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CAIIB PAPER-2

Module-D Unit-4

Bank Financial Management(BFM)

CAIIB BFM Module D Unit 4: Liquidity Management

Objectives of Liquidity Management

The objectives of asset liability management are two-fold: ensuring profitability and ensuring liquidity. Liquidity, which is represented by the quality and marketability of assets and liabilities, exposes the organisation to liquidity risk. Unlike other risks like interest rate risk, market risk, operational and technology risks and foreign exchange risks that can threaten the very solvency of the bank, liquidity risk is a normal aspect of everyday management of a financial institution. Only in extreme cases, liquidity risk problems translate into solvency risk problems.

Definition

- **Banks need liquidity to meet deposit withdrawals and to fund loan demands. The variability of loan demand and the variability of deposits determine a bank's liquidity needs.**
- Liquidity represents the ability to accommodate the decreases in liability and to fund the increases in assets. A bank has adequate liquidity when it can obtain sufficient funds either by increasing liabilities or by converting assets, promptly and at a reasonable cost. Liability is essential in all banks to compensate for the expected and the unexpected balance sheet fluctuations and to provide funds for growth.

Dimensions and Role Of Liquidity Risk Management

A Bank's liquidity management is the process of generating funds to meet its contractual or relationship obligations at reasonable prices at all times. New loan demand, existing loan commitments, and deposit withdrawals are the basic contractual or relationship obligations that a bank must meet. ***Effective liquidity management by a bank serves the following important purposes:***

- It demonstrates the market place that the bank is safe and therefore capable of repaying its borrowings
- It enables bank to meet its prior loan commitments, whether formal or informal.

- It enables the bank to avoid unprofitable sale of assets. This function permits the bank to avoid sale of assets at fire sale prices, as opposed to going concern values to generate funds.
- It lowers the size of the default risk premium the bank must pay for funds. This function focuses on the reasonable price aspects of the definition of liquidity management. Bank's with strong balance sheets will be perceived by the market place as being liquid and safe. Such banks will be able to buy funds at risk premium as compared to the market's perceived creditworthiness.

Adequacy of a bank's liquidity position depends upon an analysis of the following factors:

- Historical funding requirements
- Current liquidity position
- Anticipated future funding needs
- Sources of funds
- Options for reducing funding needs
- Present and anticipated asset quality
- Present and future earnings capacity
- Present and planned capital position

As all banks are affected by changes in the economic climate, the monitoring of economic and money market trends is the key to liquidity planning. A sound financial management can minimise the negative effects of these trends while accentuating the positive ones.

The factors that may affect a bank's liquidity include:

- A decline in earnings
- An increase in non-performing assets
- Deposit concentrations
- Downgrading by rating agencies
- Expanded business opportunities
- Acquisitions
- New tax initiatives

To provide funds to satisfy its funding needs, a bank must perform one or a combination of the following:

- Dispose of liquid assets
- Increase short-term borrowings
- Decrease holdings of less liquid assets
- Increase liabilities of a term nature
- Increase capital funds

Types of Liquidity Risks

Liquidity exposure can stem from both internally institution specific) and externally generated factors. External liquidity risks can be geographic, systemic or instrument-specific. Internal liquidity risk relates largely to perceptions of an institution in its various markets: local, regional, national or international. Other categories of liquidity risk are:

- **Funding Risk**: Need to replace net outflows due to unanticipated withdrawal (pre-mature closure of deposits)/non-renewal of deposits (wholesale and retail), arises due to:
  - Fraud causing substantial loss
  - Systemic risk
  - Loss of confidence
  - Liabilities in foreign currencies
- **Time Risk:** Need to compensate for non-receipt of expected inflows of funds, arises due to:
  - Severe deterioration in the asset quality
  - Standard assets turning into non-performing assets and/or borrowers' defaulting to repay as per the terms of repayment
  - Temporary problems in recovery
  - Time involved in managing liquidity
- **Call Risk:** Crystallisation of contingent liabilities and inability to undertake profitable business opportunities when desirable, arises due to:
  - Conversion of non-fund based limit into fund-based
  - Swaps and options

