



**AN INTERNSHIP REPORT
ON
LIQUIDITY MANAGEMENT IN COMMERCIAL BANK OF BANGLADESH**

This Internship report is submitted to the Department of Business Administration, Sonargaon University in Partial fulfillment of the requirement for the degree of MBA in Finance.

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Letter of Transmittal

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Subject: Submission of Internship Report.

Sir,

I am pleased to submit hereby the Internship report of “Liquidity Management in Commercial Banks of Bangladesh” for your kind evaluation.

I was assigned to work at Financial Stability Department of Bangladesh Bank. During this period, I have worked with utmost dedication and have tried my level best to meet the needs of the course and follow all the given guidelines to prepare the report.

I made sincere efforts to study related materials, documents, annual report and operational systems and examine relevant records for preparation of the Internship paper as comprehensive and informative as possible within the time allowed for me.

I would be glad if you accept the report and also requesting to consider limitations with a soft view that had been made due to my limitations and oblige thereby.

Sincerely Yours,



Md. Musfequr Rahman Khan
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Declaration

I, Md. Musfequr Rahman Khan, hereby declare that the report of internship titled “Liquidity Management in Commercial Bank of Bangladesh” is prepared by me after completion of three months’ work in Bangladesh Bank.

I also would like to confirm that, the report is prepared exclusively for academic purpose not for any other purposes.



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Supervisor's Certificate

TO Whom It May Concern

This is to certify that the internship report on “Liquidity Management in Commercial Bank of Bangladesh” for the degree of Masters of Business Administration (MBA) major in Finance from Sonargaon University carried out by Md. Musfequr Rahman Khan, ID- MBA2001019023, under my supervision. I have fully monitored his effort in the process of completing this report.

I, hereby, acknowledge his work & wish him all the success.

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Acronyms

| | |
|-------------|------------------------------|
| ADR | Advance-Deposit Ratio |
| BB | Bangladesh Bank |
| CRR | Cash Reserve Requirement |
| CY | Calendar Year |
| FCB | Foreign Commercial Bank |
| GDP | Gross Domestic Product |
| LCR | Liquidity Coverage Ratio |
| NSFR | Net Stable Funding Ratio |
| PCB | Private Commercial Bank |
| ROA | Return on Assets |
| ROE | Return on Equity |
| SCB | State-owned Commercial Banks |
| SLR | Statutory Liquidity Ratio |

Abstract

The report is devoted to the existing mechanisms of liquidity management in practice of commercial banks in Bangladesh. Firstly, it presents concepts and theoretical approaches to the liquidity management in commercial banks. It also includes the main requirements to the mechanism of liquidity management process. The major aims of the study are to find evidence that the commercial banks are following the proper liquidity requirements or not, whether liquidity ensures profit, ADR effects on liquidity, connection between GDP and liquidity. All commercial banks have been divided into three groups (SCBs, PCBs & FCBs) to represent the liquidity management of the banks. Data are collected from secondary sources and are analysed using financial ratios and liquidity indicators. Deposit, advance, profit, ADR have been considered as parameter to analyse the liquidity situation. It appears from the study that the banking sector of Bangladesh is maintaining higher liquidity from 2014 than regulatory requirement. As a result banks are facing no liquidity pressure because they are holding excess liquidity. The study recommends that there is a need for an optimum utilization of the available liquidity in a various aspects of investment in order to increase the banks' profitability and banks should adopt a general framework of liquidity management to assure sufficient liquidity for executing their operations efficiently. In the project, an attempt has been made to evaluate the efficiency in liquidity management of different categories of commercial banks like public, private and foreign banks in Bangladesh. Lastly, recommendations have been given on the basis of the findings from the analysis.

Keywords: Liquidity, liquidity Management, profitability, liquidity requirements, commercial banks

Chapter One: Organisation Overview

Bangladesh Bank is the Central Bank of Bangladesh. It is the main regulator to regulate and monitor the monetary and financial system of the country. It was established in Dhaka on December 16, 1971 through the enactment of Bangladesh Bank Order 1972- President's Order No. 127 of 1972 (Amended in 2003). Officials 3981, subordinate staff 1826, in total 5807 people work at Bangladesh Bank (December 29, 2020). BB has 45 departments and 10 branch offices. The Head Office of the Bank is situated at Motijheel, Dhaka. The branches are located at-

- i. Motijheel;
- ii. Sadarghat;
- iii. Chittagong;
- iv. Khulna;
- v. Bogra;
- vi. Rajshahi;
- vii. Sylhet;
- viii. Barisal;
- ix. Rangpur;
- x. Mymensingh;

1.1 Vision

To develop continually as a forward looking central bank with competent and committed professionals of high ethical standards, conducting monetary management and financial sector supervision to maintain price stability and financial system robustness, supporting rapid broad based inclusive economic growth, employment generation and poverty eradication in Bangladesh.

1.2 Mission

We at Bangladesh Bank are carrying out its following main functions as the country's central bank:

- ✓ Formulating monetary and credit policies;
- ✓ Managing currency issue and regulating payment system;
- ✓ Managing foreign exchange reserves and regulating the foreign exchange market;

- ✓ Regulating and supervising banks and financial institutions, and advising the government on interactions and impacts of fiscal, monetary and other economic policies;

1.3 Functions

Bangladesh Bank does both the core and non-core functions as a regulator of the monetary and financial system of the country. The main functions of the Bank are:

- Both monetary policies and credit policies formulation and their implementation;
- Promotion and development of domestic financial markets;
- Acting as banker to the government;
- Money Laundering Prevention;
- Collection and furnishing of credit information;
- Implementation of the Foreign exchange regulation Act;
- Management of Deposit Insurance Scheme;
- to formulate and implement intervention policies in the foreign exchange market;
- to give advice to the Government on the interaction of monetary policy with fiscal and exchange rate policy, on the impact of various policy measures on the economy and to propose legislative measures;
- to hold and manage the official foreign reserves of Bangladesh;
- to promote, regulate and ensure a secure and efficient payment system, including the issue of bank notes;
- to regulate and supervise banking companies and financial institutions;

1.4 Organisation Structure

The general superintendence and direction of the affairs and business of BB have been entrusted to a 9 members' Board of Directors which is headed by the Governor who is the Chief Executive Officer of this institution as well. Officials 3981, subordinate staff 1826, in total 5807 people work at Bangladesh Bank (Dec 29, 2020). Number of general manager is 78 and Deputy Governor is 3.

Figure-1: Bangladesh Bank Hierarchy

| | | | | | |
|-----------------------------|---------------------------------|------------------------------------|--------------------------------|--------------------------------|------------------------------|
| Governor | | | | | |
| Deputy Governor | | | | | |
| Executive Director | | | Economic Adviser | | |
| General Manager | | | Systems Manager | | |
| Deputy General Manager | | Senior Systems Analyst | | Principal Maintenance Engineer | |
| Joint Director | Joint Manager | Systems Analyst/ Sr. Programmer | Sr. Maintenance Engineer | Operation Manager | Asstt. Chief Medical Officer |
| Deputy Director | Deputy Manager | Programmer | Maintenance Engineer | Computer Operation Supervisor | Sr. Medical Officer |
| Assistant Director | Assistant Manager | Assistant Programmer | Assistant Maintenance Engineer | Sr. Computer Operator | Medical Officer |
| Officer | | Cash Officer | | Data Entry/Control Supervisor | |
| Clerk-1st Grade | Sr. Data Entry Control Operator | | Stenographer | Typist | Telephone Operator |
| Data Entry/Control Operator | | | | | |
| Caretaker-1st Grade | | | | | |
| Caretaker-2nd Grade | | | | | |
| Jomader | | | MLSS | | |
| Door Keeper | | Mali | | Khedmotgar | |

Source: BB website

1.5 Core Policies of Central Bank

a) Monetary policy

Bangladesh Bank declares the monetary policy by issuing Monetary Policy Statement (MPS) twice (January and July) in a year. The tools and instruments for implementation of monetary policy in Bangladesh are Bank Rate, Open Market Operations (OMO), Repurchase agreements (Repo) & Reverse Repo, Statutory Reserve Requirements (SLR & CRR). The main objectives of monetary policy of Bangladesh Bank are:

- ✓ Both internal & external price stability;
- ✓ Sustainable growth & development;
- ✓ High employment;
- ✓ Economic and efficient use of resources;
- ✓ Stability of financial & payment system;

b) Reserve Management Strategy

Bangladesh Bank maintains the foreign exchange reserve of the country in different currencies to minimize the risk emerging from widespread fluctuation in exchange rate of major currencies and very irregular movement in interest rates in the global money market. BB has established Nostro account arrangements with different Central Banks. Funds accumulated in these accounts are invested in Treasury bills, repos and other government papers in the respective currencies. It also makes investment in the form of short term deposits with different high rated and reputed commercial banks and purchase of high rated sovereign/supranational/corporate bonds. A separate department of BB performs the operational functions regarding investment which is guided by investment policy set by the BB's Investment Committee headed by a Deputy Governor. The underlying principle of the investment policy is to ensure the optimum return on investment with minimum market risk.

c) Interest Rate Policy

Under the Financial sector reform program, a flexible interest policy was formulated. According to that, banks are free to charge/fix their deposit (Bank /Financial Institutes) and Lending (Bank /Financial Institutes) rates other than Export Credit. At present, except Pre-shipment export credit and agricultural lending, there is no interest rate cap on lending for banks. Yet, banks can differentiate interest rate up to 3% considering comparative risk elements involved among borrowers in same lending category. With progressive deregulation of interest rates, banks have been advised to announce the mid-rate of the limit (if any) for different sectors and the banks may change interest 1.5% more or less than the announced mid-rate on the basis of the comparative credit risk.

d) Capital Adequacy for Banks and FIs

Basel-III has been introduced with a view to strengthening the capital base of banks with the goal of promoting a more resilient banking sector. The Basel III regulation will be adopted in a phased manner starting from the January 2015, with full implementation of capital ratios

from the beginning of 2019. Now, scheduled banks in Bangladesh are required to maintain minimum capital of Taka 4 billion or Capital to Risk Weighted Assets Ratio (CRAR) 10%, whichever is higher. In addition to minimum CRAR, Capital Conservation Buffer (CCB) of 2.5% of the total RWA is being introduced which will be maintained in the form of CET1. Besides the minimum requirement all banks have a process for assessing overall capital adequacy in relation to their risk profile and a strategy for maintaining capital at an adequate level.

For FIs, full implementation of Basel-II has been started in January 01, 2012 (Prudential Guidelines on Capital Adequacy and Market Discipline (CAMD) for Financial Institutions). Now, FIs in Bangladesh are required to maintain Tk. 1 billion or 10% of Total Risk Weighted Assets as capital, whichever is higher.

e) **Deposit Insurance**

The deposit insurance scheme (DIS) was introduced in Bangladesh in August 1984 to act as a safety net for the depositors. All the scheduled banks Bangladesh are the member of this scheme Bank Deposit Insurance Act 2000. The purpose of DIS are-

- ✓ to help to increase market discipline;
- ✓ to reduce moral hazard in the financial sector;
- ✓ to provide safety nets at the minimum cost to the public in the event of bank failure;

A Deposit Insurance Trust Fund (DITF) has also been created for providing limited protection (not exceeding Taka 0.01 million) to a small depositor in case of winding up of any bank. The Board of Directors of BB is the Trustee Board for the DITF. BB has adopted a system of risk based deposit insurance premium rates applicable for all scheduled banks effective from January - June 2007. According to new instruction regarding premium rates, problem banks are required to pay 0.09% and private banks other than the problem banks and state owned commercial banks are required to pay 0.07% where the percentage coverage of the deposits is taka one hundred thousand per depositor per bank. With this end in view, BB has already advised the banks for bringing DIS into the notice of the public through displaying the same in their display board.

1.6 Services for General Public

Bangladesh Bank serves the people in many ways.

- **Banknote Security:** The Bank issues banknotes with special security features so that owner knows the money is genuine.
- **Claim Your Money:** The account holders who do not make any transactions for long 10 years into their accounts maintained with the scheduled banks in Bangladesh, the scheduled banks transfer the funds to Bangladesh Bank under Section 35 of the Banking Companies' Act, 1991. The funds are transferred, if no claim is received for

refund of any amount from these deposits, to the Banking Regulations and Policy Department of Bangladesh Bank through the banks concerned, to the government account after completion of one year under the provisions of the same Section of the said Act. The account holder can check their account from 'Claim your money' link.

- **Financial Integrity and Customer Services:** Bangladesh Bank, the Central Bank of Bangladesh, always safeguards the interests of the depositors/customers of banks and financial institutions of the country. As the regulator as well as the supervisor of the banks and financial institutions, Bangladesh Bank has, therefore, established a full-fledged department known as "Financial Integrity & Customer Services Department (FICSD)" with the following objectives:
 - To protect the interests of the customers related to Banks & Financial Institutions (FI) within the legal and regulatory frame-works;
 - To redress the grievances of the customers and to attend the complaints received against Banks/FIs or its any official;
 - To improve banker-customer relationship;
 - To ensure the standard of customer-services of Banks/FIs;

- **Customer Complaint:** Any client, person or agency having complaint(s) against a Scheduled Bank/FI/Bangladesh Bank or related official may write down his/her complaint(s) in the 'Customer Complaint' link.

- **BB Forms:**

Some important BB forms are available at 'BB Forms' link. BB forms are available in blank format and in fillable format. The BB Forms are-

- ✓ Challan Form;
 - ✓ Prizebond Claim Form;
 - ✓ Treasury Bill/Bond Auction Form;
 - ✓ Repo/Reverse Repo Auction Form;
 - ✓ Foreign Exchange Declaration Forms;
 - ✓ Large Loan/Lease of the Financial Institutions (Forms for submitting information to Bangladesh Bank);
- **ACU Information**

 - **SME Activities:**

Policy and relevant information of SME:

- ✓ Distribution of Booklet on 'Contact persons of Women Entrepreneurs Development Unit'
- ✓ Industrial credit Report

- ✓ Small and Medium Enterprise (SME) Credit Policies & Programmes
- ✓ BB policy on agri based industry and SME
- ✓ List of authorized agri based industry
- ✓ Sectors of SME
- ✓ Checklist for needful deed and documents for SME loan sanction

▪ **Right to Information (RTI):**

The basic object of the Right to Information Act-2009 is to empower the citizens by promoting transparency and accountability in the working of the public, autonomous and statutory organizations and other private organizations constituted or run by the government or foreign financing with the ultimate aim of decreasing corruption and establishing good governance in our democratic society in real sense.

▪ **E-Services:**

Table-1: E-Services of BB for General Public

| Service Name | Description | Users | User Guide/Manual |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-------------------|
| Time series (Economic data) | Bangladesh Bank publishes data on various aspects of the Bangladesh Economy through several publications. These data are mainly presented through time-series formatted reports. | Banks, FIs, Economists, Researchers, Analysts | NA |
| Online CIB services | The automated CIB service provides credit related information for prospective and existing borrowers. With this improved and efficient system, more efficient risk management is possible. Banks and financial institutions may furnish credit information to CIB database 24 by 7 around the year and | Banks and FIs | NA |

| | | | |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------|
| | can access credit reports from CIB online. | | |
| Online Agent Information Management System | Authorized Dealer Bank sends the required information and documents for permission under Section-18A of Foreign Exchange Regulation Act, 1947 to work as local agent of foreign principals. | AD Branch of Banks | Online Agent Information Management System |
| Reporting goAML | It is a UNODC response to prevent money-laundering. The goAML Client application is an intelligence analysis system which is used by Bangladesh Financial Intelligence Unit (BFIU) to analyse Suspicious Transaction Reports (STRs), Cash Transaction Reports (CTRs) & information related to money laundering (ML)/financing of terrorism (TF) .It provides a secure web based interface between the BFIU and its reporting organizations for the electronic upload of reports such as XML files, filling out the online report forms or sending XML files | All scheduled Banks, Stakeholders & other reporting agencies | Available at BB website. |

| | | | |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----|
| | as attachments by secure e-mail, information sharing among stakeholders and other information. | | |
| Web Upload | All scheduled banks submit Weekly Statement of Position on every Thursday to the Department of Off-site Supervision through on-line using this web service within three working days after the reporting date. | All scheduled banks | NA |
| Prizebond Matching | Using this service, search of single or multiple numbers at a time is possible. | NA | NA |
| Online Foreign Exchange Transaction Monitoring System | It monitors total foreign exchange transactions of Bangladesh and also includes Export, Import, Inward remittance (Wage Earners' remittance and other) and Outward remittance (Traveling and Miscellaneous). Banks and AD Branches issue & reports Foreign Exchange Transactions to Bangladesh Bank through this service. | Banks, AD Branch of Banks and Customs | NA |
| Bangladesh Bank eTender System | The online tendering system facilitates the procurement process | Interested Bidders | NA |

| | | | |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------------------------------------------------------------|
| | of Bangladesh Bank. The system helps to participate in the local and international tender/procurement of Bangladesh Bank. | | |
| eReturns | It is an Online Portal Service for Scheduled Banks to submit Electronic Returns using predefined template for the purpose of Macro Economy Analysis through related BB Departments. | All Schedule Bank | Rationalized Input Template has been provided to all Schedule Bank |
| Special Foreign Currency Account Monitoring System (SFCAMS) | It monitors FC account transactions of Bangladesh. Through this service, AD Branches of Banks report day to day Transactions (Only Special FC A/C) to Bangladesh Bank | AD Branch of Banks | Available at BB website. |
| Information for Deposit Insurance Premium Assessment (IDIPA) | Deposit Insurance System (DIS) is now contributing financial stability, protecting bank's depositors and assuring insurance benefits in the unlikely event of Scheduled Banks. The key elements of DIS are to maintain public confidence and promote financial sector's resilience through | All scheduled banks | NA |

| | | | |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------------------|
| | increasing savings. | | |
| Corporate Memory Management Systems (CMMS) | It is a web-based application which monitors the errors, omission and violation of regulations and policies by the Schedule Commercial Banks/FI's and their executives. | All Scheduled Banks and FIs | NA |
| e-statement for CRR & SLR | All scheduled banks (both Conventional and Islamic Banking) in Bangladesh submit Thursday Positions of Demand And Time Liabilities for calculating CRR and SLR at the close of business. This statement is submitted through on-line using this web service to Department of Off-site Supervision (DOS) within the 10th of the following month. | All Scheduled Banks | Available at BB website. |

Source: BB Website

1.7 Investment Facilities

- Facilities / Incentives: General facilities/ incentives are-
 - Tax holiday
 - Tax exemption
 - Accelerated depreciation: Industrial undertakings not enjoying tax holiday will enjoy accelerated depreciation allowance.
 - Concessionary duty on imported capital machinery
 - Foreign Investment
- Premium bond
- Investment bond

- Wage earners development bond
- NRB investment
- Inward remittance facilities: Bangladesh Bank permits banks in Bangladesh to establish drawing arrangements/ remittance facilities with foreign banks and Exchange houses and Subsidiaries/ Overseas Branches of Bangladeshi Scheduled Banks for facilitating remittance by Bangladeshi nationals living abroad. Persons willing to remit their earnings through official channels can buy either Taka draft or US dollar draft from these Foreign banks and Exchange houses having drawing arrangements with different banks in Bangladesh. Bangladeshi nationals living abroad can send Foreign Exchange very easily and directly to their own bank accounts maintained in Bangladesh or to their nominated person's / relative's bank accounts in Bangladesh. Furthermore, recently banks have taken some major steps towards crediting the proceeds of remittances to the beneficiary's account promptly, maximum by 3(three) days.
- Prizebond
- Sanchayapatra
- NRB database: BB recently takes initiatives to collect information of NRBs and maintain them in NRB database. For Bangladesh Bank, this database helps to promote and uphold investment information arranged for NRBs by government, proper remittance channel and method, important financial or economic moves of government in which NRBs can participate.

