)
- Sonali Bank annual reports (2015-2024)
- Rupali bank annual reports (2015-2024)
- Bangladesh Bank.
- Economic reports
- Bangladesh bank financial stability report.
- Financial statement of Janata Bank PLC.

4.5 Model Specification

Three model used for this study Pooled OLS, Random effect, Fixed effect. According to Pooled ols regression result it indicate that LM test result is 0.0000 is less than significance level which is not enough for this study. Then hausman test conduct for selected appropriate model. Hausmn test result (0.0001) indicate that Fixed effect model more appropriate than random effect model of this study

4.6 Model Development

$$ROA_{it} = \beta_0 + \beta_1 LDR_{it} + \beta_2 LATA_{it} + \beta_3 NPL_{it} + \beta_4 GDPGR_{it} + \beta_5 inf-rate_{it} + u_i + \epsilon_{it}$$

Where,

ROA = Return on Asset.

LDR = Loan to deposit ratio.

LATA = Liquid asset to total asset.

NPL = Non-performing Loan ratio.

GDPGR = Gross Domestic Product growth rate.

Inf. Rate = Inflation Rate.

U_i = Capture the individual bank.

ϵ_{it} = Error term.

4.7 Description of Variables

Serial No.	Variable Name	Variable Definition	Sources
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Dependent variable

1.	Return on Asset (ROA)	Return on Assets (ROA) is a financial indicator that measures a bank's profitability based on how efficiently it uses all of its assets.	Alim et al. (2021)
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Independent variables

2.	Loan to deposit ratio(LDR)	LDR evaluate liquidity usage and lending practice of a bank. Higher LDR indicate higher profitability but also it increased liquidity risk.	Efemena & Augustine (2024)
3.	Liquid Asset to Total Asset (LATA)	Liquid asset to total asset (LATA) is used to determine the liquidity positions of banks. Also indicate the proportion of assets that can be easily converted into cash.	Muriithi & waweru (2017)
4.	Non-performing loan (NPL)	Non-Performing loan ratio expressed the amount of loans that are not collected. Higher NPL adversely affect bank performance.	Kolapo et al. (2012)

Macro-economic variables

5.	GDP Rate	GDP growth rate reflects the overall economic performance of country. Stronger economic growth tends to support better bank profitability and operational outcomes.	Tabari et al. (2013)
6.	Inflation Rate	Inflation rate is a macroeconomic determinant of bank profitability. It express the changes in the general price level. It indicate the yearly change in consumer prices and is predicted to influence profitability.	Athanasoglo u. et al. (2005)

