Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India

User Guide

Release 8.0.7.0.0

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Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India User Guide, Release 8.0.7.0.0

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DOCUMENT CONTROL

Version Number	Revision Date	Changes Done
1.0	Created December 2018	Captured updates for 8.0.7.0.0 release

This document provides a comprehensive knowledge about the regulatory calculations in Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India (LRRCRBI), Release 8.0.7.0.0. The latest copy of this guide can be accessed from OHC Documentation Library.

ABOUT THE GUIDE

This section provides a brief description of the scope, the audience, the references, the organization of the user guide and conventions incorporated into the user guide. The topics in this section are organized as follows:

SCOPE OF THE GUIDE

The objective of this user guide is to provide a comprehensive knowledge about the regulatory calculations supported in Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India (LRRCRBI), Release 8.0.7.0.0. This document is intended to help you understand the methodologies involved in computation of LCR and NSFR ratio and other regulatory metrics and computations.

This User Guide should be used in conjunction with the documents listed in the section Related Information Sources in order to get a complete view of how the general capabilities of LRRCRBI have been leveraged and the configurations required for the purposes of addressing the regulatory requirements.

INTENDED AUDIENCE

Welcome to release 8.0.7.0.0 of Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India user guide. This manual is intended for the following audience:

- Business User: This user reviews the functional requirements and information sources, like reports.
- Strategists: This user identifies strategies to maintain an ideal liquidity ratio and liquidity gap based on the estimated inflow and outflow of cash.
- Data Analyst: This user would be involved with cleaning, validation, and importing of data into the OFSAA Download Specification Format.

DOCUMENTATION ACCESSIBILITY

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Or, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

RELATED INFORMATION SOURCES

You can access the below documents online from the Oracle Help Center (OHC) documentation Library for OFS Liquidity Risk Solution (LRS) 8.x:

- OFS Liquidity Risk Solution Application Pack 8.0.7.0.0 Release Notes
- OFS Liquidity Risk Solution Application Pack 8.0.7.0.0 Installation Guide
- OFS Liquidity Risk Measurement and Management Release 8.0.7.0.0 Analytics User Guide
- OFS Liquidity Risk Measurement and Management Release 8.0.7.0.0 User Guide

You can access the OFS AAI documentation online from the OHC Documentation Library for OFS AAAI 8.x:

- OFS Advanced Analytical Applications Infrastructure (OFS AAAI) Application Pack Installation and Configuration Guide
- OFS Analytical Applications Infrastructure User Guide

The additional documents are:

- OFSAA Licensing User Manual, Release 8.0.7.0.0
- OFS Analytical Applications Infrastructure Security Guide
- OFSAAI FAQ Document
- OFS Analytical Applications 8.0.7.0.0 Technology Matrix

What's New in this Release

In Release 8.0.7, the approach to the application has changed with the introduction of separate Stock Keeping Units (SKU's) for each jurisdiction. This release splits the original liquidity risk application, i.e. Oracle Financial Services Liquidity Risk Management, in to four SKU's. These include:

- Oracle Financial Services Liquidity Risk Measurement and Management (LRMM)
- Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve (LRRCUSFR)
- Oracle Financial Services Liquidity Risk Regulatory Calculations for European Banking Authority (LRRCEBA)
- Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India (LRRCRBI)

Additionally, two new SKUs, Oracle Financial Services Liquidity Risk Regulatory Calculations for Bank of Thailand (LRRCBOT), and Oracle Financial Services Deposit Insurance Calculation for Liquidity Risk Management (DICLRM), have been introduced.

This split does not impact any functionality for the existing customers. All functionalities present in the earlier OFS LRM will continue to be available, and fully supported for existing customers, as part of the four new SKU's mentioned above. Existing customers referring to the earlier Oracle Financial Services Liquidity Risk Management User Guides, Release 8.0.6, now need to refer to the following user guides for the complete functionality.

- OFS Liquidity Risk Measurement and Management Release 8.0.7.0.0 User Guide on OHC Documentation Library
- OFS Liquidity Risk Regulatory Calculations for Reserve Bank of India 8.0.7.0.0 User Guide on OHC Documentation Library
- OFS Liquidity Risk Regulatory Calculations for US Federal Reserve 8.0.7.0.0 User Guide on OHC Documentation Library
- OFS Liquidity Risk Regulatory Calculations for European Banking Authority 8.0.7.0.0 User Guide on OHC Documentation Library

The Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India, Release 8.0.7.0.0 is an enhancement of the existing Oracle Financial Services Liquidity Risk Management, Release 8.0.6.0.0 which has the following enhanced features:

- This release includes bug fixes.

1 Introduction

Various parameters in Liquidity Risk Management help in analyzing the liquidity status of the bank. Liquidity ratios are one such parameter prescribed by the Basel III Guidelines. Oracle Financial Services Liquidity Risk Regulatory Calculations for Reserve Bank of India (LRRCRBI) application calculates the following two types of ratios:

- **Liquidity Coverage Ratio (LCR)**: Liquidity coverage ratio addresses the short-term liquidity needs of a bank, or financial institution during a stress situation. It estimates whether the stock of high quality liquid assets is sufficient to cover the net cash outflows under stress situations over a specified future period, in general, lasting 30 calendar days (or LCR horizon). LCR is calculated at the legal entity level, on a standalone and consolidated basis.
- **Net Stable Funding Ratio (NSFR)**: Net Stable Funding Ratio addresses the medium and long-term liquidity needs of a bank, or financial institution during a stress situation. It specifies the minimum amount of stable funding required to be maintained in order to promote stable long term funding.

2 Liquidity Coverage Ratio Calculation

The RBI Liquidity Coverage Ratio calculations address the final guidelines on the LCR, Liquidity Risk Monitoring Tools and LCR Disclosure Standards that were published by Reserve Bank of India in June 2014. Additionally, the calculations cater to the amendments published subsequently up to March 2016. Major amendments include additional classification rules for Level 2B assets, identification and treatment of lien marked deposits and inclusion and treatment of new counterparties such as Hindu Undivided family (HUF) and Association of persons (AoP).

2.1 Inputs

Inputs required for Liquidity Coverage Ratio calculated by the LRM application are:

- Liquidity haircut for each asset level should be provided through business assumption with assumption category as valuation change and assumption sub category as haircut.
- Business assumption which defines the outflow percentage should be defined through appropriate business assumptions. For example, retail deposit Run off is defined through business assumption with category as incremental cash flow and sub category as Run-off.
- Business assumption which defines the inflow percentage should be defined through appropriate business assumptions. For example, Roll over reverse repo is defined through business assumption with category as cash flow movement and sub category as roll over.
- Liquidity Horizon is specified as the Run time parameter.

2.2 Process Flow

- Identification of Asset Levels
- Identification of Eligible HQLA
- Calculation of Stock of High Quality Liquid Assets
- Classification of Operational Deposits
- Identification of Deposit Stability
- Treatment of Lien Marked Deposits
- Identification of Lien Marked Deposits
- Treatment of Lien Marked Deposits
- Calculation of Contractually Required Collateral
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- Calculation of Twenty Four Month Look-back Amount
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- Calculation of HQLA Transferability Restriction
- Calculation of Net Cash Outflows
- Consolidation
- Calculation of Liquidity under Alternative Liquidity Approach
- Calculation of Liquidity Coverage Ratio
- Significant Currency Liquidity Coverage Ratio Calculation
- Liquidity Risk Monitoring Tools

The application supports an out-of-the-box RBI LCR which has the regulatory scenario with associated HQLA haircuts, inflow and outflow percentage / rates pre-configured in the form of business assumptions.

2.2.1 Identification of Asset Levels

High Quality Liquid Assets (HQLA) are assets that can be easily sold or used as collateral to obtain funds at little or no loss of value even under stress scenarios, All assets, whether owned by the bank or received from counterparties as collateral, that meet the high quality liquid asset criteria specified by RBI, are classified by the application as follows:

- Level 1 Assets
- Level 2A Assets
- Level 2B Assets

Level1 assets can be included without limit and Level 2 assets can only comprise 40% of the stock of HQLA. Of this, Level 2B assets can only comprise of 15% of stock of HQLA. Any asset not classified as an HQLA is considered as Other Asset.

I. Identification and Treatment of Level 1 Assets

The application identifies the following assets as HQLA Level 1 assets:

1. Cash including cash reserves in excess of required Cash Reserve Ratio (CRR). For banks incorporated, these also include
   - Excess reserves held with foreign central banks, where an international rating agency has assigned a 0% risk weight to the foreign sovereign.
   - Excess reserves held with foreign central banks, where an international rating agency has assigned a non-0% risk weight to the foreign sovereign and a 0% risk weight has been assigned at national discretion under Basel II Framework, to the extent these balances cover the bank's stressed net cash outflows in that specific currency.

Central bank excess reserves include the balance held by a bank at the central bank directly or through a correspondent bank less any minimum reserve requirement. It also includes overnight deposits or term deposits held with the central bank that meet the regulatory criteria. The value of eligible term deposits that is included is the amount net of any withdrawal penalty.

Note: The process of identifying the value to be included in the stock of HQLA up to the extent of a bank stressed net cash outflows in a particular currency is documented in the section below. Government securities in excess of the minimum Statutory Liquidity Ratio (SLR) requirement

2. Within the mandatory SLR requirement, government securities to the extent of 2% of NDTL are currently allowed under Margin Standing Facility (MSF).
3. Marketable securities, assigned a 0% risk weight under both Basel and by international rating agencies, which satisfy the following conditions:
    - Issuer type or guarantor type is a foreign sovereign
    - Traded in large, deep and active repo or cash markets characterized by a low level of concentration
    - Have a proven record as a reliable source of liquidity in the markets (repo or sale) even during stressed market conditions
    - Not an obligation of a financial institution or any of its affiliated entities
4. Marketable securities, assigned a non-0% risk weight by international rating agencies and 0% risk weight at national discretion, which satisfy the following conditions:
    - Issuer type is a foreign sovereign or issuer type is a domestic sovereign and account is denominated in a foreign currency
    - Traded in large, deep and active repo or cash markets characterized by a low level of concentration
    - Have a proven record as a reliable source of liquidity in the markets (repo or sale) even during stressed market conditions
    - Not an obligation of a financial institution or any of its affiliated entities

Such marketable securities are included in the stock of HQLA only up to the extent of the bank's net stressed cash outflows in that currency arising from bank's operations in that foreign jurisdiction.

To meet this requirement the application identifies and updates the account country liquidity risk flag as follows:

i. The existence of bank's operations in a particular jurisdiction is identified. If the bank holds either liabilities or non-marketable assets in that jurisdiction, the application assumes that the bank has operations in that specific jurisdiction. This is identified at a country and currency combination.

ii. Next the application identifies whether the asset is held to meet the bank's net stressed cash outflows in that currency arising from bank's operations in that specific jurisdiction by checking the following conditions:

   a. If the issuer's country is the same as the account country

   b. If the issuer's country is the same as the country in which local operations are present in a particular jurisdiction as identified in step (i) above.

   c. If the account currency is the same as the currency in which local operations are present in a particular jurisdiction as identified in step (i) above.

   If all of the above criteria are met, the account country liquidity risk flag is updated as "Yes" which indicates that the particular asset is held to meet the net cash outflows in a particular jurisdiction.

iii. Finally, the application identifies the amount to be included in the stock of HQLA when account country liquidity risk flag = "Yes" as follows:

$$\boldsymbol{Amount\ to\ be\ Included\ in\ Stock\ Due\ to\ Local\ Operations\ Related\ Restrictions} = \boldsymbol{Minimum}\left(\boldsymbol{Haircut\ Adjusted\ Market\ Value\ of\ Asset}_{Currency,Country},\ \boldsymbol{Net\ Cash\ Outflows}_{Currency,Country}\right)$$

Assets classified as HQLA Level1 are assigned a 0% haircut under the regulatory scenario prescribed by RBI.

II. Identification and Treatment of Level 2A Assets

The application identifies the following assets as HQLA Level 2A assets:

1. Marketable securities which satisfy the following conditions:
   - Issuer type or guarantor type is one of the following:
     - Sovereign
     - Public Sector Entity (PSE)
     - Multi-Lateral Development Bank (MDB)
   - Assigned a 20% risk-weight under the standardized Approach of Basel II
   - Not an obligation of a financial institution or any of its affiliated entities
   - Price has not decreased or haircut has not increased by more than 10% over a 30-day period during a relevant period of significant liquidity stress
2. Corporate debt securities, including commercial papers, which satisfy the following conditions:
   - Not an obligation of a financial institution or any of its affiliated entities
   - Assigned a long term rating of equal to or greater than AA- or an equivalent short term rating by an eligible credit rating agency

- Not a complex structured product or subordinated debt
- Price has not decreased or haircut has not increased by more than 10% over a 30 day period during a relevant period of significant liquidity stress which is specified by the bank

Assets classified as HQLA Level2A are assigned a 15% haircut under the regulatory scenario prescribed by RBI.

III. Identification and Treatment of Level 2B Assets

The application identifies the following assets as HQLA Level 2B assets:

1. Marketable securities which satisfy the following conditions:
   - Issuer type or guarantor type is a sovereign
   - Assigned risk-weight greater than 20% but equal to or less than 50% under the standardized Approach of Basel II
   - Price has not decreased or haircut has not increased by more than 20% over a 30 day period during a relevant period of significant liquidity stress
2. Common Equity Shares which satisfy the following conditions:
   - Not an obligation of a financial institution or any of its affiliated entities
   - Included in NSE CNX Nifty index and/or S&P BSE Sensex index
   - Price has not decreased or haircut has not increased by more than 40% over a 30 day period during a relevant period of significant liquidity stress
3. Corporate debt securities, including commercial papers, which satisfy the following conditions:
   - Not an obligation of a financial institution or any of its affiliated entities
   - Assigned a long term rating between A+ and BBB- or an equivalent short term rating by an eligible credit rating agency
   - Traded in large, deep and active repo or cash markets characterized by a low level of concentration
   - Price has not decreased or haircut has not increased by more than 10% over a 30 day period during a relevant period of significant liquidity stress which is specified by the bank

Assets classified as HQLA Level2B are assigned a 50% haircut under the regulatory scenario prescribed by RBI.

2.2.2 Identification of Eligible HQLA

The application identifies whether a bank's asset or a mitigant received under re-hypothecation rights meets all the operational requirements prescribed by BIS. If an asset classified as HQLA meets all the relevant operational criteria it is identified as eligible HQLA and included in the stock of HQLA.

The application checks for the following operational criteria:

a. Operational Capability to Monetize HQLA

An asset is considered HQLA only if the bank has demonstrated the operational capability to monetize such an asset and has periodically monetized such an asset. The application captures this information for each asset as a flag.

b. Unencumbered

The application looks at the encumbrance status and includes only those assets in the stock which are unencumbered. If partially encumbered, then the portion of the asset that is unencumbered is considered as HQLA and included in the stock. If an asset is pledged to the central bank or a PSE, but is not used, the unused portion of such an asset is included in the stock. The application assigns the usage of a pledged asset in the ascending order of asset quality i.e. the lowest quality collateral is marked as used first.

c. Inclusion and Exclusion of Certain Re-hypothecated Assets

Any asset received under re-hypothecation rights as part of reverse repo and securities financing transactions are considered eligible HQLA if they are not re-hypothecated. An asset pledged to central banks or PSEs, but not used is considered eligible HQLA. Any asset that a bank receives under a re-hypothecation right is not considered eligible HQLA if the counterparty or beneficial owner of the asset has a contractual right to withdraw the asset at any time within 30 calendar days.

d. Unsegregated Assets

The application includes unsegregated assets, received as collateral under re-hypothecation rights, for derivative transactions, in the stock of HQLA. Conversely, it excludes all segregated assets from the stock of HQLA.

e. HQLA Under the Control of the Treasurer

To be considered eligible HQLA the asset is required to be under the control of the management function of the bank that manages liquidity For example, Treasurer. The application captures this information for each asset as a flag.

f. Termination of Transaction Hedging HQLA

If a HQLA is hedged by a specific transaction, then the application considers the impact of closing out the hedge to liquidate the asset that is, the cost of terminating the hedge while computing the stock of HQLA. The hedge termination cost is deducted from the market value of the asset and the difference is included in the stock of HQLA.

2.2.3 Calculation of Stock of High Quality Liquid Assets

All unencumbered assets classified as Level 1, 2A or 2B, which meet the HQLA eligibility criteria, are included in the stock of high quality liquid assets (SHQLA). The formula for calculating SHQLA is as follows:

$$\begin{aligned} \textit{Stock of HQLA} = {} & \textit{Post Haircut Stock of Level 1 Assets} + \textit{Post Haircut Stock of Level 2A Assets} \\ & + \textit{Post Haircut Stock of Level 2B Assets} \\ & - \textit{Adjustment due to Cap on Level 2B Assets} \\ & - \textit{Adjustment due to Cap on Level 2 Assets} \end{aligned}$$

Where,

Adjustment due to Cap on Level 2B Assets : Adjustment for 15% cap

Adjustment due to Cap on Level 2 Assets : Adjustment for 40% cap

The application applies the relevant liquidity haircuts to the market value of each eligible HQLA based on the haircuts specified as part of a business assumption. The sum of haircut adjusted market value of all assets which are not 'other assets' and which are classified as 'eligible HQLA' comprises of the stock of HQLA. The stock includes bank's own assets which are unencumbered, i.e. not placed as collateral; as well as assets received from counterparties where the bank has a re-hypothecation right and where such assets are not re-hypothecated.

Note:

All calculations are based on the market value of assets.

The steps involved in computing the stock of HQLA are:

- Calculation of Stock of Liquid Assets
- Identification of Eligible HQLA on Unwind
- Unwinding of Transactions Involving Eligible HQLA
- Calculation of Adjusted Stock of HQLA
- Calculation of Adjustments to Stock of HQLA Due to Cap on Level 2 Assets

2.2.3.1 Calculation of Stock of Liquid Assets

1. Calculation of Stock of Level 1 Assets

The stock of level 1 assets equals the market value of all level 1 liquid assets held by the bank as of the calculation date that are eligible HQLA, less the amount of the minimum/mandatory reserves less hedge termination costs (if any), less withdrawal penalty on time deposits (if any).

2. Calculation of Stock of Level 2A Assets

The stock of level 2A liquid assets equals 85 percent of the market value of all level 2A liquid assets held by the bank as of the calculation date that are eligible HQLA, less hedge termination costs (if any).

3. Calculation of Stock of Level 2B Assets

The stock of level 2B liquid asset amount equals 50 percent of the market value of all level 2B liquid assets held by the bank as of the calculation date that are eligible HQLA, less hedge termination costs (if any).

2.2.3.2 Identification of Eligible HQLA on Unwind

The application identifies the assets that are placed as collateral which are eligible HQLA if they are not encumbered. Placed collateral is marked as eligible HQLA on unwind if it fulfills all of the following criteria:

- Asset Level is level 1, 2A or 2B asset
- Meets HQLA Operational Requirements on Unwind

2.2.3.3 Unwinding of Transactions Involving Eligible HQLA

The application identifies all transactions maturing within the LCR horizon where HQLA is placed or received. These transactions include repos, reverse repos, secured lending transactions, collateral swaps and so on. Such transactions are unwound that is, the original position is reversed and the cash or stock of HQLA is adjusted accordingly. This is done to avoid inclusion of any asset in the stock that may have to be returned to its owner before the end of the LCR horizon. The unwinding of transactions results in adjustments to the stock of HQLA, i.e. additions to or deductions from the stock of HQLA.

2.2.3.4 Calculation of Adjusted Stock of HQLA

1. Adjusted Stock of Level 1 Assets

The formula for calculating adjusted stock of level 1 assets is as follows:

$$\boldsymbol{Adjusted\ Stock\ of\ Level\ 1\ Assets}$$
$$= \boldsymbol{Post\ Haircut\ Stock\ of\ Level\ 1\ Assets}$$
$$+ \boldsymbol{Post\ Haircut\ Adjustments\ to\ Stock\ of\ Level\ 1\ Assets}$$

Note:

Adjustments relate to the cash received or paid and the eligible level 1 assets posted or received as collateral or underlying assets as part of secured funding, secured lending and asset exchange transactions.

2. Adjusted Stock of Level 2A Assets

The formula for calculating adjusted stock of level 2A assets is as follows:

$$\boldsymbol{Adjusted\ Stock\ of\ Level\ 2A\ Assets}$$
$$= \boldsymbol{Post - Haircut\ Level\ 2A\ Assets}$$
$$+ \boldsymbol{Post\ Haircut\ Adjustments\ to\ Stock\ of\ Level\ 2A\ Assets}$$

Note:

Adjustments relate to eligible level 2A assets posted or received as collateral or underlying assets as part of secured funding, secured lending and asset exchange transactions.

3. Adjusted Stock of Level 2B Assets

The formula for calculating adjusted stock of level 2B assets is as follows:

$$\boldsymbol{Adjusted\ Stock\ of\ Level\ 2B\ Assets}$$
$$= \boldsymbol{Post - Haircut\ Stock\ of\ Level\ 2B\ Assets}$$
$$+ \boldsymbol{Post\ Haircut\ Adjustments\ to\ Stock\ of\ Level\ 2B\ Assets}$$

NOTE: Adjustments relate to eligible level 2B assets posted or received as collateral or underlying assets as part of secured funding, secured lending and asset exchange transactions.

2.2.3.5 Calculation of Adjustments to Stock of HQLA Due to Cap on Level 2 Assets

1. Adjustment Due to Cap on Level 2B Assets

Level 2B assets can only constitute up to 15% of the stock of HQLA after taking into account the impact of unwinding transactions maturing within the LCR horizon. Adjustment to stock of HQLA due to cap on Level 2B assets i.e. adjustment for 15% cap is calculated as follows:

$$\boldsymbol{Adjustment\ due\ to\ Cap\ on\ Level\ 2B\ Assets}$$
$$= \boldsymbol{Maximum}\left[\left\{\left(\boldsymbol{Adjusted\ Level\ 2B\ Assets} - \left(\frac{\mathbf{15}}{\mathbf{85}} \times (\boldsymbol{Adjusted\ Level\ 1\ Assets} + \boldsymbol{Adjusted\ Level\ 2A\ Assets})\right)\right\}, \left\{\boldsymbol{Adjusted\ Level\ 2B\ Assets} - \left(\frac{\mathbf{15}}{\mathbf{60}} \times \boldsymbol{Adjusted\ Level\ 1\ Assets}\right)\right\}, \mathbf{0}\right]$$

2. Adjustment Due to Cap on Level 2 Assets

Level 2 assets can only constitute up to 40% of the stock of HQLA after taking into account the impact of unwinding transactions maturing within the LCR horizon. Adjustment to stock of HQLA due to cap on Level 2 assets i.e. adjustment for 40% cap is calculated as follows:

$$\boldsymbol{Adjustment\ due\ to\ Cap\ on\ Level\ 2\ Assets}$$
$$= \boldsymbol{Maximum}\left[\left\{\boldsymbol{Adjusted\ Level\ 2A\ Assets} + \boldsymbol{Adjusted\ Level\ 2B\ Assets} - \boldsymbol{Adjustment\ due\ to\ Cap\ on\ Level\ 2B\ Assets} - \left(\frac{\mathbf{2}}{\mathbf{3}} \times \boldsymbol{Adjusted\ Level\ 1\ Assets}\right)\right\}, \mathbf{0}\right]$$

2.2.4 Classification of Operational Deposits

Operational deposits are those deposits placed by customers with a bank in order to meet their payment and settlement needs and make other payments. The application classifies accounts as operational if they meet the following criteria:

1. They are held in specifically designated accounts that is held as operational accounts, by the customers at the bank.
2. They are priced without giving economic incentive to the customer to leave excess funds in the account.
3. They arise out clearing, custody or cash management relationship with the bank.
4. They do not arise out of correspondent banking services or in the context of prime brokerage services.
5. The termination of such agreements requires a minimum notice period of 30 days.
6. If the agreement can be terminated within 30 days, the customer has to pay significant switching or termination costs to the bank.

Any excess balances held in an account classified as an operational deposit over and above that which is required to meet operational needs of the customer is assigned a higher outflow rate by the regulator. The application supports a methodology for computing the portion of the balance held for operational purposes which is truly required to meet operational needs of the customer. For details see Calculation of Operational Amount

2.2.5 Identification of Deposit Stability

The steps involved in identifying deposits stability are:

- Identification of Insurance Eligible Accounts
- Allocation of Deposit Insurance
- Identification of Deposit Stability

2.2.5.1 Identification of Insurance Eligible Accounts

The identification of insurance eligible accounts involves looking at the inclusion as well as the exclusion criteria. The application requires users to provide the following inclusion criteria:

1. Ownership Category

OFS LRM allocates the insurance limit separately for each ownership category level. Ownership categories include single accounts, joint accounts, trusts and so on. As per DICGC, a separate limit is assigned to a unique depositor combination based on the ownership category of accounts and hence users are required to provide the ownership categories that get a separate limit. If a

particular customer gets a single limit irrespective of whether the accounts are held as single, joint or a combination, the ownership category should have a single default value.

2. **Product Type**

   This is a list of product types that are covered under the respective jurisdiction's deposit insurance scheme. The insurance limit is allocated to only those accounts of a customer whose product types matches those that are covered by the deposit insurance. In case of India, DICGC covers all types of deposits such as current accounts, savings accounts, recurring deposits and term deposits, which need to be provided as inputs.

3. **Product Type Prioritization**

   The sequence in which the insured amount is to be allocated to each product type is captured. For instance, the product prioritization may be specified as current account, savings account and term deposit. This indicates that the insured amount is allocated first to a current account held by the customer. After current accounts have been fully covered, the remaining amount is allocated to savings accounts and finally to term deposits.

NOTE: In case product type prioritization is not specified, the default allocation will be proportionate to the EOP balance of each account irrespective of the product type.

4. **Currency Eligibility for Insurance**

   This is a list of currencies in which the accounts are denominated that are eligible for insurance coverage under a deposit insurance scheme. Some jurisdictions cover foreign currency deposits under their deposit insurance schemes. If eligible currencies are specified for the purpose of insurance, then the insured balance is allocated to all accounts belonging to the particular legal entity which have the associated attributes required for assigning the insured balance. For instance, if DICGC insures only INR denominated, the eligible currency against DICGC insurance scheme should be provided as Indian Rupees.

   The application includes insurance exemption criteria covering deposits of foreign sovereigns, central and state governments, and banks and so on. The deposits that are eligible for insurance under a particular insurance scheme are identified based on the inclusion and exclusion criteria as specified by the users.

2.2.5.2 Allocation of Deposit Insurance

As part of the RBI Run, the application allocates the deposit insurance to accounts based on the guidelines specified by the Deposit Insurance and Credit Guarantee Corporation (DICIGC) of India. The insurance limit captured against each deposit insurance scheme is allocated to the insurance eligible accounts under that scheme based on the ownership category and the unique depositor combination.

The insurance limit, that is the maximum deposit balance covered by an insurance scheme per customer, is captured against each insurance scheme – ownership category combination. Customers having account in multiple legal entities get a separate deposit insurance limit per legal entity. In case of DICGC insurance scheme, the limit amount needs to be provided in Stage

Insurance Scheme Master Table at the granularity of insurance scheme. The insurance limit is allocated to accounts as per the procedure given below:

1. The application identifies the unique depositor combination for each owner ship category and legal entity combination.
2. All insurance eligible accounts with a particular unique depositor combination are identified and arranged in the descending order of their outstanding balances.
3. The insurance limit available, is allocated to account 1 to n – 1 as per the formula given below:

$$\boldsymbol{Insured\ Amount} = \boldsymbol{If}\ [\{(\boldsymbol{Insurance\ Limit\ Available} - \boldsymbol{Outstanding\ Balance}) \geq \mathbf{0}\}; \boldsymbol{Outstanding\ Balance\ else}\ \mathbf{0}]$$

Where,

Insurance Limit Available	:	Limit available post allocation to previous accounts
	=	Insurance Limit Available$_{x-1}$ – Insured Amount $_{x-1}$
x	:	Number of accounts up to the current account to which insured amount is to be allocated
n	:	Total number of accounts of a customer which are eligible for insurance coverage under a given ownership category

4. The remaining available insurance is allocated to the last account i.e. account n for which insurance was not allocated.

An illustration of this procedure is provided below considering an INR 1,00,000 insurance limit for each unique depositor combination under each ownership category for each legal entity. The inputs to this calculation, including account details and customer details are provided below, along with the unique depositor combination, as identified by OFS LRM as per DICGC guidelines.