Chapter Two: Introduction

2.1 Background of the Study

When banks need more liquidity, they provide less liquidity to the market. This is a basic relationship between bank and liquidity. Having more liquid assets decreases bank's liquidity risk. Holding excess liquidity assets is regarded as liquidity cushion or buffer which helps the banks to meet excess liquidity needs when liquidity pressure increases. When a bank maintains a liquidity buffer, it can't create that much liquidity in the market which it can without maintaining liquidity buffer in normal times. On the other hand, in the time of crisis this liquidity buffer is significant for bank's liquidity creation because other banks will be unable to lend at that time.

Though banks' objective is to maximize profits, they are concerned about banks liquidity and safety. Banks earn profits for their shareholders and at the same time satisfy the withdrawal needs of its customers and meet the demand of regulatory requirement (i.e., maintain CRR and SLR set by the Bangladesh Bank). However, banks' day-to-day required liquidity can be decided within their demand supply framework (Appendix-II). Aside from managing their own liquidity, banks play another role with regards to liquidity by creating liquidity for the market.

Banks have to maintain adequate liquidity at a reasonable cost to meet the demand of funds at the time needed. When a bank's demand for liquidity is higher than the supply it either sells its liquid assets or borrows funds to meet the deficit which affects the profitability of the bank. On the other hand, when a bank's supply of liquidity exceeds its demand, it loses some earnings which also impact its profitability. Excess liquidity [total liquid asset- required liquid asset (CRR +SLR)] indicates idle funds that do not fetch any profit. On the other hand, insufficient liquidity deteriorates bank's credit that would lead to forced liquidation of banks assets.

A bank's liquidity tends to be counter-cyclic. This means that bank liquidity is low in normal economic times but high in tough economic times such as crisis. A study of U.K. banks from 1983-2003 found that this was accurate and that an approximately 1% increase in GDP lead to an approximately 2% decrease in banks liquidity (Aspachs, Nier & Tiesset, 2004). This means that in order to ensure its own liquidity, banks do not provide liquidity to the market as well as do not act as liquidity provider to companies.

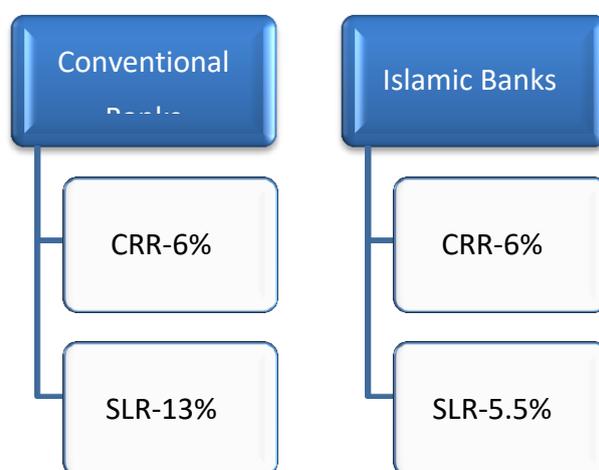
Another interesting study examines not what banks do during a crises involving liquidity management but what banks have done before such crises. By studying five crises, three market crises and two banking crises, research suggests that there was either too much or too little liquidity creation before all of the crises. So it is contradictory that too little liquidity causes financial crises or too much liquidity causes the crises.

In some cases, liquidity problem can create a panic to the depositor and banks can fall under trouble of repayment of deposited money. It is a great example of banking industry crisis in

2007 at the USA market. At the liquidity shortfall banks cannot increase the advance position to increase the profitability.

CRR and SLR: All scheduled banks are required to maintain a minimum reserve as cash form with the central bank (Bangladesh Bank) which is called Cash Reserve Requirement (CRR) and reserve maintained as government securities such as treasury bills and treasury bonds which is Statutory Liquidity Reserve (SLR). Every schedule bank of our country has to maintain CRR and SLR on Total Deposit amount of the bank with central bank. Now CRR is 6.00% for Conventional Banks and Islamic Banks but SLR is 13.00% for Conventional Banks and 5.50% for Islamic Banks which was 19.00% & 11.50% accordingly before. SLR requirement was changed by Bangladesh Bank's DOS Circular No.-01, dated 19/01/2014 and the effective date was 1st February, 2014.

Figure-2: Liquidity Requirements of Commercial Banks



Source: BB's DOS Circulars

Before CRR was included with SLR amount and after 2014 CRR and SLR are calculated separately. In this process, bank has to maintain SLR in the form of cash, foreign exchange reserve, and government securities. CRR is maintained at cash form with Bangladesh Bank. Any bank can maintain whole 13.00% (Conventional Banks) of SLR requirement by purchasing Treasury bills and Treasury bonds.

Global Liquidity Standard: In line with the Basel framework, Bangladesh Bank issued transitional arrangements for Basel III implementation in Bangladesh. The phase-in arrangements for Basel III liquidity ratios implementation in Bangladesh will be as follows:

Table-2: Phase-in arrangements for Basel III liquidity ratios implementation in Bangladesh

| | | | | | |
|---------------------------------|-----------------------------|--------------|--------------|--------------|--------------|
| Liquidity Coverage Ratio | $\geq 100\%$ (From Sep.) | $\geq 100\%$ | $\geq 100\%$ | $\geq 100\%$ | $\geq 100\%$ |
| Net Stable Funding Ratio | $> 100\%$ (From Sep.) | $> 100\%$ | $> 100\%$ | $> 100\%$ | $> 100\%$ |

Source: BB guidelines

A study of liquidity is of major importance because of its close relationship with day to day operations of a bank. There are certain critical factors which are required to facilitate liquidity management. These include a stable macroeconomic environment, a sound and competitive financial system, adequate regulatory and supervisory framework and capacity build up. Commercial banks are selected as the main focus of the study. They maintain their liquidity position through their treasury division by interbank transaction. Liquidity management plays a significant role in maintaining the stability and efficiency of commercial banks and of the banking system as a whole.

2.2 Problem Statement

Banks face two central issues regarding liquidity. Banks are responsible for managing liquidity creation and liquidity risk. Liquidity creation helps depositors and others to stay liquid. Managing liquidity risk is to ensure the bank's own liquidity so that the bank can continue to serve its functions.

The commercial banks, through the financial inter-mediation role, reactivate the funds which have been deposited by the depositors and borrowed from the lenders by investing them in different fields. These investments obviously are not free from risk and problems because the deposited or borrowed funds which have been invested by banks for profit maximization can be demanded at any time. So the banks should be ready to meet these demands at any time. The problem arises when the bank cannot meet these demands and as a result the clients lose their trust on bank. Due to the increasing number of local banks and foreign banks in local banking market, every commercial bank should ensure that it operates on profit and at the same time meets the financial requirements of the depositors by maintaining sufficient amount of liquidity. Each level of liquidity has different effect on the levels of profitability. Neither low nor high liquidity is good for profit earning. So banks should determine the optimum level of liquidity to maintain profitability. Another problem arises when the banks try to maximize profit by neglecting the proper liquidity management or requirement which may cause both technical and financial hardship. At present the commercial banks as well as other banks in Bangladesh are facing problems like excess liquidity or no liquidity pressure, ADR is below the benchmark which has been set by BB, lower growth of loan and higher amount of deposit, falling call money rate and banks are also maintaining higher SLR. This

report seeks to investigate these problems. All these problems are what the study intends to consider, find solutions and make recommendations where necessary.

2.3 Research Questions

Question 1: Do the commercial banks follow liquidity requirements required by BB at all times?

Question 2: Does excess liquidity ensure higher profit for the banks?

Question 3: How does ADR affect liquidity?

Question 4: Is there any connection between GDP and bank liquidity?

Question 5: Are banks maintaining required CRR and SLR?

2.4 Objectives of the Report

This report is largely centred on liquidity management which enables the bank to determine its liquidity requirement and to ensure its ability to meet up the depositors' demand or its financial obligations, thereby maximising its value. This study will discover the factors which are useful in having efficient liquidity position of the commercial banks and will take a critical view of the adopted liquidity measures of the commercial banks. It is also aimed at finding the effect of changes in liquidity levels on profitability. It will determine higher liquidity ensures higher profitability or not. It will attempt to identify the basic causes of liquidity problems in commercial banks of Bangladesh and to recommend appropriate measures to solve such problems. This study will focus on identifying the most important indicators of the liquidity management. It will explore advance, deposit and profits of commercial banks of our country and analyse the numerical data of the banks by using some ratios.

2.5 Organisation of the Report

This study is structured into chapters and has six chapters in all.

- Chapter one covers the organisation overview;
- Chapter two is the introduction to the study;
- Chapter three is the review of related literature on the subject matter of the study;
- Chapter four deal with guidelines on liquidity management imposed by BB;
- Chapter five represents data analysis, interpretation and findings;
- Lastly, chapter six provide conclusion, recommendations and references;

2.6 Limitations of the Report

This study is conducted on all the commercial banks of Bangladesh. So this study cannot give clear idea about the whole picture of the banking sector of Bangladesh. There are several limitations other than this such as:

- In some cases, only two or three years data were available which are not sufficient to conduct this study because it does not represent the whole performance;
- Bank officials are reluctant to give all the information;
- All liquidity ratios and financial ratios are not considered because of insufficient information;
- Only deposit, advance and profit position are considered which are not sufficient to analyse the liquidity management of the banks;

Chapter Three: Literature Review

3.1 Banks Liquidity

Liquidity refers to the ability of a bank to ensure the availability of funds to meet financial commitments or maturing obligations at a reasonable price at all times. It is the bank's ability to immediately meet cash, cheques, other withdrawals obligations and legitimate new loan demand while abiding by existing reserve requirements. Put differently, bank liquidity means banks having money when they need it particularly to satisfy the withdrawal needs of their customers. The survival of deposit money banks depends greatly on how liquid they are, since illiquidity, being a sign of imminent distress, can easily erode the confidence of the public in the banking system and results to run on deposit.

3.1.1 Sources of Liquidity

For a commercial bank to plan or manage its liquidity position, it must comply firstly with the legal requirement concerning its cash position. However, it is very essential for banks to manage and maintain adequate funds for operations in order to avoid excesses or deficiencies of the required primary reserves. Where there is a decline in the market price of securities or where additional funds needed to correct the bank reserve position are for a short time, it will be definitely expensive to secure securities than to borrow from another bank. Moreover, it may be more desirable to borrow for bank's liquidity needs than to call back outstanding loan or cancel out rightly or place embargo on new loans, a situation that will reduce the customer confidence in the bank. Effective liquidity management therefore involves obtaining full utilization of all reserves. The primary reserves are made of vault cash, cash balances or excess reserves with the central bank, as well as deposits with other banks, both locally and abroad. They are maintained to satisfy legal and operational requirements. While the secondary reserves are those liquid assets that can be converted into cash without impairment of the principal sum invested. Secondary reserves are characterized by short maturity, high credit quality and high marketability. The secondary reserves are held primarily to meet both anticipated and unanticipated short-term and seasonal cash needs from depositors. They contribute to the attainment of both profitability and liquidity objective of the bank.

3.1.2 Types of Liquidity

There are several types of liquidity in banking sectors which are-

- Immediate liquidity: When cash money is needed to pay in cheques to demandable customers, it is called immediate liquidity.
- Short-term liquidity: Short-term liquidity is used to meet the monthly liquidity requirements. Based on the types of clients and on the seasonal variability, the necessity of these types of liquidity can vary.
- Long-term liquidity: Long-term liquidity is required to meet the cash demand for replacement of fixed assets, retirement of the redeemable preferred shares or debentures and to acquire new fixed assets and technical know-how.

- **Contingent liquidity:** It arises depending on the happening of some unexpected events. It is difficult to guess this unexpected situation but not impossible though the amount cannot be exactly predicted. Contingent liquidity is also required to face the adverse situations created by big bank robbery, fraud, arson or other accidents.
- **Economic cyclical liquidity:** Based on good or bad economic situation, the supply of bank deposit and the demand for loan varies. Due to this variation, the liquidity demand also varies. But it is very difficult to identify the extent of such variation. Generally, difficult national and international events such as political instability, war, the pressure created by the different interest groups relating to the banking activities are the causes of economic cyclical liquidity needs.

3.1.3 Demand and Supply of Liquidity

Every commercial bank needs enough liquid assets to meet the immediate financial needs of the customers. Bank collects funds to fulfil the demand of the customer. There are two types of sources to squash the demand of spendable funds of the banks and sources are withdrawal deposited money from the account and credit requests from the customers which may be in the form of new loan request, renewals of expiring loan agreement or drawing upon existing credit facilities. Other sources of liquidity demand include paying off previous borrowings such as loans the bank may have received from other banks or from the central bank. Similarly payment of income taxes or cash dividend to the shareholders rises to the demand for spendable fund. The most important source for a bank is receipt of new customer deposits, both from newly opened accounts and from new deposits placed in existing accounts. Another important component in the supply of liquidity for the banks comes from customers repaying their loans which provide fresh funds to meet new liquidity needs of the banks. On the other hand, bank can generate funds from selling marketable securities such as treasury bills & treasury bonds, from the investment portfolio. Banks can increase the flow of liquidity in from of revenues generated by selling non deposit services and from borrowing from the money market through treasury division.

3.1.4 Need for Liquidity

Liquidity simply means the ability to convert an asset to cash with minimum delay and minimum loss/cost. In the portfolio of commercial banks, liquidity assets play a very crucial role because banks operate largely with the funds borrowed from depositors in form of demand and time deposits. These liquidity assets are the essential balance sheet items which have the capacity to maintain the confidence of depositors which is the most valuable intangible asset of the commercial banking business.

- Adequate liquidity enables a bank to meet three risks. First is the funding risk – the ability to replace net outflows either through withdrawals of retail deposits or nonrenewal of wholesale funds. Secondly, adequate liquidity is needed to enable the bank to compensate for the non-receipt of inflow of funds if the borrower or borrowers fail to meet their commitments. The third risk arises from calls to honour maturity obligations or from request for funds from important customers. Adequate

liquidity enables the bank to find new funds to honour the maturity obligations such as a sudden upsurge in borrowing under atomic or agreed lines of credit or to be able to undertake new lending when desirable. For instance, request from a highly valued customer.

- Adequate liquidity is also needed to avoid forced sale of asset at unfavourable market conditions and at heavy loss.
- Adequate liquidity serves as vehicle for profitable operations especially to sustain confidence of depositors in meeting short run obligations.
- Finally, adequate liquidity guides against involuntary or non-voluntary borrowing from the regulatory authorities where there is a serious liquidity crisis, the bank is placed at the mercy of the Central Bank, and hence the control of its destiny may be handed over.

Having adequate or sufficient liquidity to meet all commitments at all times at normal market rates of interest is indispensable for both large and small banks. Liquidity is the life blood of a banking setup.

3.2 Liquid Assets of a Bank

Liquid asset is one kind of asset which can be converted into cash very hurriedly and which has negligible impact to the price. Liquid assets are generally regarded in the same light as cash because their prices are relatively stable when they are sold in the open market. For an asset to be liquid, it needs an established market with enough participants to absorb the selling without materially impacting the price of the asset. There also needs to be a relative ease in the transfer of the ownership and the movement of the asset. Liquid assets include most stocks, money market instruments and government bonds. The foreign exchange market is deemed to be the most liquid market in the world because trillions of dollars exchange hands each day, making it impossible for anyone to influence the exchange rate. Cash and other financial assets that banks possess can easily be liquidated and paid out as part of operational cash flows. Examples of core liquidity assets would be cash, government bonds, and money market funds. Banks typically use forecasts to anticipate the amount of cash that account holders will need to withdraw, but it is important that banks do not overestimate the amount of cash and cash equivalents required for core liquidity because unused cash left in core liquidity cannot be used by the bank to earn increased returns.

Following are the liquidity assets of a bank.

- ❖ **Cash in hand:** Amount of money of a bank, which stay in hand of that bank to meet recent needs. Generally, bank keeps enough money in hand. As a result liquidity risk is minimized.
- ❖ **Items in the process of collection:** Some amount of money which keeps in the process of making cash.
- ❖ **Reserve in Bangladesh Bank:** Every schedule bank has reserve requirement where every bank keeps 6% money on his total capital to the Bangladesh Bank. If a bank needs of money, he can withdraw money from Bangladesh Bank's reserve amount.