4.8 Conceptual Framework

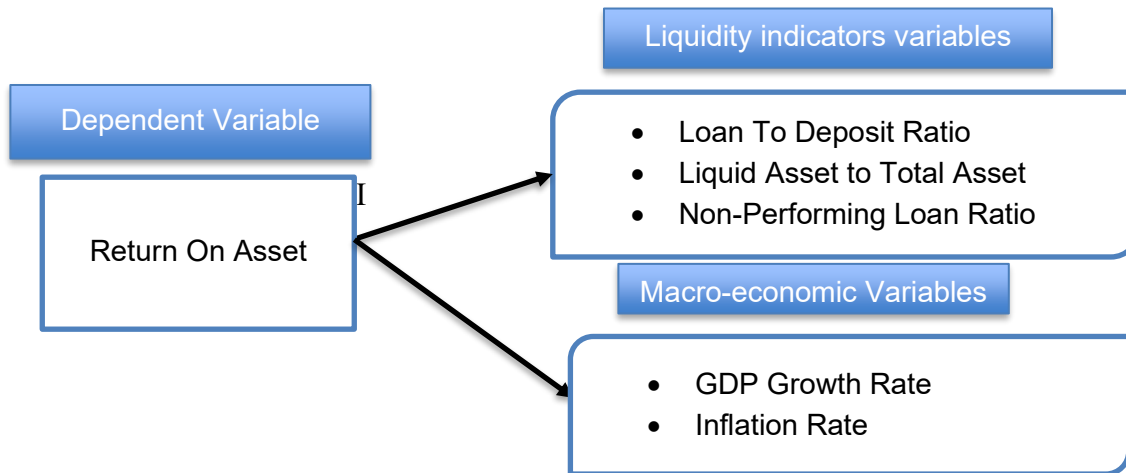


Figure: Conceptual Framework

The conceptual framework showing the relationship between the study variables and guides the analysis. Return on Assets (ROA) is used as dependent variable to measure bank profitability. The independent variables are divided into two groups: liquidity indicators such as LDR, liquid assets to total assets ratio, and NPL ratio which represent internal risk management, and macroeconomic factors such as GDP growth and inflation which reflect external economic conditions. Together, these variables help explain how both internal practices and the overall economy influence bank profitability in Bangladesh.

4.9 Data Analysis Tools

The collected specific data will be analyzed using the some technique:

- Descriptive Statistics (Mean, medium, standard deviation, maximum, minimum,)
- Correlation Analysis: To measure the relationship between variables.
- Multiple Regression Analysis: To determine the impact of independent variables on dependent variables (ROA).
- Auto correlation test.
- VIF test.
- ANOVA test.
- Regression Analysis.

The statistical software STATA will be used to estimate the regression model.
And also use Microsoft Excel to summarizing raw data from bank annual report.

4.10 Hypothesis Development

Hypothesis was developed to provide a clear and testable prediction about the relationship between variables in this study. It helps guide the research process by showing what the expects to find based on theory or previous evidence.

Main Hypothesis

H_0 : Liquidity risk has no significant impact on ROA.

Particular Hypothesis

H_0 : Loan to deposit ratio has no significant impact on ROA.

H_0 : Liquid asset to total asset has no significant impact on ROA.

H_0 : Non-performing Loan ratio has no significant impact on ROA.

H_0 : GDP growth rate has no significant impact on ROA.

H_0 : Inflation rate has no significant impact on ROA.

For all variables has an alternative hypothesis: There is a significant impact on ROA.

Chapter -05

Data Analysis, Discussion and Findings

5.1 Data Analysis

5.1.1 ROA Trend Analysis

The figure represent the graphical trends of ROA as a dependent variable for three banks over the period 2015–2024.

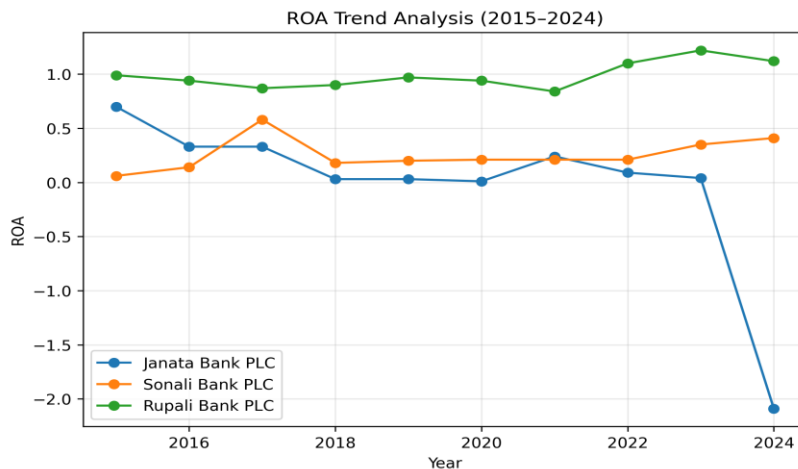


Figure: Trend Analysis of ROA.

Interpretation

Overall, the analysis find out that Rupali Bank PLC performs the better in terms of profitability stability (measured by ROA), Also Sonali Bank PLC with moderate but improving performance. On the other hand, Janata Bank PLC shows a declining and unstable trend, highlighting potential issues in efficiency, financial instability, cant not reduce liquidity risk or balance amount of liquidity over the study period (2015-2024).