Legal Entity	Account Number	Account Balance	Ownership Category	Primary Holder	Secondary Holder 1	Secondary Holder 2	Secondary Holder 3	Unique Depositor Combination
Legal Entity 1	100001	49965	Single	Customer A				1
Legal Entity 1	100002	36903	Joint	Customer A	Customer B	Customer C		1
Legal Entity 1	100003	33762	Partnership	Customer ABC				1
Legal Entity 1	100004	40681	Company	Customer XYZ				1
Legal Entity 1	100005	7355	Company	Customer XYZ				1
Legal Entity 1	100006	44995	Joint	Customer B	Customer A	Customer C		2
Legal Entity 1	100007	35614	Joint	Customer A	Customer B	Customer C		1
Legal Entity 1	100008	7568	Joint	Customer C	Customer B	Customer A		5
Legal Entity 1	100009	37205	Single	Customer A				1
Legal Entity 1	100010	7337	Partnership	Customer ABC				1
Legal Entity 1	100011	45016	Company	Customer YZX				2
Legal Entity 1	100012	6574	Partnership	Customer BC				2
Legal Entity 1	100013	4759	Company	Customer XYZ				1
Legal Entity 1	100014	20517	Company	Customer ZXY				3
Legal Entity 1	100015	24254	Joint	Customer B	Customer C	Customer A		4
Legal Entity 1	100016	68691	Joint	Customer B	Customer A	Customer C	Customer D	3
Legal Entity 1	100017	20565	Joint	Customer C	Customer B	Customer A		5

Legal Entity	Account Number	Account Balance	Ownership Category	Primary Holder	Secondary Holder 1	Secondary Holder 2	Secondary Holder 3	Unique Depositor Combination
Legal Entity 2	200001	34042	Single	Customer A				1
Legal Entity 2	200002	3100	Joint	Customer A	Customer B	Customer C		1
Legal Entity 2	200003	43096	Single	Customer B				2
Legal Entity 2	200004	42522	Joint	Customer A	Customer B	Customer C		1
Legal Entity 2	200005	32457	Joint	Customer A	Customer B	Customer C		1
Legal Entity 2	200006	33075	Joint	Customer A	Customer B	Customer C		1

The application allocates the insurance limit of INR 1,00,000 to all eligible accounts held by each unique depositor combination as follows:

Legal Entity	Account Number	Account Balance (a)	Ownership Category	Unique Depositor Combination	Limit Applicable	Available Limit ($b = b_{t-1} – c_{t-1}$)	Insured Amount [c = As per Step (3)]	Uninsured Amount (a – c)
Legal Entity 1	100004	40681	Company	1	100000	100000	40681	0
Legal Entity 1	100005	7355	Company			59319	7355	0
Legal Entity 1	100013	4759	Company			51964	4759	0
Legal Entity 1	100011	45016	Company	2	100000	100000	45016	0
Legal Entity 1	100014	20517	Company	3	100000	100000	20517	0
Legal Entity 1	100002	36903	Joint	1	100000	100000	36903	0
Legal Entity 1	100007	35614	Joint			63097	35614	0
Legal Entity 1	100006	44995	Joint	2	100000	100000	44995	0

Legal Entity	**Account Number**	**Account Balance (a)**	**Ownership Category**	**Unique Depositor Combination**	**Limit Applicable**	**Available Limit ($b = b_{t-1} – c_{t-1}$)**	**Insured Amount [c = As per Step (3)]**	Uninsured Amount (a – c)
Legal Entity 1	100016	68691	Joint	3	100000	100000	68691	0
Legal Entity 1	100015	24254	Joint	4	100000	100000	24254	0
Legal Entity 1	100017	20565	Joint	5	100000	100000	20565	0
Legal Entity 1	100008	7568	Joint			79435	7568	0
Legal Entity 1	100003	33762	Partnership	1	100000	100000	33762	0
Legal Entity 1	100010	7337	Partnership			66238	7337	0
Legal Entity 1	100012	6574	Partnership	2	100000	100000	6574	0
Legal Entity 1	100001	49965	Single	1	100000	100000	49965	0
Legal Entity 1	100009	37205	Single			50035	37205	0
Legal Entity 2	200004	42522	Joint	1	100000	100000	42522	0
Legal Entity 2	200006	33075	Joint			57478	33075	0
Legal Entity 2	200005	32457	Joint			21303	21303	11154
Legal Entity 2	200002	3100	Joint			24403	3100	0
Legal Entity 2	200001	34042	Single	1	100000	100000	34042	0
Legal Entity 2	200003	43096	Single	2	100000	100000	43096	0

2.2.5.3 Identification of Deposit Stability

Once the insurance limit is allocated at an account level, the application determines the deposit stability as follows:

1. Stable Deposits

A stable deposit is that portion of a deposit which is covered by deposit insurance provided by an effective deposit insurance scheme or a public guarantee that provides equivalent protection and which satisfies one of the following conditions:

- It is held in a transactional account by the depositor

  Or

- The depositor has an established relationship with the reporting legal entity.

The application identifies the existence of an established relationship if the depositor meets one of the following criteria:

- Depositor holds more than one account with the bank, of which at least one account should be of a typed other than a deposit.

  Or

- The bank has assigned a customer relationship manager to the depositor.

If a deposit is partially covered by insurance and meets the other criteria, the insured portion of such deposits is treated as stable while the uninsured portion is treated as less stable. Stable deposits receive a 5% run-off rate.

2. Less Stable Deposits

All insured and uninsured deposit or funding balances that do not meet the stable deposits criteria specified earlier are classified as less stable deposits: This includes:

- Uninsured balance of deposits meeting stable deposits criteria
- Insured balance of deposits which are not transactional account and the customer has no established relationship with the bank
- Deposit balance where the insurance coverage status is Uninsured

Less stable deposits receive a 10% run-off rate.

2.2.6 Treatment of Lien Marked Deposits

A bank does lien marking of a deposit when the bank's own deposit(s) is placed as a security against a loan(s) extended by the bank. It indicates that, when a customer receives a loan from a bank and contractually places the deposits held within the same bank as collateral, then the bank marks the respective deposits as lien marked deposits.

For lien marked deposits, the deposit proceeds are paid out only when the loan against the deposit is repaid in full. This indicates that the deposit placed against the loan, is encumbered for the entire term of the loan, until it is repaid. Given this nature, only deposits with a fixed maturity i.e. term deposits are eligible for lien marking. Also, multiple deposits can be placed against multiple lien, such as loans, line of credit, guarantees and so on forming a many to many relationship.

The RBI amendments (2016) allows for certain exceptions with respect to outflows calculation when it comes to lien marked deposits. The guidelines state that outflows for lien marked deposits which will not mature within the LCR horizon may be excluded from the LCR calculation if the following conditions are met:

- The loan will not mature or settle in the next 30 days
- The pledge arrangement is subject to a legally enforceable contract disallowing withdrawal of the deposit before the loan is fully settled or repaid
- The amount of deposit to be excluded cannot exceed the outstanding balance of the loan

2.2.7 Identification of Lien Marked Deposits

Lien marked deposits are identified in the staging area against Term deposits by a flag called lien marked indicator. The mapping between term deposits which are lien marked and lien against it is of many to many nature and is a download for the application.

2.2.8 Treatment of Lien Marked Deposits

When all the conditions mentioned in the guidelines are satisfied, the encumbered portion of lien marked deposits is excluded and hence receives a 0% factor. The unencumbered portion of the lien marked deposits is included and receives appropriate run off rate as applicable.

Outflow factors as for other products and dimensional combinations are defined in the form of business assumptions. To cater to lien marked deposits, the following new based measures are introduced in the business assumptions.

- Unencumbered stable balance: This measure populates the minimum of unencumbered amount and stable amount.
- Unencumbered less stable balance: This measure populates the minimum of unencumbered amount and less stable amount.
- Encumbered balance: This measure populates the encumbered amount of the deposit.

See Regulations Addressed through Business Assumptions for details of the pre seeded assumptions on lien marked deposits.

2.2.9 Calculation of Contractually Required Collateral

Contractually required collateral is the amount of collateral that is contractually due from one party to the other based on the current exposure and collateral position. This amount has to be paid to the party at the earliest and results in an outflow for the party owing the collateral and inflow to the party to whom the collateral is due. It can be of two types based on the direction of the exposure:

- Contractually Due Collateral
- Contractually Receivable Collateral

2.2.9.1 In Case of Derivatives

2.2.9.1.1 Calculation of Contractually Due Collateral

The application computes the value of collateral that a bank is required to post contractually to its derivative counterparty as per the below procedure:

1. If Secured Indicator = No, then the contractually due collateral is 0. Else,
2. If Secured Indicator = Yes and CSA Type = One way then the contractually due collateral is 0. Else,
3. If Secured Indicator = Yes, CSA Type = Two way and Gross Exposure is >= 0, then the contractually due collateral is 0. Else,
4. If Secured Indicator = Yes, CSA Type = Two way and Gross Exposure is <0, the application computes the contractually due collateral as follows:

$$\boldsymbol{Contractually\ Due\ Collateral} = \boldsymbol{Max}[\mathbf{0}, \{\boldsymbol{Abs}(\boldsymbol{Gross\ Exposure}) - \boldsymbol{Threshold} - \boldsymbol{Collateral\ Posted}\}]$$

Where,

Threshold: Unsecured exposure that a party to a netting agreement is willing to assume before making collateral calls.

The contractually due collateral is assumed to be posted and therefore receives the relevant outflow rate specified by the regulator as part of the pre-configured business assumptions for LCR calculations.

2.2.9.1.2 Calculation of Contractually Receivable Collateral

The application computes the value of collateral that a derivative counterparty is required to post contractually to the bank as per the below procedure:

1. If Secured Indicator = No, then the contractually receivable collateral is 0. Else,
2. If Secured Indicator = Yes and Gross Exposure is <= 0, then the contractually receivable collateral is 0. Else,
3. If Secured Indicator = Yes and Gross Exposure is >0, then the application computes the contractually receivable collateral as follows:

$$\boldsymbol{Contractually\ Receivable\ Collateral} = \boldsymbol{Max}[\mathbf{0}, \{\boldsymbol{Abs}(\boldsymbol{Gross\ Exposure}) - \boldsymbol{Threshold} - \boldsymbol{Collateral\ Received}\}]$$

The contractually receivable collateral does not receive a pre-specified inflow rate from the regulator and is, therefore, excluded from the LCR calculations. However, the application computes this for the purpose of reporting.

2.2.9.2 In case of Other Assets and Liabilities:

NOTE: This functionality is available only for RBI Contractual Run.

2.2.9.2.1 Calculation of Contractually Due Collateral

1. If Balance Sheet Category = Asset, then the contractually due collateral is 0. Else,
2. If Balance Sheet Category = Liability, and Secured Indicator = N, then the contractually due collateral is 0. Else,
3. If Balance Sheet Category = Liability, and Secured Indicator = Y, then the application computes the contractually due collateral as follows

$$\boldsymbol{Contractually\ Due\ Collateral} = \boldsymbol{Max}[\mathbf{0}, \{\boldsymbol{EOP\ Balance\ of\ Liability} - \boldsymbol{Collateral\ Posted}\}]$$

2.2.9.2.2 Calculation of Contractually Receivable Collateral

1. If Balance Sheet Category = Liability, then the contractually due collateral is 0. Else,

2. If Balance Sheet Category = Asset, and Secured Indicator = N, then the contractually due collateral is 0. Else,
3. If Balance Sheet Category = Asset, and Secured Indicator = Y then the application computes the contractually due collateral as follows

$$\boldsymbol{Contractually\ Receivable\ Collateral} = \boldsymbol{Max}[\mathbf{0}, \{\boldsymbol{EOP\ Balance\ of\ Asset} - \boldsymbol{Collateral\ Received}\}]$$

2.2.10 Calculation of Excess Collateral

Excess collateral is the value of collateral posted or received that is in excess of the collateral required based on the current levels of exposure and collateral position. This amount can be withdrawn by the party which has provided the collateral in excess of its exposure and results in an outflow to the party holding the excess collateral and an inflow to the party who has provided the excess collateral. It can be of two types:

- Excess Collateral Due
- Excess Collateral Receivable

2.2.10.1 In Case of Derivatives

2.2.10.1.1 Calculation of Excess Collateral Due

The application computes the value of collateral that a derivative counterparty has posted to the bank, in excess of the contractually required collateral, and therefore can be withdrawn by the counterparty, as per the below procedure:

1. If Secured Indicator = No, then the excess collateral due is 0. Else,
2. If Secured Indicator = Y and Gross Exposure is <=0, the application computes the excess collateral due as follows:

$$\boldsymbol{Excess\ Collateral\ Due} = \boldsymbol{Min}[\boldsymbol{Adjusted\ Collateral\ Received}, \boldsymbol{Non-segregated\ Collateral\ Received}]$$

Where,

Adjusted collateral received: Collateral received from the counterparty less customer withdrawable collateral

Customer withdrawable collateral: Collateral received under re-hypothecation rights that can be contractually withdrawn by the customer within the LCR horizon without a significant penalty associated with such a withdrawal

1. If Secured Indicator = Y and Gross Exposure is >0, the application computes the excess collateral due as follows:

$$\textbf{\textit{Excess Collateral Due}} = \textbf{\textit{Min}}[\textbf{\textit{Max}}\{\mathbf{0}, \textbf{\textit{Adjusted Collateral Received}} - \textbf{\textit{Gross Exposure}}\}, \textbf{\textit{Non}} - \textbf{\textit{segregated Collateral Received}}]$$

The excess collateral due is assumed to be recalled by the counterparty and therefore receives the relevant outflow rate specified by the regulator as part of the pre-configured business assumptions for LCR calculations.

Calculation of Excess Collateral Receivable

The application computes the value of collateral that the bank has posted to its derivative counterparty, in excess of the contractually required collateral, and therefore can be withdrawn by the bank, as per the below procedure:

1. If Secured Indicator = No, then the excess collateral receivable is 0. Else,
2. If Secured Indicator = Y and Gross Exposure is >=0, the application computes the excess collateral receivable as follows:

$$\textbf{\textit{Excess Collateral Receivable}} = \textbf{\textit{Min}}[\textbf{\textit{Adjusted Collateral Posted}}, \textbf{\textit{Non}} - \textbf{\textit{segregated Collateral Posted}}]$$

Where,

Adjusted collateral posted: Collateral posted by the bank less firm withdrawable collateral

Firm withdrawable collateral: Collateral provided under re-hypothecation rights that can be contractually withdrawn by the bank within the LCR horizon without a significant penalty associated with such a withdrawal

3. If Secured Indicator = Y and Gross Exposure is <0, the application computes the excess collateral receivable as follows:

$$\textbf{\textit{Excess Collateral Receivable}} = \textbf{\textit{Min}}[\textbf{\textit{Max}}\{\mathbf{0}, \textbf{\textit{Adjusted Collateral Posted}} - \textbf{\textit{Abs}}(\textbf{\textit{Gross Exposure}})\}, \textbf{\textit{Non}} - \textbf{\textit{segregated Collateral Posted}}]$$

The excess collateral receivable does not receive a pre-specified inflow rate from the regulator and is, therefore, excluded from the LCR calculations. However, the application computes this for the purpose of reporting.

2.2.10.2 In case of Other Assets and Liabilities

NOTE: This functionality is available only for RBI Contractual Run.

2.2.10.2.1 Calculation of Excess Collateral Due

1. If Balance Sheet Category = Liability, then the contractually due collateral is 0. Else,
2. If Balance Sheet Category = Asset, and Secured Indicator = N, then the contractually due collateral is 0. Else,

3. If Balance Sheet Category = Asset, and Secured Indicator = Y, then the application computes the contractually due collateral as follows

$$\boldsymbol{Excess\ Collateral\ Due} = \boldsymbol{Min}[\boldsymbol{Max}\{\mathbf{0}, \boldsymbol{Adjusted\ Collateral\ Received} - \boldsymbol{EOP\ Balance\ of\ Asset}\}, \boldsymbol{Non-segregated\ Collateral\ Received}]$$

2.2.10.2.2 Calculation of Excess Collateral Receivable

1. If Balance Sheet Category = Asset, then the contractually due collateral is 0. Else,
2. If Balance Sheet Category = Liability, and Secured Indicator = N, then the contractually due collateral is 0. Else,
3. If Balance Sheet Category = Liability, and Secured Indicator = Y, then the application computes the contractually due collateral as follows

$$\boldsymbol{Excess\ Collateral\ Receivable} = \boldsymbol{Min}[\boldsymbol{Max}\{\mathbf{0}, \boldsymbol{Adjusted\ Collateral\ Posted} - \boldsymbol{EOP\ Balance\ of\ Liability}\}, \boldsymbol{Non-segregated\ Collateral\ Posted}]$$

2.2.11 Calculation of Downgrade Impact Amount

2.2.11.1 Calculation of Downgrade Impact Amount for Derivatives

The downgrade impact amount for derivatives is calculated as follows:

1. If a downgrade trigger does not exist for the derivatives contract or netting agreement, the downgrade impact amount is 0. Else,
2. If Net Exposure >0, the downgrade impact amount is 0. Else,
3. If Net Exposure <=0, the downgrade impact amount is calculated as follows:

$$\boldsymbol{Downgrade\ Impact\ Amount} = \boldsymbol{Max}[\mathbf{0}, \{\boldsymbol{Abs}(\boldsymbol{Net\ Exposure}) - \boldsymbol{Contractually\ Due\ Collateral}\}]$$

2.2.11.2 Calculation of Downgrade Impact Amount for Other Liabilities

In case of other liabilities, including annuities, that have an associated downgrade, the downgrade impact amount is calculated as follows:

1. If a downgrade trigger does not exist for the liability account, the downgrade impact amount is 0. Else,

2. The downgrade impact amount for liabilities other than derivatives and securitizations is calculated as follows:

$$\boldsymbol{Downgrade\ Impact\ Amount} = \boldsymbol{Max}[\mathbf{0}, (\boldsymbol{EOP\ Balance} - \boldsymbol{Collateral\ Posted})]$$

NOTE: Any liability account that is triggered due to a particular level of ratings downgrade has an outflow corresponding to a pre-specified percentage of the downgrade impact amount. For instance, if a 3-notch downgrade is specified, then the downgrade impact amount will outflow only for those accounts that have a trigger of 1-notch, 2-notches and 3-notches. If a 2-notch downgrade is specified, then the downgrade impact amount will outflow only for those accounts that have a trigger of 1-notch and 2-notches.The ratings downgrade and the outflow percentage as specified by the regulator are part of the pre-configured business assumptions for LCR calculations.

2.2.12 Calculation of Net Derivative Cash Inflows and Outflows

2.2.12.1 Cash Flow Netting at Derivative Contract Level

Cash flows from each derivative contract are netted as follows:

1. If the cash inflows and outflows are denominated in the same currency and occur in the same time bucket:
    a. The cash inflows and outflows are summed up and the net value is computed as follows:

    $$\boldsymbol{Net\ Cash\ Flow} = \boldsymbol{Cash\ Outflow} - \boldsymbol{Cash\ Inflow}$$

    b. If the net cash flow is positive and there is no netting agreement associated with the derivative contract, the value is treated as net derivative cash outflow.
    c. If the net cash flow is negative and there is no netting agreement associated with the derivative contract, the value is treated as net derivative cash inflow.
2. If the cash inflows and outflows are denominated in different currencies but settle within the same day:
    a. The cash inflows and outflows are summed up after being converted to the reporting currency and the net value is computed.
    b. If the net cash flow is positive and there is no netting agreement associated with the derivative contract, the value is treated as net derivative cash outflow.
    c. If the net cash flow is negative and there is no netting agreement associated with the derivative contract, the value is treated as net derivative cash inflow.
3. If the cash inflows and outflows are denominated in different currencies and do not settle within the same day:
    a. The cash outflows from each derivative contract without an associated netting agreement are summed up and treated as net derivative cash outflow.

b. The cash inflows from each derivative contract without an associated netting agreement are summed up and treated as net derivative cash inflow.

NOTE: If a derivative contract has a netting agreement associated with it, the cash flow is further netted across contracts at the netting agreement level.

2.2.12.2 Cash Flow Netting at Netting Agreement Level

For derivative contracts which have a netting agreement associated with them, the net cash flows computed at the derivative contract level are further netted across multiple contracts under the same netting agreement as follows:

1. In case of derivative contracts, that belong to a single netting agreement, whose payment netting agreement flag is Yes:
    a. The cash inflows and outflows occurring in each time bucket, denominated in each currency, are summed up across all contracts whose payment netting agreement flag is Yes and the net value is computed.
    b. If the net cash flow is positive, the value is treated as net derivative cash outflow.
    c. If the net cash flow is negative, the value is treated as net derivative cash inflow.
2. In case of derivative contracts, that belong to a single netting agreement, whose payment netting agreement flag is No:
    a. The cash outflows occurring in each time bucket, denominated in each currency, are summed up separately for each derivative contract whose payment netting agreement flag is No and treated as net derivative cash outflow.
    b. The cash inflows occurring in each time bucket, denominated in each currency, are summed up separately for each derivative contract whose payment netting agreement flag is No and treated as net derivative cash inflow.

NOTE: Cash flow netting for netting agreements is done separately for each currency. Cash flows are not netted across currencies, instead, the inflows and outflows converted into the reporting currency are summed up separately to report the net derivatives cash inflow and net derivatives cash outflow at an entity level.

2.2.13 Calculation of Twenty Four Month Look-back Amount

The application computes the 24 month look-back amount, for the purpose of defining outflows due to increased liquidity needs related to market valuation changes on derivatives as per the procedure given below:

- The Mark-to-Market (MTM) value of collateral outflows and inflows due to valuation changes on derivative transactions are captured at a legal entity level. The values over a 24-month historical time window from the "as of date" are identified.
- The application computes the largest 30-day absolute net collateral flow occurring within each rolling 30-day historical time window as follows:

i. The net Mark-to-Market collateral change is computed for each day within a particular 30-day historical time window as follows:

$$\boldsymbol{Net\ MTM\ Collateral\ Change = MTM\ Colateral\ Outflows - MTM\ Collateral\ Inflows}$$

ii. The cumulative net Mark-to-Market collateral change is computed for each day within a particular 30-day historical time window as follows:

$$\boldsymbol{Cumulative\ Net\ MTM\ Collateral\ Change} = \sum_{1}^{i} \boldsymbol{Net\ MTM\ Collateral\ Change}$$

Where,

i : Each day within a particular 30-day historical time window

n : Each 30-day historical time window

iii. The absolute net Mark-to-Market collateral change is computed for each day within the rolling 30-day historical time window as follows:

$$\boldsymbol{Absolute\ Net\ MTM\ Collateral\ Change = Abs(Cumulative\ Net\ MTM\ Collateral\ Change)}$$

iv. The largest 30-day absolute net collateral flow occurring within the rolling 30-day historical time window is identified as follows:

$$\boldsymbol{Largest\ 30-day\ Absolute\ Net\ Collateral\ Flow = Max(Absolute\ Net\ MTM\ Collateral\ Change_i)}$$

Note: Steps (i) to (iv) are repeated for each rolling 30-day historical time window.

- The 24-month look-back amount is calculated as follows:

$$\mathbf{24} - \boldsymbol{Month\ Lookback\ Amount} = \boldsymbol{Max}(\boldsymbol{Largest}\ \mathbf{30} - \boldsymbol{day\ Absolute\ Net\ Collateral\ Flow}_{\boldsymbol{n}})$$

Note:

1. This calculation is done for each legal entity separately.
2. The largest 30-day absolute net collateral flow is computed in 30 day blocks on a rolling basis that is first 30-day block is As of Date to As of Date - 29; second 30-day block is As of Date - 1 to As of Date - 30 and so on.
3. The 24 month look-back amount is computed as the maximum of the largest absolute net collateral flow during all rolling 30-day periods in each 24 month period.

   The 24-month look-back calculations are illustrated below considering a 34-day historical time window instead of 24-months. This results in 5 rolling 30-day windows.

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
As of Date to As of Date - 29	As of Date	65	14	51	51	51
	As of Date - 1	65	9	56	107	107
	As of Date - 2	74	83	-9	98	98
	As of Date - 3	71	97	-26	72	72
	As of Date - 4	84	89	-5	67	67
	As of Date - 5	8	57	-49	18	18
	As of Date - 6	40	59	-19	-1	1
	As of Date - 7	42	87	-45	-46	46
	As of Date - 8	100	6	94	48	48

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 9	41	30	11	59	59
	As of Date - 10	45	9	36	95	95
	As of Date - 11	9	32	-23	72	72
	As of Date - 12	59	67	-8	64	64
	As of Date - 13	61	10	51	115	115
	As of Date - 14	22	36	-14	101	101
	As of Date - 15	63	81	-18	83	83
	As of Date - 16	36	3	33	116	116
	As of Date - 17	61	22	39	155	155
	As of Date - 18	94	37	57	212	212
	As of Date - 19	3	18	-15	197	197
	As of Date - 20	13	27	-14	183	183
	As of Date - 21	24	56	-32	151	151
	As of Date - 22	57	75	-18	133	133
	As of Date - 23	66	87	-21	112	112

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 24	33	71	-38	74	74
	As of Date - 25	29	30	-1	73	73
	As of Date - 26	64	25	39	112	112
	As of Date - 27	54	39	15	127	127
	As of Date - 28	51	6	45	172	172
	As of Date - 29	35	31	4	176	176
As of Date - 1 to As of Date - 30	As of Date - 1	65	9	56	56	56
	As of Date - 2	74	83	-9	47	47
	As of Date - 3	71	97	-26	21	21
	As of Date - 4	84	89	-5	16	16
	As of Date - 5	8	57	-49	-33	33
	As of Date - 6	40	59	-19	-52	52
	As of Date - 7	42	87	-45	-97	97
	As of Date - 8	100	6	94	-3	3
	As of Date - 9	41	30	11	8	8

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 10	45	9	36	44	44
	As of Date - 11	9	32	-23	21	21
	As of Date - 12	59	67	-8	13	13
	As of Date - 13	61	10	51	64	64
	As of Date - 14	22	36	-14	50	50
	As of Date - 15	63	81	-18	32	32
	As of Date - 16	36	3	33	65	65
	As of Date - 17	61	22	39	104	104
	As of Date - 18	94	37	57	161	161
	As of Date - 19	3	18	-15	146	146
	As of Date - 20	13	27	-14	132	132
	As of Date - 21	24	56	-32	100	100
	As of Date - 22	57	75	-18	82	82
	As of Date - 23	66	87	-21	61	61
	As of Date - 24	33	71	-38	23	23

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 25	29	30	-1	22	22
	As of Date - 26	64	25	39	61	61
	As of Date - 27	54	39	15	76	76
	As of Date - 28	51	6	45	121	121
	As of Date - 29	35	31	4	125	125
	As of Date - 30	93	68	25	150	150
As of Date - 2 to As of Date - 31	As of Date - 2	74	83	-9	-9	9
	As of Date - 3	71	97	-26	-35	35
	As of Date - 4	84	89	-5	-40	40
	As of Date - 5	8	57	-49	-89	89
	As of Date - 6	40	59	-19	-108	108
	As of Date - 7	42	87	-45	-153	153
	As of Date - 8	100	6	94	-59	59
	As of Date - 9	41	30	11	-48	48
	As of Date - 10	45	9	36	-12	12

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 11	9	32	-23	-35	35
	As of Date - 12	59	67	-8	-43	43
	As of Date - 13	61	10	51	8	8
	As of Date - 14	22	36	-14	-6	6
	As of Date - 15	63	81	-18	-24	24
	As of Date - 16	36	3	33	9	9
	As of Date - 17	61	22	39	48	48
	As of Date - 18	94	37	57	105	105
	As of Date - 19	3	18	-15	90	90
	As of Date - 20	13	27	-14	76	76
	As of Date - 21	24	56	-32	44	44
	As of Date - 22	57	75	-18	26	26
	As of Date - 23	66	87	-21	5	5
	As of Date - 24	33	71	-38	-33	33
	As of Date - 25	29	30	-1	-34	34

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 26	64	25	39	5	5
	As of Date - 27	54	39	15	20	20
	As of Date - 28	51	6	45	65	65
	As of Date - 29	35	31	4	69	69
	As of Date - 30	93	68	25	94	94
	As of Date - 31	51	97	-46	48	48
As of Date - 3 to As of Date - 32	As of Date - 3	71	97	-26	-26	26
	As of Date - 4	84	89	-5	-31	31
	As of Date - 5	8	57	-49	-80	80
	As of Date - 6	40	59	-19	-99	99
	As of Date - 7	42	87	-45	-144	144
	As of Date - 8	100	6	94	-50	50
	As of Date - 9	41	30	11	-39	39
	As of Date - 10	45	9	36	-3	3
	As of Date - 11	9	32	-23	-26	26

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 12	59	67	-8	-34	34
	As of Date - 13	61	10	51	17	17
	As of Date - 14	22	36	-14	3	3
	As of Date - 15	63	81	-18	-15	15
	As of Date - 16	36	3	33	18	18
	As of Date - 17	61	22	39	57	57
	As of Date - 18	94	37	57	114	114
	As of Date - 19	3	18	-15	99	99
	As of Date - 20	13	27	-14	85	85
	As of Date - 21	24	56	-32	53	53
	As of Date - 22	57	75	-18	35	35
	As of Date - 23	66	87	-21	14	14
	As of Date - 24	33	71	-38	-24	24
	As of Date - 25	29	30	-1	-25	25
	As of Date - 26	64	25	39	14	14

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 27	54	39	15	29	29
	As of Date - 28	51	6	45	74	74
	As of Date - 29	35	31	4	78	78
	As of Date - 30	93	68	25	103	103
	As of Date - 31	51	97	-46	57	57
	As of Date - 32	12	31	-19	38	38
As of Date - 4 to As of Date - 33	As of Date - 4	84	89	-5	-5	5
	As of Date - 5	8	57	-49	-54	54
	As of Date - 6	40	59	-19	-73	73
	As of Date - 7	42	87	-45	-118	118
	As of Date - 8	100	6	94	-24	24
	As of Date - 9	41	30	11	-13	13
	As of Date - 10	45	9	36	23	23
	As of Date - 11	9	32	-23	0	0
	As of Date - 12	59	67	-8	-8	8

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 13	61	10	51	43	43
	As of Date - 14	22	36	-14	29	29
	As of Date - 15	63	81	-18	11	11
	As of Date - 16	36	3	33	44	44
	As of Date - 17	61	22	39	83	83
	As of Date - 18	94	37	57	140	140
	As of Date - 19	3	18	-15	125	125
	As of Date - 20	13	27	-14	111	111
	As of Date - 21	24	56	-32	79	79
	As of Date - 22	57	75	-18	61	61
	As of Date - 23	66	87	-21	40	40
	As of Date - 24	33	71	-38	2	2
	As of Date - 25	29	30	-1	1	1
	As of Date - 26	64	25	39	40	40
	As of Date - 27	54	39	15	55	55

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 28	51	6	45	100	100
	As of Date - 29	35	31	4	104	104
	As of Date - 30	93	68	25	129	129
	As of Date - 31	51	97	-46	83	83
	As of Date - 32	12	31	-19	64	64
	As of Date - 33	34	36	-2	62	62

The largest 30-day absolute net collateral flow for each rolling 30-day period and the 24 month look-back value (in this example, the 34 day look-back value) are computed as follows:

Rolling 30-Day Period	Largest 30-Day Absolute Net Collateral Flow [f = Max (e)]	24 Month Look-back Value [Max (f)]
As of Date to As of Date - 29	212	212
As of Date - 1 to As of Date - 30	161	
As of Date - 2 to As of Date - 31	153	
As of Date - 3 to As of Date - 32	144	

Rolling 30-Day Period	Largest 30-Day Absolute Net Collateral Flow [f = Max (e)]	24 Month Look-back Value [Max (f)]
As of Date - 4 to As of Date - 33	140	

2.2.14 Calculation of Operational Amount

The regulator prescribed lower outflow rate for operational deposits is to be applied only to that portion of the EOP balance that is truly held to meet operational needs. LRM supports a new methodology to compute the operational portion of the EOP balance of operational deposits. The steps involved in computing the operational balance are as follows:

1. All deposits classified as operational as per regulatory guidelines are identified. This is a separate process in LRM.
2. The EOP balances of eligible operational accounts are obtained over a 90-day historical window including the As of Date i.e. As of Date – 89 days. To identify historical observations, the f_reporting_flag has to be updated as 'Y' for one execution of the Run per day in the LRM Run Management Execution Summary UI. The application looks up the balance for such accounts against the Run execution for which the Reporting Flag is updated as "Y" for each day in the past.