- ❖ **Balance with other banks:** Every commercial bank has an account in other commercial banks as customer. If a bank needs money, it can withdraw money from the account. As a result liquidity risk is minimized.

3.2.1 Characteristics of Liquid Assets

Three characteristics involved in the liquid assets are given below.

- a) **Ready Market:** It is one kind of market where liquid assets can be sold or converted into cash without delay.
- b) **Stable Market:** Liquid asset must have a reasonable stable price so that no matter how quickly the asset must be sold or how large the sale is the market is deep enough to absorb the sale without a significant decline in price.
- c) **Reversible:** The seller can recover the original investment amount with little risk of loss.

3.3 Liquidity Cushion

A bank maintains reserve fund by holding money market instruments and highly liquid investments in other sectors. By retaining cash reserves in money market instruments, urgent demands of the customers on cash can be fulfilled by immediately sale of these securities.

3.4 Liquidity Crisis

Liquidity crisis means negative financial situation of the banks or lack of cash flow of the banks. Liquidity crisis arises when a bank does not have enough liquid assets (i.e. cash or easily cash convertible assets) at hand for meeting its urgent short-term financial obligations such as repaying deposit amount, repaying loan amount, paying bills and paying stakeholders. A bank is announced bankrupt when it is not able to solve the problem of liquidity.

3.5 Liquidity Management

Business can only operate under the state of adequate liquidity. A bank or a company is said to be liquid, if it can convert its asset to cash with minimum amount of delay and inconvenience. A bank or firm should ensure that it does not suffer from lack of liquidity and does not also have excess liquidity. Failure to meet obligation due to lack of sufficient liquidity results in poor credit worthiness and loss of creditors' confidence. However, a high degree of liquidity results in idle cash. Thus, liquidity management as a concept encompasses efficient and effective planning and organization of Bank's assets which will enhance its liquidity and profitability at a minimum cost possible. It is the ability of an institution to meet demands for funds thereby ensuring that the institution maintain sufficient cash and liquid assets to satisfy client demand for loans and savings withdrawals and then meet its expected expenses.

The liquidity needs of the banking system are usually defined by the sum of reserve requirements imposed on banks by a monetary authority.

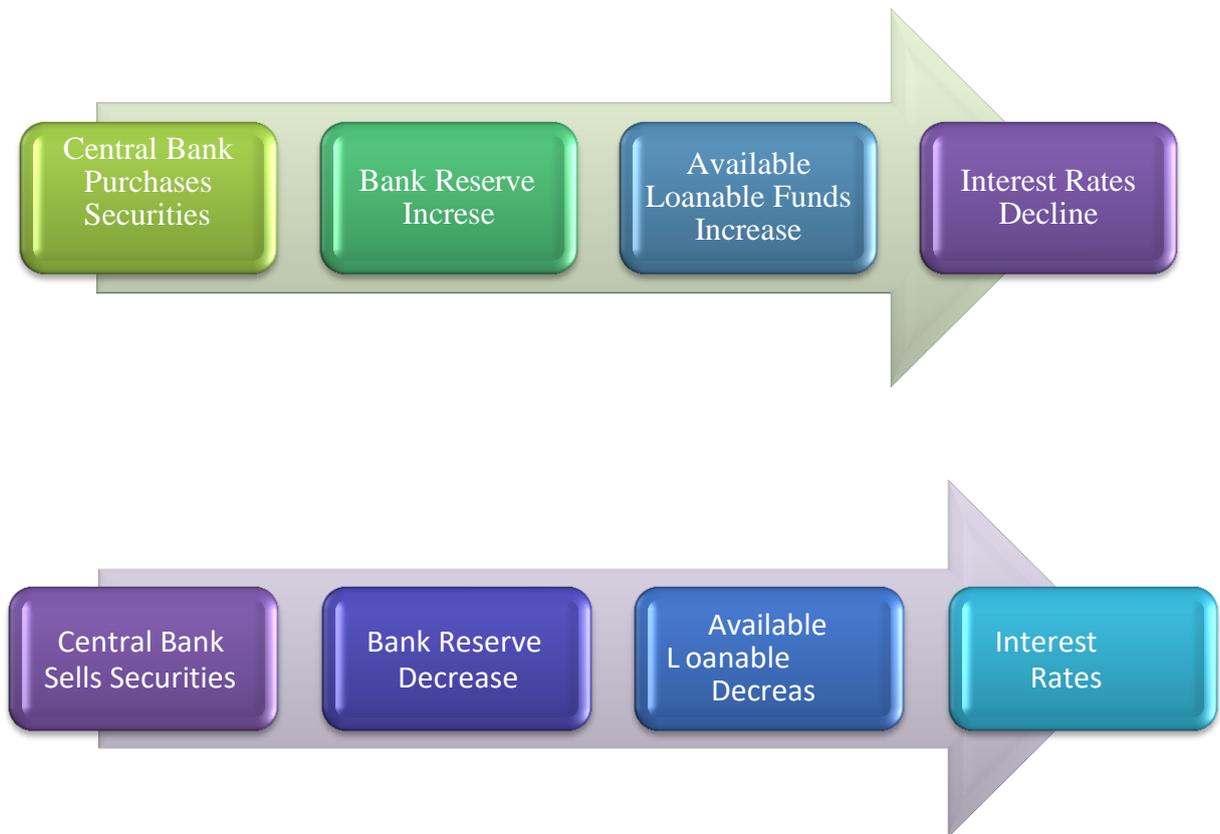
3.5.1 Liquidity Management and Performance

Bank liquidity simply means the ability of the bank to maintain sufficient funds to pay for its maturing obligations. It is the banks' ability to immediately meet cash, cheques, and other withdrawal obligations and legitimate new loan demand while abiding by existing reserve requirements. Liquidity management therefore is the strategic supply or withdrawal from the market circulation the amount of liquidity consistent with desired level of short-term reserve money without distorting the profit making ability and operations of the bank. Generally, the adequacy of liquidity plays very crucial roles in the successful functioning of all business firms. The ability to meet short-term obligations may affect the firm's operations. Every investor has interest in the liquidity position of the company. However, the issue of liquidity though important to other businesses, is most paramount to banking institutions and this explains why bank show-case cash and other liquid securities in their balance sheet statement. Thus bank ensures that sufficient provision of cash and other near cash securities are made available to meet withdrawals obligation and new loan demand by customers in need of liquidity. Hence, banks in Bangladesh are statutorily required to comply with cash reserve requirement (CRR) and Statutory Liquidity Ratio (SLR) of the Central Bank of Bangladesh as a measure of effectively managing the liquidity position of banks.

3.5.2 Liquidity Management & Open Market Operation

Banks are required to keep a certain portion of their assets in the form of relatively riskless instruments which is made for the monetary control purposes. Every bank has to maintain the level of minimum reserve requirement with central bank and central bank holds the right to change this requirement. It affects directly on the level of liquidity and the price of short term funds of the banks. Minimum reserve requirement is one of the tools of open market operations of the central bank by which the level of liquidity of the banks is manipulated by buying and selling of the short term instruments. When the buying of treasury bills & treasury bonds is increased, the yields of these securities will fall and relatively other securities will be attractive.

Figure-3: Open Market Operations



Source: https://en.wikipedia.org/wiki/Open_market_operation

The above figure shows the process of open market operations of the central bank. Securities purchased and securities sold are the two processes of open market of operations. When central bank purchases securities from the market, the reserve requirement for the banks increases. So the loanable fund in the market also increases and the credit facilities decrease. As a result the rate of interest will be decreased drastically. On the other hand, when central bank sells securities to the market, the reserve requirement of the banks decreased and then the loanable fund of the banks also decrease. So the rate of interest in the market will be increased rapidly with the reduction of loanable fund in the market.

3.6 Theories of Liquidity and Liquidity Management

Banks are major providers of liquidity in an economy. Several theories have been developed over the years concerning bank liquidity such as commercial loan theory, the shiftability theory, the anticipated income and liability management theory, etc.

Anticipated Income Theory

According to this theory bankers again began to look at their loan portfolio as a source of liquidity. The anticipated income theory encouraged bankers to treat long-term loans as potential sources of liquidity. How can a banker consider a mortgage loan as a source of liquidity when, typically, it has such a long maturity? Using the anticipated income theory,

these loans are typically paid off by the borrower in a series of instalments. Viewed in this way, the bank's loan portfolio provides the bank with continuous flow of funds that adds to the bank's liquidity. Moreover, even though the loans are long term, in a liquidity crisis the bank can sell the loans to obtain needed cash in secondary markets.

Shiftability Theory

Shiftability is an approach to keep banks liquid by supporting the shifting of assets. When a bank is short of ready money, it is able to sell its assets to a more liquid bank. The approach lets the system of banks run more efficiently: with fewer reserves or investing in long-term assets. Under shiftability, the banking system tries to avoid liquidity crises by enabling banks to always sell or repo at good prices (en.wikipedia.org.)

Commercial Loan Theory or Real Bill Doctrine

This theory states that the liquidity of the commercial bank achieved automatically through self-liquidation of the loan, which being granted for short periods and to finance the working capital, where borrowers refund the borrowed funds after completion of their trade cycles successfully. According to this theory, the banks do not lend money for the purposes of purchasing real estate or consumer goods or for investing in stocks and bonds, due to the length of the expected payback period of these investments, where this theory is proper for traders who need to finance their specific trading transactions and for short periods.

The major limitation of the theory is that the theory is inconsistent with the demands of economic development especially for developing countries since it excludes long term loans which are the engine of growth.

The theory also emphasizes that lending should be on short-term since most deposits are also in short-term. It is the oldest theory of liquidity management. It seeks to match short-term profit motive with short-term obligations of making depositors funds available when needed.

The Liquid Asset Theory

Certain theories of liquidity management were propounded to further aid the banking sector in its management of liquidity. This theory states that bank should maintain large pool short-term asset. They pre-suppose the existence of efficient primary and secondary (money) markets (Anyanwu, 1993). The theory also emphasizes the need to have short term (liquid) assets which will facilitate the bank's ability to meet its short term obligation as they mature.

The theory argues that banks must hold large amount of liquid assets as reserves against possible demands for payment, the original intent being prudent cushion in the face of uncertainty.

Anticipated Loan Theory

This theory was postulated in the 1940s and it focuses on the earning power and the credit worthiness of the borrower as the major source of bank liquidity. The doctrine urges banks to examine the reputation of the borrower and the ability and willingness to pay. They agree on

granting long term and non-business loans by banks since it will be repaid out of the future earnings of the borrower.

Liability Management Theory

This theory states that there is no need to follow old liquidity norms like maintaining liquid assets, liquid investments etc., banks have focused on liabilities side of the balance sheet.

According to this theory, banks can satisfy liquidity needs by borrowing in the money and capital markets. The fundamental contribution of this theory was to consider both sides of a bank's balance sheet as sources of liquidity (Emmanuel, 1997).

The liquidity management theory focuses on the liability side of bank balance sheet. This theory contends that supplementary liquidity could be derived from the liabilities of a bank. According to Nwankwo (1991) the theory argues that since banks can buy all the funds they need, there is no need to store liquidity on the asset side (liquidity asset) of the balance sheet.

The theory has been subjected to critical review by various authors. The general consensus is that during the period of distress, a bank may find it difficult to obtain the desired liquidity since the confidence of the market may have seriously affected and credit worthiness would invariably be lacking. However, for a healthy bank, the liabilities (deposits, market funds and other creditors) constitute an important source of liquidity.

3.7 Theoretical Approaches to Bank Liquidity

Initially, the issue about the bank liquidity had two theoretical approaches:

1. The first approach was based on the fact that the structure of the bank's assets by terms must exactly match the structure of its liabilities. This has nearly excluded the necessity for a bank to conduct a policy for managing its liquidity. On this theoretical basis has been worked out "golden banking rule": the amount and timing of the bank's financial requirements should correspond to the amounts and maturity of its liabilities.
2. The second approach was based on a real mismatch of assets and liabilities of the balance. This approach enabled to obtain higher profits. It was further developed in two areas: assets management and bank's liabilities management.

Currently the assets and liabilities management is based on 3 methodological statements:

1. Bank can maintain liquidity, if the assets are placed in short-term loans and are timely repaid;
2. Bank may be liquid if its assets can be transferred or sold to other lenders or investors;
3. Bank liquidity can be planned, if the basis of the schedule of payments and the repayment of loans will comprise the borrower's future income.

The theory of assets and liabilities management, in turn, is based on two statements:

1. The bank must solve the problem of liquidity by attracting additional funds, buying them on the capital market;
2. The bank can ensure its liquidity due to extensive borrowings, including borrowings from the Central Bank.

These are only the theories and approaches, which can be used by the bank as guidance for its activity by the will of the bank management and depending on the prevailing market situation.

Let's consider two approaches to the problem of assessing liquidity and the main directions of assessment and management of the bank liquidity on the basis of the generally accepted banking theory of liquidity notions as reserve and flow.

1) Liquidity as the „reserve“ includes determining the level of commercial bank's possibility to fulfil its obligations for clients at the certain period of time by changing the structure of assets and liabilities in favour of their high-liquidity items due to retained reserves available in this sphere. Historical example of assessing necessity of the bank in liquid funds from the point of view of reserves is the approach “theory of demand for money”.

If the bank does not possess sufficient liquidity to make payments, it will suffer loss. The more liquidity the bank maintains, the less likely that it will suffer loss, the higher income it will lose. The optimal amount will be between the minimum amount of liquid assets required for cash transactions and the volume sufficient to cover all needs. Common disadvantage of “reserve” models can be their static character and dependence from subjective assessments to volatility of different types of assets and liabilities of the bank.

2) Common principle of assessing and managing the liquidity as the “flow” is that indicators of the bank are analysed from the dynamic point of view. This assumes assessment of bank's ability to change an unfavourable liquidity degree or prevent worsening of the achieved liquidity degree which is objectively necessary, during a certain period of time. It is implemented due to the efficient management of assets and liabilities, attracting additional borrowings, and raising financial stability of the bank by the growth of income. Under this approach bank liquidity is determined by the following statement: bank is considered to be liquid if the total of its liquid assets or liquid funds which it can quickly mobilize from other sources, enough for timely redeeming its current liabilities. Under this approach the most widely-spread mechanism of assessing liquidity is GAP analysis of assets and liabilities by demand terms. It is possible to conclude that the bank's liquidity is mostly of a dynamical, but not a static condition. It demonstrates ability to execute its obligations for lenders and depositors efficiently due to the management of its assets and liabilities and getting high profits.

Chapter Four: Guidelines on Liquidity Management by Bangladesh Bank

4.1 Basel III Liquidity Ratios

BB has issued separate Guidance note on LCR and NSFR under Basel III. These ratios represent liquidity measurement and management. These ratios along with the liquidity gap should be central to liquidity measurement and management.

4.1.1 Liquidity Coverage Ratio (LCR)

LCR or Liquidity Coverage Ratio is a new liquidity standard introduced by the BCBS. This standard is built on the methodologies of traditional liquidity coverage ratio used by banks to assess exposure to contingent liquidity events. The minimum acceptable value of this ratio is 100 percent.

4.1.1.1 Definition for the LCR

The calculation of the LCR requires three important quantities to be defined:

- A. Total value of stock of high quality liquid assets;
- B. Total cash outflows, next 30 days (stressed scenario);
- C. Total cash inflows, next 30 days (stressed scenario);

LCR requirement is met if A is greater than B – C; i.e. if high quality liquid assets exceed net cash outflows under the stressed scenario.

4.1.1.2 The Equation

$LCR = (\text{Stock of high quality liquid assets} / \text{Total net cash outflows over the next 3 calendar days}) \geq 100\%$

Here, Stock of high quality assets = A and

Total net cash outflow over the next 30 calendar days = B – C, where C is maximum 75% of B.

4.1.2 Net Stable Funding Ratio (NSFR)

NSFR or Net Stable Funding Ratio is another new standard introduced by the BCBS. The NSFR aims to limit over-reliance on short-term wholesale funding during times of abundant market liquidity and encourage better assessment of liquidity risk across all on- and off- balance sheet items. The minimum acceptable value of this ratio is 100 percent, indicating that available stable funding (ASF) should be at least equal to required stable funding (RSF).

4.1.2.1 Definition of the NSFR

The calculation of the NSFR requires two quantities to be defined:

A. available stable funding (ASF) and

B. required stable funding (RSF).

NSFR is met if ASF exceeds RSF, i.e. if $ASF/RSF > 1$ or 100%.

4.1.2.2 The Equation

$NSFR = \{ \text{Available amount of stable funding (ASF)} / \text{Required amount of stable funding (RSF)} \} > 100\%$

4.2 Advance to Deposit Ratio (ADR)

Although commonly known as Advance to Deposit Ratio, actually the ratio is determined by putting Advance in numerator and Liabilities (excluding capital) in denominator. The ratio should be fixed in such a manner so that there will be no unnecessary liquidity pressure on the bank in any point of time. Considering the regulatory liquidity requirements (CRR and SLR), the maximum value of the ratio shall be derived using the formula $[100\% - CRR^* - SLR^*]$. Depending upon the capital base, liquidity condition, NPL status etc. and above all the maintenance of LCR & NSFR, the board of the bank may decide adding highest 4.5% and 2%** (for conventional banks and Shariah based banks respectively) with the result of the above formula to fix a suitable AD ratio.

4.2.1 The Equation

The formula for calculating AD ratio is as follows-

$ADR = \text{Total Loans and Advances or Investment (for Shariah based banks)} / (\text{Total Time and Demand Liabilities} + \text{Interbank deposit surplus})$

Interbank deposit surplus = Deposit from other banks - Deposit with other banks (if -ve then 0)

Bank should follow the instruction of BB regarding deduction of some items to calculate total loans and advances or Investment while calculating ADR. Total Demand and Time liabilities will be calculated according to DOS Circular No.01/2014.