Measuring and Managing Liquidity Risk

Measuring and managing liquidity are among the most vital activities of commercial banks. By assuring a bank's ability to meet its liabilities as they become due, liquidity management can reduce the probability of an irreversible adverse situation developing. Even in cases where crisis develops because of a problem elsewhere at a bank, such as a severe deterioration in asset quality or the uncovering of fraud, or where a crisis reflects a generalised loss of confidence in financial institutions, the time available to a bank to address the problem will be determined by its liquidity. Indeed the importance of liquidity transcends the individual institution, since a liquidity shortfall at a single institution can have system-wide repercussions. For this reason, the analysis of liquidity requires bank managements to measure not only the liquidity positions of banks on an ongoing basis but also to examine how funding requirements are likely to evolve under crisis scenarios.

In particular, good management information systems, central liquidity control, analysis of net funding requirements under alternative scenarios, diversification of funding sources, and contingency planning are crucial elements of strong liquidity management at a bank of any size or scope of operations.

The following steps are necessary for managing liquidity risk in banks:

- Developing a structure for managing liquidity risk
- Setting tolerance level and limit for liquidity risk
- Measuring and managing liquidity risk

Developing a Structure for Managing Liquidity Risk

Sound liquidity risk management involves setting a strategy for the bank ensuring effective board and senior management oversight as well as operating under a sound process for measuring, monitoring and controlling liquidity risk.

Virtually every financial transaction or commitment has implications for a bank's liquidity. Moreover, the transformation of illiquid assets into more liquid ones is a key activity of banks. Thus, a bank's liquidity policies and liquidity management approach should form the key elements of a bank's general business strategy. Understanding the

context of liquidity management involves examining a bank's managerial approach to funding and liquidity operations and its liquidity planning under alternative scenarios.

- The liquidity strategy should set out the general approach the bank will have to adopt to improve the liquidity including various quantitative and qualitative targets.
- The strategy should also address the bank's goal of protecting financial strategy and the ability to withstand stressful events in the market place.
- It should enunciate specific policies on particular aspects of liquidity management like composition of assets and liabilities, maintenance of cumulative gaps over certain periods and the approach to managing liquidity in different currencies and from one country to another.
- The strategy of managing liquidity risk should be communicated throughout the organisation. All business units within the bank that conduct activities having an impact on liquidity should be fully aware of the liquidity strategy and should operate under the approved policies and procedures.
- The Board should monitor the performance and liquidity risk profile of the bank and periodically review information that is timely and sufficiently detailed to allow them to understand and assess the liquidity risk facing the bank's key portfolios and the bank as a whole.
- A Bank should have a liquidity management structure in place to execute effectively the liquidity strategy, policies and procedures. The responsibility of managing the overall liquidity of the bank should be placed with a specific identified group within the bank. This might be in the form of an Asset Liability Committee comprising of senior management, the treasury function or a risk management department.

Setting Tolerance Level and Limit for Liquidity Risk

Bank's management should set limits to ensure liquidity and these limits should be reviewed by supervisors. Alternatively, supervisors may set the limits. Limits could be set on the following:

- The cumulative cash flow mismatches (i.e., the cumulative net funding requirement as a percentage of total liabilities) over particular periods – next

day, next week, next fortnight, next month, next year. These mismatches should be calculated by taking a conservative view of marketability of liquid assets, with a discount to cover price volatility and any drop in price in the event of a forced sale , and should include likely outflows as a result of draw-down of commitments, etc.

- Liquid assets as a percentage of short-term liabilities. The assets included in this category should be those which are highly liquid, i.e., only those assets which are judged to be having a ready market even in periods of stress.
- A limit on loan to deposit ratio.
- A limit on loan to capital ratio.
- A general limit on the relationship between anticipated funding needs and available sources for meeting those needs.
- Primary sources for meeting funding needs should be quantified.
- Flexible limits on the percentage reliance on a particular liability category, (e.g., certificates of deposits or high cost deposits should not account for more than a certain percentage of total liabilities).
- Limits on the dependence on individual customers or market segments for funds in liquidity position calculations.
- Flexible limits on the minimum/maximum average maturity of different categories of liabilities.
- Minimum liquidity provision to be maintained to sustain operations.