5.1.2 Descriptive Statistics

Table 01: Indicate the descriptive statistics of all variables

Variables	Maximum	Minimum	Mean	Standard deviation	Kurtosis	Skewness
ROA	1.22	-2.09	.4116129	.3939516	10.36562	-2.101293
LDR	91.79	37.28	68.28452	15.97895	2.065864	-.5995408
LATA	80.13	7.95	34.73258	20.98855	2.681088	.4308019
NPL	67.53	5.5	17.63258	9.260755	8.829031	2.077041
GDPGR	7.94	3.45	6.369032	1.418524	2.720167	-.9334876
INFR	10.3	5.4	6.739677	1.629623	2.914168	1.154871

Source: Author based on the output developed by STATA 18.0

From the above table, seen that profitability indicator variables Return on asset (ROA) mean value is .4116129, The maximum range is 1.22% and minimum range is -2.09%. Its standard deviation is .3939516 with kurtosis and skewness 10.36562, -2.101293. Other variables LDR, LATA, CAR, NPL, SIZE, GDPGR, INFR selected criteria data (mean, maximum, minimum, standard deviation, skewness, kurtosis) are shown of table 01. Ldr maximum value is 91.79 and minimum value is 37.28. Average value of LDR is 68.28452, standard deviation is 15.97895. Lata mean value is 34.74, highest value is 80.13 and Standard deviation is 20.989. NPL mean value is 17.63258 maximum and minimum value is 67.53 and 5.5. GDP growth rate maximum, minimum value is 7.94, 3.45. And standard deviation is 1.41852, Kurtosis value is 2.720167, Skewness value is -.9334876. Inflation rate mean value is 6.739677. The maximum value is 7.94 minimum value is 5.4 and the standard deviation is 1.629623.

5.1.3 Correlation Analysis

Table 02: Are shown that correlation matrix of all variables

Variables	ROA	LDR	LATA	NPL	GDPGR	INFR
ROA	1					
LDR	0.3615*	1				
LATA	0.2446	-0.3249	1			
NPL	-0.8077**	-0.3781*	-0.2953	1		
GDPGR	-0.0113	-0.0649	0.0917	0.0106	1	
INFR	0.0601	0.2787	0.0948	-0.0615	-0.3719*	1

Source: Author based on the output developed by STATA 18.0

Note: Statistically significant, Here * $p < 0.05$, ** $p < 0.01$ it represents two variables significant with others.

The table shows that Pearson's correlation coefficient between two variables. From table 02 shows that weak correlation with LDR and ROA. LATA has a positive significant relationship with ROA. That means, when LDR, LATA increase profit then ROA also increase. NPL is a negative significant relationship with ROA indicate when NPL increase roa decrease. GDPGR is No significant relationship with ROA. Correlation matrix table Show dubious relationship, consequently we run regression analysis.

5.1.4 Regression Analysis

A multiple regression analysis was driven to find out the result of Five predictors and ROA. And the summary of the model are shown below;

Table: 03

Model	R	R-Square	Adjusted R-square	Std. Error of the estimate
1	0.8113 ^a	0.6582	0.5898	0.2523

Source: Author based on the output developed by STATA 18.0

Note: Predictors:(constant), LDR, CAR, LATA, NPL, INFR, GDPGR, SIZE and ROA.

Description. Here R value is .9540 it indicates that independent variables and dependent variables are an illustrious relation of variance. R-square value explained the performance of the model. Here R-square value is 0.65582. Which indicate that 65.58% of the variation in dependent variable (ROA) value can be explained by the included ldr, lata, car, npl, size, gdpgr, infr. They have a strong influence on the bank profitability. The adjusted R-square value is 0.5898 which suggest that following the number of variables, the model is quite efficient. The value of standard error of the estimation is 0.12523 which indicates how amount of the predication of regression value differ from actual value.