4.2.2 ADR for Islamic Banking Operation of Conventional Banks

Conventional banks having Islamic banking business have to calculate and maintain ADR separately for conventional banking and Islamic banking operation. ADR for Islamic banking operation is same as that of Islamic Shariah based banks.

4.2.3 Adjustment of the AD Ratio Limit

It is important to adjust AD ratio limit with changing condition of banks' assets and liabilities. The Management of the bank should inform the board regarding AD ratio in every meeting so that the board may take quick decision necessary to adjust the ratio.

[Note: 1. ** depends on SLR fixed by BB from time to time

2.* CRR = bi-weekly rate as decided by BB from time to time.

3.* SLR = as decided by BB from time to time.]

4.3 Contingency Funding Plan (CFP)

Every bank should have an up-to-date contingency funding plan. A contingency funding plan needs to be approved by the BODs (ALCO in case of foreign banks). A contingency funding plan needs to be prepared keeping in mind that enough liquidity is available to meet the funding requirements in a liquidity crisis situation/specific problem in the local market. The contingency funding plan identifies the trigger events that could cause a liquidity crisis and describes actions to be taken to manage the situation.

4.4 Top 10 Depositors List

This section lists the top 10 depositors of the bank and their share of the total deposits. The data can be looked at currency wise, tenor-wise, and the share of each of the depositors as percentage of total deposits. The trend of the past few months will give important perspective. Maturity bucketing for each of the depositors (call, 1 week, 1 month, etc.) may be helpful. This helps the bank to have a greater visibility on where the deposit concentrations are coming from. It is important to track the behaviour of these deposits and take measures so as to avoid any untoward liquidity issues.

4.5 Loans and Deposit Projections

It is important that monthly projections of loans and deposits for the year/ for the next 3-6 months are presented to ALCO by the respective businesses. The information is used by ALCO to understand future liquidity requirements and strategies accordingly.

4.6 Liquidity Risk

Liquidity risk arises from either the bank's inability to meet its obligations as they fall due or to fund increases in assets without incurring unacceptable cost or losses. It is mandatory for the Treasury Department to inform the board (ALCO in case of foreign banks) regarding various liquidity issues (e.g. CRR/SLR, SLP, LCR, NSFR, ADR and IDR) in every board/ALCO meeting of the bank. Liquidity risk is the risk that a given security or asset cannot be traded quickly enough in the market to prevent a loss (or make the required profit) or when a bank is unable to fulfil its commitments in time when payment falls due. Thus, liquidity risk can be of two types:

a) Funding liquidity risk: the risk that a firm will be unable to meet its current and future cash flow and collateral needs without affecting its daily operations or its financial condition.

b) Market liquidity risk: the risk that a firm cannot easily offset or sell a position without incurring a loss because of inadequate depth in the market. In context of Pillar 2 (Supervisory Review Process) of RBCA, the necessity of proper assessment and management of liquidity risk carries pivotal role in ICAAP of banks. In the perspective of Bangladesh, identifying and monitoring the driving factors of liquidity risk is viewed from the following aspects:

Regulatory Liquidity Indicators (RLIs):

- Cash Reserve Requirement (CRR)
- Statutory Liquidity Ratio (SLR)
- Medium Term Funding Ratio (MTFR)
- Maximum Cumulative Outflow (MCO)
- Advance Deposit Ratio (ADR)/Investment Deposit Ratio (IDR)
- Liquidity Coverage Ratio (LCR)
- Net Stable Funding Ratio (NSFR)

Bank's own liquidity monitoring tools:

- Wholesale Borrowing and Funding Guidelines
- Liquidity Contingency Plan
- Management Action Trigger (MAT)

Computation of Capital Charge against Liquidity Risk: If annual average of any of RLIs of any bank falls below Bangladesh Bank's requirement the bank will be required to maintain additional capital for that RLI (or those RLIs).

4.7 Liquidity Risk Indicators

Given below are some early warning indicators that have potential to ignite liquidity problem for a bank. Bank management needs to monitor carefully such indicators and exercise careful scrutiny wherever it deems appropriate. Examples of such internal indicators are:

- a) A negative trend or significantly increased risk in any area or product line;
- b) Concentrations in either assets or liabilities;
- c) Deterioration in quality of credit portfolio;
- d) A decline in earnings performance or projections;
- e) Rapid asset growth funded by volatile large deposit;
- f) A large size of off-balance sheet exposure;
- g) Deteriorating third party evaluation (negative rating) about the bank and negative publicity;
- h) Unwarranted competitive pricing that potentially stresses the banks;

4.8 Liquidity Risk Strategy

Each bank should have an agreed liquidity strategy for the day-to-day management of liquidity. This strategy should address the bank's goal of protecting financial strength and the ability to withstand stressful events in the market place.

The liquidity risk strategy defined by board should enunciate specific policies on particular aspects of liquidity risk management, such as:

(a) Composition of assets and liabilities: The strategy should outline the mix of assets and liabilities to maintain liquidity. Liquidity risk management and asset/liability management should be integrated to avoid high costs associated with having to rapidly reconfigure the asset liability profile from maximum profitability to increased liquidity.

(b) Diversification and stability of liabilities: A funding concentration exists when a single decision or a single factor has the potential to result in a significant and sudden withdrawal of funds. Since such a situation could lead to an increased risk, the board and senior management should specify guidance relating to funding sources and ensure that the bank has diversified sources of funding day-to-day liquidity requirements. A bank would be more resilient to tight market liquidity conditions if its liabilities were derived from more stable sources. To comprehensively analyze the stability of liabilities/funding sources a bank needs to identify:

- i. liabilities that would stay with the bank under any circumstances;
- ii. liabilities that run-off gradually if problems arise; and
- iii. liabilities that run-off immediately at the first sign of problems.

Each bank needs to have explicit and prudent policies that ensure funding is not unduly concentrated with respect to:

- i. individual depositor;
- ii. type of deposit instrument;
- iii. market source of deposit;
- iv. term to maturity; and
- v. currency of deposit, if the bank has liabilities (both on- and off-balance sheet) in foreign currencies.

(c) Managing liquidity in different currencies: The bank should have a strategy on how to manage liquidity in different currencies.

(d) Dealing with liquidity disruptions: The bank should put in place a strategy on how to deal with the potential for both temporary and long-term liquidity disruptions. The interbank market can be important source of liquidity. However, the strategy should take into account

the fact that in crisis situations access to interbank market could be difficult as well as costly. The liquidity strategy must be documented in the liquidity policies, and communicated throughout the bank. The strategy should be evaluated periodically to ensure that it remains valid.

4.9 Liquidity Policies

Sound and prudent liquidity policies set out the sources and amount of liquidity required to ensure it is adequate for the continuation of operations and to meet all applicable regulatory requirements. These policies must be supported by effective procedures to measure, achieve and maintain liquidity. Operating liquidity is the level of liquidity required to meet a bank's da-to-day cash outflow commitments. Factors influencing a bank's operating liquidity include:

- i. cash flows and the extent to which expected cash flows from maturing assets and liabilities match; and
- ii. the diversity, reliability and stability of funding sources, the ability to renew or replace deposits and the capacity to borrow.

For regulatory purposes a bank is required to hold a specific amount of assets classed as liquid, based on its deposit liabilities. Generally, undue reliance should not be placed on these assets, or those formally pledged, for operating purposes other than as a temporary measure, as legally they may not be available for encashment if needed. In assessing the adequacy of liquidity, each bank needs to accurately and frequently measure:

- a) the term profile of current and approaching cash flows generated by assets and liabilities, both on- and off-balance sheet;
- b) the extent to which potential cash outflows are supported by cash inflows over a specified period of time, maturing or liquefiable assets, and cash on hand;
- c) the extent to which potential cash outflows may be supported by the bank's ability to borrow or to access discretionary funding sources; and
- d) the level of statutory liquidity and reserves required and to be maintained.

The banks should formulate liquidity policies, which are recommended by senior management/ALCO and approved by the board. Board should ensure that there are adequate policies to govern liquidity risk management process. While specific details vary across banks according to the nature of their business, the key elements of any liquidity policy include:

- a statement of liquidity risk appetite;
- general liquidity strategy (short- and long-term), specific goals and objectives in relation to liquidity risk management, process for strategy formulation and the level within the bank it is approved;

- roles and responsibilities of individuals performing liquidity risk management functions, including structural balance sheet management, pricing, marketing, contingency planning, management reporting, lines of authority and responsibility for liquidity decisions;
- Liquidity risk management structure for monitoring, reporting and reviewing liquidity;
- liquidity risk management tools for identifying, measuring, monitoring and controlling liquidity risk (including the types of liquidity limits and ratios in place and rationale for establishing limits and ratios);
- Mechanisms for dealing with deviations from the policy and the restrictions it imposes; and
- contingency plan for handling liquidity crises;

To be effective the liquidity policy must be communicated down the line throughout the bank. It is important that the board and senior management ensure that policies are reviewed on a regular basis (at least annually) and when there are any material changes in the bank's current and prospective liquidity risk profile. Such changes could stem from internal circumstances (e.g. changes in business focus) or external circumstances (e.g. changes in economic conditions). Reviews provide the opportunity to fine-tune the bank's liquidity policies in light of the bank's liquidity management experience and development of its business. Any significant or frequent exception to the policy is an important barometer to gauge its effectiveness and any potential impact on bank's liquidity risk profile.

4.10 Liquidity Management Structure

The responsibility for managing the overall liquidity of the bank should be delegated to a specific, identified group within the bank. This may be in the form of an Asset Liability Committee (ALCO). Since liquidity management is a technical job requiring specialized knowledge and expertise, it is important that responsible officers not only have relevant expertise but also have a good understanding of the nature and level of liquidity risk assumed by the bank and the means to manage that risk. It is critical that there can be close links between those individuals responsible for liquidity and those monitoring market conditions, as well as other individuals with access to critical information. This is particularly important in developing and analyzing stress scenarios.

4.11 Liquidity Risk Management Process

An effective liquidity risk management process should include systems to identify, measure, monitor and control its liquidity exposures. Management should be able to accurately identify and quantify the primary sources of a bank's liquidity risk in a timely manner. To properly identify the sources, management should understand both existing as well as future risk that the bank can be exposed to. Management should always be alert for new sources of liquidity risk at both the transaction and portfolio levels. Key elements of an effective risk management process include an efficient MIS to measure, monitor and control existing as

well as future liquidity risks and reporting them to senior management and the board of directors.

4.12 Management Information System

An effective management information system (MIS) is essential for sound liquidity management decisions. Information should be readily available for day-to-day liquidity management and risk control, as well as during times of stress. Data should be appropriately consolidated, comprehensive yet succinct, focused, and available in a timely manner. Ideally, the regular reports a bank generates will enable it to monitor liquidity during a crisis; managers would simply have to prepare the reports more frequently. Managers should keep crisis monitoring in mind when developing liquidity MIS. There is usually a trade-off between managing liquidity risk accuracy and timeliness. Liquidity problems can arise very quickly, and effective liquidity management may require daily internal reporting. Since bank liquidity is primarily affected by large, aggregate principal cash flows, detailed information on every transaction may not improve analysis.

Management should develop systems that can capture significant information. The content and format of reports depend on a bank's liquidity management practices, risks, and other characteristics. However, certain information can be effectively presented through standard reports such as "Funds Flow Analysis," and "Contingency Funding Plan Summary". These reports should be tailored to the bank's needs. Other routine reports may include a list of large funds providers, a cash flow or funding gap report, a funding maturity schedule, and a limit monitoring and exception report. Day-to-day management may require more detailed information, depending on the complexity of the bank and the risks it undertakes. Management should regularly consider how best to summarize complex or detailed issues for senior management or the board. Besides other types of information important for managing day-to-day activities and for understanding the bank's inherent liquidity risk profile should include:

a) Asset quality and its trends; b) Earnings projections; c) Bank's general reputation in the market and the condition of the market itself; d) The type and composition of the overall balance sheet structure; and e) The type of new deposits being obtained, as well as its source, maturity, and price.

As far as information system is concerned, various units related to treasury activities, the dealing, the treasury operation and risk management department should be integrated. Furthermore, management should ensure proper and timely flow of information among front office, back office and middle office in an integrated manner; however, their reporting lines should be kept separate to ensure independence of these functions.

4.13 Measurement of Liquidity Risk

An effective liquidity risk measurement system not only helps in managing liquidity in times of crisis but also optimizes return through efficient utilization of available funds. Banks

should institute systems that enable them to capture liquidity risk ahead of time, so that appropriate remedial measures could be prompted to avoid any significant losses.

Liquidity risk of a bank varies depending upon its size and complexity of business and thus requires liquidity risk measurement techniques accordingly. For instance, banks having large networks may have access to low cost stable deposit, while small banks may only have significant reliance on large size corporate deposits. However, abundant liquidity does not obviate the need for a mechanism to measure and monitor liquidity profile of a bank.

At a very basic level, liquidity measurement involves assessing all of a bank's cash inflows against its outflows to identify the potential for any net shortfalls going forward. This includes funding requirements for off-balance sheet commitments. A number of techniques can be used for measuring liquidity risk, ranging from simple calculations and static simulations based on current holdings to highly sophisticated modelling techniques. An important aspect of measuring liquidity is making assumptions about future funding needs. While certain cash inflows and outflows can be easily calculated or predicted, banks must also make assumptions about future liquidity needs, both in the very short-term and for longer time periods. One important factor to consider is the critical role a bank's reputation plays in its ability to access funds readily and at reasonable terms. For that reason, bank's staff responsible for managing overall liquidity should be aware of any information (such as an announcement of a decline in earnings or a downgrading by a rating agency) that could have an impact on market and public perceptions about the soundness of the bank. Some commonly used liquidity measurement and monitoring techniques that may be adopted by the banks are:

1. Contingency funding plans

In order to develop comprehensive liquidity risk management framework, banks should have in place plans to address stress scenarios. Such a plan commonly is known as Contingency Funding Plan (CFP). For day-to-day liquidity risk management integration of liquidity scenario will ensure that the bank is best prepared to respond to an unexpected problem. In this sense, a CFP is an extension of on-going liquidity management and formalizes the objectives of liquidity management by ensuring:

a) A reasonable amount of liquid assets are maintained; b) Measurement and projection of funding requirements during various scenarios; and c) Management of access to funding sources.

2. Maturity ladder

Banks may utilize flow measures to determine their cash position. A maturity ladder estimates a bank's cash inflows and outflows and thus net deficit or surplus (GAP) both on a day-to-day basis and over a series of specified time periods. Banks need to focus on the maturity of its assets and liabilities in different tenors. Mismatch is accompanied by liquidity risk and excessive longer tenor lending against shorter-term borrowing can put a bank's balance sheet in a very critical and risky position. To address this risk and to make sure a

bank does not expose itself in excessive mismatch, a bucket-wise (e.g. call, 2-7 days, 8 days- 1 month, 1-3 months, 3-12 months, 1-5 years, over 5 years) maturity profile of the assets and liabilities to be prepared to understand mismatch in every bucket. A structural maturity ladder has been furnished in the DOS circular no. 02 dated 29 March 2011. The number of time frames in a maturity ladder is of significant importance and up to some extent depends upon the nature of bank's liabilities or sources of funds. Banks, which rely on short term funding, will concentrate primarily on managing liquidity on very short term. However, other banks might actively manage their net funding requirement over a slightly longer period. In the short term, a bank's flow of funds could be estimated more accurately and also such estimates are of more importance as these provide an indication of actions to be taken immediately. Further, such an analysis for distant periods will maximize the opportunity for the bank to manage the gap well in advance before it crystallizes. Consequently, banks should use short time frames to measure near term exposures and longer time frames thereafter. Banks need to calculate daily gap for the next one or two weeks, monthly gap for next six months or a year and quarterly thereafter. While making an estimate of cash flows, the following aspects need to be considered:

a) The funding requirement arising out of off- balance sheet commitments also need to be accounted for; b) Many cash flows associated with various products are influenced by interest rates or customer behavior. Banks need to take into account behavioral aspects along with contractual maturity. In this respect past experiences could give important guidance to make any assumption; c) Some cash flows may be seasonal or cyclical; and d) Management should also consider increases or decreases in liquidity that typically occur during various phases of an economic cycle. Banks should have liquidity sufficient to meet fluctuations in loans and deposits. As a safety measure banks should maintain a margin of excess liquidity. To ensure that this level of liquidity is maintained, management should estimate liquidity needs in a variety of scenarios.

3. Liquidity ratios and limits

Banks may use a variety of ratios to quantify liquidity. These ratios can also be used to create limits for liquidity management. However, such ratios would be meaningless unless used regularly and interpreted taking into account qualitative factors. Ratios should always be used in conjunction with more qualitative information about borrowing capacity, such as the likelihood of increased requests for early withdrawals, decreases in credit lines, decreases in transaction size, or shortening of term funds available to the bank. To the extent that any asset-liability management decisions are based on financial ratios, a bank's asset-liability managers should understand how a ratio is constructed, the range of alternative information that can be placed in the numerator or denominator, and the scope of conclusions that can be drawn from ratios. Because ratio components as calculated by banks are sometimes inconsistent, ratio-based comparisons of banks or even comparisons of periods at a single bank can be misleading. Examples of ratios and limits that can be used are:

(a) Cash flow ratios and limits: One of the most serious sources of liquidity risk comes from a bank's failure to "roll over" a maturing liability. Cash flow ratios and limits attempt to

measure and control the volume of liabilities maturing during a specified period of time. Maximum cumulative outflow (MCO) guidelines control the net outflow (inflow from asset maturity minus outflow from liability maturity) over the period overnight, one week and one month. However, as per DOS circular no. 02 dated 29 March 2011, the following formula is to be used by the banks:

$$\text{MCO} = (\text{Total outflows up to one month} + \text{Total OBS up to one month}) / (\text{Total inflows} + \text{Net Nostro Account Balance} + \text{Available Fcy balance with BB})$$

(b) Liability concentration ratios and limits: Liability concentration ratios and limits help to prevent a bank from relying on too few providers or funding sources. Limits are usually expressed either as a percentage of liquid assets or absolute amount. Sometimes they are more indirectly expressed as a percentage of deposits, purchased funds, or total liabilities.