   Note:

   The historical time window is captured as a parameter in the SETUP_MASTER table. The default value is 90 days which can be modified by the user. To modify this value, you can update the value under the component code DAYS_HIST_OPER_BAL_CALC_UPD
3. A rolling 5 day average is calculated for each account over the historical window.
4. The average of the 5-day rolling averages computed in step 3 is calculated.
5. The operational balance is calculated as follows:

   Note:

   The calculation of the operational balance can be either a direct download from the staging tables, or through the historical balance approach.

$$\boldsymbol{Operational\ Balance = Min\ (Current\ EOP\ Balance, Average\ Computed\ in\ Step\ 4)}$$

Note:

i. The operational balance calculation based on historical lookback is optional. You can choose to compute the operational balances using this method or provide the value as a download. To provide the value as download, update the value in the SETUP_MASTER table under the component code HIST_OPERATIONAL_BAL_CALC_UPD as N. If the value is 'Y' then the value would be calculated through historical balance approach.

6. The non-operational balance is calculated as follows:

$$\boldsymbol{Non-operational\ Balance = Current\ EOP\ Balance - Operational\ Balance}$$

7. The operational insured balance is calculated as follows:

$$\boldsymbol{Operational\ Insured\ Balance = Min\ (Operational\ Balance, Insured\ Balance)}$$

The insured and uninsured balances are calculated as part of a separate process i.e. the insurance allocation process which is explained in detail in the relevant section under each jurisdiction.

8. The operational uninsured balance is calculated as follows:

$$\boldsymbol{Operational\ Uninsured\ Balance = Operational\ Balance - Insured\ Operational\ Balance}$$

9. The non-operational insured balance is calculated as follows:

$$\boldsymbol{Non-operational\ Insured\ Balance = Min\ [Non-operational\ Balance, (Insured\ Balance - Insured\ Operational\ Balance)]}$$

10. The non-operational uninsured balance is calculated as follows:

$$\boldsymbol{Non-operational\ Uninsured\ Balance = Non-operational\ Balance - Insured\ Non-operational\ Balance}$$

The operational deposit computation process is illustrated below assuming a 15-day historical window instead of 90-days and for the "as of date" 28th February 2017. The historical balances for 15-days including the "as of date" are provided below.

Clients With Operational Accounts	Eligible Operational Accounts	Historical Time Window														As of Date
		2/14/2017	2/15/2017	2/16/2017	2/17/2017	2/18/2017	2/19/2017	2/20/2017	2/21/2017	2/22/2017	2/23/2017	2/24/2017	2/25/2017	2/26/2017	2/27/2017	2/28/2017
A	10001	102,000	102,125	102,250	102,375	102,500	102,625	102,750	102,875	103,000	103,125	103,250	103,375	103,500	103,625	103,750
	10296	23,500	23,550	23,600	23,650	23,700	23,750	23,800	23,850	23,900	23,950	24,000	24,050	24,100	24,150	24,200
B	31652	65,877	59,259	59,234	59,209	59,184	59,159	59,134	59,109	59,084	59,059	59,034	59,009	58,984	58,959	58,934

The rolling averages and cumulative average are computed as follows:

Clients with Operational Accounts	Eligible Operational Accounts	5-day Rolling Average											Cumulative Average (a)
		2/18/2017	2/19/2017	2/20/2017	2/21/2017	2/22/2017	2/23/2017	2/24/2017	2/25/2017	2/26/2017	2/27/2017	2/28/2017	
A	10001	102,250	102,375	102,500	102,625	102,750	102,875	103,000	103,125	103,250	103,375	103,500	95136
	10296	23,600	23,650	23,700	23,750	23,800	23,850	23,900	23,950	24,000	24,050	24,100	22721
B	31652	60,553	59,209	59,184	59,159	59,134	59,109	59,084	59,059	59,034	59,009	58,984	56931

The operational and non-operational balances are computed as follows:

Clients with Operational Accounts	Eligible Operational Accounts	Current Balance (b)	Operational Balance (c = a – b)	Non-Operational Balance	Insured Balance	Uninsured Balance	Insured Operational Balance	Uninsured Operational Balance	Insured Non-Operational Balance	Uninsured Non-Operational Balance
A	10001	103,750	95,136	8,615	100,000	3,750	95,136		4,865	3,750
	10296	24,200	22,721	1,480		24,200		22,721		1,480
B	31652	58,934	56,931	2,003	58,934		56,931		2,003	

Note:

1. Negative historical balances are replaced by zero for the purposes of this computation.
2. For operational accounts that have an account start date >= historical days including the “as of date”, missing balances are replaced by previous available balance.
3. For operational accounts that have an account start date < historical days including the “as of date”:
    i. Missing balances between account start date and “as of date” are replaced by previous available balance.
    ii. Rolling average is calculated only for the period from account start date to the “as of date”.
4. The methodology to compute operational balance is optional. This can be turned On or Off using the Set up master table, where component code = HIST_OPERATIONAL_BAL_CALC_UPD. The option to provide the operational balance as a download is supported by the application.

2.2.15 Calculation of HQLA Transferability Restriction

Regulators across jurisdictions recognize the existence of liquidity transfer restrictions, for banks that operate in multiple jurisdictions. Such transfer restrictions have implications to the group-wide consolidated LCR calculations and hence require to be treated appropriately. OFS LRRCRBI, in the LCR consolidation process, includes the restricted HQLA from a subsidiary in the consolidated stock of HQLA only to the extent of that subsidiary's liquidity needs i.e. its net cash outflow, in accordance with the regulatory requirements. The treatment of transferability restriction during consolidation is as follows:

1. The net cash outflows are computed for a subsidiary, on a consolidated basis. The consolidation entity is the subsidiary itself in this case. If the subsidiary is a leaf level entity, then the net cash outflow is calculated on a standalone basis.
2. The restricted and unrestricted stock of level 1, level 2A and level 2B is computed for the subsidiary on a consolidated basis. The application captures the HQLA transferability restriction at an account level through the flag F_TRANSFERABILITY_RESTRICTION.
3. The application checks whether the stock of restricted level 1 assets > net cash outflows. If yes, it includes the stock of restricted level 1 assets in the calculation of its immediate parent entity's stock of HQLA up to the extent of its own net cash outflows computed as part of step 1. If no, the entire stock of restricted level 1 assets is included in the consolidated calculations.
4. The application checks whether the stock of restricted level 1 + level 2A assets > net cash outflows. If yes, it includes the stock of restricted level 2A assets in the calculation of its immediate parent entity's stock of HQLA up to the extent of its own net cash outflows computed as part of step 1 less stock of restricted level 1 assets. If no, the entire stock of restricted level 2A assets is included in the consolidated calculations.
5. The application checks whether the stock of restricted level 1 + level 2A + level 2B assets > net cash outflows. If yes, it includes the stock of restricted level 2B assets in the calculation of its immediate parent entity's stock of HQLA up to the extent of its own net cash outflows computed as part of step 1 less stock of restricted level 1 + level 2A assets. If no, the entire stock of restricted level 2B assets is included in the consolidated calculations.
6. The unrestricted level 1, 2A and 2B assets are included fully in the calculation of its immediate parent entity's stock of HQLA.
7. Steps 1 to 6 are repeated for each sub-consolidation level within the organization structure of the consolidation entity till the consolidation entity itself.

Note:

1. The allocation of restricted assets is done in the descending order of asset quality in order to maximize the stock of HQLA.

2. This calculation is part of the LCR consolidation process. To get a complete view of the process, refer to the section of the user guide that describes the consolidation process for each jurisdiction.

2.2.16 Calculation of Net Cash Outflows

The net cash outflows are computed after applying the scenario specified by the user, as a set of business assumptions, to the contractual cash flows. The process of computing the net cash outflows is provided below:

1. **Calculation of Total Cash Inflows**

   The application applies the business assumptions, specified on products involving cash inflows, selected as part of the Run. The regulatory assumptions specified in section Regulations Addressed through Business Assumptions are pre-defined and packaged as part of the out-of-the-box Run to determine the inflows over the liquidity horizon. The business assumption adjusted cash inflows occurring over the liquidity horizon are summed up to obtain the total cash inflow. These include inflows from earning assets such as loans, assets that are not eligible for inclusion in the stock of HQLA, derivatives inflows and so on.

2. **Calculation of Total Cash Outflows**

   The application applies the business assumptions, specified on products involving cash outflows, selected as part of the Run. The regulatory assumptions specified in section Regulations Addressed through Business Assumptions are pre-defined and packaged as part of the out-of-the-box Run to determine the outflows over the liquidity horizon. The business assumption adjusted cash outflows occurring over the liquidity horizon are summed up to obtain the total cash outflow. These include outflows from liabilities, derivatives outflows, outflows due to changes in financial conditions such as ratings downgrade and valuation changes and so on.

3. **Calculation of Net Cash Outflow**

   Net cash outflow is computed as follows:

$$\boldsymbol{Net\ Cash\ Outflows}_{\boldsymbol{LCR\ Horizon}} = \boldsymbol{Total\ Cash\ Outflows}_{\boldsymbol{LCR\ Horizon}} - \boldsymbol{Minimum}\{\boldsymbol{Total\ Cash\ Inflows}_{\boldsymbol{LCR\ Horizon}}, (75\% \times \boldsymbol{Total\ Cash\ Outflows}_{\boldsymbol{LCR\ Horizon}})$$

NOTE: The inflow and outflow rates as prescribed by RBI for the purpose of computing LCR are pre-defined within the application and ready to be used. Users are also allowed to define bank specific inflow and outflow rates and apply them to the contractual cash flows in order to view the stock of HQLA, net cash outflows and LCR across multiple scenarios.

2.2.17 Consolidation

The approach to consolidation as per LCR approach followed by OFS Liquidity Risk Management is detailed below:

a. **Identification and Treatment of Unconsolidated Subsidiary**

The application assess whether a subsidiary is to be consolidated or not by checking the regulatory consolidated flag F_REGULATORY_ENTITY_IND against each legal entity. OFS LRM considers the cash inflows and outflows of a subsidiary as part of the consolidated LCR calculation, only if the subsidiary is identified as a consolidated subsidiary for the purposes of regulatory calculations. If the entity is an unconsolidated subsidiary, the cash inflows and outflows from the operations of such subsidiaries are ignored (unless otherwise specifically included in the denominator of LCR per regulations) and only the equity investment in such subsidiaries is considered as the bank's asset and appropriately taken into the numerator or denominator based on the asset level classification.

For instance, legal entity 1 has 3 subsidiaries, legal entity 2, legal entity 3 and legal entity 4. The flag F_REGULATORY_ENTITY_IND for legal entity 4 is 'No'. In such a case, legal entity 4 is treated as a third party for the purpose of consolidation and its assets and cash flows are completely excluded from calculations. Legal entity 1's interest in legal entity 4 including common equity of legal entity 4 and assets and liabilities where legal entity 4 is the counterparty will not be eliminated as legal entity 4 is considered a third party during consolidation.

b. **HQLA Consolidation by Subsidiary Type**

The process of consolidating HQLA differs slightly based on whether the subsidiary is a material entity that is expected to report LCR separately from the parent or not. This is done to ensure consistency in the results when consolidating at a parent level and when calculating the LCR at the material subsidiary level as well. The methods followed for consolidating HQLA are:

i. In case of a material subsidiaries subject to individual LCR requirements, consolidation is done as follows:

- The application identifies whether the subsidiary is a consolidated subsidiary.
- If condition (a) is fulfilled, it identifies whether the consolidated subsidiary is subject to LCR requirement that is, whether the subsidiary in question is a regulated entity.
- If condition (b) is fulfilled, then it calculates the net cash outflow by eliminating inter-company transactions at the level of the consolidated subsidiary.
- The application consolidates post-haircut restricted HQLA to the extent of the consolidated subsidiary's net cash outflow that is, to the extent required to satisfy minimum LCR requirements of that subsidiary as part of the covered company's HQLA. Restricted HQLA are the assets that have a restriction on their transferability to the parent entity. They are allowed

to be included in the stock of HQLA to the extent required to meet that entity's net cash outflows, but the surplus HQLA is not allowed to be used to meet the parent's LCR requirements.

- It consolidates the entire amount of post-haircut unrestricted HQLA held at the consolidated subsidiary as part of the covered company's HQLA.
- It consolidates all cash inflows and outflows which are part of the net cash flow calculation.

ii. In case of subsidiaries not subject to individual LCR requirements, consolidation is done as follows:

- The application identifies whether the subsidiary is a consolidated subsidiary.
- If condition (a) is fulfilled, it identifies whether the consolidated subsidiary is subject to minimum LCR requirement that is, whether the subsidiary in question is a regulated entity.
- If condition (b) is not fulfilled, it eliminates all inter-company transactions till the level of the immediate parent of the consolidated subsidiary and then calculates the net cash outflow.
- The application consolidates post-haircut restricted HQLA to the extent of the consolidated subsidiary's net cash outflow and the entire amount of post-haircut unrestricted HQLA as part of the covered company's HQLA.
- It consolidates all cash inflows and outflows which are part of the net cash flow calculation.

c. **Consolidated LCR Calculation**

Consolidation is done on a step by step basis based on each level of the organization structure starting from the most granular level. This indicates that intercompany transactions are eliminated at each sub-consolidation level till the final level of the consolidation (generally BHC) is reached. The consolidated HQLA calculated at the level of the immediate subsidiary of the BHC is added to the HQLA held by the BHC. All intercompany cash flows are eliminated and the LCR is calculated in accordance with the LCR approach.

For instance a bank's organization structure is as follows:

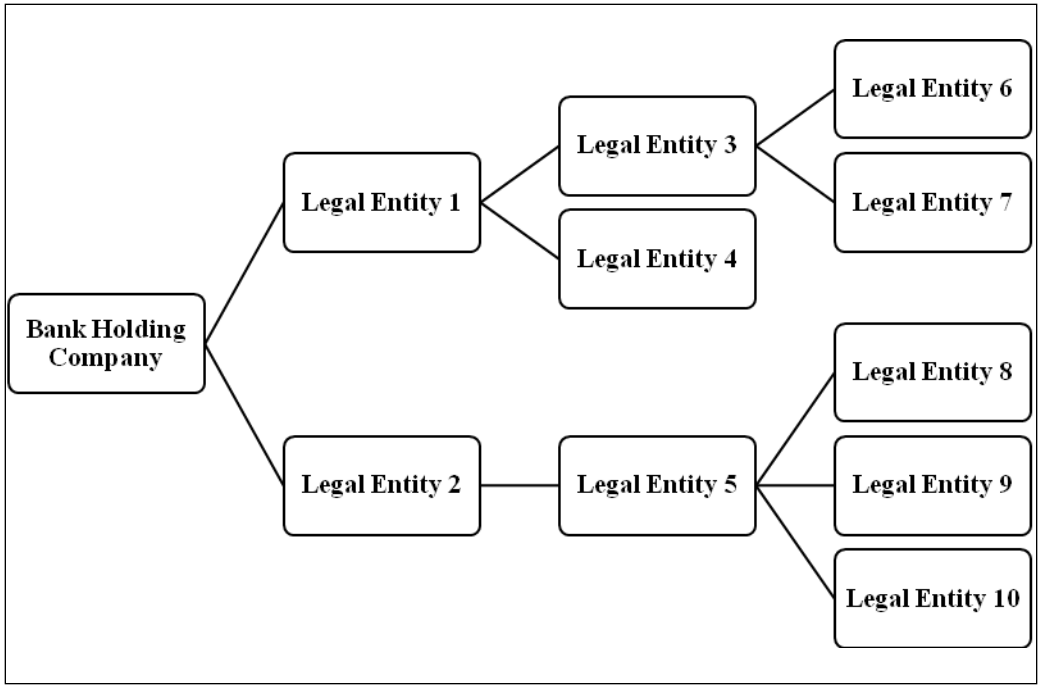


Figure 1 Organization Structure

In this case, at the first level of consolidation, calculation of net cash outflows and HQLA is done on a solo basis for legal entities 6, 7, 8, 9 and 10 as they do not have any subsidiaries. In case of regulated entities i.e. material entities, intercompany transactions are not eliminated; whereas in case of non-regulated entities, intercompany transactions are eliminated to the next level of consolidation that is, legal entities 3 and 5. The restricted HQLA from entities 6 and 7 are consolidated to the extent of their net cash outflows, while the unrestricted HQLA is transferred fully to legal entity 3. The cash inflows and outflows are consolidated to the full extent.

At the second level of consolidation that is, legal entity 3, intercompany transactions are eliminated till legal entity 1, if LE 3 is a non-regulated entity. The HQLA is calculated as a sum of the consolidated restricted and unrestricted HQLA of entities 6 and 7 and the HQLA of legal entity 3. The net cash outflow is calculated based on the cash flows of entities 3, 6 and 7, post elimination of intercompany transactions if applicable. The consolidated HQLA is calculated based on the procedure detailed in point 2 above.

This process continues in a step-by-step manner till the highest parent level i.e. the bank holding company in this example.

2.2.18 Calculation of Liquidity under Alternative Liquidity Approach

In order to meet any shortfalls in the LCR, RBI allows banks to avail a special liquidity facility termed as "Facility to Avail Liquidity for Liquidity Coverage Ratio" or FALLCR. This is allowed to be utilized only if a bank has exhausted all eligible HQLA held for meeting liquidity needs and as a last resort. The liquidity facility is provided by RBI to banks under certain conditions including:

1. Facility can be availed for a maximum of 90 days.
2. Liquidity against securities is available after applying the haircuts specified for availing MSF.
3. Rate of interest will be 200 basis points above the prevailing LAF rate or as specified by RBI.
4. The facility will be effective from 1, January 2015.

The application identifies FALLCR through the standard product type, line of credit received, the credit line purpose, Contractual Committed Facility Extended by Central Bank as Alternative Liquidity, and where the counterparty is a central bank. This is a standard facility extended by multiple regulators across jurisdictions and hence is captured in a manner that is consistent across jurisdictions. Only those credit lines received from the central bank with the specific credit line purpose are assumed to meet the conditions to avail FALLCR and therefore are included in the stock of HQLA in case of shortfalls. Such credit lines are excluded from the net cash outflow calculations.

The application utilizes the alternative liquidity approach to bridge the shortfall as follows:

i. The LCR is computed in each currency and the shortfall in HQLA is identified as follows:

$$\boldsymbol{HQLA\ Shortfall_{Currency} = Minimum\left[0, \left(Net\ Cash\ Outflow_{Currency} - Stock\ of\ HQLA_{Currency}\right)\right]}$$

ii. The application checks whether a line of credit received from a central bank with the credit line purpose "Contractual Committed Facility Extended by Central Bank as Alternative Liquidity" exists in the particular shortfall currency.

iii. If such a line of credit exists, then the application computes the liquidity availed under the alternative liquidity approach as follows:

$$\boldsymbol{ALA_{Currency} = Minimum\left(ALA\ Committed\ Amount_{Currency}, HQLA\ Shortfall_{Currency}\right)}$$

Where,

ALA Committed Amount : Amount available to be drawn down under the Facility to Avail Liquidity for Liquidity Coverage Ratio

= Drawn + Undrawn Amount of the line of credit received with the credit line purpose "Contractual Committed Facility Extended by Central Bank as Alternative Liquidity"

iv. The value included in the stock of HQLA on a consolidated currency basis on availing FALLCR is computed as follows:

$$\boldsymbol{Total\ ALA\ Amount} = \sum_{1}^{n} \boldsymbol{ALA_{Currency}}$$

Where,

n : Number of currencies in which an HQLA shortfall is observed which are allowed to be bridged using the ALA.

2.2.19 Calculation of Liquidity Coverage Ratio

The liquidity coverage ratio is calculated for a legal entity on both solo and consolidated basis. The formula for calculating liquidity coverage ratio is as follows:

$$\boldsymbol{Liquidity\ Coverage\ Ratio} = \frac{\boldsymbol{Stock\ of\ High\ Quality\ Liquid\ Asset\ (including\ Aternative\ Liquidity\ Approach\ Amount)}}{\boldsymbol{Net\ Cash\ Outflow}}$$

2.2.20 Significant Currency Liquidity Coverage Ratio Calculation

Liquidity coverage ratio is also calculated for each legal entity at the level of each significant currency in order to identify potential currency mismatches. This is done by first identifying significant currencies for a legal entity, at a solo or consolidated level as specified in the Run, as follows:

$$\boldsymbol{Significant\ Currency} = \left[\frac{\boldsymbol{Total\ Liabilities_{Legal\ Entity,Currency}}}{\boldsymbol{Total\ Liabilities_{Legal\ Entity}}} \times \mathbf{100}\right] > 5\%$$

The application further computes and reports the stock of HQLA, net cash outflows and LCR for each currency identified as significant in the manner detailed in the earlier sections. This calculation is done on both solo and consolidated basis.

2.2.21 Liquidity Risk Monitoring Tools

The Basel III framework also prescribes five monitoring tools / metrics for better monitoring a bank's liquidity position. These metrics along with their objective and the prescribed returns are detailed below:

a. Contractual Maturity Mismatch

The contractual maturity mismatch profile identifies the gaps between the contractual inflows and outflows of liquidity for defined time bands. These maturity gaps indicate how much liquidity a bank potentially need to raise in each of these time bands if all outflows occurred at the earliest possible date. This metric provides insight into the extent to which the bank relies on maturity transformation under its current contracts.

b. Concentration of Funding

This metric is meant to identify those sources of funding that are of such significance, the withdrawal of which triggers liquidity problems. The metric thus encourages the diversification of funding sources recommended in the Basel Committee's Sound Principles. This metrics aims to address the funding concentration of banks by monitoring their funding from each significant counterparty, each significant product / instrument and each significant currency.

c. Available Unencumbered Assets

This metric provides supervisors with data on the quantity and key characteristics of banks' available unencumbered assets. These assets have the potential to be used as collateral to raise additional secured funding in secondary markets and / or are eligible at central banks.

d. Market-related Monitoring Tools

This includes high frequency market data that can serve as early warning indicators in monitoring potential liquidity difficulties at banks.

1. Liquidity Coverage Ratio by Significant Currency

This metric provides supervisors with data related to the liquidity indicators of the significant currency at the banks. A currency is considered as significant if the aggregate liabilities denominated in that currency amount to 5% or more of the bank’s total liabilities. This statement includes only those assets and liabilities which includes the contingent liabilities too which are denominated in the specific significant foreign currency.

2.3 Pre-configured Regulatory LCR Scenario as per RBI

OFS LRRCRBI supports an out-of-the-box RBI LCR which has the regulatory scenario with associated HQLA haircuts, inflow and outflow percentage/ rates pre-configured in the form of business assumptions. This section explains the business assumptions along with the corresponding regulatory reference.

NOTE:

This section provides only the contextual information about all the business assumptions. For more detailed information refer OFS LRM application (UI).

For detailed Processes and Tasks, refer the Run Chart.

The below table lists the Document Identifiers provided in the column Regulatory Reference of Regulations Addressed through Business Assumptions and Regulations Addressed through Business Rules.

Regulation Reference Number	Document Number	Document Name	Issued Date
MR1	DBOD.BP.BC.No.120 / 21.04.098/2013-14	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	9-Jun-14
MC	DBOD.BP.BC.No.120 / 21.04.098/2013-14	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	9-Jun-14
AR1	DBR.BP.BC.No.52/21.04.098/2014-15	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	28-Nov-14
AR2	DBR.No.BP.BC.80 /21.06.201/2014-15	Prudential Guidelines on Capital Adequacy and Liquidity Standards - Amendments	31-Mar-15
AR3	DBR. BP. BC. No. 77/21.04.098/2015-16	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	11-Feb-16

Regulation Reference Number	Document Number	Document Name	Issued Date
AR4	DBR.BP.BC.No.86/21.04.098/2015-16	Liquidity Risk Management & Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	23-Mar-16
AR5	DBR.BP.BC.No.2/21.04.098/2016-17	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standards	21-Jul-16
BLR1	Basel III Liquidity Returns	BLR 1: LCR	
AR6	DBR.No.Ret.BC.15/12.02.001/2016-17	Section 24 and Section 56 of the Banking Regulation Act, 1949 - Maintenance of Statutory Liquidity Ratio (SLR)	13-Oct-16
AR7	DBR.BP.BC.No. 81/21.04.098/2017-18	Basel III Framework on Liquidity Standards – Liquidity Coverage Ratio (LCR), Liquidity Risk Monitoring Tools and LCR Disclosure Standard	2-Aug-17
DICGC FAQ		A Guide to Deposit Insurance - Frequently Asked Questions	

The list of pre-configured business Rules and assumptions as well as the corresponding reference to the regulatory requirement that it addresses is provided in the tables listed in sections Regulations Addressed through Business Assumptions and Regulations Addressed through Business Rules.