5.1.5 ANOVA

Table: 04

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.06437533	5	.612875066	9.63	.0000
Residual	1.59156015	25	.063662406		
Total	4.65593548	30			

Source: Author based on the output developed by STATA 18.0

a. Dependent variable: Return on profit (ROA)

b. Predictors: (Constant), LDR, LATA, NPL, GDPGR, INFR

The regression model, as a overall is statistically significant cause p value and associated F value (0.000) is less than the significance level of .05. There is a statically significant of overall model. And Independent variables jointly significant impact on Roa.

5.1.6 Pooled OLS Regression Model

Table: 05

Variables	Coefficient	t	Sig.
Constant	.8583875*	1.89	0.070
Ldr	.002506	0.65	0.525
Lata	.0010964	0.39	0.697
Npl	-.0320479***	-5.14	0.000
Gdpgr	-.0030913	-0.09	0.932
inf	-.005871	-0.18	0.862

Source: Author based on the output developed by STATA 18.0

*p<0.10,**p<0.05,***p<0.001

Pooled OLS regression result show that only npl significant negative impact on roa. Ldr, lata, Gdpgr, inf all are statistically insignificant. This model can not show appropriate impact independent variables on roa. The Breusch-Pagan Lagrange Multiplier (LM) test result show that overall model $\text{prob} > F = 0.0000$ is significant. Here, P value (0.0000) is less than the significance level of 0.05, it indicate the panel effect required not enough pooled ols in this study. The panel data model (Fixed/random) more suitable. So panel data model can be conduct for select appropriate model.

5.1.7 Multicollinearity Test (VIF)

Table:06

Variables	VIF	1/VIF
Ldr	1.8	0.551048
Lata	1.61	0.620133
Npl	1.57	0.635790
Inf	1.39	0.718194
Gdpgr	1.21	0.828249
Mean VIF	1.52	

Source: Author based on the output developed by STATA 18.0

The mean VIF value is 1.52 which less than 10, it indicates that there are no multicollinearity problem in overall model. The individual variables such as Ldr, Lata, Npl, Inf, Gdpgr all VIF value less than 10 that there is no multicollinearity issue.

5.1.8 Random Effect Model

Generalized Least Squares (GLS) is used to estimate the Random Effects (RE) model to test the effect of Return on asset (ROA) and liquid asset to total asset (Lata), Loan to deposit ratio (Ldr), Non-performing loan, GDP growth rate, inflation rate. The results of the model indicate that the overall model is statistically significant, as the Wald chi-square value is 48.13, and ($\text{Prob} > \chi^2$ is 0.000). This indicates that there is a strong influence of the independent variables on the dependent variable. R-square value also shows that about 65.82 % of the change in roa can be attributed to the explanatory variables that were used in the model.

Table:07

Variable	Coefficient	Std. Err.	z	Sig.
wldr	0.002506	0.0038836	0.65	0.519
wlata	0.0010964	0.0027871	0.39	0.694
wrnpl	-0.0320479***	0.0062385	-5.14	0.000
wgdpgr	-0.0030913	0.0356832	-0.09	0.931
winf	-0.005871	0.0333559	-0.18	0.860
cons	0.8583875	0.453533	1.89	0.058

Source: Author based on the output developed by STATA 18.0

Random effect model show that npl coefficient value is - 0.0320479 and p value is 0.000 that indicate significant negative impact on return on asset. Ldr, lata, coefficient value is 0.002506, 0.0010964 and p value is 0.519, 0.694 that show insignificant but positive impact on roa. At last gdpgr p value is 0.931 and inf rate is 0.860 they showing negative impact on roa but statically insignificant on roa.