(c) Other balance sheet ratios: Examples of common ratios used by banks to monitor current and potential funding levels are:

- i. Total credit to total deposits;
- ii. Liquid assets to total deposits;
- iii. Liquid assets to short-term liabilities; and
- iv. Borrowed funds to total assets; etc.

In addition to the statutory liquidity requirement and cash reserve requirement, the board and senior management should establish limits on the nature and amount of liquidity risk they are willing to assume. The limits should be periodically reviewed and adjusted when conditions or risk tolerances change. When limiting risk exposure, senior management should consider the nature of the bank's strategies and activities, its past performance, the level of earnings, capital available to absorb potential losses, and the board's risk appetite. Balance sheet complexity will determine how much and what types of limits a bank should establish over daily and long term horizons. While limits will not prevent a liquidity crisis, limit exceptions can be early indicators of excessive risk or inadequate liquidity risk management.

4. Foreign currency liquidity management

Each bank should have a measurement, monitoring and control system for its liquidity positions in the major currencies in which it is active. In addition to assessing its aggregate foreign currency liquidity needs and the acceptable mismatch in combination with its domestic currency commitments, a bank should also undertake separate analysis of its strategy for each currency individually.

4.14 Liquidity Risk Management

(a) Liquidity Tracking

Measuring and managing liquidity needs are vital for effective operation of the Company. By assuring the Company's ability to meet its liabilities as they become due, liquidity management can reduce the probability of an adverse situation. The importance of liquidity transcends individual institutions, as liquidity shortfall in one institution can have repercussions on the entire system. The ALCO should measure not only the liquidity positions of the Company on an on-going basis but also examine how liquidity requirements are likely to evolve under different assumptions. Experience shows that assets commonly considered to be liquid, such as govt. securities and other money market instruments, could also become illiquid when the market and players are unidirectional. Therefore, liquidity has to be tracked through maturity or cash flow mismatches. For measuring and managing net funding requirement, the use of a maturity ladder and calculation of cumulative surplus or deficit of funds at selected maturity dates is adopted as a standard tool. The format of the statement of liquidity is attached in Appendix III.

(b) Time Buckets

The Maturity Profile, as detailed in Appendix III, could be used for measuring the future cash flows of a financial institute in different time buckets. The time buckets shall be distributed as under:

i) 1 day to 30/31 days (one month) ii) Over one month and up to two months iii) Over two months and up to three months iv) Over three months and up to six months v) Over sixth months and up to one year vi) Over one year and up to three years vii) Over three years and up to five years viii) Over five years and up to seven years ix) Over seven years and up to ten years x) Over ten years

(c) CRR/SLR Requirement

Every financial institute is required to maintain a Cash Reserve Ratio (CRR) of 2.50% on its customer deposits. The CRR is maintained with the non-interest bearing current account with the Bangladesh Bank. In addition, every financial institute is required to maintain a Statutory Liquidity reserve (SLR) of 5% (including CRR) on all its liabilities. There is no restriction on where these SLR will be maintained. The financial institutions holding deposits are given freedom to place the mandatory securities in any time buckets as suitable for them. These SLRs shall be kept with banks and financial institutions for different maturities.

(d) Time Bucket Mismatch

Within each time bucket, there could be mismatches depending on cash inflows and outflows. While the mismatches up to one year would be relevant since these provide early warning signals of impending liquidity problems, the main focus should be on the short-term mismatches viz., 1-90 days. The cumulative mismatches (running total) across all time buckets shall be monitored in accordance with internal prudential limits set by ALCO from

time to time. The mismatches (negative gap) during 1-90 days, in normal course, should not exceed 15% of the cash outflows in this time buckets. If the Company, in view of current asset-liability profile and the consequential structure mismatches, needs higher tolerance level, it could operate with higher limit sanctioned by ALCO giving specific reasons on the need for such higher limit.

(e) Statement of Structural Liquidity

The statement of Structural Liquidity (Appendix IV) shall be prepared by placing all cash inflows and outflows in the maturity ladder according to the expected timing of cash flows. A maturing liability will be a cash outflow while a maturing asset will be a cash inflow. While determining the likely cash inflow/outflow, every financial institute has to make a number of assumptions according to its asset-liability profiles. While determining the tolerance levels, the Company should take into account all relevant factors based on its asset-liability base, nature of business, future strategies, etc. The ALCO must ensure that the tolerance levels are determined keeping all necessary factors in view and further refined with experience gained in Liquidity Management.

(f) Short-term Dynamic Liquidity

In order to enable the Company to monitor its short-term liquidity on a dynamic basis over a time horizon spanning from 1 day to 6 months, ALCO should estimate short-term liquidity profiles on the basis of business projections and other commitments for planning purposes. An indicative format (Annexure II) for estimating short-term Dynamic liquidity is enclosed. The format should be reviewed and revised over time based on the future requirements.

Chapter Five: Data Analysis and Presentation

5.1 Selected Banks

All the Commercial Banks of Bangladesh have been taken under consideration. Group-wise data of the banks have been used for analysis. The groups are-

- State Owned Commercial Banks (SCBs)
- Private Commercial Banks (PCBs)
- Foreign Commercial Banks (FCBs)

5.2 Sources of Data

This study uses secondary data from the following sources.

- BB Regulations and Guidelines;
- BB Circulars;
- Financial Stability Report (2014-2020);
- BB Publications;
- BB Economic Data;
- Annual Report of BB and commercial Banks;
- Bangladesh Economic Review, Ministry of Finance;
- Journals;
- Research Papers;

5.3 Analysis & Interpretation

Question 1: Do the commercial banks follow liquidity requirements required by BB at all times?

Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) introduced in CY19.

Liquidity Coverage Ratio (LCR)

This standard is built on the methodologies of traditional liquidity coverage ratio used by banks to assess exposure to contingent liquidity events. The minimum acceptable value of this ratio is 100 percent.

Net Stable Funding Ratio (NSFR)

The NSFR aims to limit over-reliance on short-term wholesale funding during times of abundant market liquidity and encourage better assessment of liquidity risk across all on- and

off-balance sheet items. The minimum acceptable value of this ratio is 100 percent, indicating that available stable funding (ASF) should be at least equal to required stable funding (RSF).

Table-3: Banks' Group-Wise Monthly LCR in 2019

| (in percent) | | | |
|----------------|--------|--------|--------|
| Months of 2019 | SCBs | PCBs | FCBs |
| Jan-19 | 265.2 | 141.81 | 122.07 |
| Feb-19 | 264.91 | 141.39 | 128.95 |
| Mar-19 | 266.12 | 131.4 | 119.1 |
| Apr-19 | 275.06 | 126.2 | 126.97 |
| May-19 | 276.41 | 122.77 | 132.88 |
| Jun-19 | 329.9 | 125.62 | 105.57 |
| Jul-19 | 326.27 | 137.65 | 140.98 |
| Aug-19 | 328.44 | 149.95 | 139.01 |
| Sep-19 | 429.55 | 146.6 | 130.11 |
| Oct-19 | 447.3 | 149.36 | 123.91 |
| Nov-19 | 466.78 | 149.47 | 133.66 |
| Dec-19 | 464.62 | 138.87 | 142.47 |

Source: FSD, Bangladesh Bank

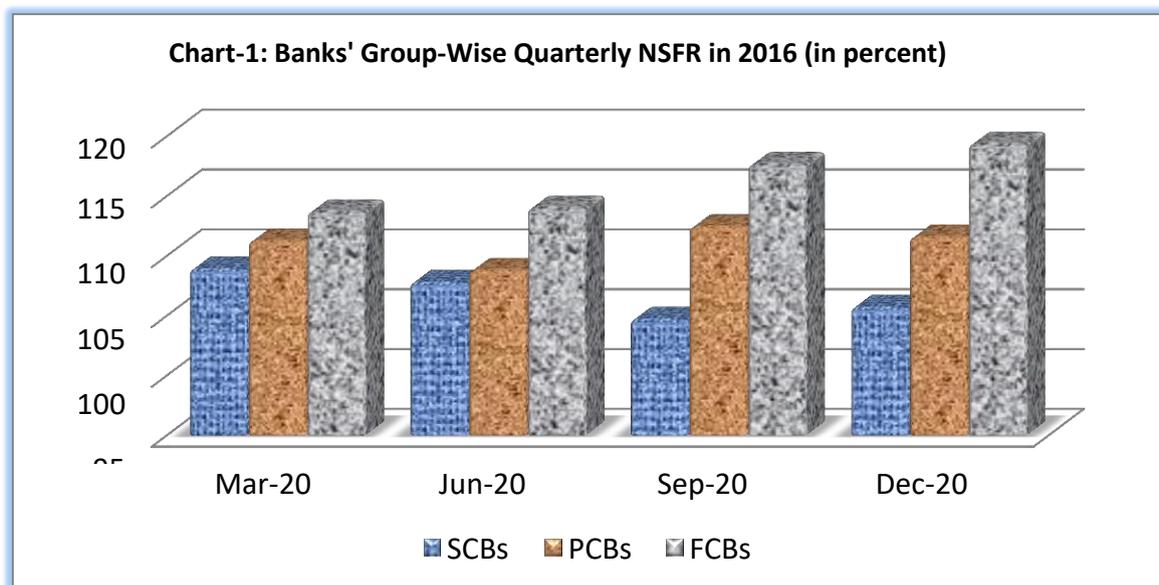
Group-wise analysis shows that all commercial banks maintained LCR much above the minimum regulatory requirement of 100 percent throughout CY16. Noteworthy that SCBs maintained the highest ratios over the years.

Table-4: Banks' Group-Wise Quarterly NSFR in 2020

| (in percent) | | | |
|------------------|--------|--------|--------|
| Quarters of 2020 | SCBs | PCBs | FCBs |
| Mar-20 | 108.89 | 111.22 | 113.65 |
| Jun-20 | 107.77 | 108.76 | 113.97 |
| Sep-20 | 104.68 | 112.39 | 117.6 |
| Dec-20 | 105.69 | 111.54 | 119.31 |

Source: FSD, Bangladesh Bank

During CY16, all the commercial bank groups were also able to maintain the minimum regulatory requirement of NSFR.



Source: Financial Stability Report of 2020

Question 2: Does excess liquidity ensure higher profit for the banks?

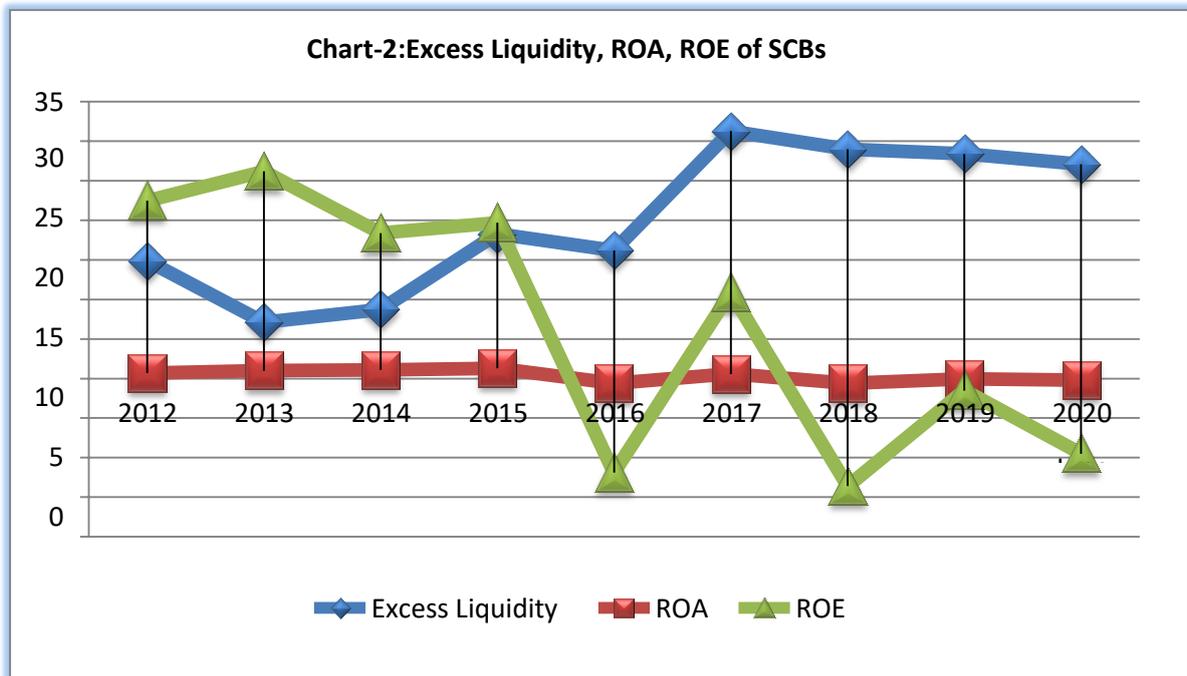
Profitability is a measure by which banks' revenues exceed its relevant expenses. Strong earnings and profitability profile of a bank reflect its ability to support present and future sound operation, absorb future contingent shocks and strengthen resilience capacity. A low profit would suggest ineffective management and investors would be hesitant to invest in the bank. Although there are various indicators of earnings and profitability, the most representative and widely used indicators are the return on assets (ROA) and return on equity (ROE). ROA is primarily an indicator of managerial efficiency and it indicates how capable the management of the banks has been converting the institution's asset into net earnings. ROE measures the rate of return flowing to the bank's shareholder.

Table-5: Excess Liquidity, ROA, ROE of SCBs

| (in percent) | | | | | |
|--------------|------------------|---------------------|------------------------|----------------------|-------|
| Year (1) | Required SLR (2) | Liquidity Ratio (3) | Excess Liquidity (3-2) | Profitability Ratios | |
| | | | | ROA | ROE |
| 2012 | 18.00 | 32.90 | 14.90 | 0.7 | 22.5 |
| 2013 | 18.00 | 25.10 | 7.10 | 1.0 | 26.2 |
| 2014 | 18.50 | 27.20 | 8.70 | 1.1 | 18.4 |
| 2015 | 13.00 | 31.30 | 18.30 | 1.3 | 19.7 |
| 2016 | 13.00 | 29.20 | 16.20 | -0.6 | -11.9 |
| 2017 | 13.00 | 44.30 | 31.30 | 0.6 | 10.9 |
| 2018 | 13.00 | 42.00 | 29.00 | -0.6 | -13.6 |
| 2019 | 13.00 | 41.40 | 28.40 | -0.04 | -1.5 |
| 2020 June | 13.00 | 40.10 | 27.10 | -0.2 | -9.5 |

Source: Bangladesh Bank Annual Report 2019-2020

The table-6 shows that state owned commercial banks are holding excess liquidity. Excess liquidity is the excess of liquidity ratio over the required minimum rate of SLR imposed by Bangladesh bank. The statistics indicate that in each of the last nine years SCBs are holding excess liquidity which ranges 7.10% to 31.30%. In the year of 2017 SCBs held the highest excess liquidity and in 2013 it was the lowest.



Source: Bangladesh Bank Annual Report 2019-2020

In the chart-3 it is shown that from 2013 to 2015, the amount of excess liquidity was increasing and the ROA was also increasing but the ROE was not increasing all the three years. In 2016, excess liquidity increased more, on the contrary ROA and ROE became negative. Liquidity increased in 2017 too and the ROA and ROE ratios became positive. In

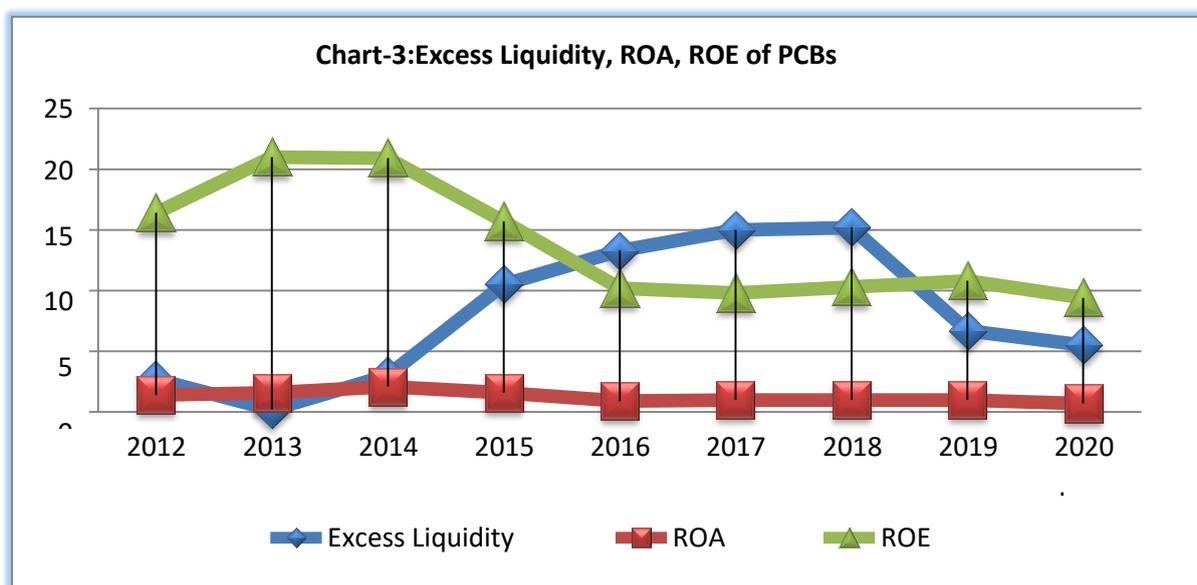
the next three years, liquidity was decreasing when ROA and ROE were negative. So there is no systematic relation between liquidity/excess liquidity and profitability.