The column Regulatory Reference for each rule or assumptions has reference to the name of the Document Identifiers such as MR1, MC, AR1, AR2 and so on, and should be read in conjunction with the Document Identifier listed in the above table.

2.3.1 Regulation Addressed through Business Rules

The application supports multiple pre-configured rules and scenarios based on RBI specified scenario parameters such as inflow rates, outflow rates, run-offs and haircuts and so on.

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
1	LRM - RBI - Excess and Contractually Due Collateral and Downgrade Trigger Amount Computation	This rule computes and updates the values of contractually due collateral, excess collateral due, contractually receivable collateral, excess collateral receivable, and downgrade impact amount for derivatives with netting agreements in the FSI_NETTING_AGREEMENT table.	The computation of collateral value that is contractually required to be posted to the counterparty, the excess collateral that can be recalled by the counterparty and the loss due to a ratings downgrade in case of derivative contracts with associated netting agreements is configured as part of this rule.	MC Appendix 1 Explanatory Note (ix) AR2 Part D Sr. No. 12 Explanatory Notes (ix), (xiii) and (xiv)
2	RBI LCR - Deposit Insurance Customer Exemption	This rule updates the insurance exempted indicator for all customers who are marked as exempt from being covered by deposit insurance.	The identification of customers who are not covered under the deposit insurance scheme is configured as part of this rule.	DICGC FAQ
3	Cust_Aggregated_Funding	This DT identifies whether a small business customer is treated as a retail customer for the purposes of liquidity ratio calculations as per RBI. The customer types that are in of accordance are of Small Medium Enterprise, Hindu Undivided Family, Partnership, Trust and Association of Persons which are of non - financial entity and that the aggregate funding amount associated with those customers should be greater than five crores.	The identification of wholesale customers treated as retail for the purposes of LCR is configured as part of this data transformation. The assessment is done for SMEs, HUFs, partnerships, AoPs and Trusts.	MC Appendix 1 Explanatory Note (v) AR2 Part D Sr. No. 9 AR4 Sr. No. 10

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
4	LRM - RBI - Country liquidity risk indicator for NCOF	This computation rule identifies if a legal entity, holding debt securities issued by a foreign sovereign in that foreign currency, has undertaken liquidity risk in that country. The rule checks if the legal entity has operations in a foreign country, other than those for purely trading purposes, and updates the account liquidity risk flag as Yes, if this condition is met.	The identification of whether a legal entity has liquidity risk in a particular foreign jurisdiction is configured as part of this rule. This is further used for classifying debt securities held by the bank, issued in foreign currencies by sovereigns assigned a non-zero risk weight by international rating agencies, as level 1 assets.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Appendix III Sections A (x) and C
5	LRM - RBI - Mitigant Country Liquidity Risk Indicator For NCOF	This computation rule identifies if a legal entity, holds mitigants issued by a foreign sovereign in that foreign currency, has undertaken liquidity risk in that country. The rule checks if the legal entity has operations in a foreign country, other than those for purely trading purposes, and updates the account liquidity risk flag for such mitigants as Yes, if this condition is met.	The identification of whether a legal entity has liquidity risk in a particular foreign jurisdiction is configured as part of this rule. This is further used for classifying debt securities, received as mitigants, issued in foreign currencies by sovereigns assigned a non-zero risk weight by international rating agencies, as level 1 assets.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Appendix III Sections A (x) and C
6	RBI_Ins_Unins_Amt_Calc	This DT calculates the insured and uninsured amounts updates this information at an account-customer combination in the FSI_LRM_ACCT_CUST_DETAILS table.	The allocation of the insurance limit and the computation of insured and uninsured amount at an account level are configured as part of this data transformation.	DICGC FAQ
7	LRM - Customer Established Relationship Assignment	This rule checks whether a customer has more than one active account with the bank and updates the established relationship flag	The identification of established relationship with each customer is configured as part of this rule.	MC Appendix 1 Explanatory Note (ii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		at an account-customer combination for such accounts in the FSI_LRM_ACCT_CUST_DETAILS table.		
8	LRM - RBI - Classification Of Operational Deposits And Non-Operational Balance Computation	This rule classifies accounts as operational deposits based on RBI guidelines and computes that portion of the EOP balance of such accounts which is truly operational in nature. These values are updated in the FSI_LRM_INSTRUMENT table.	The classification of an account as operational or non-operational as per RBI guidelines and the computation of the operational portion of the EOP balance are configured as part of this rule.	MC Appendix 1 Explanatory Note (vi) AR2 Part D Sr. No. 10
9	LRM - Stable Amount Calculation	This rule calculates the stable amount as per RBI guidelines.	The computation of the stable portion of a deposit is configured as part of this rule.	MC Appendix 1 Explanatory Note (ii)
10	LRM - Less Stable Amount Calculation	This rule calculates the less stable amount as per RBI guidelines.	The computation of the less stable portion of a deposit is configured as part of this rule.	MC Appendix 1 Explanatory Note (iii)
11	Unencumbered Stable And Less Stable Amount Calculation	This rule calculates the encumbered and unencumbered stable and less stable amounts for deposits based on the RBI regulatory guidelines. This is further used to provide appropriate run-off rates for the portion of lien marked deposits that are securing a loan.	The computation of the encumbered and unencumbered portion of the lien marked deposits securing loans which are classified as stable and less stable is configured as part of this rule.	AR4 Sr. No. 9

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
12	LRM_FSI_MTM_COLL_VALL_FLI_POP	This T2T populates the absolute value of the largest 30-consecutive calendar day cumulative net mark-to-market collateral between the outflows and inflows that are realized during the preceding 24 months resulting from derivatives transaction valuation changes. The data is populated in FSI_LRM_INSTRUMENT from FSI_MTM_COLL_VAL_CHANGE for those legal entities that are selected in the Run. In case of a consolidated Run, the data is moved only for the consolidated legal entity.	The computation of the additional liquidity needs due to market valuation changes based on a 24-month historical time window is configured as part of this data transformation.	MC Appendix 1 Explanatory Note (xi)
13	RBI LCR - HQLA Reclassification - Level 1 - Central Bank Reserves	This rule reclassifies reserves, held with the domestic central bank, to the extent that the central bank policies allow them to be drawn down in times of stress, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of reserves, held at the central bank domiciled in India, as HQLA level 1 asset is configured as part of this rule.	MC Paragraph 5.4 (i)
14	RBI LCR - HQLA Reclassification - Level 1 - Cash	This rule reclassifies cash, banknotes and restricted cash as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of cash as HQLA level 1 asset is configured as part of this rule.	MC Paragraph 5.4 (i)
15	RBI LCR - HQLA Reclassification - Level 1 - Zero Risk Weight Foreign Central Bank Reserves	This rule reclassifies reserves, held with foreign central banks assigned a zero risk weight by international rating agencies, as HQLA Level 1 assets in accordance with the	The classification of reserves, held at a central bank not domiciled in India and is assigned a zero risk weight by international rating agencies, as HQLA level 1 asset is	AR7 Paragraph 5.4 (i) (a)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		criteria specified by RBI.	configured as part of this rule.	
16	RBI LCR - HQLA Reclassification - Level 1 - Non-Zero Risk Weight Foreign Central Bank Reserves	This rule reclassifies reserves, held with foreign central banks assigned a non-zero risk weight by international rating agencies but a zero risk weight at national discretion, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of reserves, held at a central bank not domiciled in India and is assigned a non-zero risk weight by international rating agencies but a zero risk weight at national discretion, as HQLA level 1 asset is configured as part of this rule.	AR7 Paragraph 5.4 (i) (a)
17	RBI LCR - HQLA Reclassification - Level 1 - Marginal Standing Facility	This rule reclassifies the Marginal Standing Facility (MSF) as HQLA Level 1 asset.	The classification of marginal standing facility as HQLA level 1 asset is configured as part of this rule.	MC Paragraph 5.4 (iii)
18	RBI LCR - HQLA Reclassification - Level 1 - Market Asset-Issuer	This rule reclassifies securities, issued by zero risk weight foreign sovereigns, as HQLA Level 1 assets, in accordance with the criteria specified by RBI.	The classification of marketable securities, issued by zero risk weight foreign sovereigns securities, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Appendix III Section C
19	RBI LCR - HQLA Reclassification - Level 1 - Market Asset-Guarantor	This rule reclassifies marketable securities, guaranteed by zero risk weight foreign sovereigns, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of marketable securities, guaranteed by zero risk weight foreign sovereigns, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Appendix III Section C
20	RBI LCR - HQLA Reclassification - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies marketable securities issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in	The classification of marketable securities, issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Appendix III Sections A (x) and C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		foreign currencies as HQLA Level 1 assets in accordance with the criteria specified by RBI.	foreign currencies as HQLA Level 1 assets is configured as part of this rule.	
21	RBI LCR - HQLA Level 1 for Excess SLR	This rule reclassifies government securities in excess of the minimum SLR requirement as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of government securities that exceed the minimum SLR requirement, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (ii)
22	RBI LCR - HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies marketable securities assigned a 20% risk weight and guaranteed by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities guaranteed by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Appendix III Section C
23	RBI LCR - HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies marketable securities assigned a 20% risk weight and issued by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities issued by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Appendix III Section C
24	RBI LCR - HQLA Reclassification - Level 2A - Non-Financial Corporate Bonds	This rule reclassifies debt securities, other than covered bonds and commercial papers, issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of corporate bonds, excluding covered bonds and commercial papers, as HQLA level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (ii) AR2 Part D Sr. No. 5, Appendix III Section C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
25	RBI LCR - HQLA Reclassification - Level 2A - Non-Financial Commercial Papers	This rule reclassifies commercial papers issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of commercial papers, issued by non-financial corporates, as HQLA level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (ii) AR2 Part D Sr. No. 5, Appendix III Section C
26	RBI LCR - HQLA Reclassification - Level 2B - Market Asset-Guarantor	This rule reclassifies sovereign guaranteed marketable securities, assigned a risk weight between 20% and 50%, as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of marketable securities guaranteed by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, as HQLA level 2B assets is configured as part of this rule.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Appendix III Section C
27	RBI LCR - HQLA Reclassification - Level 2B - Market Asset-Issuer	This rule reclassifies sovereign issued marketable securities, assigned a risk weight between 20% and 50%, as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of marketable securities issued by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, as HQLA level 2B assets is configured as part of this rule.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Appendix III Section C
28	RBI LCR - HQLA Reclassification - Level 2B - Market Asset - Corporate Issuer	This rule reclassifies debt securities, other than covered bonds, issued by non-financial corporates as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of corporate bonds other than covered bonds, as HQLA level 2B assets is configured as part of this rule.	AR4 Sr. No. 3
29	RBI LCR - HQLA Reclassification - Level 2B Non-Financial Common Equities	This rule reclassifies common equities issued by non-financial corporates as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of common equities issued by non-financial entities as HQLA level 2B assets is configured as part of this rule.	MC Paragraph 5.5 (b) (ii) AR2 Part D Sr. No. 6, Appendix III Sections B to C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
30	RBI LCR - Mitigant HQLA Reclassification - Level 1 - Cash	This rule reclassifies cash received as a mitigant as an HQLA Level 1 asset in accordance with the criteria specified by RBI.	The classification of cash as HQLA level 1 assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.4 (i) AR2 Part D Sr. No. 12 Explanatory Note (xvi), Appendix III Section D (iii)
31	RBI LCR - HQLA Mitigant Reclassification - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies marketable securities received as mitigants, issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in foreign currencies as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of marketable securities, issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in foreign currencies as HQLA Level 1 assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections A (x), C and D (iii)
32	RBI LCR - HQLA Mitigant Reclassification - Level 1 - Market Asset-Guarantor	This rule reclassifies marketable securities received as mitigants, guaranteed by zero risk weight foreign sovereigns, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of securities received as mitigants, guaranteed by zero risk weight foreign sovereigns, as HQLA Level 1 assets, in accordance with the criteria specified by RBI. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
33	RBI LCR - HQLA Mitigant Reclassification - Level 1 - Market Asset-Issuer	This rule reclassifies securities received as mitigants, issued by zero risk weight foreign sovereigns, as HQLA Level 1 assets, in accordance with the criteria specified by RBI.	The classification of securities received as mitigants, issued by zero risk weight foreign sovereigns, as HQLA Level 1 assets, in accordance with the criteria specified by RBI. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)
34	RBI LCR - Mitigant HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies marketable securities received as mitigants, assigned a 20% risk weight and guaranteed by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities received as mitigants, guaranteed by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)
35	RBI LCR - Mitigant HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies marketable securities received as mitigants, assigned a 20% risk weight and issued by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities received as mitigants, issued by sovereigns, PSEs or multilateral development banks as HQLA Level 2A assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
			provided they meet all the required criteria.	
36	RBI LCR - Mitigant HQLA Reclassification - Level 2A - Non-Financial Corporate Bonds	This rule reclassifies debt securities received as mitigants, other than covered bonds, issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of corporate bonds received as mitigants, excluding covered bonds, as HQLA level 2A assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5. (a) (ii) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)
37	RBI LCR - Mitigant HQLA Reclassification - Level 2B - Market Asset-Guarantor	This rule reclassifies sovereign guaranteed marketable securities received as mitigants, assigned a risk weight between 20% and 50% as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of marketable securities received as mitigants, guaranteed by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, as HQLA level 2B assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
38	RBI LCR - Mitigant HQLA Reclassification - Level 2B - Market Asset-Issuer	This rule reclassifies sovereign issued marketable securities received as mitigants, assigned a risk weight between 20% and 50% as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of marketable securities received as mitigants, issued by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, as HQLA level 2B assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)
39	RBI LCR - Mitigant HQLA Reclassification - Level 2B - Market Asset- Corporate Issuer	This rule reclassifies debt securities received as mitigants, other than covered bonds, issued by non-financial corporates as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of corporate bonds received as mitigants, excluding covered bonds, as HQLA level 2B assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	AR2 Part D Sr. No. 12 Explanatory Note (xvi), Appendix III Section D (iii) AR4 Sr. No. 3
40	RBI LCR - Mitigant HQLA Reclassification - Level 2B Non-Financial Common Equities	This rule reclassifies common equities received as mitigants, issued by non-financial corporates as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of common equities received as mitigants, issued by non-financial entities as HQLA level 2B assets is configured as part of this rule. It also addresses the requirement of considering assets received as collateral under re-hypothecation rights as HQLA provided they meet all the required criteria.	MC Paragraph 5.5 (b) (ii) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xvi), Appendix III Sections C and D (iii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
41	RBI LCR - Substitutable Collateral HQLA Reclassification - Level 1 - Cash	This rule reclassifies cash that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of cash that can potentially be substituted for existing collateral, as HQLA level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (i) AR2 Part D Sr. No. 12 Explanatory Note (xv)
42	RBI LCR - HQLA Substitutable Collateral Reclassification - Level 1 - Market Asset-Guarantor	This rule reclassifies marketable securities, guaranteed by zero risk weight foreign sovereigns that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of marketable securities, guaranteed by zero risk weight foreign sovereigns that can potentially be substituted for existing collateral, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Sr. No. 12 Explanatory Note (xv), Appendix III Section C
43	RBI LCR - HQLA Substitutable Collateral - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies marketable securities issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in foreign currencies that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by RBI.	The classification of marketable securities, issued by zero risk weight sovereigns assigned a non-zero risk weight by international rating agencies, denominated in foreign currencies that can potentially be substituted for existing collateral, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Sr. No. 12 Explanatory Note (xv), Appendix III Sections A (x) and C
44	RBI LCR - HQLA Substitutable Collateral Reclassification - Level 1 - Market Asset-Issuer	This rule reclassifies securities, issued by zero risk weight foreign sovereigns that can be contractually substituted for existing collateral received, as HQLA Level 1 assets, in accordance with the criteria specified by RBI.	The classification of marketable securities, issued by zero risk weight foreign sovereigns that can potentially be substituted for existing collateral, as HQLA Level 1 assets is configured as part of this rule.	MC Paragraph 5.4 (iv) AR2 Part D Sr. No. 4, Sr. No. 12 Explanatory Note (xv), Appendix III Section C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
45	RBI LCR - Substitutable HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies marketable securities assigned a 20% risk weight and guaranteed by sovereigns, PSEs or multilateral development banks that can be contractually substituted for existing collateral received, as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities guaranteed by sovereigns, PSEs or multilateral development banks, that can potentially be substituted for existing collateral received, as HQLA Level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xv), Appendix III Section C
46	RBI LCR - Substitutable HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies marketable securities assigned a 20% risk weight and issued by sovereigns, PSEs or multilateral development banks that can be contractually substituted for existing collateral received, as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of 20% risk weight marketable securities issued by sovereigns, PSEs or multilateral development banks, that can potentially be substituted for existing collateral received, as HQLA Level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (i) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xv), Appendix III Section C
47	RBI LCR - Substitutable HQLA Reclassification - Level 2A - Non-Financial Corporate Bonds	This rule reclassifies debt securities, other than covered bonds, issued by non-financial corporates that can be contractually substituted for existing collateral received, as HQLA Level 2A assets in accordance with the criteria specified by RBI.	The classification of corporate bonds, excluding covered bonds, that can potentially be substituted for existing collateral received, as HQLA level 2A assets is configured as part of this rule.	MC Paragraph 5.5. (a) (ii) AR2 Part D Sr. No. 5, Sr. No. 12 Explanatory Note (xv), Appendix III Section C
48	RBI LCR - Substitutable HQLA Reclassification - Level 2B - Market Asset-Guarantor	This rule reclassifies sovereign guaranteed marketable securities, assigned a risk weight between 20% and 50%, that can be contractually substituted for existing collateral received, as HQLA Level 2B assets in	The classification of marketable securities guaranteed by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, that can potentially be substituted for existing collateral received, as	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Appendix III Section C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		accordance with the criteria specified by RBI.	HQLA level 2B assets is configured as part of this rule.	
49	RBI LCR - Substitutable HQLA Reclassification - Level 2B - Market Asset-Issuer	This rule reclassifies sovereign issued marketable securities, assigned a risk weight between 20% and 50%, that can be contractually substituted for existing collateral received, as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of marketable securities issued by sovereigns and assigned a risk weight higher than 20% but equal to or lower than 50%, that can potentially be substituted for existing collateral received, as HQLA level 2B assets is configured as part of this rule.	MC Paragraph 5.5 (b) (i) AR2 Part D Sr. No. 6, Appendix III Section C
50	RBI LCR - Substitutable HQLA Reclassification - Level 2B - Market Asset-Corporate Issuer	This rule reclassifies debt securities, other than covered bonds, issued by non-financial corporates that can be contractually substituted for existing collateral received, as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of corporate bonds, excluding covered bonds, that can potentially be substituted for existing collateral received, as HQLA level 2B assets is configured as part of this rule.	AR2 Part D Sr. No. 12 Explanatory Note (xv) AR4 Sr. No. 3
51	RBI LCR - Substitutable HQLA Reclassification - Level 2B Non-Financial Common Equities	This rule reclassifies common equities issued by non-financial corporates that can be contractually substituted for existing collateral received, as HQLA Level 2B assets in accordance with the criteria specified by RBI.	The classification of common equities issued by non-financial entities, that can potentially be substituted for existing collateral received, as HQLA level 2B assets is configured as part of this rule.	MC Paragraph 5.5 (b) (ii) AR2 Part D Sr. No. 6, Sr. No. 12 Explanatory Note (xv), Appendix III Sections B to C

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
52	LRM - RBI - Bank Own Assets - Meets HQLA Operational Requirements Flag Update	This rule identifies whether bank's own assets, both unencumbered assets as well as those placed as collateral, meet the operational requirements prescribed by RBI, except for being unencumbered in the case of placed collateral. In case of unencumbered assets, it updates the Meets HQLA Operational Requirements Flag. In case of placed collateral, it updates the Meets HQLA Operational Requirements on Unwind Flag.	The identification of whether an asset owned by the bank meets the operational requirements set forth by RBI for its inclusion in the stock of HQLA is configured as part of this rule.	MC Paragraph 5.6 to 5.7 AR2 Part D Sr. No. 3, Sr. No. 12 Explanatory Note (xvi), Appendix III Section D AR4 Sr. No. 7 AR6 Section A
53	LRM - RBI - Re-hypothecated Mitigants - Meets HQLA Operational Requirements Flag Update	This rule identifies whether a re-hypothecated mitigant meets the operational requirements prescribed by RBI, except for being unencumbered. It updates the Meets HQLA Operational Requirements on Unwind Flag for such mitigants.	The identification of whether a collateral received from a counterparty, that is further placed as collateral, meets the operational requirements set forth by RBI on unwind is configured as part of this rule.	MC Paragraph 5.6 to 5.7 AR2 Part D Sr. No. 3, Sr. No. 12 Explanatory Note (xvi), Appendix III Section D AR4 Sr. No. 7 AR6 Section A
54	LRM - RBI - Instruments - Eligible High Quality Liquid Assets Flag Update	This computation rule updates the Hqla Eligibility Flag for a bank’s own unencumbered assets classified as HQLA that fulfill the HQLA operational requirements and therefore can be included in the stock of HQLA. It also updates the Eligible HQLA on Unwind flag for all assets placed as collateral that are classified as HQLA that fulfill the HQLA operational requirements on unwind	The identification of whether a bank's asset classified as an HQLA, meets all the operational criteria and is therefore eligible to be included in the stock of HQLA is configured as part of this rule.	MC Paragraph 5.6 to 5.7 AR2 Part D Sr. No. 3, Sr. No. 12 Explanatory Note (xvi), Appendix III Section D AR4 Sr. No. 7 AR6 Section A

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		and therefore are to be unwound.		
55	LRM - RBI - Mitigants - Meets HQLA Operational Requirements Flag Update	This rule identifies whether a mitigant meets the operational requirements prescribed by RBI, to be considered for inclusion in the stock of HQLA. It updates the Meets HQLA Operational Requirements Flag for such mitigants.	The identification of whether the collateral received from counterparty meets the operational requirements set forth by RBI is configured as part of this rule.	MC Paragraph 5.6 to 5.7 AR2 Part D Sr. No. 3, Sr. No. 12 Explanatory Note (xvi), Appendix III Section D AR4 Sr. No. 7 AR6 Section A
56	LRM - RBI - Mitigants - Eligible High Quality Liquid Assets Flag Update	This computation rule updates the Hqla Eligibility Flag for mitigants classified as HQLA that fulfill the HQLA operational requirements prescribed by RBI, and therefore can be included in the stock of HQLA.	The identification of whether the collateral received from counterparty, classified as an HQLA, meets all the operational criteria and is therefore eligible to be included in the stock of HQLA is configured as part of this rule.	MC Paragraph 5.6 to 5.7 AR2 Part D Sr. No. 3, Sr. No. 12 Explanatory Note (xvi), Appendix III Section D AR4 Sr. No. 7 AR6 Section A
57	LRM - Collateral Valuation Change Computation	This rule calculates the collateral valuation change amount for all liabilities including derivatives.	The computation of the value of placed collateral, not classified as HQLA level 1 asset, securing liabilities including derivatives, adjusted for any mitigant received is configured as part of this rule. This is further used to determine the increased liquidity needs related to the	MC Appendix 1 Explanatory Note (x) AR2 Part D Sr. No. 12 Explanatory Note (x)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
			potential for valuation changes on posted collateral.	
58	LRM - Downgrade Impact Amount for Other Liabilities	This rule calculates the downgrade impact amount for all liability products other than derivatives and securitizations as the difference between the EOP balance and the collateral received.	The computation of the loss due to a ratings downgrade, with respect to liabilities other than derivatives and securitizations, is configured as part of this rule.	MC Appendix 1 Explanatory Note (ix) AR2 Part D Sr. No. 12 Explanatory Note (ix)
59	LRM - Calculation of Contractual Inflow Amount And Minimum Due Amount	This rule calculates the sum of all cash inflows within the liquidity horizon for loans and leases. Additionally, it calculates the minimum amount due for products such as loans, leases, overdrafts and line of credit that do not have a specified maturity.	The identification of the minimum payments due on open maturity loans within the LCR horizon of 30 days is configured as part of this rule.	AR2 Part D Sr. No. 14 Explanatory Note (xxvi)
60	LRM - Calculation of Contractual Obligation Amount	This rule calculates the contractual obligation to extend funds to retail and non-financial customers.	The computation of the total contractual obligation to extend funds to retail and non-financial customers is configured as part of this rule.	AR2 Part D Sr. No. 12 Explanatory Note (xviii)
61	FN_CONTRCT_OBLIG_AMT_POP	This DT computes the excess contractual obligation amount as the difference between the contractual obligation to extend funds and 30-day contractual inflows and updates this value in the FSI_LRM_INSTRUMENT table.	The computation of the contractual obligation amount in excess of 50% of the total contractual inflows from retail and non-financial customers is configured as part of this rule.	AR2 Part D Sr. No. 12 Explanatory Note (xviii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
62	LRM - RBI - Contractually Due Collateral And Excess Collateral Receivable Update	This rule calculates and updates the contractually due collateral and excess collateral receivable amounts for derivatives without netting agreements and other liabilities in FSI_LRM_INSTRUMENT table.	The computation of the collateral required to be posted contractually on which the counterparty has not yet demanded the collateral is configured as part of this rule.	AR2 Part D Sr. No. 12 Explanatory Note (xiv) BLR1 Panel II Sr. No. A 4 (vi)
63	LRM - RBI - Contractually Receivable Collateral And Excess Collateral Due Update	This rule calculates and updates the contractually receivable collateral And excess collateral due amounts for derivatives without netting agreements and other assets in FSI_LRM_INSTRUMENT table.	The computation of the excess collateral held by the bank which could be called back by the counterparty at any time is configured as part of this rule.	AR2 Part D Sr. No. 12 Explanatory Note (xiii)
64	LRM - RBI - Instruments - Hedge Termination Cost Adjusted Value	This computation rule identifies all high quality liquid assets that have a hedge associated with them and computes the value of the unencumbered portion of such assets to be included in the stock as less of the hedge termination cost.	The computation of the market value of a high quality liquid asset adjusted for the outflow that would arise on the early termination of the hedge is configured as part of this rule. The hedge termination cost adjusted value of the asset is included in the stock of HQLA.	AR2 Appendix III Section D (vii)
65	LRM - RBI - Mitigants - Value to be Included in the Stock of Liquid Assets	This rule computes the unencumbered portion of the re-hypothecable mitigants, classified as high quality liquid assets, which can be included in the stock of HQLA.	The identification and computation of the value of the non-rehypothecated portion of HQLA collateral received under re-hypothecation rights is configured as part of this rule.	AR2 Appendix III Section D (iii)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
66	LRM - RBI - Instruments - Value to be included in Stock - Placed Collateral	This rule computes the unused portion of placed collaterals, classified as high quality liquid assets, which is eligible to be included in the stock as it is currently unencumbered.	The computation of the unused portion of high quality liquid assets that are pre-positioned or pledged but have not been used to generate liquidity is configured as part of this rule. The assets are encumbered in the order of lowest to highest quality in order to compute the unused portion of the placed collateral	AR2 Appendix III Section D iii
67	RBI LCR - Stock Adjustment Reclassification - Level 1 - Addition	This rule identifies all secured lending and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured lending transactions, where the collateral received is a non-level 1 HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as addition of the amount paid. In case of asset exchange transactions, where the collateral received is a non-level 1 HQLA and the collateral posted in a level 1 HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as addition of the collateral posted.	The identification of secured lending and asset exchange transactions required to be unwound and the amount to be added to the stock of level 1 assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.3 AR2 Part D Sr. No. 16, Appendix III Section E

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
68	RBI LCR - Stock Adjustment Reclassification - Level 1 - Deduction	This rule identifies all secured funding and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured funding transactions, where the collateral posted is a non-level 1 HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the amount received. In case of asset exchange transactions, where the collateral posted is a non-level 1 HQLA and the collateral received in a level 1 HQLA the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the collateral received.	The identification of secured funding and asset exchange transactions required to be unwound and the amount to be deducted from the stock of level 1 assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.3 AR2 Part D Sr. No. 16, Appendix III Section E
69	RBI LCR - Stock Adjustment Reclassification - Level 2A - Addition	This rule identifies all secured funding and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured funding transactions, where the collateral posted is a level 2A HQLA, the type of adjustment to the stock of HQLA due to such an unwind is	The identification of secured funding and asset exchange transactions required to be unwound and the amount to be added to the stock of level 2A assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.4 AR2 Part D Sr. No. 17, Appendix III Section E