An example of setting tolerance level for a bank:

1.To manage the mismatch levels so as to avert wide liquidity gaps - The residual maturity profile of assets and liabilities will be such that mismatch level for time bucket of 1-14 days and 15–28 days remains around 80% of cash outfiows in each time bucket.

2.To manage liquidity and remain solvent by maintaining short-term cumulative gap up to one year (short-term liabilities - short-term assets) at 15% of total out flow of funds.

Measuring and Managing Liquidity Risk

Measuring and managing funding requirement can be done through two approaches.

- Stock approach
- Flow approach

Stock Approach (to Measuring and Managing Liquidity)

Stock approach is based on the level of assets and liabilities as well as off-balance sheet exposures on a particular date. The following ratios are calculated to assess the liquidity position of a bank.

- **Ratio of Core Deposit to Total Assets – Core Deposit/Total Assets:** The higher the ratio, the better it is because core deposits are treated to be a stable source of liquidity. Core deposit will constitute deposits from the public in the normal course of business.
- **Net Loans to Totals Deposits Ratio - Net Loans/Total Deposits:** It reflects the ratio of loans to public deposits or core deposits. Total loans in this ratio represent net advances after deduction of provision for loan losses and interest suspense account. Loan is treated to be a less liquid asset and therefore, the lower the ratio, the better it is.
- **Ratio of Time Deposits to Total Deposits – Time Deposits/Total Deposits:** Time deposits provide a stable level of liquidity and negligible volatility. Therefore, the higher the ratio, the better it is.
- **Ratio of Volatile Liabilities to Total Assets - Volatile Liabilities/Total Assets**: Volatile liabilities like market borrowings are to be assessed and compared with the total assets. Higher portion of volatile assets will cause higher problems of liquidity. Therefore, the lower the ratio, the better it is.
- **Ratio of Short-Term Liabilities to Liquid Assets:** Short-term liabilities are required to be redeemed at the earliest. Therefore, they will require ready liquid assets to meet the liability. It is expected to be lower in the interest of liquidity.
- **Ratio of Liquid Assets to Total Assets - Liquid Assets/Total Assets**: Higher level of liquid assets in total assets will ensure better liquidity. Therefore, the higher the ratio, the better it is. Liquid assets may include bank balances, money at call and short notice, inter-bank placements due within one month, securities held for trading and available for sale with a ready market.

- **Ratio of Short-Term Liabilities to Total Assets - Short-term Liabilities/Total Assets:** Short-term liabilities may include balances in current account, volatile portion of savings accounts leaving behind core portion of saving which is constantly maintained and deposits maturing within a short period of one month. A lower ratio is desirable.
- **Ratio of Prime Asset to Total Asset - Prime Asset/Total Assets:** Prime assets may include cash balances the bank and balances with banks including central bank which can be withdrawn at any time with without any notice. The more or higher the ratio, the better it is.
- **Ratio of Market Liabilities to Total Assets - Market Liabilities/Total Assets**: Market liabilities may include money market borrowings, inter-bank liabilities repayable within a short period. The lower ratio, the better it is.

(i) (Volatile liabilities - Temporary Assets) (Earning Assets - Temporary Assets)

(ii) Core deposits/Total Assets

(iii) (Loans + mandatory SLR + mandatory CRR + Fixed Assets)/Total Assets

(iv) (Loans + mandatory SLR + mandatory CRR + Fixed Assets)/Core Deposits

(v) Temporary Assets/Total Assets

(vi) Temporary Assets/Volatile Liabilities

(vii) Volatile Liabilities/Total Assets

Flow Approach (to Measuring and Managing Liquidity)

The framework for assessing and managing bank liquidity through flow approach has three major dimensions:

- Measuring and managing net funding requirements
- Managing market access
- Contingency planning

(a) Measuring and Managing Net Funding Requirements

The flow approach is the basic approach being followed by Indian banks for measuring and managing liquidity risk. It is also called the gap method of measuring and managing

liquidity and requires the preparation of structural liquidity gap report. In this method, net funding requirement is calculated on the basis of residual maturities of assets and liabilities.