Table-6: Excess Liquidity, ROA, ROE of PCBs

| Years (1) | Required SLR (2) | Liquidity Ratio (3) | Excess Liquidity (3-2) | Profitability Ratios | |
|-----------|------------------|---------------------|------------------------|----------------------|------|
| | | | | ROA | ROE |
| 2012 | 18.00 | 20.7 | 2.7 | 1.4 | 16.4 |
| 2013 | 18.00 | 18.2 | 0.2 | 1.6 | 21.0 |
| 2014 | 18.50 | 21.5 | 3 | 2.1 | 20.9 |
| 2015 | 13.00 | 23.5 | 10.5 | 1.6 | 15.7 |
| 2016 | 13.00 | 26.3 | 13.3 | 0.9 | 10.2 |
| 2017 | 13.00 | 28 | 15 | 1.0 | 9.8 |
| 2018 | 13.00 | 28.2 | 15.2 | 1.0 | 10.3 |
| 2019 | 13.00 | 19.7 | 6.7 | 1.0 | 10.8 |
| 2020 June | 13.00 | 18.5 | 5.5 | 0.7 | 9.4 |

Source: Bangladesh Bank Annual Report 2019-2020

The table-7 shows that private commercial banks are holding excess liquidity. The statistics indicate that in each of the last nine years PCBs are holding excess liquidity which ranges 0.2% to 15.2%. In the year of 2018 PCBs held the highest excess liquidity and in 2013 it was the lowest. PCBs are holding less excess liquidity compared to SCBs.



Source: Bangladesh Bank Annual Report 2019-2020

In the chart-4 it is shown that from 2013 to 2015, the amount of excess liquidity was increasing and the ROA and ROE were both increasing and decreasing. In 2012 to 2014, excess liquidity increased more, on the contrary ROA and ROE decreased than before. In the

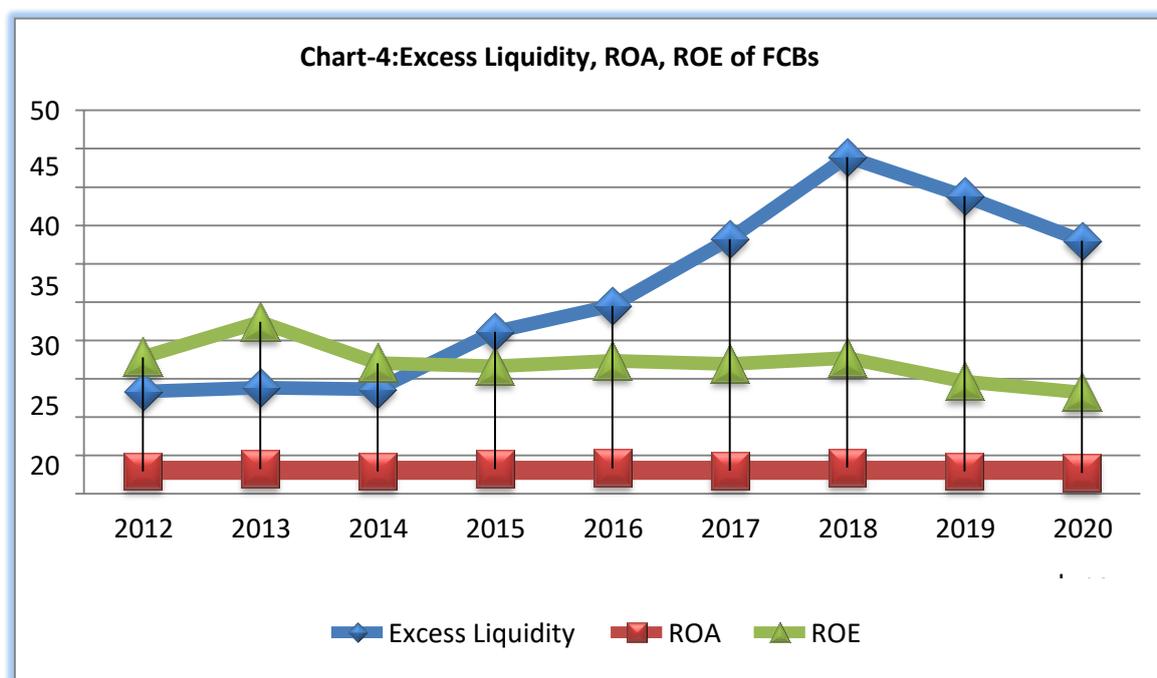
next two years, liquidity was decreasing when ROA and ROE were positive. PCBs are having no negative ROA and ROE and in better position than SCBs.

Table-7: Excess Liquidity, ROA, ROE of FCBs

| (in percent) | | | | | |
|--------------|------------------|---------------------|------------------------|----------------------|------|
| Years (1) | Required SLR (2) | Liquidity Ratio (3) | Excess Liquidity (3-2) | Profitability Ratios | |
| | | | | ROA | ROE |
| 2012 | 18.00 | 31.3 | 13.3 | 2.9 | 17.8 |
| 2013 | 18.00 | 31.8 | 13.8 | 3.2 | 22.4 |
| 2014 | 18.50 | 32.1 | 13.6 | 2.9 | 17.0 |
| 2015 | 13.00 | 34.1 | 21.1 | 3.2 | 16.6 |
| 2016 | 13.00 | 37.5 | 24.5 | 3.3 | 17.3 |
| 2017 | 13.00 | 46.2 | 33.2 | 3.0 | 16.9 |
| 2018 | 13.00 | 56.9 | 43.9 | 3.4 | 17.7 |
| 2019 | 13.00 | 51.8 | 38.8 | 2.9 | 14.6 |
| 2020 June | 13.00 | 46 | 33 | 2.7 | 13.2 |

Source: Bangladesh Bank Annual Report 2016-2020

The table-8 shows that foreign commercial banks are holding excess liquidity. The statistics indicate that in each of the last nine years FCBs are holding excess liquidity which ranges 13.3% to 43.9%. In the year of 2016 FCBs held the highest excess liquidity and in 2012 it was the lowest. FCBs are holding excess liquidity more than the SCBs and PCBs.



Source: Bangladesh Bank Annual Report 2019-2020

In the chart-5 it is shown that in the first three years, the amount of excess liquidity was almost stable and the ROA and ROE were both increasing and decreasing. In 2015 to 2018,

excess liquidity increased more, and ROA and ROE increased. In the next two years, liquidity was decreasing when ROA and ROE were decreasing too. FCBs are having no negative ROA and ROE and in better position than both SCBs and PCBs.

Question 3: How does ADR affect liquidity?

Advance-Deposit (AD) ratio is an indicator of banks’ overall lending as well as liquidity position.

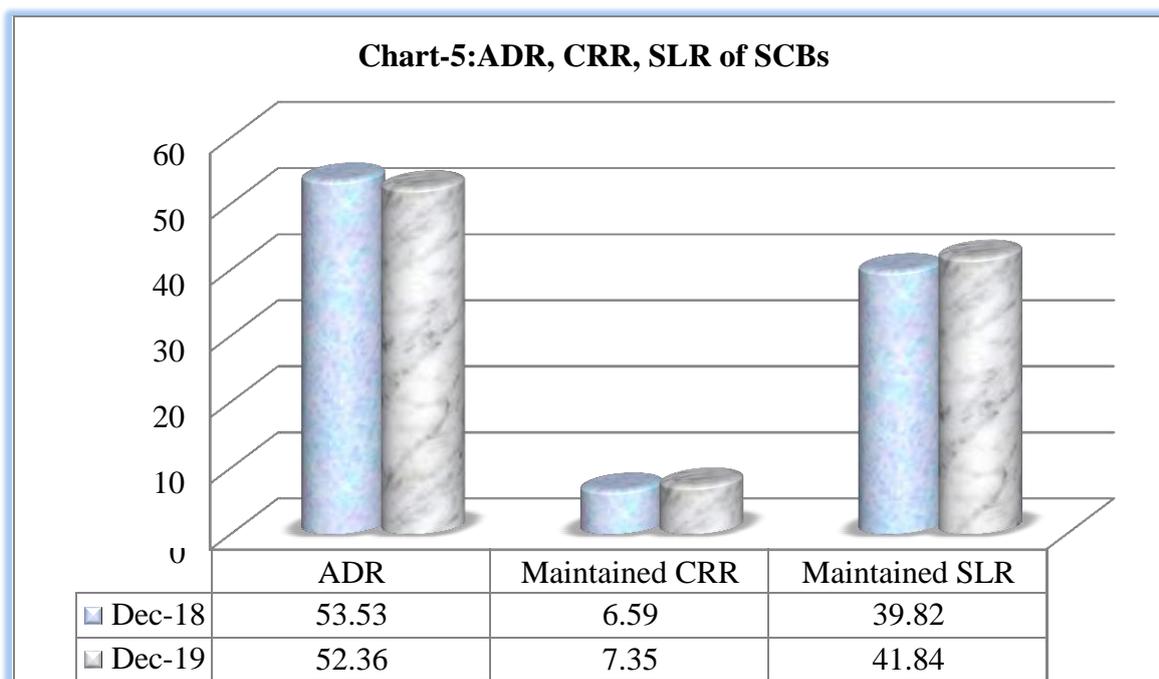
Table-8: Banks’ Category-wise ADR

| Bank Groups | December, 2017 | December, 2018 | December, 2019 | December, 2020 |
|-------------|----------------|----------------|----------------|----------------|
| SCBs | 55.64% | 53.53% | 52.36% | 51.19% |
| PCBs | 77.72% | 78.28% | 79.47% | 81.25% |
| FCBs | 70.82% | 61.84% | 63.84% | 60.54% |

Source: Financial Stability Report of 2017, 2018, 2019, 2020

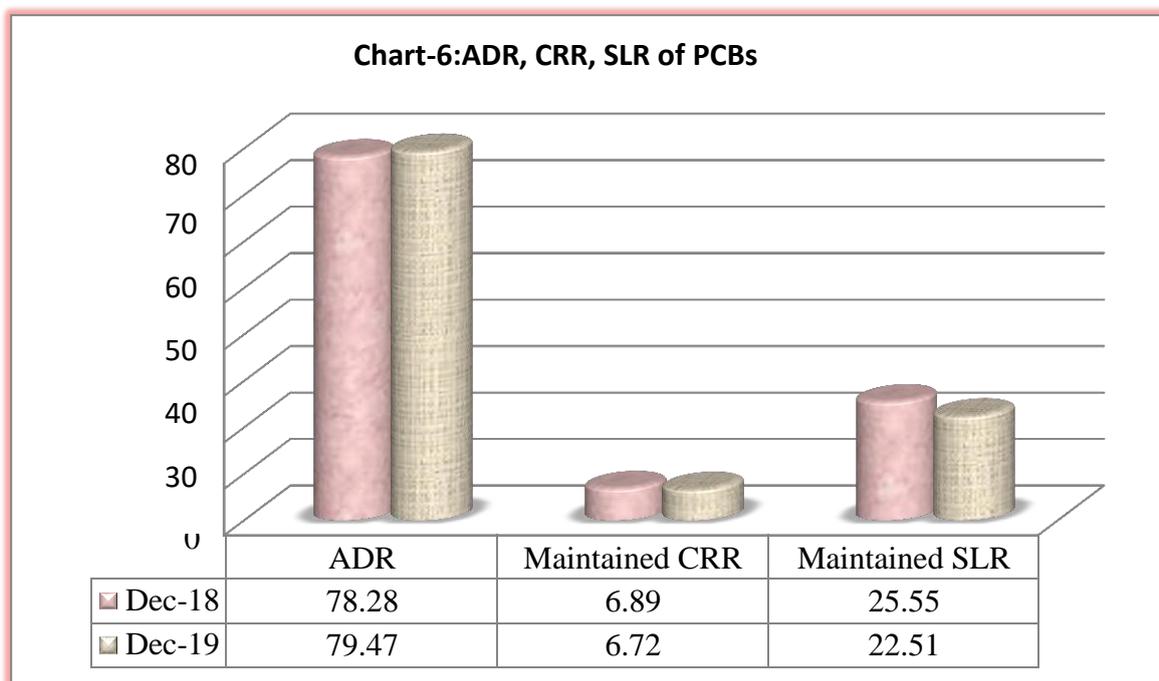
Table-9 shows the position of AD ratio by type of banks from 2017 to 2020. The AD ratio of SCB group is the lowest among the lot, which is only 51.19 percent in 2016. The ratio of PCBs and FCBs are 81.25 percent and 60.54 percent respectively in 2020. ADR is under the prescribed level fixed by BB. This indicates under-lending by the banks which has caused huge liquidity surplus in the economy.

FCBs demonstrated a decline in their ADR from 63.84 percent in CY19 to 60.54 percent in CY20.



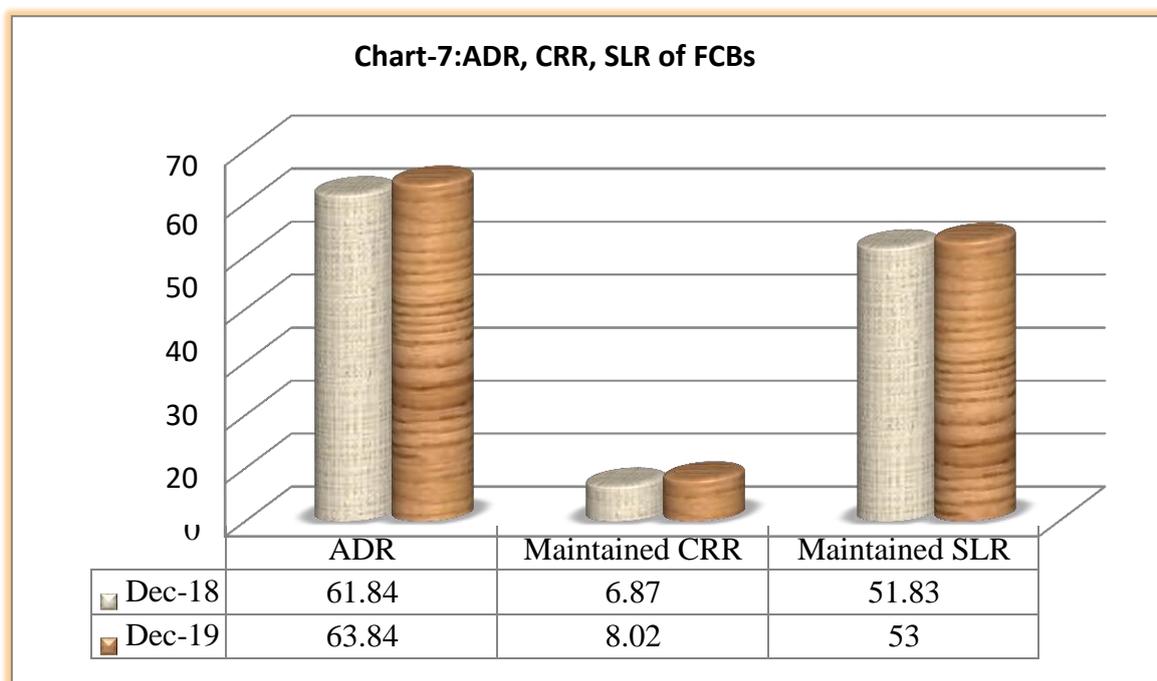
Source: Financial Stability Report of 2018, 2019

In chart-7 lower ADR in CY 2019 indicates less lending compared to CY2014. As a result CRR and SLR increased in CY2019 than CY2018. So it can be said that lower ADR creates excess liquidity.



Source: Financial Stability Report of 2018, 2019

In chart-8 higher ADR in CY 2015 indicates more lending compared to CY2014. As a result CRR and SLR decreased in CY2019 than CY2018. So it can be said that higher ADR prevents excess liquidity. At present, PCBs are holding the highest ADR.



Source: Financial Stability Report of 2018, 2019

In chart-9 higher ADR in CY 2019 indicates more lending compared to CY2018 but lesser than CY17 which was 70.82 percent (chart...). As a result CRR and SLR increased in CY2019 than CY2018.

Question 4: Is there any connection between GDP and bank liquidity?

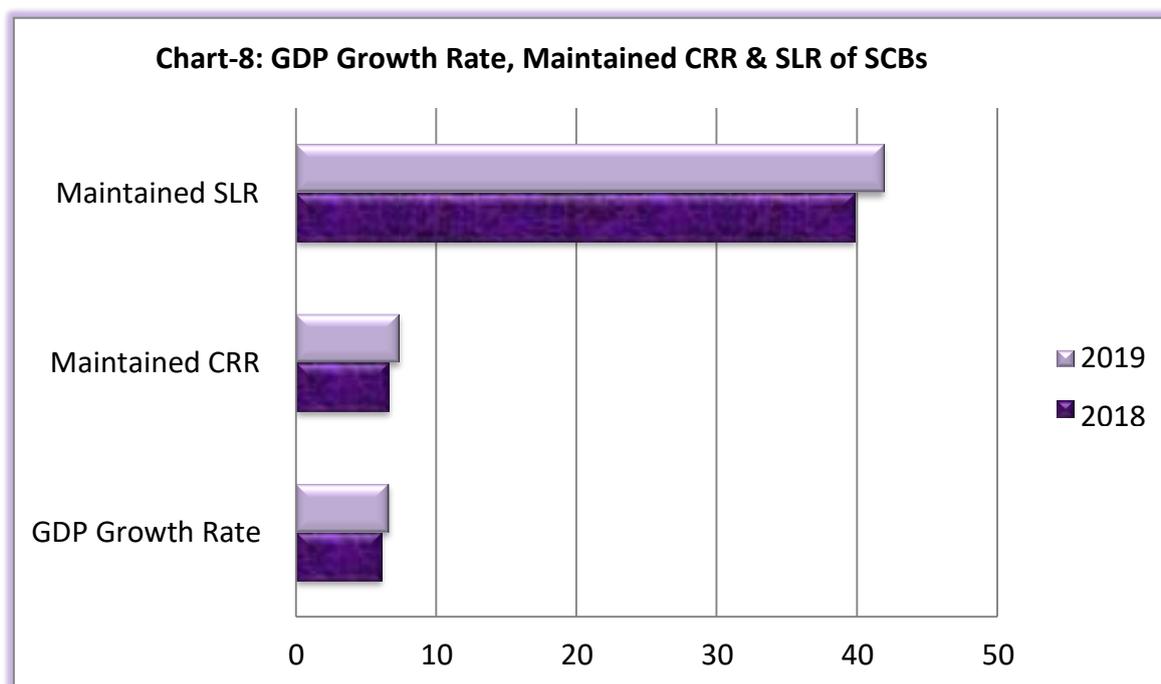
According to the final data released by Bangladesh Bureau of Statistics (BBS), Bangladesh achieved 7.11 percent GDP growth in FY2019-20. The GDP growth was 6.55 percent and 6.06 percent in FY2018-19 and FY2017-18 respectively. This is the first time that the GDP growth has surpassed the 7 percent level. However, in FY2006-07, GDP growth crossed 7 percent mark due to the rebasing of GDP series on FY2005-06 base. Despite the global financial crisis and its aftermath, along with the adverse effect emerged from domestic front, Bangladesh has been able to achieve GDP growth at more than 6 percent on an average during the last decade.