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		updated as addition of the collateral posted. In case of asset exchange transactions, where the collateral received is an HQLA and the collateral posted is a level 2A asset, the type of adjustment to the stock of HQLA due to such an unwind is updated as addition of the collateral posted.		
70	RBI LCR - Stock Adjustment Reclassification - Level 2A - Deduction	This rule identifies all secured lending and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured lending transactions, where the collateral received is a level 2A HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the collateral received. In case of asset exchange transactions, where the collateral posted is an HQLA and the collateral received is a level 2A asset, the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the collateral received.	The identification of secured lending and asset exchange transactions required to be unwound and the amount to be deducted from the stock of level 2A assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.4 AR2 Part D Sr. No. 17, Appendix III Section E

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
71	RBI LCR - Stock Adjustment Reclassification - Level 2B - Addition	This rule identifies all secured funding and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured funding transactions, where the collateral posted is a level 2B HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as addition of the collateral posted. In case of asset exchange transactions, where the collateral received is an HQLA and the collateral posted is a level 2B asset, the type of adjustment to the stock of HQLA due to such an unwind is updated as addition of the collateral posted.	The identification of secured funding and asset exchange transactions required to be unwound and the amount to be added to the stock of level 2B assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.5 AR2 Part D Sr. No. 18, Appendix III Section E
72	RBI LCR - Stock Adjustment Reclassification - Level 2B - Deduction	This rule identifies all secured lending and asset exchange transactions involving HQLA that mature within the LCR horizon which are, therefore, required to be unwound and reclassifies them to the appropriate adjustment rule. In case of secured lending transactions, where the collateral received is a level 2B HQLA, the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the collateral	The identification of secured lending and asset exchange transactions required to be unwound and the amount to be deducted from the stock of level 2B assets due to such an unwind is configured as part of this rule.	MC Paragraph 6.5 AR2 Part D Sr. No. 18, Appendix III Section E

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		received. In case of asset exchange transactions, where the collateral posted is an HQLA and the collateral received is a level 2B asset, the type of adjustment to the stock of HQLA due to such an unwind is updated as deduction of the collateral received.		
73	RBI LCR - Stock Adjustment Rule	This rule computes the amount to be adjusted to the stock of HQLA for the adjustments that are been identified for each account requiring to be unwound and updates these amounts in FSI_LRM_INSTRUMENT table.	The identification of the amount to be added to or deducted from the stock of HQLA due to unwinding of a transaction involving high quality liquid assets is configured as part of this rule.	MC Paragraphs 6.3, 6.4 and 6.5 AR2 Part D Sr. Nos. 16, 17 and 18, Appendix III Section E
74	LRM_RBI_SIGNIFICANT_CURRENCY	This T2T identifies the significant currencies for each legal entity on a standalone basis as per the regulatory criteria and updates the list of significant currencies in the FCT_SIGNIFICANT_CURRENCY table. Significant currencies are those where the sum of liabilities in a given currency exceeds five percent of the total liabilities of the legal entity.	The identification of currencies deemed significant as per regulatory criteria is configured as part of this T2T.	MC Paragraph 7.1 (d)

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
75	RBI_LCR_DATA_POPULATION	This T2T computes and updates the restricted and unrestricted amounts for all HQLA levels in each significant currency as well as for the reporting currency at the level of each legal entity from FSI_LRM_INSTRUMENT table into FCT_LRM_LE_SUMMARY table. Restricted assets are assets that do not have transferability restrictions.	The identification and computation of the value of assets that have restrictions on their transfer and the assets that are freely transferable is configured as part of this rule.	AR2 Appendix III Section A (ii) to (iv)
76	RBI_HELD_TO_MEET_NCOF	The DT computes the value of high quality liquid assets that can be included in the stock of HQLA only to the extent of the stressed net cash outflows denominated in the foreign currency in the jurisdiction where the bank has undertaken liquidity risk. This value is updated in the FCT_LRM_LE_SUMMARY table.	The computation of the value of the foreign currency denominated level 1 assets that are allowed to be included in the stock of HQLA only to the extent of the stressed net cash outflows denominated in the foreign currency in the jurisdiction where the bank has undertaken liquidity risk is configured as part of this rule.	MC Paragraph 5.4 iv AR2 Part D Sr. No. 4, Appendix III Sections A (x), C
77	RBI LCR - Cashflows for LCR Computation	This rule updates the cash inflows and outflows adjusted for the regulatory rates as part of the business assumptions into the FCT_LRM_LE_SUMMARY table at a legal entity - significant currency combination.	The computation of total cash outflows and total cash inflows of an entity on a significant currency basis post applying regulatory outflow and inflow rates is configured as part of this rule.	MC Paragraphs 6.7
78	RBI LCR - Cash flows for LCR Computation at Entity Level	This rule updates the cash inflows and outflows adjusted for the regulatory rates as part of the business assumptions into the	The computation of total cash outflows and total cash inflows of an entity post applying regulatory outflow and inflow rates is	MC Paragraphs 6.7

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		FCT_LRM_LE_SUMMARY table at a legal entity level.	configured as part of this rule.	
79	LRM - NCOF Computation	This rule computes the net cash outflow over the liquidity horizon based on the regulatory formula at legal entity level as well legal entity - significant currency level and updates these values in the FCT_LRM_LE_SUMMARY table.	The computation of the net cash outflows as per the regulatory formula is configured as part of this rule.	MC Paragraphs 6.7
80	LRM_RBI_LCR_Consolidate	This DT identifies and eliminates intercompany transactions and computes the consolidated liquidity coverage ratio (LCR). It includes the assets with transferability restrictions held by subsidiaries into the consolidated calculation only to the extent of net cash outflows of that subsidiary and computes the consolidated stock of high quality liquid assets. Additionally, it computes the net cash outflow on a consolidated basis.	The computation of the consolidated net cash outflows and the stock of high quality liquid assets adjusted for asset transferability restrictions is configured as part of this data transformation.	MC Paragraph 3 AR2 Appendix III Section A
81	LRM - RBI LCR Adjustments Amount Calculation	This rule calculates the net amount to be adjusted against each high quality liquid asset level based on transactions required to be unwound and updates this amount in FCT_LRM_LE_SUMMARY table.	The computation of the net amount to be adjusted against the total stock of HQLA due to unwinding of transactions involving high quality liquid assets maturing within 30 days at a legal entity - currency combination is configured as part of this rule.	MC Paragraphs 6.3, 6.4 and 6.5 AR2 Part D Sr. Nos. 16, 17 and 18, Appendix III Section E

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
82	LRM - RBI LCR Adjustments Amount Calculation at Entity Level	This rule calculates the net amount to be adjusted against each high quality liquid asset level based on transactions required to be unwound at a legal entity level, either standalone or consolidated, and updates this amount in FCT_LRM_LE_SUMMARY table.	The computation of the net amount to be adjusted against the total stock of HQLA due to unwinding of transactions involving high quality liquid assets maturing within 30 days at a legal entity level is configured as part of this rule.	MC Paragraphs 6.3, 6.4 and 6.5 AR2 Part D Sr. Nos. 16, 17 and 18, Appendix III Section E
83	RBI LCR - Adjusted Asset Amount Calculation	This rule calculates the adjusted stock of HQLA based on the transactions required to be unwound at a legal entity as well as legal entity - significant currency combination and updates this value in the FCT_LRM_LE_SUMMARY table.	The computation of the stock of HQLA adjusted for unwinding of unwinding of transactions involving high quality liquid assets maturing within 30 days is configured as part of this rule.	MC Paragraphs 6.3, 6.4 and 6.5 AR2 Part D Sr. Nos. 16, 17 and 18, Appendix III Section E
84	RBI LCR - Level 2B Asset Cap Amount Calculation	This rule calculates the adjusted level 2B asset cap amount as per the regulatory formula using the adjusted amounts of high quality liquid assets and updates it in the FCT_LRM_LE_SUMMARY table at both legal entity level and legal entity - significant currency level.	The computation of the adjustment for 15% cap on level 2B assets is configured as part of this rule	MC Paragraph 6.2 to 6.6 AR2 Part D Sr. No. 15
85	RBI LCR - Level 2 Asset Cap Amount Calculation	This rule calculates the adjusted level 2 asset cap amount as per the regulatory formula using the adjusted amounts of high quality liquid assets and the adjusted level 2B cap amount. This value is updated in the FCT_LRM_LE_SUMMARY table at both legal	The computation of the adjustment for 40% cap on level 2 assets is configured as part of this rule	MC Paragraph 6.2 to 6.6 AR2 Part D Sr. No. 15

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		entity level and legal entity - significant currency level.		
86	RBI LCR - SHQLA Computation	This rule calculates the stock of high quality liquid assets (HQLA) and updates the value in FCT_LRM_LE_SUMMARY table at both legal entity level and legal entity - significant currency level.	The computation of the stock of high quality liquid assets is configured as part of this rule.	MC Paragraph 6.2 to 6.6 AR2 Part D Sr. No. 15
87	RBI LCR - Liquidity Coverage Ratio Computation	This rule calculates the liquidity coverage ratio (LCR) at a legal entity level and legal entity – significant currency level on a solo and consolidated basis and updates the values in the FCT_LRM_LE_SUMMARY table.	The computation of the liquidity coverage ratio is configured as part of this rule.	MC Paragraph 4
88	RBI LCR - Option Amount Post Option 1 - Solo	This rule calculates the value of the liquidity facility extended by the central bank as alternative liquidity required to meet the shortfall in the stock of HQLA for a legal entity on a standalone basis.	The computation of the amount of FALLCR to be availed by a legal entity on a standalone basis due to a shortfall in the stock of HQLA as compared to the net cash outflows is configured as part of this rule.	AR1 Sr. No. 4 AR3 Sr. No. 3 AR5 Sr. No. 3
89	RBI LCR - Option Amount Post Option 1 - Consol	This rule calculates the value of the liquidity facility extended by the central bank as alternative liquidity required to meet the shortfall in the stock of HQLA, if any, for a legal entity on a consolidated basis.	The computation of the amount of FALLCR to be availed by a legal entity on a consolidated basis due to a shortfall in the stock of HQLA as compared to the net cash outflows is configured as part of this rule.	AR1 Sr. No. 4 AR3 Sr. No. 3 AR5 Sr. No. 3

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
90	LRM - SHQLA Computation Post Option 1	This rule calculates the stock of high quality liquid asset (HQLA) after the inclusion of the alternative liquidity facility, in case of a shortfall in the stock of HQLA, and updates this value in the FCT_LRM_LE_SUMMARY table.	The computation of the stock of HQLA inclusive of the FALLCR amount covering the HQLA shortfall is configured	AR1 Sr. No. 4 AR3 Sr. No. 3 AR5 Sr. No. 3
91	RBI LCR - Liquidity Coverage Ratio Computation Option 1	This rule calculates the liquidity coverage ratio after the inclusion of the alternative liquidity facility, in case of a shortfall in the stock of HQLA, and updates this value in the FCT_LRM_LE_SUMMARY table.	The computation of the liquidity coverage ratio after considering the FALLCR amount, in the event of a shortfall in the stock of HQLA, is configured as part of this rule.	AR1 Sr. No. 4 AR3 Sr. No. 3 AR5 Sr. No. 3

2.3.2 Regulation Addressed through Business Assumptions

The application supports multiple assumptions with pre-configured rules and scenarios based on regulator specified scenario parameters such as HQLA haircuts, inflow and outflow percentage / rates and so on. The list of pre-configured business assumptions and the corresponding reference to the regulatory requirement that it addresses is provided in the following table:

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
1	HQLAHaircutAssign	Haircuts for high quality liquid assets.	The haircuts on high quality liquid assets are pre-defined as part of this assumption. This assumption applies a 0% haircut on level 1 assets, 15% on level 2A assets and 50% on level 2B assets.	MR1 Paragraph 6.3, 6.4
Outflows				

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
1	RBI- Non lien marked stable retail deposits	Run-offs on the stable portion of non-lien marked deposits from retail customers and unsecured wholesale funding from SMEs treated as retail.	The run-off rates on the stable portion of non-lien marked deposits from retail customers and SMEs who are treated like retail customers for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 5% run-off on the stable portion of retail deposits, and either mature or result in an early withdrawal, without incurring significant penalty, within the LCR horizon.	AR2 Part D Sr No 7 and 8
2	RBI- Lien marked stable retail deposits	Run offs on the stable portion of lien marked deposits from customers treated as retail.	This assumption defines the run off rates on stable portion of lien marked deposits from all customers treated as retail, where in the deposit maturity and the encumbrance period is within the LCR horizon. Since such deposits can be withdrawn within the horizon, these are treated similar to non-lien marked stable deposits. This assumption applies a 5% run off rate on the stable portion of such deposit.	AR4 Sr no 9
3	RBI- Unencumbered stable lien marked deposits	Run offs on the unencumbered stable portion of lien marked deposits from customers treated as retail.	Run off rates for unencumbered stable portion of lien marked deposits from customers treated as retail wherein the deposit maturity is within horizon, but the encumbrance period is beyond the LCR horizon is defined as a part of this assumption. The unencumbered stable portion of such deposits receive a 5% Run off rate.	AR4 Sr no 9
4	RBI- Encum portion exclusion of retail Lien marked deposits	Run offs on the encumbered portion of lien marked deposits from customers treated as retail.	Run offs on the encumbered portion of lien marked deposits from customers treated as retail wherein the deposit maturity is within horizon, but the encumbrance period is beyond the LCR horizon is defined as a part of this assumption. The encumbered portion of both stable and less stable lien marked deposits receive a 0% Run off rate.	AR4 Sr no 9
5	RBI- Non lien marked less	Run-offs on the less stable portion of non-lien marked	The run-off rates on the less stable portion of non-lien marked deposits from retail customers and SMEs who are treated like retail customers	AR2 Part D

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
	stable deposits	deposits from retail customers and unsecured wholesale funding from SMEs treated as retail.	for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 10% run-off on the portion of retail deposits that do not meet the deposit stability criteria and either mature or result in an early withdrawal, without incurring significant penalty, within the LCR horizon.	Sr No 7 and 8
6	RBI- Lien marked less stable retail deposits	Run offs on the stable portion of lien marked deposits from customers treated as retail.	This assumption defines the run off rates on less stable portion of lien marked deposits from all customers treated as retail, wherein the deposit maturity and the encumbrance period is within the LCR horizon. Since such deposits can be withdrawn within the horizon, these are treated similar to non-lien marked less stable deposits. This assumption applies a 10% run off rate on the stable portion of such deposit.	AR4 Sr no 9
7	RBI -Unencumbered less stable lien marked deposits	Run offs on the unencumbered less stable portion of lien marked deposits from customers treated as retail.	Run off rates for unencumbered less stable portion of lien marked deposits from customers treated as retail wherein the deposit maturity is within the horizon, but the encumbrance period is beyond the LCR horizon is defined as a part of this assumption. The unencumbered less stable portion of such deposits receive a 10% Run off rate.	AR4 Sr no 9
9a	RBI - Insured Operational Balance Run-off	Run-off on the portion of operational balance, from deposits generated by clearing, custody and cash management activities, that is fully covered by deposit insurance.	The run-off rates on the insured portion of the balance held in operational accounts to fulfill operational requirements are pre-defined as part of this assumption. This assumption applies a 3% run-off on insured operational balances that meet the additional criteria for deposit insurance schemes and a 5% run-off on those that do not meet the additional criteria.	AR2 part D Sr No 10, BLR 1 template A 2. (ii)

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
9b	RBI - Uninsured Operational Balance Run-off	Run-off on the portion of operational balance, from deposits generated by clearing, custody and cash management activities, that is not covered by deposit insurance.	The run-off rates on the uninsured portion of the balance held in operational accounts to fulfill operational requirements are pre-defined as part of this assumption. This assumption applies a 25% run-off on operational balances that are not covered by deposit insurance.	AR2 part D Sr No 10, BLR 1 template A 2. (ii)
10	RBI-Run-off on Unsec Non-Op Funding from SME and others	Run-off on the unsecured wholesale funding, provided by SMEs, that is not classified as an operational deposit. This is achieved by rolling over 1 – run-off rate to beyond the LCR horizon of 30 days.	The run-off rates on the cash flows, from unsecured funding that is not classified as an operational deposit, received from SME's, treated as wholesale customers and AoP, HUF, partnerships, trusts which are treated as wholesale, for the purposes of LCR, are pre-defined as part of this assumption. This assumption applies a 60% rollover for an SME treated as wholesale and a 0% rollover on the other entities.	AR2 Part D Sr 9
11	RBI-NFC, Sov, CB, PSE UWF Run-off on Non-op Balance	Run-off on the unsecured wholesale funding (UWF), provided by non-financial corporate (NFC), sovereigns (Sov), central banks (CB), and multilateral development banks (MDB) and PSEs that is not classified as an operational deposit. This is achieved by rolling over 1 – run-off rate to beyond the LCR horizon of 30	The run-off rates on the cash flows, from unsecured funding that is not classified as an operational deposit, received from non-financial corporates, sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies 80% rollover that is 20% run-off on cash flows from non-operational funding accounts that are fully covered by deposit insurance and a 60% rollover that is 40% run-off on those non-operational funding accounts that are not fully covered by deposit insurance.	AR2 Part D Sr 9

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		days.		
12	RBI-UWF Run-off on Non-op Balance from SMEs and others	Run-offs on unsecured wholesale funding (UWF) from SMEs not treated as retail.	The run-off rates on the non-operational portion of operational deposits from SME's, treated as wholesale customers for the purposes of LCR, and AoP, HUF, partnerships, trusts which are treated as wholesale are pre-defined as part of this assumption. . This assumption applies a 40% run off for an SME treated as wholesale and a 100% run off on the other entities.	AR2 Part D Sr 9
13	RBI-NFC, Sov, CB,PSE Non-operational UWF Run-off	Run-off on the non-operational portion of unsecured wholesale funding provided by non-financial corporate (NFC), sovereigns (Sov), central banks (CB), and multilateral development banks (MDB) and PSEs that is classified as an operational deposit.	The run-off rates on the non-operational portion of operational deposits from non-financial corporate, sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies a 40% run off on rate on the non-operational portion of deposits from these counterparties.	AR2 Part D Sr 9
14a	Non lien marked term deposits from SME, AoP, trusts etc	Non lien marked term deposits from SME, AoP, HUF, Trusts and partnerships treated as wholesale.	The run-off rates for non-lien marked term deposits from SMEs, AoPs, HUF, Trusts and partnerships treated as wholesale for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 40% run off on Wholesale SME and a 100% run off on the other counterparties	AR4 Sr no 9
14b	Term deposits with no lien marked.	Non lien marked term deposits from sovereigns, central banks, MDB, non-financial corporates and PSE.	The run-off rates for non-lien marked term deposits from sovereigns, Central banks, non-financial corporates, MDB and PSE are pre-defined as part of this assumption. This assumption applies a 40% run off on all the counterparties	AR4 Sr no 9

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
15a	Lien marked term deposits from SME, AoP, trusts etc	Lien marked term deposits from SME, AoP, HUF, Trusts and partnerships treated as wholesale.	The run-off rates for lien marked term deposits from SMEs, AoPs, HUF, Trusts and partnerships treated as wholesale for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 40% run off on Wholesale SME and a 100% run off on the other counterparties	AR4 Sr no 9
15b	Lien marked term deposits from PSE, MDB etc	Lien marked term deposits from sovereigns, central banks, MDB, non-financial corporates and PSE.	The run-off rates for lien marked term deposits from sovereigns, Central banks, non-financial corporates, MDB and PSE are pre-defined as part of this assumption. This assumption applies a 40% run off on all the counterparties	AR4 Sr no 9
16a	Unenc portion of lien marked TD from SME, AoP	Unencumbered portion of lien marked deposits from SME, AoP, HUF, Trusts and partnerships treated as wholesale	The run-off rates for the unencumbered portion of lien marked term deposits from SMEs, HUF, AoPs, Trusts and partnerships treated as wholesale for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 40% run off on Wholesale SME and a 100% run off on the other counterparties	AR4 Sr no 9
16b	Unenc portion of lien marked TD from sov, CB	Unencumbered portion of lien marked deposits from sovereigns, Central banks, MDB, Non-financial corporates and PSE.	The run-off rates for the unencumbered portion of lien marked term deposits from sovereigns, Central banks, non-financial corporates, MDB and PSE are pre-defined as part of this assumption. This assumption applies a 40% run off on all the counterparties	AR4 Sr no 9
17a	Encum portion of lien marked dep from SME, AoP etc	Encumbered portion of lien marked deposits from SME, AoP, HUF, Trusts and partnerships treated as wholesale	The run-off rates for the encumbered portion of lien marked term deposits from SMEs, AoPs, HUF, Trusts and partnerships treated as wholesale for the purposes of LCR are pre-defined as part of this assumption. This assumption applies a 0% run off on all the counterparties	AR4 Sr no 9

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
17b	Enc portion of lien marked TD from sov, CB	Encumbered portion of lien marked deposits from sovereigns, Central banks, MDB, Non-financial corporates and PSE.	The run-off rates for the encumbered portion of lien marked term deposits from sovereigns, Central banks, non-financial corporates, MDB and PSE are pre-defined as part of this assumption. This assumption applies a 0% run off on all the counterparties	AR4 Sr no 9
18	RBI - Other LE Unsecured Wholesale Funding Run-off	Run-off on unsecured wholesale funding, from wholesale customers other than SMEs, non-financial corporate, sovereigns, central banks, multilateral development banks and PSEs, provided for non-operational purposes.	The run-off rates on the cash flows, from unsecured funding that is not classified as an operational deposit, received from wholesale counterparties other than SMEs, non-financial corporates, sovereigns, central banks , multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies a 0% rollover i.e. 100% run-off on cash flows from non-operational funding accounts.	BLR Template A2 (iv)
19	RBI-UWF Run-off on Non-operational Balance of Other Entities	Run-off on the non-operational portion of unsecured wholesale funding (UWF) provided by customers other than non-financial corporates, sovereigns, central banks, multilateral development banks and PSEs that is classified as an operational deposit.	The run-off rates on the non-operational portion of operational deposits from wholesale counterparties other than SMEs, non-financial corporates, sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies a 100% run-off on the non-operational portion of operational deposits from such counterparties.	BLR Template A2 (iv)

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
20a	Non lien marked TD from other LE	Run off for non-lien marked term deposits from other legal entities.	The run-off rates for non-lien marked term deposits from all other legal entities are pre-defined as part of this assumption. This assumption applies a 100% run off for such deposits.	AR4 Sr no 9
20b	Lien marked TD from other LE	Run off for lien marked term deposits from other legal entities.	The run-off rates for lien marked term deposits from all other legal entities are pre-defined as part of this assumption. This assumption applies a 100% run off for such deposits.	AR4 Sr no 9
20c	Unenc portion of lien marked TD from other LE	Run off for unencumbered portion of lien marked term deposits from other legal entities.	The run-off rates for the unencumbered portion of lien marked term deposits from all other legal entities are pre-defined as part of this assumption. This assumption applies a 100% run off.	AR4 Sr no 9
20d	Enc portion of lien marked TD from other LE	Run off for encumbered portion of lien marked term deposits from other legal entities.	The run-off rates for the encumbered portion of lien marked term deposits from all other legal entities are pre-defined as part of this assumption. This assumption applies a 0% run off.	AR4 Sr no 9
21a	RBI- Secured funding run off - Central banks	Run off on secured funding, excluding collateral swaps with central banks as counterparty	The run-off rates on the secured funding, excluding collateral swaps, with Central banks as counterparty, are pre-defined as part of these assumptions. The assumption applies a 100% roll over to cash flows from such transactions.	AR2 Part D Sr No11
21b	RBI- Secured funding run off - all other counterparties	Run-off on secured funding, excluding collateral swaps, with all counterparties except central banks	The run-off rates on the secured funding, excluding collateral swaps, from all counterparties except Central banks, are pre-defined as part of these assumptions. This assumption applies the regulatory run-offs applicable to each counterparty type in the form of rollover rates that is 1 – run-off rates.	AR2 Part D Sr No11

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
22	RBI-Collateral Swap Run-off	Run-off on collateral swap transactions.	The run-off rates on collateral swaps are pre-defined as part of this assumption. This assumption applies the run-offs applicable to the market value of received collateral, when the collateral received under a swap transaction is of a higher quality than the collateral placed, as the difference between the liquidity haircuts applicable to the received and placed collateral.	AR2 Part D Sr No 11
23	RBI- Derivatives cash outflows	Net cash outflows from derivative transactions.	The outflow rate on the 30-day cash outflows from derivative transactions is pre-defined as part of this assumption. This assumption applies a 100% outflow on derivative cash outflows, on a net basis in case of derivatives which are part of a netting agreement and on a non-net basis for other derivatives.	BLR Template A 4 (i)
24	RBI-Additional Collateral Required Due to Ratings Downgrade	Increased liquidity needs arising from the requirement to post additional collateral due to a 3-notch ratings downgrade.	The outflow rate, on the additional collateral required to be posted on contracts with downgrade triggers, due to a 3-notch ratings downgrade, is pre-defined as part of this assumption. This assumption applies a 100% outflow on the downgrade impact amount arising from a 3-notch ratings downgrade.	AR2 Part D Sr No 12, Explanatory note (ix)
25	RBI-Loss of Re-hypothecation Rights Due to Ratings Downgrade	Increased liquidity needs arising from a loss of re-hypothecation rights on assets received as collateral due to a 3-notch ratings downgrade.	The outflow rate, on the additional cash outflows arising on contracts with downgrade triggers that result in a loss of re-hypothecation rights due to a 3-notch ratings downgrade is pre-defined as part of this assumption. This assumption applies a 100% outflow on the value of mitigants received under re-hypothecation rights corresponding to accounts whose downgrade trigger is activated due to the 3-notch ratings downgrade.	AR2 Part D Sr No 12, Explanatory note (ix)

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
26	RBI - Increased Liquidity Needs Due to Change in Coll Value	Increased liquidity needs arising from the potential change in the value of posted collateral.	The outflow rate on the additional cash outflow due to a potential loss in the market value of non-level 1 assets posted as collateral is pre-defined as part of this assumption. This assumption applies a 100% outflow on the value of non-level 1 posted collateral computed after netting the non-level 1 collateral received under re-hypothecation rights on the same transaction.	AR2 Part D Sr No 12, Explanatory note (x)
27	RBI-Increased Liquidity Needs Due to Market Valuation Change	Increased liquidity needs arising from market valuation changes on derivatives and other transactions.	The outflow rate on the collateral outflows occurring due market valuation changes on derivative and other transactions is pre-defined as part of this assumption. This assumption applies a 100% outflow rate on the largest absolute net 30-day collateral flow occurring during the preceding 24 months under the historical look-back approach.	AR2 Part D Sr No 12
28	RBI-Increased Liquidity Needs Due To Excess Collateral	Increased liquidity needs arising from excess non-segregated collateral received that can be recalled by the counterparty.	The outflow rate on the excess unsegregated collateral held by a bank, which can potentially be withdrawn by the counterparty, is pre-defined as part of this assumption. This assumption applies a 100% outflow on the value of excess collateral.	AR2 Part D Sr No 12, Explanatory note (xiv)
29	RBI-Increased Liquidity Needs from Contractually Due Coll	Increased liquidity needs arising from collateral that is contractually required to be posted to the counterparty but has not yet been posted.	The outflow rate on the collateral that the bank is contractually required to post to its counterparty, but has not yet posted, is pre-defined as part of this assumption. This assumption applies a 100% outflow on the value of contractually due collateral.	AR2 Part D Sr No 12, Explanatory note (xiii)
30	RBI-Increased Liquidity Needs Due to Substitutable Coll	Increased liquidity needs arising from contracts that allow a counterparty to substitute lower quality	The outflow rate on the collateral that the counterparty can contractually substitute with lower quality collateral is pre-defined as part of this assumption. This assumption applies an outflow rate equal to the difference between the liquidity haircuts of collateral that can be	AR2 Part D Sr No 12, Explanatory note (xv)