These aspects will be elaborated under the following heads:

- The Maturity Ladder
- Alternative Scenarios
- Measuring Liquidity Over the Chosen Time-frame
- Assumptions used in Determining Cash Flows

The Maturity Ladder: A maturity ladder should be used to compare a bank's future cash inflows to its future cash outflows over a series of specified time periods. Cash inflows arise from maturing assets, saleable non-maturing assets and established credit lines that can be tapped. Cash outflows include liabilities falling due and contingent liabilities, especially committed lines of credit that can be drawn down.

Alternative Scenarios: This involves evaluating whether a bank has sufficient liquidity and depends in a large measure on the behaviour of cash flows under different conditions. Analysing liquidity thus entails laying out 'what if' scenarios.

There may be three scenarios for a bank in connection with management of liquidity which provide useful benchmarks:

- General Market Conditions
- Bank-specific Crisis
- General Market Crisis

Measuring Liquidity Over the Chosen Timeframe: The evolution of a bank's liquidity profile under one or more scenarios can be tabulated or portrayed graphically, by cumulating the balance of expected cash inflows and cash outflows at several time points. A stylised liquidity graph can be constructed, enabling the evolution of the cumulative net excess or deficit of funds to be compared under the three scenarios in order to provide further insights into a bank's liquidity and to check how consistent and realistic the assumptions are for the individual bank.

Assumptions used in Determining Cash Flows: Liquidity risk planning is done for the future scenarios and therefore it is not always possible to predict with certainty as to

what will happen in future. It all depends upon certain assumptions which require to be reviewed frequently to determine their continuing validity for making predictions for liquidity risk management. The total number of major liquidity assumptions to be made, however, is fairly limited and fall under the categories of (a) assets, (b) liabilities, (c) off-balance-sheet activities, and (d) others.

(b)Managing Market Access

Some liquidity management techniques are viewed not only for their influence on the assumptions used in constructing maturity ladders, but also for their direct contribution to enhancing a bank's liquidity. Thus, it is important for a bank to review periodically its efforts to maintain the diversification of liabilities, to establish relationships with liability holders and to develop asset-sales markets.

As a check for adequate diversification of liabilities, a bank needs to examine the level of reliance on individual funding sources, by instrument type, nature of the provider of funds, and geographic market.

(c) Contingency Planning

A bank's ability to withstand a net funding requirement in a bank-specific or general market liquidity crisis can also depend on the calibre of its formal contingency plans.

Effective contingency plans should address two major questions:

- Does management have a strategy for handling a crisis?
- Does management have procedures in place for accessing cash in emergency?

The degree to which a bank has addressed these questions realistically, provides management with additional insight as to how a bank may fare in a crisis.

Strategy for Handling a Crisis: A game plan for dealing with a crisis should consist several components. Most important are those that involve managerial coordination. A contingency plan needs to spell out procedures to ensure that information flows remain timely and uninterrupted, and that the information flows provide senior management with the precise information it needs in order to make quick decisions A clear division of responsibility must be set out so that all personnel understand what is expected of them during a crisis. Confusion in this area can waste resources on certain issues and omit coverage on others.

Backup Liquidity for Emergency Situations: Contingency plans should also include procedures for making up cash flow shortfalls in emergency situations. Banks have several sources of such funds available to them, including previously unused credit facilities and credit lines from the domestic central bank. Depending on the severity of a crisis, a bank may choose – or be forced to use one or more of these sources. The plan should spell out as clearly as possible the amount of funds a bank has available from these sources, and under what scenarios a bank could use them.

Reserve Bank of India Guidelines for Maturity Buckets Reserve Bank of India has given a framework for bucket-wise classification of assets and liabilities to be followed by Indian banks. These are the guiding factors for the banks. **All the assets and liabilities are classified into ten time buckets as given below:**

- Tomorrow
- 2-7 days
- 8-14 days
- 15–28 days
- 29 days and up to 3 months
- Over 3 months and up to 6 months
- Over 6 months and up to 1 year
- Over 1 year and up to 3 year
- Over 3 years and up to 5 years
- Over 5 years

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