Table-9: GDP Growth Rate, Maintained CRR & SLR of SCBs

| Year | GDP Growth Rate at Constant Price | Maintained CRR | Maintained SLR |
|------|-----------------------------------|----------------|----------------|
| 2018 | 6.1 | 6.59 | 39.82 |
| 2019 | 6.6 | 7.35 | 41.84 |

Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

In 2019, the GDP growth rate increases and the maintained CRR and SLR of SCBs increased too compared to 2018.



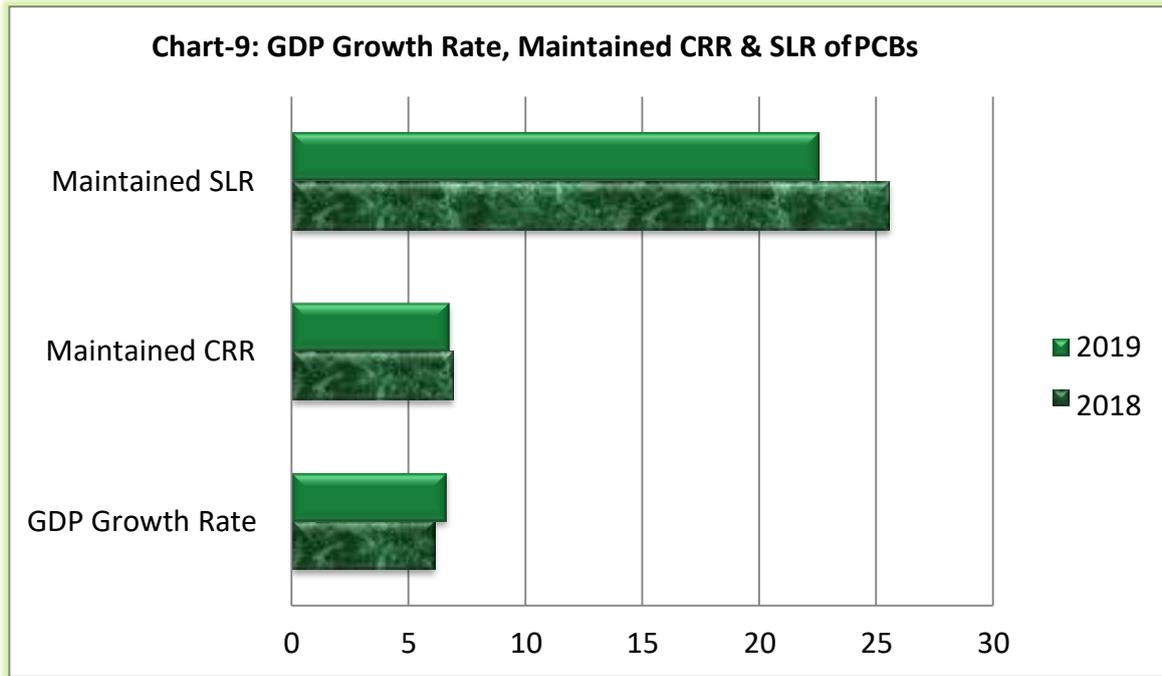
Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

Table-11: GDP Growth Rate, Maintained CRR & SLR of PCBs

| Year | GDP Growth Rate at Constant Price | Maintained CRR | Maintained SLR |
|------|-----------------------------------|----------------|----------------|
| 2018 | 6.1 | 6.89 | 25.55 |
| 2019 | 6.6 | 6.72 | 22.51 |

Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

But in case of PCBs, though the GDP growth rate increased in 2019, the CRR and SLR maintained by PCBs decreased in 2019 than 2018.



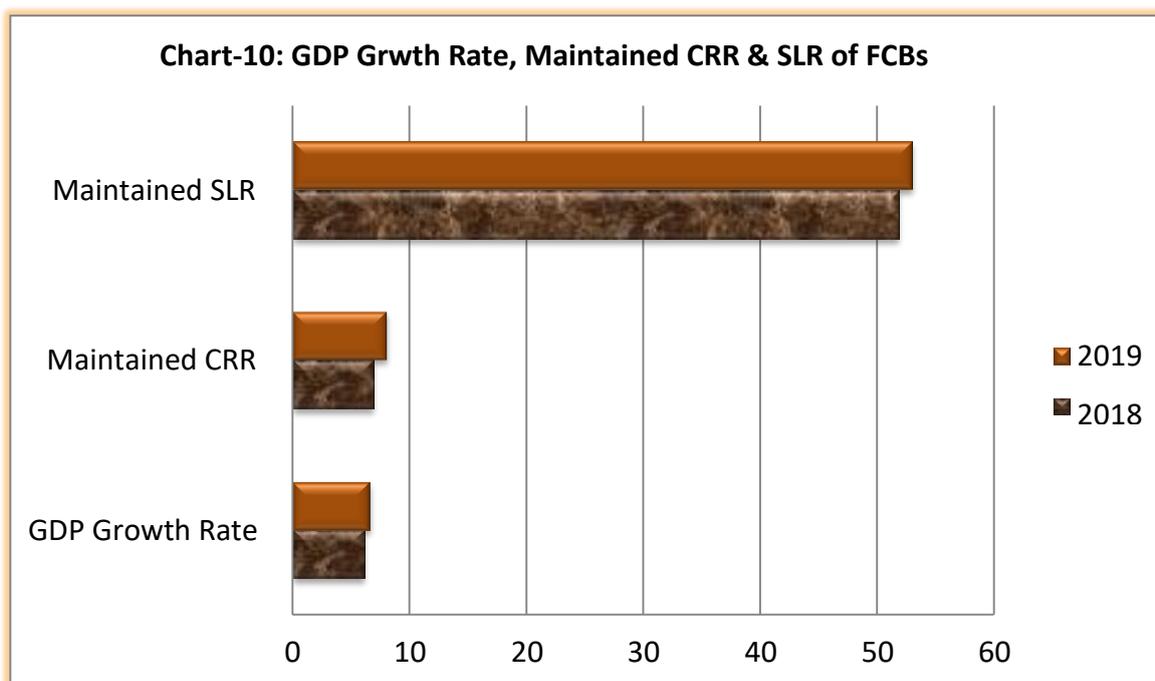
Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

Table-12: GDP Growth Rate, Maintained CRR & SLR of FCBs

| Year | GDP Growth at Constant Price | Maintained CRR | Maintained SLR |
|------|------------------------------|----------------|----------------|
| 2018 | 6.1 | 6.87 | 51.83 |
| 2019 | 6.6 | 8.02 | 53.00 |

Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

FCBs also were holding higher CRR and SLR in 2019 compared to 2018 and GDP growth rate was also higher in 2019.



Source: Bangladesh Economic Review 2020, Financial Stability Report of 2018, 2019

Question 5: Are banks maintaining required CRR and SLR?

Cash Reserve Requirement (CRR)

Every scheduled bank has to maintain a balance in cash with BB the amount of which shall not be less than such portion of its total demand and time liabilities as prescribed by BB from time to time, by notification in the official Gazette. At present, banks are allowed to maintain cash reserve with local currency (Taka) only.

The cash reserve requirement (CRR) for the scheduled banks with Bangladesh Bank remained unchanged at 6.50 percent of their total demand and time liabilities in FY16. It may be noted that banks are required to maintain CRR at the rate of 6.50 percent on average on a bi-weekly basis provided that the CRR would not be less than 6.00 percent in any day with effective from 24 June 2017.

Statutory Liquidity Ratio (SLR)

Every scheduled bank has to maintain assets in cash or gold or in the form of un-encumbered approved securities the market value of which shall not be less than such portion of its total demand and time liabilities as prescribed by BB from time to time.

According to the latest amendment (2013) of subsection (2) under section 33 of the Bank Company Act, 1991, it is decided that banks should have maintained SLR separately, (a) for the conventional banks the statutory liquid assets inside Bangladesh, which also includes excess reserves with Bangladesh Bank, shall not be less than 13.0 percent of their total demand and time liabilities, and (b) for the Shariah based Islamic banks, this rate shall not be less than 5.5 percent. This became effective on 1 February 2017 and is remained unchanged in FY19.

The eligible components for maintaining Statutory Liquidity Reserve are cash in tills (both local and foreign currency), gold, daily excess reserve (excess of Cash Reserve) maintained with BB, balance maintained with the agent bank of BB and un-encumbered approved securities, credit balance in Foreign Currency Clearing Account maintained with BB.

Daily excess of Cash Reserve (if any) will be calculated using the following formula:

Daily excess of Cash Reserve = (Day-end balance of un-encumbered cash maintained in Taka current accounts with BB – Required cash reserve on Bi-weekly average basis).

Penalties

(a) Penal Interest (Bank Rate plus 5%) and Penalty will be charged according to the instructions of Bangladesh Bank Order, 1972 and DOS Circular No. 03/2010 for CRR related issues.

(b) Penalty will be charged at the prevailing Special Repo Rate on the amount by which the SLR falls short daily.

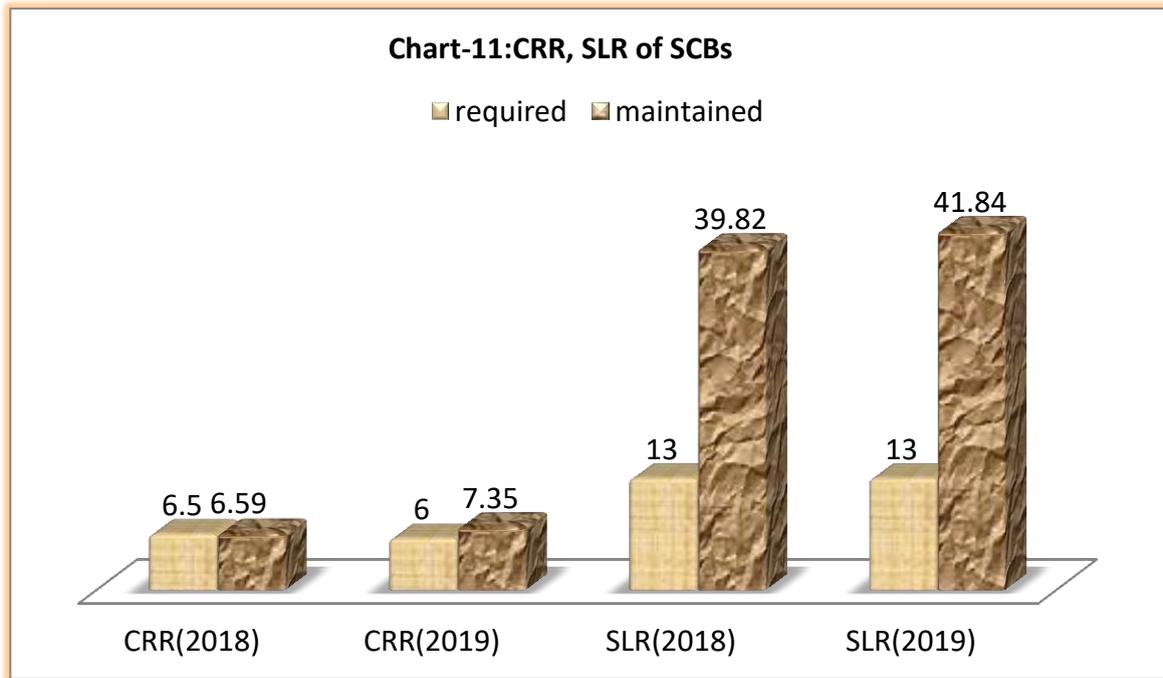
(c) Delay submission of statement regarding maintenance of CRR and all other statements regarding maintenance of SLR will attract daily penalty as stated in clause (6) of Article 36 of Bangladesh Bank Order, 1972 and clause (11) of section 109 of 'Bank Company Act, 1991 (2013 amended)' respectively.

Table-12: CRR and SLR of State Owned Commercial Banks (SCBs)

| Years | Required CRR | Maintained CRR | Required SLR | Maintained SLR |
|---------------------------|--------------|----------------|--------------|----------------|
| End December, 2018 | 6.50 | 6.59 | 13.00 | 39.82 |
| End December, 2019 | 6.00 | 7.35 | 13.00 | 41.84 |

Source: Financial Stability Report of 2018, 2019

In the table, it can be seen that in CY14 state owned commercial banks are maintaining both CRR and SLR above the prescribed level. And in the next year CY19, percentage of maintained CRR and SLR has been increased. This means SCBs are facing no liquidity stress.



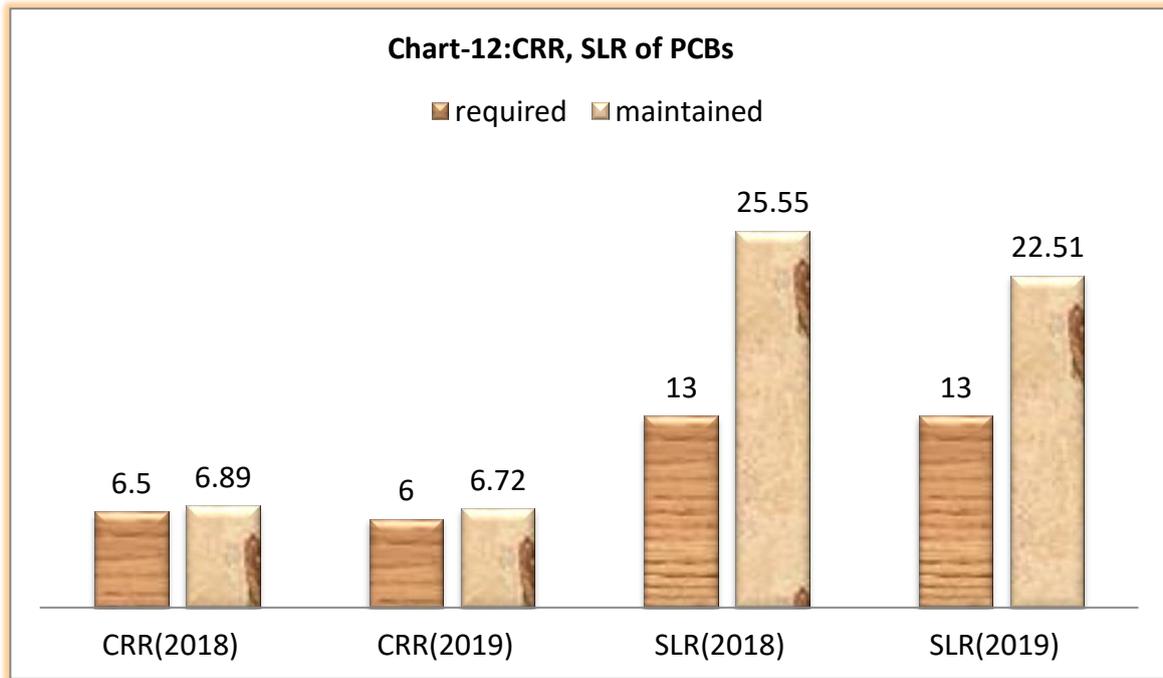
Source: Financial Stability Report of 2018, 2019

Table-13: CRR and SLR of Private Commercial Banks (PCBs)

| Years | Required CRR | Maintained CRR | Required SLR | Maintained SLR |
|--------------------|--------------|----------------|--------------|----------------|
| End December, 2018 | 6.50 | 6.89 | 13.00 | 25.55 |
| End December, 2019 | 6.00 | 6.72 | 13.00 | 22.51 |

Source: Financial Stability Report of 2018, 2019

PCBs are also maintaining CRR and SLR in CY18 and CY19 above the required level but in CY19 the percentage of maintained CRR and SLR has been decreased. It means they are utilizing excess liquidity.