4.1.9 Fixed Effect Model (FE)

Table:08

Variables	B(Coefficient)	Std. Error	t	Sig.
Constant	1.233321	.2576798	4.79	0.000
Ldr	-.0154523***	.0041337	-3.74	0.001
Lata	.0014298	.0031553	0.45	0.655
Npl	-.0095457**	.0045586	-2.09	0.047
Gdpgr	.0068993	.0194448	0.35	0.726
Infr	.0538373**	.0193357	2.78	0.011

Source: Author based on the output developed by STATA 18.0

Note: Statistically significant *p<0.05, **p<0.05, ***p<0.01; T statistics are detained and inserted.

Result interpretation

Loan to Deposit Ratio (LDR):

The coefficient for ldr is -.0154523 and p-value is 0.001 which indicating significantly negative impact on Return on Asset (roa). Therefore, we reject the null hypothesis (H_0) because there are negative significant impact on roa. And accept alternative hypothesis.

Liquid Asset to Total Asset (LATA):

The p value is 0.655 that means there are no significant impact on roa. Co-efficient is .0014298 Insignificantly negative impact on roa. Accept the null hypothesis in this variable. And reject alternative hypothesis.

Non-performing Loan Ratio (NPL):

NPL coefficient is -.0095457 and p value is 0.047 that means there are significant negative impact on roa. So we reject null hypothesis.

GDP Growth Rate:

GDP growth rate statistically insignificant positive impact on roa. So, we fail to reject null hypothesis.

Inflation Rate (INFR):

Inflation rate coefficient is .0538373 and p value is 0.011 which indicate the significant positive impact on roa. So, we reject the null hypothesis.

5.1.10 Hausman Test

Chi-square=18.54

Prob> χ^2 =0.0001

After pooled OLS test result analysis two models were estimated: Random effect(RE), Fixed effect (FE) but hausman test results(χ^2 =18.54, Prob > χ^2 =0.0001)indicated that the Fixed effect model is more suitable for my study.P value 0.0001 is less than the significance value 0.05.so p value significance it means fixed effect model more suitable than random effect model.

5.2 Findings and Discussion

Loan to deposit ratio significant negative impact on roa. When provide more loan, liquidity risk is increase so bank profitability decreases. Therefore bank must maintain ldr level for minimizing liquidity risk. Efemena & Augustine (2024) found in their research paper that ldr negative significant impact on Bank financial performance/profitability.

Liquid asset to total asset show insignificant impact in this research there is no meaningful impact on profitability of bank. Goddard et al. (2004) examined this variables as a insignificant impact. But many Studies found it as a significant impact. Overall, research found mixed impact. So, we Need to be more study of further research for clear impact.

Npl has a significant negatively impact on bank profit. More classified loan decrease the bank profitability and it create liquidity shortage situation so increase liquidity risk and decrease bank profit. When NPL increase profit decrease. According to Sufian and Chong (2008) they suggested that higher classified loan risk tend to displayed lower profitability levels. They found NPL has negative impact on roa.

GDP growth rate not meaningful direct impact on bank profitability in this study because it is statistically insignificant impact on roa. Dietrich & Wanzenried (2011) also show that sometimes GDP growth rate insignificant impact on roa based on the situation.

Inflation rate has a positive significant impact on roa. When inflation is increase then bank profit may increase. It's mixed impact based on situation. Inflation Rate increase liquidity risk and decrease bank profitability. According to Athanasoglou et al. (2005) study they also found inflation rate positive significant impact on roa. They also described that though not fully, assumption future inflation, which in turn expound implies that interest rates have been accurately adjusted to gain higher profits.

The study find out liquidity significant impact on bank profitability. But some variables indicate confused result based on the situation. Overall result show that liquidity risk negative impact on bank profitability through loan to deposit ratio, non-performing loan, bank size and inflation rate. Athanasoglou et al. (2005) also suggested in their Result liquidity risk negative impact on Bank profitability. High liquidity risk can reduce bank profitability. Other side low liquidity can reduce profit so maintain balancing liquidity position.