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		collateral for the current higher quality collateral.	potentially substituted by the counterparty and the collateral that substitutes it.	
31	RBI-Loss of Funding on Structured Financing Instruments	Loss of funding on asset-backed securities, covered bonds and other structured financing instruments.	The run-off rate on the maturing asset-backed securities, covered bonds and other structured financing instruments is pre-defined as part of this assumption. This assumption applies a 100% run-off on structured financing instruments that mature within the LCR horizon.	AR2 Part D Sr no 12
32	RBI-Loss of Funding from Financing Facility–Maturing Debt	Loss of funding on asset-backed commercial paper, conduits, securities investment vehicles and other such financing facilities due to inability to refinance maturing debt.	The run-off rate on the maturing amounts of asset-backed commercial paper, conduits, securities investment vehicles and other such financing facilities is pre-defined as part of this assumption. This assumption applies a 100% run-off on the EOP balance of the structured financing facilities that mature within the LCR horizon.	AR2 Part D Sr no 12
33	RBI-Loss of Funding from Financing Facility–Return of Assets	Loss of funding on asset-backed commercial paper, conduits, securities investment vehicles and other such financing facilities due to potential return of assets.	The run-off rate on the returnable assets underlying asset-backed commercial paper, conduits, securities investment vehicles and other such financing facilities is pre-defined as part of this assumption. This assumption applies a 100% run-off on the value of the assets that are returnable within the LCR horizon.	AR2 Part D Sr no 12
34	RBI-Drawdowns on Committed Credit and Liquidity Facilities	Drawdowns on committed credit and liquidity facilities extended to retail customers, SMEs, corporates, sovereigns, central banks, MDBs and	The outflow rate on the undrawn amount available to be drawn down on the committed credit and liquidity facilities extended to retail customers, SMEs, corporates, sovereigns, central banks, MDBs and PSEs is pre-defined as part of this assumption. This assumption applies the relevant outflow as a drawdown rate, based on the	BLR 1 LCR template-C.1 AR2 Part D Sr No 12,

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		PSEs.	counterparty type, for the aforementioned counterparties.	Explanatory notes (xvi)
35	RBI-Draws on Committed Facilities Extended to Banks	Drawdowns on committed credit and liquidity facilities extended to banks.	The outflow rate on the undrawn amount available to be drawn down on the committed credit and liquidity facilities extended to customers is pre-defined as part of this assumption. This assumption applies the relevant outflow as a drawdown rate, for banks, including those subject to prudential regulation.	BLR 1 LCR template-C.1 AR2 Part D Sr No 12, Explanatory notes (xvi)
36	RBI-Draws on Committed Facilities Extended to Other Entitiy	Drawdowns on committed credit and liquidity facilities extended to entities other than retail customers, SMEs, corporates, sovereigns, central banks, MDBs, PSEs and banks.	The outflow rate on the undrawn amount available to be drawn down on the committed credit and liquidity facilities extended to customers other than retail customers, SMEs, corporates, sovereigns, central banks, MDBs, PSEs and banks is pre-defined as part of this assumption. This assumption applies a 100% outflow as a drawdown rate to all counterparties excluding the aforementioned counterparties.	BLR 1 LCR template-C.1 AR2 Part D Sr No 12, Explanatory notes (xvi)
37	RBI - Other Contingent Funding Obligation Outflows	Outflows related to trade finance related instruments.	The outflow rate on the trade finance related instruments is pre-defined as part of this assumption. This assumption applies a 5% run-off on such trade finance obligations.	BLR 1 LCR template-C.1 AR2 Part D Sr No 12 AR4 Sr no 5
38	RBI - Uncommitted Facility Outflows	Drawdowns on uncommitted credit and liquidity facilities extended to customers.	The outflow rate on the undrawn amount available to be drawn down on the uncommitted credit and liquidity facilities extended to customers is pre-defined as part of this assumption. This assumption applies a 0% drawdown on the uncommitted facilities. The drawdown rates are	BLR 1 LCR template-C.1 AR2 Part D Sr No 12

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
			allowed to be updated to reflect the rates specified by national regulators.	AR4 Sr no 5
39	RBI- Outflows related to short positions.	Outflows related to customer and bank short positions	The outflow rate on the customer and firm short positions is pre-defined as part of this assumption. This assumption specifies outflows on the short positions based on assets covering such short positions.	AR2 Part D Sr No 12 Explanatory note (xx) AR2 Appendix Para E , Explanatory note (iii)
40.	RBI - Other Contractual Obligations to Non-Financial Customers	Outflows related to other contractual obligations to extend funds within 30 days to retail and non-financial wholesale counterparties.	The outflow rate on the other contractual obligations to extend funds to retail and non-financial corporate customers, in excess of 50% of contractual inflows from such customers within the LCR horizon, is pre-defined as part of this assumption. This assumption applies a 100% outflow on the excess contractual obligation amount.	AR2 Part D Sr. No. 12 (xviii)
Inflows				
1	RBI- Secured lending inflows	Inflows from secured lending transactions excluding collateral swaps.	The inflow rates on the secured lending, excluding collateral swaps, are pre-defined as part of this assumption. This assumption applies the regulatory inflows to secured lending transactions based on the asset level of the collateral received in the form of rollover rates i.e. 1 – run-off rates.	BLR 1 LCR template-C.1 (June 2014) AR2 Appendix- E, explanatory note (i), (ii) and (iii)
2	RBI - Collateral Swap Inflows	Inflows from collateral swap transactions.	The inflow rates on collateral swaps are pre-defined as part of this assumption. This assumption applies the inflows applicable to the market value of placed collateral, when the collateral placed under a swap transaction is of a higher quality than the collateral received, as	BLR 1 LCR template-C.1 (June 2014) AR2 Appendix- E,

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
			the difference between the liquidity haircuts applicable to the placed and received collateral.	explanatory note (i), (ii) and (iii)
3	RBI - Drawdowns on Committed Funding Facilities received	Drawdowns on committed facilities received by the bank.	The inflow rate on the undrawn amount available to be drawn down, on the committed credit and liquidity facilities received by the bank, is pre-defined as part of this assumption. This assumption applies a 0% inflow rate on the credit and liquidity lines received by the bank.	BLR 1 LCR template-C.4 AR2 Part D Sr No 14, Explanatory notes (xxv) and (xxvi)
4	RBI - Other Inflows from Retail Counterparties	Other inflows from fully performing loans, which have a specified maturity and are extended to retail customers and SMEs treated as retail.	The inflow rate on the fully performing loans with a stated maturity, extended to retail customers and SMEs who are treated like retail customers for the purposes of LCR, is pre-defined as part of this assumption. This assumption applies a 50% rollover i.e. 50% inflow on performing retail loans.	BLR 1 LCR template-C.5 (June 2014) AR 2 Part D Sr No 13
5	RBI - Other Inflows from WSME, NFC, Sov, CB, MDB and PSE	Other inflows from fully performing loans, which have a specified maturity and are extended to small and medium enterprises treated as wholesale (WSME), non-financial corporate (NFC), sovereigns (Sov), central banks (CB), multilateral development banks (MDB) and public sector enterprises (PSE).	The inflow rate on the fully performing loans with a stated maturity, extended to wholesale SMEs, non-financial corporates, sovereigns, central banks, multilateral development banks and public sector enterprises is pre-defined as part of this assumption. This assumption applies a 0% rollover that is 100% inflow on performing loans from central banks and a 50% rollover that is 50% inflow on those from other non-financial counterparties specified earlier.	BLR 1 LCR template-C.5 AR 2 Part D Sr No 13

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
6	RBI - Other Inflows from Other Wholesale Counterparties	Other inflows from fully performing loans extended to financial entities, excluding central bank, multilateral development bank and public sector enterprise, and to non-financial wholesale counterparties, excluding corporate, sovereign, central bank, multilateral development bank and public sector enterprise.	The inflow rate on the fully performing loans with a stated maturity, extended to counterparties other than retail, SMEs, non-financial corporates, sovereigns, central banks, multilateral development banks and public sector enterprises, is pre-defined as part of this assumption. This assumption applies a 0% rollover that is 100% inflow on performing loans from other financial entities and a 50% rollover that is 50% inflow on those from other non-financial counterparties.	BLR 1 LCR template-C.5 AR 2 Part D Sr No 13
7	RBI - Revolving, Non-Maturity and Non-Performing Inflow Excl	Exclusion of inflows from revolving products, products that do not have a specified maturity, and products that are not fully performing.	The exclusion of cash inflows from revolving assets, assets that do not have a stated maturity and assets that are not fully performing is pre-defined as part of this assumption. This assumption applies a 100% rollover on the inflows from such assets.	BLR 1 LCR template-C.5 AR2 Part D Sr No 13 and 14
8a	RBI - Open Maturity Loan Minimum Payment Inflows	Inflows due to minimum payments received within the LCR horizon on open maturity loans from all counterparties	The inflow rate on the minimum payments of principal, interest and fee, that are contractually due within the LCR horizon, on an open maturity loan with all counterparties, is pre-defined as part of this assumption. This assumption applies a 50% factor on such minimum payments for retail parties and non-financial counterparties and 100% factor on financial counterparties.	BLR 1 LCR template-C.5 AR2 Part D Sr No 14

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
8b	RBI - Open Maturity Loans-wholesale parties	Inflows due to minimum payments received within the LCR horizon on open maturity loans with wholesale counterparties	The inflow rate on the minimum payments of principal, interest and fee, that are contractually due within the LCR horizon, on an open maturity loan with wholesale counterparties, is pre-defined as part of this assumption. This assumption applies a 100% inflow on such minimum payments with financial parties and 50% inflow with non-financial parties.	BLR 1 LCR template-C.5 AR2 Part D Sr No 14
9	RBI - Operational Deposit Inflows	Inflows from operational deposits held with other financial institutions and deposits held with the centralized institution of a cooperative banking network.	The inflow rate on the deposits, held by the bank at other institutions for operational purposes, are pre-defined as part of this assumption. This assumption applies a 0% inflow on such operational deposits.	BLR 1 LCR template-C.5 AR2 Part D Sr no 10
10	RBI-Derivatives Cash Inflows	Net cash inflows from derivative transactions.	The inflow rate on the 30-day cash inflows from derivative transactions is pre-defined as part of this assumption. This assumption applies a 100% inflow on derivative cash inflows, on a net basis in case of derivatives which are part of a netting agreement and on a non-net basis for other derivatives.	BLR 1 LCR template-C.6 AR2 Part D Sr No 13
11	RBI - Non HQLA Security inflows	Inflows from securities not included in the stock of HQLA.	The inflow rate on the performing securities that are excluded from the stock of HQLA is pre-defined as part of this assumption. This assumption applies a 100% inflow on both the principal and interest cash flows from securities classified as Other Assets and securities classified as HQLA but do not meet the eligibility criteria for inclusion in the stock of HQLA. It also applies a 0% inflow rate on non-performing securities and securities that are classified as HQLA and meet the criteria for inclusion in the stock of HQLA, to avoid double counting.	AR2 Part D, Sr No 13, Explanatory Note (xxiii)

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
12	RBI - Contractual Interest Inflows	Inflows related to contractual receipt of interest.	The inflow rate on the interest contractually receivable, on fully performing assets other than non-HQLA securities, within the LCR horizon is pre-defined as part of this assumption. This assumption applies a 100% inflow on interest in the form of a 0% rollover rate.	AR2 Part D, Sr No 13, Explanatory Note (xxiii)
50	RBI - Other Deposit Inflows	Inflows from deposits placed with the central bank or with other banks that are not included as a level 1 asset in the stock of HQLA.	The inflow rate on the deposits held with central banks and other financial institutions maturing within the LCR horizon is pre-defined as part of this assumption. This assumption applies a 100% inflow on interest in the form of a 0% rollover rate.	AR7 Sr. No. 1 Section 5.4 (i) (a)

3 Net Stable Funding Ratio Calculation

Net Stable Funding Ratio (NSFR) is one of the two minimum standards developed to promote funding and liquidity management in financial institutions. Liquidity Coverage Ratio (LCR) is the first standard which assesses the short term liquidity challenges of a bank. NSFR assesses the bank's liquidity risks over a longer time horizon. Both the standards, complement each other, are aimed at providing a holistic picture of a bank's funding risk profile, and aid in better liquidity risk management practices.

NSFR is defined as the amount of available stable funding relative to the required stable funding. Available stable funding refers to the portion of capital and liabilities expected to be reliable over the horizon of 1 year. Required stable funding refers to the portion of assets and off balance sheet exposures over the same horizon. The NSFR ratio is expected to be at least 100%.

$$\left(\frac{Available\ stable\ funding}{Required\ stable\ funding}\right) \geq 100\%$$

3.1 Process Flow

The Available Stable Funding (ASF) factor and Required Stable Funding (RSF) factor is applied through business assumptions and reflects through the execution of a Business as Usual (BaU) run in the OFSAA LRM application. The ASF and RSF factors are applied as weights at the account level and the Total ASF and Total RSF is obtained by taking a sum of the all the weighted amounts. The ratio is then computed by the application as the (Total ASF amount)/(Total RSF amount) A set of pre-defined business assumptions for ASF and RSF as defined in the NSFR guidelines are prepackaged in the application. For the complete list of pre seeded ASF and RSF assumptions refer section Regulation Addressed through Business Assumptions.

- Identification of Maturity bands
- Computation of Available Amount of Stable Funding
- Computation of Required Amount of Stable Funding
- Computation of Derivatives

- Computation of Net Stable Funding Ratio

3.1.1 Maturity bands

One of the various dimensions used to allocate ASF and RSF factors is the maturity bucket of the instrument. For NSFR computation, maturity bands are used to allocate the factors. The RBI NSFR band is pre-defined as per regulatory guidelines and has values as follows:

- Less than 6 months
- Greater than or equal to 6 months but less than 1 year
- Greater than or equal one year
- Open maturity

All accounts will be categorized on one of the above bands depending on the maturity date. It must be noted that to categorize any product into open maturity, the Rule "LRM - Classification of Products as Open Maturity" has to be edited and the product must be included in the Rule.

3.1.2 Available Amount of Stable Funding Computation

The available stable funding factor is a pre-determined weight ranging from 0% to 100% which is applied through business assumptions for the accounts falling under the dimensional combinations defined. The weights are as guided by the NSFR standard. The available stable funding is then taken as a total of all the weighted amounts where an ASF factor is applied.

The formula for calculating Available Amount of Stable Funding is as follows:

$$\boldsymbol{Available\ Amount\ of\ Stable\ Funding} = \sum_{\boldsymbol{i=1}}^{\boldsymbol{n}} \boldsymbol{Liability_i} * \boldsymbol{Factor_i}$$

$$\boldsymbol{where\ n =\ The\ number\ of\ capital\ and\ liability\ accounts}$$

An example of the application of ASF factor is given below:

Consider an assumption defined with the following dimensional combination and ASF factors, with the based on measure being Total stable balance:

Dimensional Combination			ASF Factor
Product	**Retail/Wholesale Indicator**	**Residual Maturity Band**	
Deposits	R	<= 6 months	95%
Deposits	R	6 months - 1 year	95%
Deposits	R	>= 1 year	95%

If there are five accounts falling under the above combination, then after the assumption is applied the resulting amounts with application of ASF factors is as follows:

Account	Stable Balance	ASF Weighted Amount
A1	3400	3230
A2	3873	3679.35
A3	9000	8550
A4	1000	950
A5	100	95

NOTE: The application does not compute ASF items such as Tier 1 and Tier 2 capital, deferred tax liabilities, and minority interest. The items are taken as a download from the OFS Basel application. By updating the latest Basel Run Skey as a setup parameter, the LRM application picks up the respective standard accounting head balances and applies the respective ASF factors.

In case OFS Basel is not installed, then the items mentioned below must be provided as a download in FCT_STANDARD_ACCT_HEAD table.

- Gross Tier 2 Capital
- Deferred Tax Liability related to Other Intangible Asset
- Deferred Tax Liability related to Goodwill
- Deferred Tax Liability related to MSR
- Deferred Tax Liability related to Deferred Tax Asset
- Deferred Tax Liability related to Defined Pension Fund Asset
- Net CET1 Capital post Minority Interest Adjustment
- Net AT1 Capital post Minority Interest Adjustment
- Total Minority Interest required for NSFR

3.1.3 Required Amount of Stable Funding Computation

The required stable funding factor is a pre-determined weight ranging from 0% to 100% which is applied through business assumptions for the accounts falling under the defined dimensional combinations. The weights are as guided by the NSFR standard. The required stable funding is then considered as a sum of all the weighted amounts where an RSF factor is applied.

The required stable funding factor is a weight function and is applied in a similar manner as that of the ASF. The formula which is used for calculating the Required Amount of Stable Funding is as follows:

$$\boldsymbol{Required\ Amount\ of\ Stable\ Funding} = \left(\sum_{i=1}^{n} \boldsymbol{Asset_i} * \boldsymbol{Factor_i}\right) + \left(\sum_{i=1}^{m} \boldsymbol{Off\ Balance\ Sheet_i} * \boldsymbol{Factor_i}\right)$$

$$\boldsymbol{where\ n = Number\ of\ asset\ accounts}$$

$$\boldsymbol{where\ m = Number\ of\ off\ balance\ sheet\ accounts}$$

3.1.3.1 Off Balance Sheet Items

Off balance sheet items are considered under the application of RSF factor, and are given the appropriate factor as guided. Some combinations such as line of credit have a pre-defined RSF factor as guided and are available as pre seeded assumptions. Other off balance sheet products such as Variable Rate Demand Notes (VRDN) and Adjustable Rate Notes (ARN) do not have pre-defined factors and are left to the discretion of the jurisdictions. For such products, the user can define assumptions and apply desired RSF factors as applicable.

3.1.4 Derivatives

Derivatives are handled through application of both ASF and RSF factors as applicable. They can behave as either an asset or a liability, depending on the marked to market value. Application of factors on derivatives is done on the market value after subtracting variation margin posted/received against the account. The computation is described below:

1. NSFR derivative liabilities = Derivative liabilities – (Total collateral posted as variation margin against the derivative liabilities)
2. NSFR derivative assets = Derivative assets – (Cash collateral received as variation margin against the derivative assets)
3. The factors are then applied as follows:
    - **ASF factor application**

      ASF amount for derivatives = 0% * Max ((NSFR derivative liabilities –NSFR derivative assets), 0)
    - **RSF factor application**

      RSF amount for derivatives = 100% * Max ((NSFR derivative assets- NSFR derivative liabilities), 0)

Derivative liabilities refer to those derivative accounts where the market value is negative. Derivative assets refer to those derivative accounts where the market value is positive. Apart from the variation margin, the initial margin against derivative contracts is also treated with the appropriate factor.

3.1.5 Net Stable Funding Ratio Computation

The Net Stable Funding Ratio is calculated as follows:

$$Net\ Stable\ Funding\ Ratio = \frac{Available\ Amount\ of\ Stable\ Funding}{Required\ Amount\ of\ Stable\ Funding}$$

3.2 Pre-configured RBI Regulatory NSFR Scenarios

OFS LRRCRBI supports out-of-the-box RBI NSFR assumptions according to RBI guidelines on the Net stable funding ratio.

This section explains the business assumptions which support NSFR as per RBI circular DBR.BP.BC. XX/21.04.098/2014-15: the net stable funding ratio, May 2015.

NOTE: This section gives only the contextual information about all the business assumptions. For more detailed information refer OFS LRM application (UI).

3.2.1 Regulation Addressed through Business Assumptions

The application supports multiple assumptions with pre-configured rules and scenarios based on regulator specified NSFR scenario parameters. The list of pre-configured business assumptions and the corresponding reference to the regulatory requirement that it addresses is provided in the following tables:

3.2.1.1 Available Stable Funding Factor

This section enlists all the pre seeded assumptions acting on liabilities and capital items which receive an ASF factor.

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
1	RBI-Capital items, DTL and minority interest	[RBI]: Tier 1 and Tier 2 capital, deferred tax liabilities and minority interest	This assumption defines the long-term funding sources with effective maturity of one year or more, primarily tier 1 and tier 2 capital instruments along with deferred tax liability and minority interest, which are assigned a 100% ASF factor for the NSFR computation.	MC Paragraphs - 7.2A, 7.2B, 7.6B
2	RBI- Stable retail deposits with maturity less than 1yr	[RBI]: ASF- Stable and highly stable deposits as defined in the LCR from customers treated as retail with a remaining maturity of less	The ASF factors applicable to the stable portion of deposits, from retail customers and SMEs treated like retail customers for the purposes of LCR, with remaining maturity of less than 1 year are pre-defined as part of this assumption. This assumption applies a 95% ASF factor on the stable portion of the retail deposits.	MC Paragraph - 7.3

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		than 1 yr		
3	RBI- Stable retail deposits with maturity more than 1yr	[RBI]: ASF- Stable and highly stable deposits as defined in the LCR from customers treated as retail with a remaining maturity of more than 1 yr and cash flow maturity of less than 1 year	The ASF factors applicable to the stable portion of deposits, from retail customers and SMEs treated like retail customers for the purposes of LCR, with remaining maturity of more than 1 year with cash flow maturities within 1 year, are pre-defined as part of this assumption. This assumption applies a 95% ASF factor on the stable portion of cash flows.	MC Paragraph - 7.3
4	RBI- Less stable retail deposits with maturity less than 1yr	[RBI]: ASF- Less stable deposits as defined in the LCR from customers treated as retail with a remaining maturity of less than 1 yr	The ASF factors applicable to the less stable portion of deposits, from retail customers and SMEs treated like retail customers for the purposes of LCR, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies a 90% ASF factor on the stable portion of retail deposits.	MC Paragraph - 7.4
5	RBI-Less stable retail deposits- Cash flow basis	[RBI]: ASF- Less stable deposits as defined in the LCR from customers treated as retail with a remaining maturity of more than 1 yr and cash flow maturity of less than 1 year	The ASF factors applicable to the less stable portion of deposits from retail customers and SMEs treated like retail customers for the purposes of LCR, with remaining maturity of more than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 90% ASF factor on the stable portion of cash flows.	MC Paragraph - 7.4
6	RBI- Other funds from retail with mat less than 1yr	[RBI]: Other funding from customers treated as retail with a residual maturity of	The ASF factors applicable to the funding other than deposits, from customers who are treated as retail for the purposes of LCR, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on the funding with remaining maturity of less than 6 months and 50%	MC Paragraphs - 7.5D and 7.6A

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		less than 1 year	on the funding with remaining maturity between 6 months to 1 year.	
7	RBI- Other funds from retail with mat more than 1yr	[RBI]: Other funding from customers treated as retail with an account residual maturity of more than 1 year	The ASF factors applicable to the funding other than deposits, from customers who are treated as retail for the purposes of LCR, with remaining maturity of more than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on cash flows with maturity less than 6 months and a 50% to cash flows with maturity period between 6 month to 1 year.	MC Paragraphs - 7.5D and 7.6A
8	RBI ASF - Op dep with mat less than 1 yr	RBI ASF on the operational portion of operational deposits, generated by clearing, custody and cash management activities, with remaining maturity of less than 1 year.	The ASF factor applicable to the balance held in operational accounts to fulfill operational requirements are pre-defined as part of this assumption. This assumption applies a 50% ASF factor on the operational balances with remaining maturity of less than 1 year.	MC Paragraph - 7.5B
9	RBI ASF - Non op portion of op dep from SME with mat less than 1 yr	RBI ASF on non-operational portion for operational accounts from SMEs AoP, Trusts, partnerships and HUFs not treated as retail, with remaining maturity less than 1 year.	The ASF factor on non-operational portion of operational accounts, from small and medium enterprises, association of persons, trusts, partnerships and Hindu undivided families not treated as retail, with remaining maturity of less than 1 year are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational balances of operational accounts with remaining maturity of less than 1 year.	MC Paragraph - 7.6B

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
10	RBI ASF - Non op dep from SME less than 1 yr	RBI ASF on non-operational wholesale funding, from SMEs AoP, Trusts, partnerships and HUFs not treated as retail, with remaining maturity less than 1 year.	The ASF factor on non-operational wholesale funding, from small and medium enterprises, association of persons, trusts, partnerships and Hindu undivided families not treated as retail, with remaining maturity of less than 1 year are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational funding with remaining maturity of less than 6 months and a 50% ASF factor on non-operational funding with remaining maturity between 6 months to 1 year.	MC Paragraphs - 7.6A, 7.6B and 7.5D
11	RBI ASF - Non op dep from SME greater than 1 yr	RBI ASF on non-operational wholesale funding, from SMEs AoP, Trusts, partnerships and HUFs not treated as retail, with remaining maturity greater than 1 year and where the cash flows are occurring within 1 year.	The ASF factor applicable to non-operational cash flows, from SMEs AoP, Trusts, partnerships and HUFs not treated as retail, with remaining maturity of greater than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational cash flows with cash flow maturity of less than 6 months and a 50% ASF factor on non-operational cash flows with remaining maturity between 6 months to 1 year.	MC Paragraphs - 7.6A, 7.6B and 7.5D
12	RBI ASF - Non op portion of op dep from CB PSE MDB NDB with mat less than 1 yr	RBI ASF on the non-operational portion of operational deposits, from Central banks, PSE, MDB, NDB, generated by clearing, custody and cash management activities, with remaining maturity of less than 1 year.	The ASF factor applicable to non-operational portion of operational accounts from central banks, public sector entity (PSE), multilateral development bank (MDB), national development bank (NDB), with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational portion of operational accounts from central banks with remaining maturity of less than 1 year and a 50% ASF factor on non-operational portion of operational accounts from central banks, PSE, MDB, and NDB with remaining maturity of less than 1 year.	MC Paragraphs - 7.5 C, 7.5D and 7.6A

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
13	RBI ASF - Non op funds from CB PSE MDB NDB greater than 1 yr	RBI ASF on non-operational funding, from central banks, PSE, MDB, NDB, with remaining maturity greater than 1 year and where the cash flows are occurring within 1 year.	The ASF factor applicable to non-operational cash flows from central banks, PSE, MDB, NDB, with remaining maturity of greater than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational cash flows from central banks with cash flow maturity of less than 6 months, a 50% ASF factor for cash flow maturity between 6 months to 1 year, a 50% ASF factor on non-operational cash flows from PSE, MDB, and NDB with cash flow maturity of less than 1 year.	MC Paragraphs - 7.5 C, 7.5D and 7.6A
14	RBI ASF - Non op funds from CB PSE MDB NDB less than 1 yr	RBI ASF on non-operational funding, from Central banks, financial institutions (banks) PSE, MDB, NDB, with remaining maturity less than 1 year.	The ASF factor on non-operational funding from central banks, PSE, MDB, NDB, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational funding from central banks with remaining maturity of less than 6 months, a 50% ASF factor for non-operational funding from PSE, MDB, and NDB between 6 months to 1 year and 50% ASF factor on non-operational funding from PSE, MDB, and NDB with remaining maturity of less than 1 year.	MC Paragraphs - 7.5 C, 7.5D and 7.6A
15	RBI ASF - Non op portion of op dep from corp with mat less than 1 yr	RBI ASF on the non-operational portion of operational deposits, from financial and non-financial corporates, generated by clearing, custody and cash management activities, with remaining maturity of less than 1 year.	The ASF factor applicable to non-operational portion of operational accounts from financial and non-financial corporates, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational portion of operational accounts from financial corporates with remaining maturity of less than 1 year and a 50% ASF factor on non-operational portion of operational accounts from non-financial corporates with remaining maturity of less than 1 year.	MC Paragraphs - 7.5 A, 7.6B

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
16	RBI ASF - Non op funds from Corp greater than 1 yr	RBI ASF on non-operational funding, from financial and non-financial corporates, with remaining maturity greater than 1 year and where the cash flows are occurring within 1 year.	The ASF factor applicable to non-operational cash flows from financial and non-financial corporates, with remaining maturity of greater than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 50% ASF factor on non-operational cash flows from non-financial corporates with cash flow maturity of less than 6 months and between 6 months to 1 year. The assumptions applies a 0% ASF factor on non-operational cash flows from financial corporates with cash flow maturity of less than 6 months and a 50% ASF factor on non-operational cash flows from financial corporates with cash flow maturity between 6 months to 1 year.	MC Paragraphs - 7.5 A, ,7.5, 7.6A
17	RBI ASF - Non op funds from Corp less than 1 yr	RBI ASF on non-operational funding, from financial and non-financial corporates, with remaining maturity less than 1 year.	The ASF factor on non-operational funding from financial and non-financial corporates, with remaining maturity less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational funding from financial corporates with remaining maturity of less than 6 months and a 50% ASF factor for non-operational funding from financial corporates with remaining maturity between 6 months to 1 year. The assumptions also applies a 50% ASF factor on non-operational funding from non-financial corporates with remaining maturity of less than 6 months and between 6 months to 1 year.	MC Paragraphs - 7.5 A, ,7.5, 7.6A
18	RBI ASF - Non op portion of op dep other parties with mat less than 1 yr	RBI ASF on the non-operational portion of operational deposits, from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, generated by	The ASF factor applicable to non-operational portion of operational accounts from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, with remaining maturity less than 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor on non-operational portion of operational accounts from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, and sovereign, PSE, MDB and NDB with remaining maturity of less than 1 year.	MC Paragraphs - 7.6B

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
		clearing, custody and cash management activities, with remaining maturity of less than 1 year.		
19	RBI ASF - Non op funds other parties less than 1 yr	RBI ASF on non-operational funding, from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, with remaining maturity less than 1 year.	The ASF factor applicable to non-operational funding, from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, with remaining maturity less than 1 year are pre-defined as part of this assumption. This assumption applies a 0% ASF factor and a 50% ASF factor on non-operational funding from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB with remaining maturity of less than 6 months and between 6 months to 1 year respectively.	MC Paragraphs - 7.6A, 7.5D
20	RBI ASF - Non op funds other parties greater than 1 yr	RBI ASF on non-operational funding, from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, with remaining maturity greater than 1 year and where the cash flows are occurring within 1 year.	The ASF factor applicable to non-operational cash flows, from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB, with remaining maturity greater than 1 year with cash flow maturity within 1 year, are pre-defined as part of this assumption. This assumption applies a 0% ASF factor and 50% ASF factor on non-operational cash flows from all except retail, SME, AoP, Trusts, partnerships, HUF, corporates, banks, central banks, sovereign, PSE, MDB and NDB with cash flow maturity of less than 6 months and between 6 months to 1 year respectively.	MC Paragraphs - 7.6A, 7.5D

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference
21	RBI ASF- Trade date payables	[RBI]: Trade date payables arising from purchases of foreign currencies, financial instruments and commodities that are expected to settle or have failed but are expected to settle within the standard settlement cycle.	The ASF factor applicable to trade payable cash flows arising from purchases of foreign currencies, financial instruments and commodities expected to settle within the standard settlement cycle, are pre-defined in this assumption. This assumption applies 0% ASF factor on the trade payable cash flows.	MC Paragraph - 7.6 D
22	RBI ASF- Liabilities with open maturity	[RBI]: Secured deposits and all other borrowings and which do not have a stated maturity.	The ASF factor applicable to all the other funding's without any stated maturity are pre-defined in this assumption. This assumption applies 0% ASF factor on all the funding's without any maturity.	MC Paragraph - 7.6 B
23	RBI ASF-Borr and Liabilities with maturities beyond 1 year (Catch all for cash flows beyond 1 year)	[RBI]: Borrowings and liabilities with residual maturities and cash flows falling beyond 1 year.	The ASF factors applicable to all other funding's with remaining maturity of greater than 1 year with cash flow maturity within 1 year, are pre-defined in this assumption. This assumption applies 0% ASF factor on the cash flows.	MC Paragraph - 7.2 C

3.2.1.2 Required Stable Funding Factor

This section enlists all the pre seeded assumptions acting on assets and off balance sheet items which receive an RSF factor.