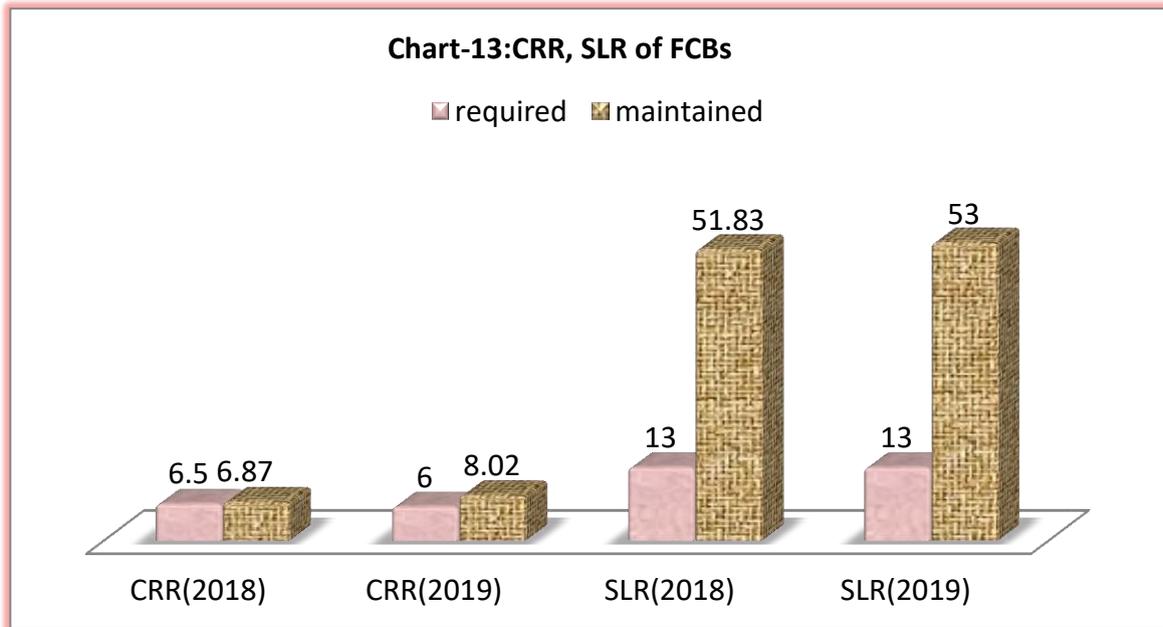
Source: Financial Stability Report of 2018, 2019

Table-14: CRR and SLR of Foreign Commercial Banks (FCBs)

| Years | Required CRR | Maintained CRR | Required SLR | Maintained SLR |
|--------------------|--------------|----------------|--------------|----------------|
| End December, 2018 | 6.50 | 6.87 | 13.00 | 51.83 |
| End December, 2019 | 6.00 | 8.02 | 13.00 | 53.00 |

Source: Financial Stability Report of 2018, 2019

In table-15, it has been shown that FCBs are maintaining CRR and SLR well above the required level. FCBs are maintaining highest level SLR compared to SCBs and PCBs and also holding the highest level of CRR in CY19.



Source: Financial Stability Report of 2018, 2019

5.4 Findings

1. All the commercial banks are following the Basel III liquidity ratio requirements efficiently. They had monthly LCR well above 100% in each of the month. Quarterly NSFR was also above the prescribed level (100%) in each quarter. LCR of PCBs and FCBs were within 150%, on the other hand LCR of SCBs were within 265% to 465%. In case of NSFR, SCBs were maintaining lower NSFR compared to PCBs and FCBs.
2. In the last five years SCBs“ excess liquidity increased but they were having negative ROA and ROE in all the years except 2017. PCBs are utilising their excess liquidity to earn profit, so their excess liquidity was decreasing in the last two years (2018, 2019). FCBs were holding highest amount of excess liquidity from 2017 continuously and also earned higher ROA and ROE than others. But it has been observed in the data analysis and interpretation section under Q2 that maintaining excess amount of liquidity is not profitable for the banks. And excess liquidity does not increase the ROA and ROE of the banks always.
3. SCBs were having continuous decreasing ADR from 2018 which increased their liquidity. On the contrary, PCBs were having continuous increasing ADR which decreased their excess liquidity because they used their idle funds efficiently. FCBs did not follow any continuous trend and ADR increased in 2020 than 2019 but was less than 2015 and liquidity increased. So it can be concluded that continuously increasing ADR decreases excess liquidity and vice versa.

4. In data analysis part under Q4, it can be seen that in the last year GDP increased but maintained CRR & SLR of SCBs and FCBs increased but of PCBs decreased. So no direct systematic relation is visible between GDP and bank liquidity.

5. All the commercial banks of Bangladesh are maintaining CRR and SLR well above the required rate from 2019 continuously and so the banks are not facing any liquidity pressure at all.

Chapter Six: Conclusion and Recommendation

6.1 Conclusion

Liquidity management is a key factor which directly impacts the Banks profitability, credit and economic growth. Efficient liquidity management can lead to minimization risk and generation of more profits through enhancing loanable funds. This study tries to examine the liquidity management condition of the banking sector and impact of liquidity in ensuring profit, GDP growth. Data from State owned commercial banks, private commercial banks and foreign commercial banks for the year have been taken into account for conducting the study. Secondary sources data from Bangladesh Bank have been used to analyze the liquidity position and ratios according to the Basel III guideline. Qualitative method has been used to analyze the liquidity condition. Variables like deposit, advance, profit, CRR, SLR ADR, and GDP have been used to conduct the study.

There are only few studies over the liquidity management in developing countries banking system, findings of this study is very much similar to previous studies. The banking sector has maintained higher Liquidity Coverage Ratio and Net Stable Funding Ratio than regulatory requirement but excess liquidity has mixed relation with profitability. The study explains that ADR ratio has inverse relation with liquidity whereas GDP has no directly systemic relation with liquidity. The results demonstrated that the study is very much policy relevant and long term adjustment is needed in the variables to improve the impact of liquidity management. The study can be useful to the policy makers, researchers, management and relevant stakeholders to formulate and implement need based liquidity management policies for sustainable growth of our economy.

6.2 Recommendations

It appears from the study that banking sector witnessed a huge liquidity surplus because of lack of investment opportunity. Significant amount of surplus money was available in the banking sector for which banks incur huge cost that cannot be covered from the lower investment. This leads to erosion of banks' profitability. There is a need to invest the excess of liquidity available at the banks, in a various aspects of investments in order to increase the banks' profitability and to get benefits from the time value of the available money.

The management of liquidity is the most vital problem of the commercial banks. Few liquidity management techniques are suggested below:

- ✓ Short term investment should be balanced with short term funds and long term investment should be balanced with long term funds but most of the commercial banks do not do this accurately because of unstructured financial market and unhealthy competition among the banks. To minimize this risk banks may balance the maturity of the deposit and advance as well as confirm fair competition to create structured financial market.
- ✓ There are lack of close observations to deposit & advance behaviour of the large customers. So banks need to ensure the precise supervision on deposit and advance position which helps to manage the liquidity position with very well manner.
- ✓ Commercial banks need to be careful while giving loans and also need to reduce NPLs to increase profitability. The recent rising in NPLs is a concern for overall banking stability because high NPLs of banks' reduce loanable funds by stopping recycling and banks cannot earn profit from classified loans. Besides, banks need to put a portion of their income as loan loss reserve to make up bad debt.
- ✓ Every bank should have an up-to-date contingency funding plan. A contingency funding plan needs to be prepared keeping in mind that enough liquidity is available to meet the funding requirements in a liquidity crisis situation/specific problem in the local market.
- ✓ Top depositors list helps the bank to have a greater visibility on where the deposit concentrations are coming from. It is important to track the behaviour of these deposits and take measures so as to avoid any untoward liquidity issues.
- ✓ Monthly projection of loans and deposits for the year/ for the next 3-6 months is important. The information can be used by bank to understand future liquidity requirements and strategies accordingly.
- ✓ The responsibility for managing the overall liquidity of the bank should be delegated to a specific, identified group within the bank. This may be in the form of an Asset Liability Committee (ALCO). Since liquidity management is a technical job requiring specialized knowledge and expertise, it is important that responsible officers not only have relevant expertise but also have a good understanding of the nature and level of liquidity risk assumed by the bank and the means to manage that risk.
- ✓ An effective management information system (MIS) is essential for sound liquidity management decisions. Information should be readily available for day-to-day liquidity management and risk control, as well as during times of stress.

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Appendix-I

List of Scheduled Banks

State-owned/government controlled banks (6+2=8)

State-owned commercial banks (6)

Sonali Bank Limited
Janata Bank Limited
Agrani Bank Limited
Rupali Bank Limited*
Bangladesh Small Industries and Commerce Bank Limited
Bangladesh Development Bank Limited

Specialised banks (2)

Bangladesh Krishi Bank
Rajshahi Krishi Unnayan Bank

Private commercial banks (39)

Pubali Bank Limited
Uttara Bank Limited
AB Bank Limited
International Finance Investment and Commerce (IFIC) Bank Limited
Islami Bank Bangladesh Limited
National Bank Limited
The City Bank Limited
United Commercial Bank Limited
ICB Islamic Bank Limited
Eastern Bank Limited
National Credit and Commerce Bank Limited
Prime Bank Limited
Southeast Bank Limited
Dhaka Bank Limited
Al-Arafah Islami Bank Limited
Social Islami Bank Limited
Dutch-Bangla Bank Limited
Standard Bank Limited
One Bank Limited
Export Import (EXIM) Bank of Bangladesh Limited
Mercantile Bank Limited

Bangladesh Commerce Bank Limited
Mutual Trust Bank Limited
First Security Islami Bank Limited
The Premier Bank Limited
Bank Asia Limited
Trust Bank Limited
Shahjalal Islami Bank Limited
Jamuna Bank Limited
BRAC Bank Limited
South Bangla Agriculture and Commerce Bank Limited
NRB Commercial Bank Limited
Union Bank Limited
Meghna Bank Limited
Midland Bank Limited
The Farmers Bank Limited
NRB Bank Limited
Modhumoti Bank Limited
NRB Global Bank Limited

Foreign commercial banks (9)

Commercial Bank of Ceylon PLC
Standard Chartered Bank
Habib Bank Limited
State Bank of India
National Bank of Pakistan
Citibank N.A
Woori Bank
The HSBC Limited
Bank Alfalah Limited

Appendix-II

Sources of Demand and Supply for Liquidity within the Bank

| Supplies of Liquid Funds Come From: | Demands for Bank Liquidity Typically Arise From: |
|--------------------------------------------|-------------------------------------------------------------------------|
| Incoming customer deposits | Customer deposit withdrawals |
| Customer deposit withdrawals | Credit requests from quality loan customers |
| Customer loan repayments | Repayment of nondeposit borrowings |
| Sales of bank assets | Operating expenses and taxes incurred in producing and selling services |
| Borrowing from the money market | Payment of stockholder cash dividends |

Source: Commercial Bank Management, Peter S. Rose, 2002.

Appendix III

MATURITY PROFILE –LIQUIDITY

| HEADS OF ACCOUNTS | TIME-BUCKET CATEGORY |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. OUTFLOWS | |
| 1. Capital funds | |
| (a) Equity capital, Non-redeemable or perpetual preference capital, Reserves, Funds and Surplus | In the 'over 5 years' time bucket |
| (b) Preference capital – redeemable/non perpetual | As per the residual maturity of the shares. |
| 2. Notes, Bonds and debentures | |
| (a) Plain vanilla bonds/debentures | As per the residual maturity of the instruments |
| (b) Bonds/debentures with embedded call/put options (including zero/coupon/deep discount bonds) | As per the residual period for the earliest exercise date for the embedded option. |
| (c) Fixed rate notes | As per the residual maturity |
| 3. Deposits: | |
| (a) Term deposit from public | As per the residual maturity |
| (b) Term deposits from Banks/FIs | These, being institutional/wholesale deposits, should be slotted as per their residual maturity |
| 4. BORROWINGS: | |
| (a) Term money borrowings | As per the residual maturity |
| (b) Bank borrowings (SOD) | Over six months and up to one year |
| 5. Current liabilities and provisions: | |
| (a) Sundry creditors | As per the due date or likely timing of cash outflow. Appendix-III analysis could also be made to assess the trend of outflows and the amounts slotted accordingly. |
| (b) Expenses Payable (other than interest) | As per the likely time of cash outflow. |
| (c) Advance income received | In the 'over 5 years' Time-bucket as these do not involve any cash outflow. |
| (d) Interest payable on bonds/deposits | In respective time buckets as per the due date of payment. |
| (e) Provision for NPAs | The amount of provision may be netted out from the gross amount of the NPA portfolio and the net amount of NPAs belated time-buckets |
| (f) Provision for Investments portfolio | Th Appendix-III from the gross value of investments portfolio and the net investments be shown as inflow in the prescribed time-slots. In case provisions are not held security-wise, the provision may be shown on “over 5 yrs” time slot. |

B. INFLOWS

| | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Cash | In 1 to 30/31 day time-bucket. |
| 2. Remittance in transit | -do- |
| 3. Balances with banks | |
| (a) Current account | The stipulated minimum balance be shown in 6 months to 1 year bucket. The balance in excess of the minimum balance be shown in 1 to 30 day time bucket. |
| (b) Deposit accounts/short term deposits | As per residual maturity. |
| 4. Investments [net of provisions) | As suitable to the FIs "1 day to 30/31 days (One month)" "Over one month and up to 2 months" and "Over two months and up To 3 months" buckets depending upon the defeasance period proposed by the FIs |
| 5. Advances (performing) | The cash inflows on account of the interest and principal of the loan may be slotted in respective time buckets as per the timing of the cash flows as stipulated in the original/revised repayment schedule. |
| (a) Term loans | As per the residual maturity. |
| (b) Corporate loans/short term loans | Cash flows from the lease transaction may be slotted in respective time buckets as per the timing of the cash flow. |
| 6. Assets on lease | In the 'over 5 year ¹ ' time-bucket. |
| 7. Fixed assets (excluding leased assets} | In the 'over 5 year' time-bucket. |
| 8. Other assets | |

C. CONTINGENT LIABILITIES

| | |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) Letters of credit/guarantees (outflow through devolvement) | Based on the past trend analysis of the evolvments vis-a-vis the outstanding amount of guarantees (net of margins held), the likely evolvments should be estimated and this amount could be distributed in various time buckets on judgmental basis. The assets created out of evolvments may be shown under respective maturity buckets on the basis of probable recovery dates. In the respective time buckets as per the sanctioned disbursement schedule. |
| (b) Loan commitments pending disbursal (outflow) | As per usance of the bills to be received under the lines of credit. |
| (c) Lines of credit committed to/by other Institutions (outflow/inflow) | |

NOTE:

(a) Any event-specific cash flows (e.g. outflow due to wage settlement arrears, capital expenses, income-tax refunds, etc.) should be shown in a time bucket corresponding to timing of such cash flows.

(b) Overdue receivables on account of interest and installments of standard loans/hire purchase assets/leased rentals should be slotted *as* below:

- | | |
|--------------------------------------------------------------------------|-------------------------------------|
| (i) Overdue for less than one month. | In the 3 to 6 month bucket |
| (ii) Interest overdue for more than one month but less than seven months | In the 6 to 12 month bucket without |
| (i e) before the relative amount becomes past due for six months) | reckoning the grace period of month |
| (iii) Principal installments overdue for 7 months but less than one year | In 1 To 3 year bucket |

D. FINANCING OF GAPS:

The negative gap (i.e. where outflows exceed inflows) in the 1 to 30/31 days time-bucket should not exceed the prudential limit of 15% of outflows of each time-bucket and the cumulative gap up to the one-year period should not exceed 15% of the cumulative cash outflows upto one year period. In case these limits are exceeded, the measures proposed for bringing the gaps within the limit, should be shown by a footnote in the relative statement.

Appendix-IV

Name of Financial Institution (FI):

Statement of Structural Liquidity as on:

(Amount in crore)

| A. Outflows | 1 to 30/31 day (one month) | Over one month to 2 months | Over 2 months to 3 months | Over 3 months to 6 months | Over 6 months to one year | Over one year to 3 years | Over 3 years to 5 years | Over 5 years | Total |
|-----------------------------------------------------|----------------------------|----------------------------|---------------------------|---------------------------|---------------------------|--------------------------|-------------------------|--------------|-------|
| 1. Capital | | | | | | | | | |
| (a) Equity and perpetual preference shares | | | | | | | | | |
| (b) Non -perpetual preference shares | | | | | | | | | |
| 2. Reserves and surplus | | | | | | | | | |
| 3. Notes, bonds & debentures | | | | | | | | | |
| (a) Plain vanilla bonds/debentures | | | | | | | | | |
| (b) Bonds/debentures with embedded options | | | | | | | | | |
| 4. Deposits | | | | | | | | | |
| (a) Term deposits from public | | | | | | | | | |
| (b) Term deposits from Banks/FIs | | | | | | | | | |
| 5. Bank Borrowings | | | | | | | | | |
| (a) SOD | | | | | | | | | |
| (b) Long term loans | | | | | | | | | |
| 6. Current Liabilities and provisions : | | | | | | | | | |
| (a) Short term loans | | | | | | | | | |
| (b) Accounts payable | | | | | | | | | |
| (c) Advance income received | | | | | | | | | |
| (d) Interest payable on bonds/ deposits | | | | | | | | | |
| (e) Provisions | | | | | | | | | |
| 7. Contingent Liabilities | | | | | | | | | |
| (a) Letters of credit/guarantees | | | | | | | | | |
| (b) Loan commitments, pending disbursal | | | | | | | | | |
| (c) Lines of credit committed to other institutions | | | | | | | | | |
| 8. Others | | | | | | | | | |
| A. TOTAL OUTFLOWS (A) | | | | | | | | | |
| B. INFLOWS | | | | | | | | | |
| 1. Cash | | | | | | | | | |
| 2. Remittance in transit | | | | | | | | | |
| 3. Balances with banks | | | | | | | | | |
| (a) Current account | | | | | | | | | |
| (b) Deposit/ short-term deposits | | | | | | | | | |
| (c) Money at call & short notice | | | | | | | | | |

| | | | | | | | | | |
|---------------------------------------------------|--|--|--|--|--|--|--|--|--|
| 4. Investments (net of provisions) | | | | | | | | | |
| 5. Lease Finance & Loans (performing) | | | | | | | | | |
| (a) Lease finance | | | | | | | | | |
| (b) Home Loans | | | | | | | | | |
| (c) Term loan | | | | | | | | | |
| (d) Corporate loans:short term loans | | | | | | | | | |
| 6. Non-performing loans | | | | | | | | | |
| 7. Fixed assets (excluding assets on lease) | | | | | | | | | |
| 8. Other assets : | | | | | | | | | |
| (a) Intangible assets & other non-cash flow items | | | | | | | | | |
| (b) Interest and other income receivable | | | | | | | | | |
| (c) Others | | | | | | | | | |
| 9. Others | | | | | | | | | |
| B .TOTAL INFLOWS (B) | | | | | | | | | |
| C. MISMATCH (B-A) | | | | | | | | | |
| D CUMULATIVE MISMATCH | | | | | | | | | |
| E. C AS PERCENTAGE OF A | | | | | | | | | |