Chapter -06

Limitations, Recommendations and Conclusion

6.1 Limitation of this Study

This study has several limitations that should be faces when interpreting the results. First, due to the time limitations, the sample size of banks could not be expanded, few banks selected for conduct research. Second, the selection of two explanatory variables created a multicollinearity problem in the initial regression model. To resolve this problem, some variables were removed or adjusted, and the model was re-estimated by Stata. The study is limited by collection of data. Complete data for all banks and variables were not always accessible, which may affect the accuracy and reliability interpretation of the results. Analysis covers a specific time period, long-term trends, data and structural changes may not be fully captured. Also faces the Software/model limitation so results depend on Stata estimation and chosen specification. External shock can not fully captured (like COVID-19) financial crisis effect may influences the result. Conducting this study focus only on selected banks (only three commercial banks) in Bangladesh context. Sometimes technical complex occurs when interpretation data by STATA, EXCEL or others software. This study suffer from potential issues like as some explanatory variables and bank profitability indicators may mutually influenced which is difficult to fully control within the selected model. Methodological limitation only specific models like Pooled ols/ fixed/random effects were used other advanced models were not used.

6.2 Recommendations

- Bank take Proper initiative and accurate planning to reduce liquidity risk. As a result banks create enough profit earnings.
- Maintain a balance loan to deposit ratio so that it can not be high or low. High loan to deposit ratio turn into High liquidity risk and profit decrease. Lower LDR indicate excessive liquidity, it also reduce profit, Therefore maintain balancing LDR.
- Reserve enough liquid asset so that it easily convert cash for necessary activities.
- Can not reserve excise liquidity it may reduce profit earnings.
- Improve risk management and financial management system.

- Use modern Fin-Technology (ATM, online banking, mobile apps, internet banking, digital payment and transfer) for ensuring modern banking system and improve financial, risk management system.
- Maintain daily liquidity system monitoring. And assumption short and long run cash flow.
- Reduce npl amount because it indicate lower cash in hand which occurs liquidity risk and reduce bank profit. Maintain deposit diversification.
- Minimizing excessive operating expenses it help maintain adequate liquidity in hand which help profit increase.
- In inflation time period bank must maintain interest rate gap for balancing liquidity condition.

6.3 Conclusion

This study focus on three commercial bank in Bangladesh to investigate the relationship Between liquidity risk and its impact on bank profitability. Liquidity risk important for maintain bank stability. In this study specified an exploratory framework by use 5 bank internal and two macroeconomic determinates and one determinates as a dependent variable. This exploratory study result show that ldr, npl significantly negative impact on roa and inflation rate significantly positive impact on Bank profitability indicator roa. And others variable lata insignificant positive impact on ROA. At last gdp growth rate positive associated with roa but insignificantly impact on roa. It find out that positive but insignificant relationship with liquidity risk and profit. Though maintain excessive liquidity reduce liquidity risk, it reduce earn bank profitability in long run. On the other side, high credit rate and investment may increase bank profitability but it faces liquidity risk. Bank must maintain enough liquidity with bank liquidity minimum requirement because enough liquidity can prevent any kind of loss.

Bank decreased ability to earn profit as its liquidity risk has increased that indicates directly imbalance between liquidity and profitability. It is advisable to do future research add more banks and additional macroeconomic determinates, to comprehend the proper balancing an underutilization liquidity risk functionality and assess the applicability of non-performing loan side effect in the current banking sector. This study help, different bank, policymakers, bank manager can learn how they maintain balance between liquidity risk and profitability, proper financial system. And they learn control liquidity risk through maintain liquidity risk factors such as loan to deposit ratio, liquid asset to total asset, non performing loan, capital adequacy ratio etc. Regulatory and maintaining authorities should guide and monitoring liquidity risk indicators superfluous strictly.

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Annual Report

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