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
1	RBI- Coins and banknotes	[RBI]: Coins, banknotes, cash and restricted cash held by the bank.	The RSF factor applicable to coins, banknotes, and cash held by the bank, is pre-defined as a part of this assumption. This assumption applies 0% RSF factor on the coins, banknotes, and cash held by bank.	MC Paragraph - 9.2 A
2	RBI- Central bank reserves	[RBI]: All central bank reserves, including, required reserves and excess reserves.	The RSF factors applicable to required and excess central bank reserves, are pre-defined as a part of this assumption. This assumption applies 0% RSF factor to all central bank reserves.	MC Paragraph - 9.2 B
3	RBI- Unencumbered claims on central banks	[RBI]: Unencumbered loans and other claims on central banks	The RSF factors applicable to fully performing unencumbered loans and claims on central banks, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. This assumption applies 0%, 50% and 100% RSF factors to the loans and claims on central banks with remaining maturity of less than 6 months, between 6 months and 1 year, and 1 year or more respectively.	MC Paragraphs - 9.2 C, 9.6 C, 9.9 C

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
4	RBI- Encumbered claims on central banks	[RBI]: Encumbered loans and other claims on central banks	The RSF factors applicable to fully performing encumbered loans and claims on central banks, maturing within a year and encumbrance period 1 year or more, are pre-defined as part of this assumption. For the qualifying assets with encumbrance period of less than 6 months, the assumption applies 0%, 50%, and 100% RSF factors based on a remaining maturity of less than 6 months, between 6 months and 1 year, and 1 year or more respectively. For assets with encumbrance period of between 6 months and 1 year, the assumption applies 50%, and 100% RSF factors based on a remaining maturity of less than 1 year and 1 year or more respectively. A 100% RSF factor is applied to all assets maturing within a year and encumbrance period of 1 year or more.	MC Paragraph - 10.4
5	RBI-Unenc loans to fin insti secured by level 1 asset	[RBI]: Unencumbered loans to financial institutions where the loan is secured against level 1 assets as defined in the LCR.	The RSF factors applicable on the unencumbered loans given to financial institutions secured by a level 1 asset, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The	MC Paragraphs - 9.4, 9.5 B, 9.6 C, 9.9 C

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			assumption applies RSF factor of 10%,50%,100% on the unencumbered secured loans given to financial institutions secured by level 1 asset with remaining maturity of less than 6 months, 6 months to 1 year and 1 year or more respectively, where the collateral received can be re-hypothecated for the life of loan. The assumption applies RSF factor of 15%,50%,100% on the unencumbered secured loans given to financial institutions secured by level 1 asset with remaining maturity of less than 6 months, 6 months to 1 year and 1 year or more respectively, where the collateral received cannot be re-hypothecated for the life of loan.	
6	RBI-Encum loans to fin insti secured by level 1 asset	[RBI]: Encumbered loans to financial institutions where the loan is secured against level 1 assets as defined in the LCR.	The RSF factors applicable on the encumbered loans given to financial institutions secured by a level 1 asset, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The assumption applies relevant RSF factors on the encumbered secured loans based on the encumbrance period and residual maturity. The Level 1 asset received as collateral can	MC Paragraphs - 9.6 B, 9.9 A, 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			further be re-hypothecated to raise funds.	
7	RBI- Unenc loans to fin insti secured by Non-level 1 assets	[RBI]: Unencumbered loans to financial institutions where the loan is secured against assets belonging to levels other than level 1, as defined in the LCR.	The RSF factors applicable on the unencumbered loans given to financial institutions secured by assets belonging to levels other than level 1, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The assumption applies RSF factor of 15%, 50%, 100% on the unencumbered secured loans given to financial institutions secured by assets belonging to levels other than level 1 with remaining maturity of less than 6 months, 6 months to 1 year and 1 year or more respectively.	MC Paragraphs - 9.5 B, 9.6 C, 9.9 C
8	RBI- Encum loans to fin insti securd by Non-level 1 assets	[RBI]: Encumbered loans to financial institutions where the loan is secured against assets belonging to levels other than level 1, as defined in the LCR.	The RSF factors applicable on the encumbered loans given to financial institutions secured by a assets belonging to levels other than level 1, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The assumption applies relevant RSF factor on the encumbered secured loans based on the residual maturity and encumbrance period of the loan.	MC Paragraphs - 9.9 A, 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
9	RBI- Unenc unsecured loans to financial instituitions	[RBI]: Unencumbered unsecured loans excluding overdrafts to financial institutions.	The RSF factors applicable on the unencumbered unsecured loans given to financial institutions, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The assumption applies RSF factor of 15%, 50%, and 100% on the unencumbered unsecured loans given to financial institutions, with remaining maturity of less than 6 months, 6 months to 1 year and 1 year or more respectively.	MC Paragraphs - 9.5 B, 9.6 C, 9.9 C
10	RBI- Enc unsecured loans to financial instituitions	[RBI]: Encumbered unsecured loans to financial institutions.	The RSF factors applicable on the encumbered unsecured loans given to financial institutions, with residual maturity less than 1 year, are pre-defined as a part of this assumption. The assumption applies relevant RSF factor on the encumbered secured loans given to financial institutions based on the residual maturity and encumbrance period of the loan.	MC Paragraphs - 9.9 A, 10.4
11	RBI- Unenc loans to others, mat less than 1yr	[RBI]: Unencumbered loans with residual maturity less than a year to other counterparties i.e. Non-financial corporates, retail and small business	The RSF factors applicable to fully performing unencumbered loans to non-financial corporates, retail and small business customers, sovereigns, Public sector	MC Paragraphs - 9.6 E, 9.9 B, 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
		customers, sovereigns, Public sector enterprises and sovereigns.	enterprises and sovereigns, with remaining maturity of less than 1 year, are per defined as part of this assumption. This assumption applies 50% RSF factors on the loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns with remaining maturity of less than 1 year.	
12	RBI- Enc loans to others, mat less than 1yr	[RBI]: Encumbered loans with residual maturity less than a year to other counterparties i.e. Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	The RSF factors applicable to fully performing encumbered loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns, with remaining maturity of less than 1 year, are per defined as part of this assumption. This assumption applies 50% RSF factors on the encumbered loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns with remaining maturity of less than 1 year.	MC Paragraph - 10.4
13	RBI- Unenc loans to others, mat more than 1 yr	[RBI]: Unencumbered loans with residual maturity more than a year to other counterparties i.e. Non-financial	The RSF factors applicable to fully performing unencumbered loans to non-financial corporates, retail and small business	MC Paragraphs - 9.7 B, 9.8 A

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
		corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	customers, sovereigns, Public sector enterprises and sovereigns, with remaining maturity of more than 1 year with standardized risk weights under Basel 2 approach, are per defined as part of this assumption. This assumption applies a 65 % RSF factors on the loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns with remaining maturity of more than 1 year and risk weight more than or equal to 35%. It applies a RSF factor of 85% on the loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns with remaining maturity of more than 1 year and risk weight greater than 35%.	
14	RBI - Enc Loans to others, mat more than 1yr	[RBI]: Encumbered loans with residual maturity more than a year to other counterparties i.e. Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	The RSF factors applicable to fully performing encumbered loans to non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns, with remaining maturity of more than 1 year with standardized risk weights under Basel 2 approach, are per defined as	MC Paragraphs - 9.9 A, 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			part of this assumption. This assumption applies relevant RSF factors on the encumbered loans based on the residual maturity, encumbrance period and the risk weigh associated to the loan.	
15	RBI- Unenc non HQLA assets	[RBI]:Unencumbered securities, with maturity less than 1 year, which do not qualify as High quality liquid assets under the LCR Rule	The RSF factors applicable to unencumbered securities, with remaining maturity of less than 1 year and which do not qualify, as High quality liquid assets under the LCR Rule, are pre-defined as part of this assumption. The assumption applies a 50% RSF factor on unencumbered securities, which do not qualify as High quality liquid assets under the LCR Rule, with remaining maturity of less than 1 year	MC Paragraph - 9.6 E
16	RBI- Unenc non HQLA securities mat greater than 1yr	[RBI]:Unencumbered securities, with maturity greater than 1 year which do not qualify as HQLA under the LCR Rule	The RSF factors applicable to unencumbered securities, with remaining maturity of more than 1 year and which do not qualify as High quality liquid assets under the LCR Rule , are pre-defined as part of this assumption. The assumption applies a 85% RSF factor on unencumbered securities, with remaining maturity of more than 1 year and which do not	MC Paragraph - 9.8 C

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			qualify as High quality liquid assets under the LCR Rule.	
17	RBI- Enc non HQLA assets	[RBI]:Encumbered portion of securities, with maturity less than 1 year which do not qualify as High quality liquid assets under the LCR Rule	The RSF factors applicable to encumbered portion of the securities, with remaining maturity of less than 1 year and which do not qualify as High quality liquid assets under the LCR Rule , are pre-defined as part of this assumption. The assumption applies a 50% RSF factor on encumbered portion of the securities, with remaining maturity of less than 1 year, encumbrance period of less than 1 year and which do not qualify as High quality liquid assets under the LCR Rule. It applies a 100% RSF factor on encumbered portion of the securities, with remaining maturity of less than 1 year, encumbrance period of 1 year or more and which do not qualify as High quality liquid assets under the LCR Rule.	MC Paragraphs - 9.6 B, 9.9 A
18	RBI- Enc non HQLA assets mat greater than 1yr	[RBI]:Encumbered portion of securities, with maturity greater than 1 year which do not qualify as HQLA under the LCR Rule	The RSF factors applicable to encumbered portion of the securities, with remaining maturity of more than 1 year and which do not qualify as High quality liquid assets under the LCR Rule, are pre-defined as part of this	MC Paragraphs - 9.9 A and 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			assumption. The assumption applies a 85% RSF factor on encumbered portion of the securities, with remaining maturity of 1 year or more, encumbrance period of less than 1 year and which do not qualify as High quality liquid assets under the LCR Rule. It applies a 100% RSF factor on encumbered portion of the securities, with remaining maturity of 1 year or more, encumbrance period of 1 year or more and which do not qualify as High quality liquid assets under the LCR Rule.	
19	RBI-Unencumbered level 1 assets	[RBI]: Unencumbered assets which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.	The RSF factors applicable to unencumbered assets, which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR, are pre-defined as a part of this assumption. The assumption applies a 5% RSF factor on the unencumbered Level 1 assets.	MC Paragraph - 9.3
20	RBI-Unencumbered level 2A and 2B assets	[RBI]: Unencumbered assets which qualify for inclusion in Level 2A and 2B of High quality liquid assets as defined in the LCR.	The RSF factors applicable to unencumbered assets, which qualify for inclusion in Level 2A, and 2B of High quality liquid assets as defined in the LCR, are pre-defined as a part of this assumption. The assumption applies a 15%	MC Paragraphs - 9.5 A. 9.6 A

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			RSF factor on the unencumbered Level 2A assets and a RSF factor of 50% on the unencumbered Level 2B assets.	
21	RBI-Encumbered level 1 assets	[RBI]: Encumbered portion of assets which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.	The RSF factors applicable to encumbered portion of assets, which qualify for inclusion in Level 1 of High quality liquid assets as, defined in the LCR, are pre-defined as a part of this assumption. The assumption applies 50% and 100% RSF factors on the encumbered portion of Level 1 assets, with encumbrance period of less than 1 year and1 year or more respectively.	MC Paragraphs - 9.3, 9.6 B, 9.9 A, 10.4
22	RBI- Encumbered level 2 assets	RBI- Encumbered level 2 assets	The RSF factors applicable to encumbered portion of assets, which qualify for inclusion in Level 2A, and 2B of High quality liquid assets as defined in the LCR, are pre-defined as a part of this assumption. The assumption applies 15%, 50% and 100% RSF factors on the encumbered portion of Level 2A assets, with encumbrance period of less than 6 months, between 6 months to 1 year and1 year or more respectively. It applies 50% and 100% RSF factors on the encumbered portion	MC Paragraphs - 9.6 A and B, 9.9 A and 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			of Level 2B assets, with encumbrance period of less than 1 year and1 year or more respectively.	
23	RBI-Unencumbered operational balances with other banks	[RBI]: Operational portion of Unencumbered deposits held at other financial institutions, for operational purpose and are subject to the 50% ASF treatment.	The RSF factors applicable to operational portion of unencumbered deposits held at other financial institutions to fulfill the operational requirements, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. The assumption applies RSF factor of 50% and 100% on operational portion of unencumbered deposits held at other financial institutions, with remaining maturity of less than 1 year and1 year or more respectively.	MC Paragraph - 9.6 D
24	RBI- Unencumbered non operational balances with other banks	[RBI]: Non-operational portion of Unencumbered deposits held at other financial institutions, for operational purpose and are subject to the 50% ASF treatment.	The RSF factors applicable to non-operational portion of unencumbered deposits held at other financial institutions to fulfill the operational requirements, with remaining maturity of less than 1 year, are pre-defined as part of this assumption. The assumption applies RSF factor of 15%, 50% and 100% on non-operational portion of unencumbered deposits held at other financial institutions,	MC Paragraphs - 9.6 D, BIS FAQ July 2016, point 32

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			with remaining maturity of less than 6 months, between 6 months to 1 year and1 year or more respectively.	
25	RBI-Unencumbered residential mortgage loans	[RBI]: Unencumbered residential mortgage loans which would qualify for a) 35% or lesser risk weight as per Basel 2 standardized approach for credit risk b) higher than 35% risk weight as per Basel 2 standardized approach for credit risk	The RSF factors applicable to unencumbered residential mortgage loans, with standardized risk weights under Basel 2 approach, are per defined as part of this assumption. The assumption applies RSF factors of 50% and 65% on the unencumbered residential mortgage loans, with remaining maturity of less than 1 year and1 year or more respectively, with risk weights less than or equal to 35%. It applies RSF factors of 50% and 85% on the unencumbered residential mortgage loans, with remaining maturity of less than 1 year and1 year or more respectively, with risk weights greater than 35%.	MC Paragraphs - 9.7 A and 9.7 B
26	RBI-Encumbered residential mortgage loans	[RBI]: Encumbered residential mortgage loans which would qualify for a) 35% or lesser risk weight as per Basel 2 standardized approach for credit risk b) higher than 35% risk weight as per Basel	The RSF factors applicable to fully performing encumbered residential mortgage loans, with standardized risk weights under Basel 2 approach, are per defined as part of this assumption. This assumption applies RSF	MC Paragraphs - 9.9 A and 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
		2 standardized approach for credit risk	factors of 50% and 65 % on the encumbered residential mortgage loans, with remaining maturity of less than 1 year and greater than equal to 1 year respectively, encumbrance period is less than 1 year and risk weight is less than or equal to 35%. It applies a RSF factor of 100% on the encumbered residential mortgage loans with remaining maturity of more than 1 year, encumbrance period of more than 1 year and risk weight is more than 35%.	
27	RBI- Unencumbered commodities	[RBI]: Unencumbered physically traded commodities, including gold.	The RSF factor applicable to unencumbered balance of physically traded commodities including gold, are pre-defined as a part of this assumption. The assumption applies a 85% RSF factor on the unencumbered balance of the commodities.	MC Paragraph - 9.8 D
28	RBI- encumbered commodities	[RBI]: Encumbered physically traded commodities including gold.	The RSF factor applicable to encumbered balance of physically traded commodities including gold, are pre-defined as a part of this assumption. The assumption applies 85% and 100% RSF factors on the encumbered balance of the commodities, with	MC Paragraph - 10.4

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
			encumbrance period of less than 1 year and 1 year or more respectively.	
29	RBI- Trade date receivables	[RBI]: Trade date receivables arising from purchases of foreign currencies, financial instruments and commodities that are expected to settle or have failed but are expected to settle within the standard settlement cycle.	The RSF factor applicable to trade date receivables arising from purchases of foreign currencies, financial instruments and commodities that are expected to settle or have failed but are expected to settle within the standard settlement cycle, are pre-defined as part of this assumption. The assumption applies 0% RSF factor to the trade receivables, which expected to settle within settlement cycle.	MC Paragraphs - 9.2 D
Off-Balance Sheet				
1	RSF OBS- Credit and liquidity facilities to client	[RBI]: Off balance sheet exposures- Irrevocable, revocable and conditionally revocable credit and liquidity facilities offered to any clients by the bank	The RSF factor applicable to irrevocable, revocable and conditionally revocable credit and liquidity facilities offered to any clients by the bank, is pre-defined as part of this assumption. The assumption applies a 5% RSF factor to the undrawn amount of irrevocable, revocable and conditionally revocable credit and liquidity facilities.	MC Paragraph - 9.1
2	RBI- Guarantees and	[RBI]: Off balance sheet exposures-	The RSF factor applicable to the Guarantees	MC Paragraph - 9.1

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
	letters of credit	Guarantees and letters of credit	and Letters of credit offered by the bank, is pre-defined as part of this assumption. The assumption applies a 5% RSF factor to the EOP balance of the Guarantees and Letters of credit.	
3	RBI-Non contractual obligations type	[RBI]: Non contractual obligations type such as potential requests for debt repurchases, managed funds etc	The RSF factor applicable to the non-contractual obligations type such as potential requests for debt repurchases, managed funds etc., is pre-defined as part of this assumption. The assumption applies 5% RSF factor to the aforesaid non-contractual obligations amount.	MC Paragraph - 9.1
4	RBI-Non contractual obligations	[RBI]: Non contractual obligations type such as potential requests for debt repurchases, managed funds etc	The RSF factor applicable to the non-contractual obligations for structured products such as Variable rate notes (VRDNs), Adjustable rate notes (ARDNs) etc. offered by the bank, is pre-defined as part of this assumption. The assumption applies 5% RSF factor to the EOP balance for aforesaid non-contractual obligations.	MC Paragraph - 9.1

3.2.1.3 Derivatives

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
1	RBI- Additional Derivative Liability for RSF	[RBI]: RSF Additional portion of derivative liabilities to be included as part of RSF.	The RSF factor applicable to all derivative contracts including netted derivative contracts, where the aggregate mark to market value of the contracts prior to any variation margin adjustment is negative, is pre-defined as part of this assumption. The assumption applies a 100% RSF factor to the 20% of negative mark-to-mark value for the aforementioned derivative contracts.	MC Paragraph - 9.9 D
2	RBI - Net NSFR Derivative Liabilities	[RBI]: ASF derivative liabilities net of derivative assets, where derivative liability is net of any variation margin posted and derivative asset is net of cash margin received.	The ASF factor applicable to all derivative contracts including netted derivative contracts, where the net aggregate mark to market value of the contracts for an entity including any variation margin adjustment is negative, is pre-defined as part of this assumption. The assumption applies a 0% ASF factor to the derivative liabilities net of derivative assets, where the net aggregate mark to market value of the contracts is negative.	MC Paragraph - 7.6 C
3	RBI - Net NSFR	[RBI]: RSF derivative assets net of	The ASF factor applicable to all derivative	MC Paragraph - 9.9 B

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Basel Committee Banking supervision, Basel III, The net stable funding ratio, October 2014 (BCBS 295) Reference
	Derivative assets	derivative liabilities, where derivative liability is net of any variation margin posted and derivative asset is net of cash margin received.	contracts including netted derivative contracts, where the net aggregate mark to market value of the contracts for an entity including any cash margin adjustment is positive, is pre-defined as part of this assumption. The assumption applies a 100% RSF factor to the derivative assets net of derivative liabilities, where the net aggregate mark to market value of the contracts is positive.	
4	RBI- Margin for derivatives	[RBI]: RSF Treatment of initial margin posted against derivative transactions.	The RSF factor applicable to the initial margin posted for the derivative contracts is pre-defined as part of this assumption. The assumption applies a 85% RSF factor to the initial margin posted against the derivative contracts.	MC Paragraph - 9.8 A

3.2.2 Regulation Addressed through Business Rules

The list of pre-configured business rules and the corresponding reference to the regulatory requirement that it addresses is provided in the following tables:

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
1	LRM - Instrument - NSFR Encumbered Band Surrogate Key Population	This rule identifies the encumbrance band related to Net Stable Funding Ratio for the encumbrance date at the account level and updates the underlying related unique identifier in the FSI_LRM_INSTRUMENT table.	The encumbrance period for the asset for the purpose of required stable funding (RSF) calculations is identified as part of this rule	MC Paragraph - 10.4
2	LRM - Instrument - NSFR Residual Maturity Band Surrogate Key Population - Open Maturity	This rule identifies the maturity band related to Net Stable Funding Ratio for the maturity date at the account level for the open maturity products and updates the underlying related unique identifier in the FSI_LRM_INSTRUMENT table.	The products with no stated maturity for the computation of available stable funding (ASF) are identified as part of this rule.	MC Paragraph - 7.6 B
3	LRM - Stable and Operational Balance Percentage Calculation	This rule calculates the percentage of the stable balance and the operational balance with respect to the end of period balance of the accounts and updates the same in the FSI_LRM_INSTRUMENT table.	This rule computes the percentage of stable and less stable portion of deposits, held by retail and wholesale customers treated as retail for the purposes of LCR, for ASF calculation.	MC Paragraph - 7.3 and 7.4
4	LRM - Account Cash flow - Stable and Operational Amount Calculation	This rule calculates the cash flows associated with the stable portion and less stable portion of the accounts. In addition, this rule calculates the cash flows associated with the operational balance portion and non-operational balance portion. All these above values are updated in FCT_ACCOUNT_CASH_FLOWS.	This rule calculates the cash flows associated to stable and less stable deposits, held by retail and wholesale customers treated as retail for the purposes of LCR, having residual maturity of more than 1 year and cash flow maturity of more than 1 year. This rule applies the stable and less stable deposit percentage to cash flows with maturity of more than 1 year.	MC Paragraph - 7.2 C
5	LRM - Netted Derivatives - Derivative Liability Amount Calculation	This rule calculates the derivative liability amount for the netted contracts by considering the absolute value of sum of marked to market value of all the underlying	All the derivative contracts associated with the netting agreement, where the aggregate mark to market value of the contracts prior to any variation margin adjustment is	MC Paragraph - 8.1

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
		contracts associated with the netting agreement.	negative is computed as part of this rule.	
6	LRM - Netted Derivatives - Posted collateral Margin Amount Calculation	This rule calculates the sum of the value of the collaterals posted as variation margin related with the netted derivatives and updates this information in FSI_LRM_INSTRUMENT table.	The rule computes the value of the all the collaterals posted as variation margin for the netted derivative contracts related with the netting agreement	MC Paragraph - 8.1
7	LRM - Derivatives - Posted collateral Margin Amount Calculation	This rule calculates the sum of the value of the collaterals posted as variation margin related with the non-netted derivative contracts and updates this information in FSI_LRM_INSTRUMENT table.	The rule computes the value of the all the collaterals posted as variation margin for the non-netted derivative contracts.	MC Paragraph - 8.1
8	LRM - Derivatives - Received Variation Margin Calculation	This rule calculates the sum of the margin amount of cash variation margin received related with the non-netted derivative contracts and updates this information in FSI_LRM_INSTRUMENT table.	The rule computes the sum of the cash amount received as variation margin for the non-netted derivative contracts	MC Paragraph - 10.1
9	LRM - Netted Derivatives - Derivative Asset Amount Calculation	This rule calculates the derivative asset amount for the netted contracts by considering the absolute value of sum of the marked to market value of all the underlying contracts associated with the netting agreement.	All the derivative contracts associated with the netting agreement, where the aggregate mark to market value of the contracts prior to any variation margin adjustment is positive is computed as part of this rule.	MC Paragraph - 10.1
10	LRM - Netted Derivatives - Received Variation Margin Calculation	This rule calculates the sum of the margin amount of cash variation margin received related to the netted derivative contracts at the netting agreement level and updates this information in FSI_LRM_INSTRUMENT table.	The rule computes the sum of the cash amount received as variation margin for the netted derivative contracts associated with netting agreement.	MC Paragraph - 10.1

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed	Regulatory Reference
11	LRM - Derivatives - Posted collateral Initial Margin Amount Calculation	This rule calculates the sum of the margin amount of initial margin posted for all derivative contracts and updates this information in FSI_LRM_INSTRUMENT table.	This rule computes the sum of initial margin posted for derivative contracts.	MC Paragraph - 9.8 A
12	LRM - Derivatives - Additional Derivative Liability Amount Calculation	This rule calculates the additional portion of the derivative liabilities as a percentage of the derivative liability. This percentage is setup master parameterized for the users to edit the same. This value gets updated in the FSI_LRM_INSTRUMENT table.	20% of all derivative contracts including netted derivative contracts, where the aggregate mark to market value of the contracts prior to any variation margin adjustment is negative is configured in this rule. This additional derivative liability amount is used for the purpose of RSF computation.	MC Paragraphs - 9.9 D

4 Forward Date Liquidity Risk Calculation

Forward date liquidity risk management refers to assessing and viewing the liquidity position of a bank as of one or multiple forward dates under normal and stress conditions. To ensure that liquidity ratios and liquidity gaps remain stable over time and within the boundaries of internal limits, regulatory requirements and market expectations, the bank management forecasts the liquidity metrics for future dates.

In release 8.0.7, Oracle Financial Services Liquidity Risk Management supports the calculation of liquidity risk metrics for forward dates. It helps financial institutions to perform the following for one or multiple user-specified forward dates:

i. Forecast balance sheet position

   The application has the ability to forecast the position balances for any future date based on several techniques. Some of the balance forecasting techniques are constant balance, contractual run-off, equally changing balance and so on.

ii. Balance sheet adjustments

   The application provides the ability to adjust the forecasted balance sheet to ensure that the sum total of liabilities and equity is equal to the total assets.

iii. Forecast cash flows based on forward balances

   The application has the ability to forecast the cash flow amounts for any future date based on several techniques. Some of the cash flow forecasting techniques supported by the application are contractual profile, current profile, and default profile and so on.

iv. Use several combinations of balance and cash flow forecasting techniques

   The application provides the ability to use several distinct combinations of techniques for balance and cash flow forecasting. For example, Constant Balance forecasting technique for balance forecasting may be used with either Contractual Profile or Current profile techniques for cash flow forecasting.

v. Use any techniques for a combination of Product, Legal Entity and Currency:

   The application provides the ability to select or assign any distinct combination of balance and cash flow forecasting techniques for each combination of Product, Legal Entity and Currency.

vi. Compute components of LCR for future dates

   The application has the ability to compute LCR and its components such as HQLA, NCOF and so on for any future date based on the forward balances and cash flow amounts generated based multiple techniques. Currently, forward date LCR is computed only as per US Federal Reserve Liquidity Coverage Ratio guidelines i.e. when the Run Purpose is selected as U.S Fed Liquidity Ratio Calculation.

vii. Compare liquidity risk metrics between as of date and future dates

The application provides the ability to analyze and compare the liquidity metrics including forward balances, LCR etc. between the as of date i.e. the current date and any future date for which the forward date liquidity risk calculations have been executed.

viii. Compare liquidity risk metrics across future dates:

The application provides the ability to analyze and compare the liquidity metrics including forward balances, LCR etc. between 2 future dates for which the forward date liquidity risk calculations have been executed or across future dates. Users can view the interim calculations as well as variances between the risk metrics across 2 dates.

4.1 Overview of Forward Date Liquidity Risk Calculation

Oracle Financial Services Liquidity Risk Management comprehensively addresses an organization's forward liquidity risk calculation requirements, through a flexible user interface, robust calculations, and advanced reporting. It supports pre-configured calculations, scenarios, and reporting dashboards.

The application supports the following functionality related to forward liquidity risk calculation:

- Granularity of forward records
- Computation of forward dates
- Computation of forward time buckets
- Computation of forward balances
- Adjustment of forward balance sheets
- Allocation techniques on the forward balances
- Calculation of forward cash flows
- Calculation of forward liquidity coverage ratio

4.1.1 Granularity of Forward Records

The spot balances and cash flows are available at the account level granularity. However, the application computes forward date liquidity metrics at an aggregate level and captures the inputs required for forward calculations at a higher level of granularity. The granularity of forward balance and cash flow calculations, i.e. the download dimensions, supported by the application for all assets and liabilities other than derivatives is as follows:

a. Product

b. Currency

c. Legal Entity

d. Controlled by Treasury Flag

e. Transferability Restriction

The download dimensions supported by the application for derivatives are as follows:

a. Legal Entity

b. Currency

c. Payment Netting Flag

The forward balances and cash flows computed at a higher granularity are then allocated back to the granularity of spot calculations in order to ensure consistency between the spot and forward date calculations.

4.1.2 Computation of Forward Dates

The application allows users to define forward dates in 2 ways: specification of fixed intervals and calendar selection of forward dates. If the forward dates have fixed intervals between them users can provide the fixed interval forward date parameters and the application will compute the actual forward dates. The process of specifying fixed interval forward date parameters is provided in section Run Management.

The application computes the forward dates based on the fixed interval parameters specified as part of the Run Management window as follows:

1. The first forward date is calculated as follows:

$$\boldsymbol{First\ Forward\ Date = As\ of\ Date + First\ Forward\ Date\ Interval}$$

Where,

As of Date : FIC MIS Date

First Forward Date Interval : Interval between the as of date and the first forward date specified by the user

2. The subsequent forward dates are calculated as follows:

$$\boldsymbol{Forward\ Date_{F+x} = Forward\ Date_{(F+x)-x} + Forward\ Date\ Frequency}$$

Where,

F + x : Each forward date subsequent to the first forward date

(F + x) – x : Previous forward date

x : Interval between each forward date that is, forward date frequency

This calculation is performed till the application achieves the number of forward dates specified by you this include the first forward date that is, (Number of Forward Dates – 1) times.

The forward date calculation process is illustrated below:

Example 1:

As of Date	January 30, 2015
First Forward Date Interval (in days)	1
Forward Date Frequency	1 month
No. of Forward Calculations	3
First Forward Date	January 30, 2015 +1 day = January 31, 2015
	As of Date + First Forward Date Interval
Second Forward Date	January 31, 2015 + 1 month = February 28, 2015
	First Forward Date + Forward Date Frequency
Third Forward Date	February 28, 2015 + 1 month = March 31, 2015
	Second Forward Date + Forward Date Frequency

Example 2:

As of Date	January 29, 2015
First Forward Date Interval (in days)	1
Forward Date Frequency	1 week
No. of Forward Calculations	3
First Forward Date	January 29, 2015 +1 day = January 30, 2015
	As of Date + First Forward Date Interval
Second Forward Date	January 30, 2015 + 1 week = February 6, 2015
	First Forward Date + Forward Date Frequency
Third Forward Date	February 6, 2015 + 1 week = February 13, 2015
	Second Forward Date + Forward Date Frequency

4.1.3 Computation of Forward Time Buckets

Once the forward dates are identified for a given Run, the time buckets are computed for each of those forward dates based on the user specified time bucket definition. Time buckets are defined in terms of days and are independent of dates. In case of forward date calculations, the application computes the forward starting time buckets for each future date for which forward liquidity calculations are to be carried out. The time bucket start and end dates are calculated for each forward starting time bucket for each forward date and the forward cash flows are bucketed appropriately taking into account the business day convention.

The process of calculating time bucket start and end dates for current date and each forward date is illustrated below:

Time Bucket Definition		Current Date		Forward Dates					
		30-Jan-15		31-Jan-15		28-Feb-15		31-Mar-15	
Time Buckets	Frequency (in Days)	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date
Open Maturity									
Overnight									
1-1 Day	1	31-Jan-15	31-Jan-15	1-Feb-15	1-Feb-15	1-Mar-15	1-Mar-15	1-Apr-15	1-Apr-15
2-2 Day	1	1-Feb-15	1-Feb-15	2-Feb-15	2-Feb-15	2-Mar-15	2-Mar-15	2-Apr-15	2-Apr-15
3-3 Day	1	2-Feb-15	2-Feb-15	3-Feb-15	3-Feb-15	3-Mar-15	3-Mar-15	3-Apr-15	3-Apr-15
4-4 Day	1	3-Feb-15	3-Feb-15	4-Feb-15	4-Feb-15	4-Mar-15	4-Mar-15	4-Apr-15	4-Apr-15

Time Bucket Definition		Current Date		Forward Dates					
		30-Jan-15		31-Jan-15		28-Feb-15		31-Mar-15	
Time Buckets	Frequency (in Days)	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date	Time Bucket Start Date	Time Bucket End Date
5-5 Day	1	4-Feb-15	4-Feb-15	5-Feb-15	5-Feb-15	5-Mar-15	5-Mar-15	5-Apr-15	5-Apr-15
6-6- Day	1	5-Feb-15	5-Feb-15	6-Feb-15	6-Feb-15	6-Mar-15	6-Mar-15	6-Apr-15	6-Apr-15
7-7 Day	1	6-Feb-15	6-Feb-15	7-Feb-15	7-Feb-15	7-Mar-15	7-Mar-15	7-Apr-15	7-Apr-15
8-8 Day	1	7-Feb-15	7-Feb-15	8-Feb-15	8-Feb-15	8-Mar-15	8-Mar-15	8-Apr-15	8-Apr-15
9-9 Day	1	8-Feb-15	8-Feb-15	9-Feb-15	9-Feb-15	9-Mar-15	9-Mar-15	9-Apr-15	9-Apr-15
10-10 Day	1	9-Feb-15	9-Feb-15	10-Feb-15	10-Feb-15	10-Mar-15	10-Mar-15	10-Apr-15	10-Apr-15
Unspecified									

4.1.4 Computation of Forward Balances

The application provides the ability to compute the forward balance of assets and liabilities for multiple future dates as part of its forward liquidity calculation capability. It supports multiple methodologies for computing these forward balances which include:

- Contractual Run Off
- Equally Changing Balance
- Balance Download
- Balance Change Download
- Constant Balance
- Cash Flow Download Method

The application allows users to map the forward balance calculation methods to the desired dimensional combinations such as product-currency or simply a single dimension such as product through a rule defined as part of the Rule Run Framework. This mapping is to be done for all assets and liabilities, other than derivatives, based on a combination of the download dimensions supported for them for forward calculation. The list of download dimensions supported for forward calculations is detailed as part of section Granularity of Forward Records above.

The application supports a pre-configured rule for mapping the forward balance calculation methods named “LRM - Balance Method Reclassification - Forecast”. This has default values mapped for assets and liabilities. These default mappings can be changed by the users and the rule can be re-saved to reflect these changes. Alternatively, users can create their own mapping rules in the Rules Framework to address regulatory and risk management needs. However, only one mapping rule is allowed to be selected in the Run Management window for a given forward liquidity Run, based on which all further calculations are done as part of that forward Run.

The forward balance calculation methods supported by the application are explained in detail below:

1. **Contractual Run Off**:

   The steps involved in calculating balances at a forward date under contractual terms when the method is selected as “contractual run off” are as follows:

   a. The un-bucketed contractual cash flows based on the current date are obtained as a download. The current date is equal to the As of Date selected during Run Execution.

   b. The current balance of each account as of the “As of Date” is received. This is the starting balance for forward date calculations.

   c. The application calculates the forward balance as of the first forward date as follows:

$$Balance_F = Max\left\{EOP\ Minimum\ Threshold, \left(Balance_C - \sum_{C+1}^{F} Contractual\ Cash\ Flows\right)\right\}$$

Where,

F : First forward date

C : Current date i.e. As of Date selected in the Run Management window

EOP Minimum Threshold : Floor for the account balance i.e. the minimum balance to be maintained at all times

d. The application calculates the forward balance for each subsequent forward date as follows:

$$Balance_{F+x} = Max\left\{EOP\ Minimum\ Threshold, \left(Balance_C - \sum_{C+1}^{(F+x)} Contractual\ Cash\ Flows\right)\right\}$$

Where,

F + x : Each subsequent forward date

x : Interval between each forward date

Note:

1. If a EOP minimum threshold is specified, the contractual cash flows are run-off only till the minimum threshold is reached. Any contractual cash flows which results in the forward balance dropping below the minimum threshold will not be run-off. Once the minimum threshold is reached, it is maintained as constant balance for all subsequent forward dates for that Run and dimensional combination.

   For instance the forward balance as of 31st December is 5200, minimum threshold is 5000 and contractual cash outflow between 31st December and the next forward date which is 31st January is 500. In this case, the balance as of 31st January is 5000 i.e. (minimum of 5000, 5200-500).

2. If no minimum threshold is specified, then the application runs off the contractual cash flows till balance equals zero.

The contractual run-off method is illustrated below. The inputs required for this method are provided below considering the spot date as 03/01/2015. All values are in terms of US Dollars.

Product	Spot Balance	EOP Minimum Threshold
Loan 1	1,000	
Loan 2	2,000	
XYZ (TD)	1,000	
ABC (Retail Lending)	2,000	
Loan 3	5,000	
Advances	10,000	
Demand Deposit	3,000	
Loan 4	20,000	2,000
Loan 5	20,000	10,000
Loan 6	20,000	40,000

The contractual cash flow position as of the spot date for each product is as follows:

Product	Cash Flow Date	Cash Flow Type	Outflow Amount	Inflow Amount
Loan 1	2-Mar-15	Outflow	1,000	
Loan 2	2-Mar-15	Outflow	500	
Loan 2	15-Mar-15	Outflow	400	
Loan 2	1-Apr-15	Outflow	200	
Loan 2	16-Apr-15	Outflow	600	
Loan 2	1-May-15	Outflow	300	
XYZ (TD)	31-Mar-15	Outflow	1,000	
ABC (Retail Lending)	3-Apr-15	Inflow		500

Product	Cash Flow Date	Cash Flow Type	Outflow Amount	Inflow Amount
ABC (Retail Lending)	10-Apr-15	Inflow		800
ABC (Retail Lending)	25-Apr-15	Inflow		700
Loan 3	1-Jan-18	Inflow		5,000
Demand Deposit	2-Mar-15	Outflow	3,000	
Advances	1-May-15	Outflow	1,500	
Advances	5-May-15	Outflow	800	
Advances	10-Jul-15	Outflow	500	
Advances	11-Aug-15	Outflow	200	
Advances	1-Dec-15	Outflow	5,000	
Loan 4	4-Apr-15	Outflow	5,000	
Loan 4	1-Aug-16	Outflow	2,000	
Loan 5	1-Aug-16	Outflow	7,000	
Loan 5	1-Sep-16	Outflow	7,000	
Loan 6	1-Aug-16	Outflow	7,000	

Product	Cash Flow Date	Cash Flow Type	Outflow Amount	Inflow Amount
Loan 6	1-Sep-16	Outflow	7,000	

The forward balances under different scenarios are explained as follows:

- Scenario I : Entire balance is run off during the forecasting horizon
- Scenario II : No run-off during the forecasting horizon
- Scenario III: Balance is run-off partially during the forecasting horizon
- Scenario IV : Entire balance has run-off prior to the first forward date
- Scenario V: Balance runs-off on the first forward date after the spot date
- Scenario VI: Run-offs are happening on the forward dates
- Scenario VII: Run off is not happening till EOP minimum threshold
- Scenario VIII: Balance runs-off till EOP minimum threshold
- Scenario IX: EOP minimum threshold is more than spot EOP

Forward Date	Scenario I	Scenario II	Scenario III	Scenario IV		Scenario V	Scenario VI	Scenario VII	Scenario VIII	Scenario IX
	Retail Lending	Loan 3	Advances	Demand Deposit	XYZ(TD)	Loan 1	Loan 2	Loan 4	Loan 5	Loan 6
1-Apr-15	2,000	5,000	10,000				900	20,000	20,000	20,000
1-May-15		5,000	8,500					15,000	20,000	20,000
1-Jun-15		5,000	7,700					15,000	20,000	20,000
1-Jul-15		5,000	7,700					15,000	20,000	20,000
1-Aug-15		5,000	7,200					13,000	13,000	13,000
1-Sep-15		5,000	7,000					13,000	10,000	6,000
1-Oct-15		5,000	7,000					13,000	10,000	6,000
1-Nov-15		5,000	7,000					13,000	10,000	6,000
1-Dec-15		5,000	2,000					13,000	10,000	6,000
1-Jan-16		5,000	2,000					13,000	10,000	6,000
1-Feb-16		5,000	2,000					13,000	10,000	6,000
1-Mar-16		5,000	2,000					13,000	10,000	6,000

2. **Equally Changing Balance**:

   The steps involved in calculating balances at a forward date under contractual terms when the method is selected as “equally changing balance” are as follows**:**

   a. The following parameters are obtained as inputs:

      i. First Forward Date Balance

         This is the forward balance as of the first forward date. If this parameter is not provided, the application considers the spot balance as the first forward balance as well.

      ii. Forecasting Period

         This is the number of calendar days over which the balance is changing equally i.e. either reducing or increasing in an equal manner. This is a mandatory parameter

      iii. Last Forward Balance

         This is the balance as of the last forward date and is an optional parameter. If this value is not provided, the balance is run-off equally to zero.

         Note:

         You are required to provide this parameter if an increase in forward balance vis-a-vis the spot balance is to be calculated.

   b. The application calculates the equally changing amount on each day as follows:

      i. When holidays are included:

$$\boldsymbol{Amount\ per\ Day = \frac{First\ Forward\ Date\ Balance - Last\ Forward\ Balance}{Forecasting\ Period}}$$

      ii. When holidays are excluded:

$$\boldsymbol{Amount\ per\ Day = \frac{First\ Forward\ Date\ Balance - Last\ Forward\ Balance}{Business\ Days\ in\ Forecasting\ Period}}$$

      Note:

      The equally changing amount computed here is the forward cash flow as of each calendar or business day depending on whether holidays are included or excluded. In case holidays are excluded for calculating the equally changing amount, the cash flows on such excluded days are 0.

   c. The balance for each dimensional combination on each forward date is calculated as follows:

$$Forward\ Balance_{F+x} = Max\left\{EOP\ Minimum\ Threshold, \left(Forward\ Balance_F - \sum_{t=F+1}^{F+x} Amount\ per\ Day_t\right)\right\}$$

Where,

F : Previous forward balance. The balance as of the first forward date is provided as a download.

x : Interval between each forward date

t : Time period between previous forward date (exclusive) to next forward date (inclusive)

The equally changing balance method is illustrated below. The inputs required for this method are provided below. All values are in terms of US Dollars.

Input					**Calculation of Amount Per Day**			
Product Name	**First Forward Balance (a)**	**First Forward Date (b)**	**Forecasting Period (in Days) (c)**	**Last Forward Balance (d)**	**Last Forward Date (b + c)**	**Business Days in Forecasting Period (e)**	**Amount Per Calendar Day (f = (a - d) ÷ c)**	**Amount Per Business Day (g = (a - d) ÷ e)**
Loan 1	5,000	1-Apr-15	4	1,000	5-Apr-15	3	1000	1333
Demand Deposit	3,000	1-Apr-15	7	1,000	8-Apr-15	6	286	333
Advances	10,000	1-Apr-15	15		16-Apr-15	12	667	833
Loan 2	10,000	1-Apr-15	5	15,000	6-Apr-15	4	-1000	-1250

The calculation of forward balances is illustrated under the following scenarios:

1. Scenario I: When holidays are Excluded, Forecasting Period < Forecasting Horizon and EOP Balance is Reducing
2. Scenario II: When holidays are Included, Forecasting Period < Forecasting Horizon and EOP Balance is Reducing
3. Scenario III: When holidays are Excluded, Forecasting Period > Forecasting Horizon and EOP Balance is Reducing
4. Scenario IV: When holidays are Excluded, Forecasting Period > Forecasting Horizon and EOP Balance is Increasing

Forward Date	Holiday	Scenario I		Scenario II		Scenario III	Scenario IV
		Loan 1 Balance	Demand Deposit Balance	Loan 1 Balance	Demand Deposit Balance	Advances Balance	Loan 2 Balance
1-Apr-15	N	5,000	3,000	5,000	3,000	10,000	10,000
2-Apr-15	N	3,667	2,667	4,000	2,714	9,167	11,250
3-Apr-15	N	2,333	2,333	3,000	2,429	8,333	12,083
4-Apr-15	Y	2,333	2,333	2,000	2,143	8,333	12,083
5-Apr-15	Y	2,333	2,333	1,000	1,857	8,333	12,083
6-Apr-15	N	1,000	2,000	1,000	1,571	7,500	12,917
7-Apr-15	N	1,000	1,667	1,000	1,286	6,667	13,750
8-Apr-15	N	1,000	1,000	1,000	1,000	5,833	15,000

3. **Balance Download**:

   The steps involved in calculating balances at a forward date under contractual terms when the method is selected as "balance download" are as follows**:**

   a. The forward balances for multiple forward dates are received as a download across dimensional combinations.

   b. The application computes the forward balance for missing forward dates as follows:

      i. If forward balance is not available for each forward date

      The missing forward balance is interpolated using the balances available on the dates immediately prior and immediately following the missing forward date as follows:

$$\mathbf{Y_t = Y_{t-1} + (Y_{t+1} - Y_{t-1}) \times \frac{t - (t-1)}{(t+1) - (t-1)}}$$

Where,

Y_t : Missing forward balance

Y_{t-1} : Known balance on forward date immediately preceding the missing forward date

Y_{t+1} : Balance on forward date immediately succeeding the missing forward date

t : Cumulative time, in days, from first forward date to each subsequent forward date. The cumulative time is based on business days if holidays are to be excluded and based on calendar days if holidays are to be included.

An example of interpolation when frequency of forward dates is a week and holidays are included is as follows:

Input		**Calculation**			
Forward Date	**Forward Balance Download Value**	**Period Start**	**Period End**	**Cumulative Calendar Days**	**Missing Forward Balance**
31-Jan-14	742	31-Jan-14	31-Jan-14	1	
07-Feb-14	438	01-Feb-14	07-Feb-14	8	

Input		Calculation			
Forward Date	**Forward Balance Download Value**	**Period Start**	**Period End**	**Cumulative Calendar Days**	**Missing Forward Balance**
14-Feb-14		08-Feb-14	14-Feb-14	15	521
21-Feb-14	604	15-Feb-14	21-Feb-14	22	
28-Feb-14	859	22-Feb-14	28-Feb-14	29	
07-Mar-14	426	01-Mar-14	07-Mar-14	36	
14-Mar-14	268	08-Mar-14	14-Mar-14	43	
21-Mar-14	379	15-Mar-14	21-Mar-14	50	
28-Mar-14		22-Mar-14	28-Mar-14	57	546
04-Apr-14		29-Mar-14	04-Apr-14	64	712
11-Apr-14		05-Apr-14	11-Apr-14	71	879
18-Apr-14	1045	12-Apr-14	18-Apr-14	78	

An example of interpolation when frequency of forward dates is a week and holidays are excluded is as follows:

Input		Calculation			
Forward Date	**Forward Balance Download Value**	**Period Start**	**Period End**	**Cumulative Business Days**	**Missing Forward Balance**
31-Jan-14	742	31-Jan-14	31-Jan-14	1	
07-Feb-14	438	01-Feb-14	07-Feb-14	6	

Input		Calculation			
Forward Date	**Forward Balance Download Value**	**Period Start**	**Period End**	**Cumulative Business Days**	**Missing Forward Balance**
14-Feb-14		08-Feb-14	14-Feb-14	11	521
21-Feb-14	604	15-Feb-14	21-Feb-14	16	
28-Feb-14	859	22-Feb-14	28-Feb-14	21	
07-Mar-14	426	01-Mar-14	07-Mar-14	26	
14-Mar-14	268	08-Mar-14	14-Mar-14	30	
21-Mar-14	379	15-Mar-14	21-Mar-14	35	
28-Mar-14		22-Mar-14	28-Mar-14	39	506
04-Apr-14		29-Mar-14	04-Apr-14	44	664
11-Apr-14		05-Apr-14	11-Apr-14	48	791
18-Apr-14	1045	12-Apr-14	18-Apr-14	56	

Note:

Business days exclude weekends and other holidays.

ii. If a forward balance is not available on the last forward date

The missing forward balance is extrapolated using the forward balances available on the two dates immediately prior to the missing forward date as follows:

$$Y_t = Max\left[EOP\ Minimum\ Threshold, \left\{Y_{t-2} + (Y_{t-1} - Y_{t-2}) \times \frac{t-(t-2)}{(t-1)-(t-2)}\right\}\right]$$

Where,

Y_t : Missing observation i.e. value of the forward balance to be forecasted at time 't'

Y_{t-1} : Known value of observation at time't-1'

Y_{t-2} : Known value of observation at time't-2'

t : Cumulative time, in days, from start date of the first observation period to the end of each observation period

An example of extrapolation when frequency of forward dates is a month and holidays are included is as follows:

Input		**Calculation**			
Forward Date	**Forward Balance Download Value**	**Period Start**	**Period End**	**Cumulative Calendar Days**	**Missing Forward Balance**
31-Jan-14	742	31-Jan-14	31-Jan-14	1	
28-Feb-14	438	01-Feb-14	28-Feb-14	29	
31-Mar-14	724	01-Mar-14	31-Mar-14	60	
30-Apr-14	603	01-Apr-14	30-Apr-14	90	
31-May-14	859	01-May-14	31-May-14	121	
30-Jun-14	426	01-Jun-14	30-Jun-14	151	
31-Jul-14	268	01-Jul-14	31-Jul-14	182	
31-Aug-14	379	01-Aug-14	31-Aug-14	213	
30-Sep-14		01-Sep-14	30-Sep-14	243	486
31-Oct-14		01-Oct-14	31-Oct-14	274	597
30-Nov-14		01-Nov-14	30-Nov-14	304	705

Input		Calculation			
Forward Date	Forward Balance Download Value	Period Start	Period End	Cumulative Calendar Days	Missing Forward Balance
31-Dec-14		01-Dec-14	31-Dec-14	335	816

An example of extrapolation when frequency of forward dates is a month and holidays are excluded is as follows:

Input		Calculation			
Forward Date	Forward Balance Download Value	Period Start	Period End	Cumulative Business Days	Missing Forward Balance
31-Jan-14	742	31-Jan-14	31-Jan-14	1	
28-Feb-14	438	01-Feb-14	28-Feb-14	21	
31-Mar-14	724	01-Mar-14	31-Mar-14	42	
30-Apr-14	603	01-Apr-14	30-Apr-14	64	
31-May-14	859	01-May-14	31-May-14	86	
30-Jun-14	426	01-Jun-14	30-Jun-14	107	
31-Jul-14	268	01-Jul-14	31-Jul-14	130	
31-Aug-14	379	01-Aug-14	31-Aug-14	151	
30-Sep-14		01-Sep-14	30-Sep-14	173	495
31-Oct-14		01-Oct-14	31-Oct-14	196	617
30-Nov-14		01-Nov-14	30-Nov-14	216	723
31-Dec-14		01-Dec-14	31-Dec-14	239	844

Note:

1. If there is only 1 known observation, then the missing observation is estimated as the value of the preceding known observation.
2. If the balance is not provided for the first forward date in the forecasting horizon, the application will not compute the forward balance for such a dimensional combination. First forward balance is mandatory.

3. If the last forward date and corresponding balance provided as a download occurs after the last date in the forecasting horizon, only those balances missing till the end of the forecasting horizon are interpolated.
4. The application supports only the Balance Download Method or Constant Balance Method for computing forward balances for liquidity pool assets i.e. those assets which are controlled by treasury.

4. **Balance Change Download**:

The steps involved in calculating balances at a forward date under contractual terms when the method is selected as "balance change download" are as follows**:**

a. The balance change for multiple forward dates is received as a download across dimensional combinations. A positive value indicates an increase in balance while a negative value indicates reduction.

b. The spot balances are identified for the same dimensional combination as the balance change download.

c. The application calculates the forward balance as of each day as follows:

$$\boldsymbol{Forward\ Balance_F = Max\left\{EOP\ Minimum\ Threshold, \left(Forward\ Balance_{F-x} + \sum_{t=F-x+1}^{F} Balance\ Change_t\right)\right\}}$$

Where,

F : Each forward date for which balance is calculated

F – x : Previous forward date for which calculations are done

x : Interval between each forward date

t : Time period between previous forward date (exclusive) to next forward date (inclusive)

Note:

1. If no balance change is specified for time period between previous forward date to next forward date, then the balance calculated as of the previous forward date is assumed to continue "as-is".
2. If no balance change is specified for the first forward date, the spot balance is assumed to continue.

The following is an example for Balance Change Download:

Input:

Product	Currency	N_EOP_BAL	N_EOP_BAL_RCY	N_EOP_BAL_LCY	N_AS_OF_DATE
Term Deposit	USD	10000	10000	10000	12/31/2014
Term Deposit	INR	2000000	33333	2000000	12/31/2014

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
Term Deposit	USD	26	1/1/2015	2/1/2015
Term Deposit	USD	66	1/2/2015	2/1/2015
Term Deposit	USD	21	1/5/2015	2/1/2015
Term Deposit	USD	-52	1/6/2015	2/1/2015
Term Deposit	USD	62	1/7/2015	2/1/2015
Term Deposit	USD	-95	1/8/2015	2/1/2015
Term Deposit	USD	0	1/9/2015	2/1/2015
Term Deposit	USD	0	1/12/2015	2/1/2015
Term Deposit	USD	0	1/13/2015	2/1/2015
Term Deposit	USD	0	1/14/2015	2/1/2015
Term Deposit	USD	78	1/15/2015	2/1/2015
Term Deposit	USD	43	1/16/2015	2/1/2015

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
Term Deposit	USD	-79	1/19/2015	2/1/2015
Term Deposit	USD	57	1/20/2015	2/1/2015
Term Deposit	USD	29	1/21/2015	2/1/2015
Term Deposit	USD	-56	1/22/2015	2/1/2015
Term Deposit	USD	22	1/23/2015	2/1/2015
Term Deposit	USD	61	1/26/2015	2/1/2015
Term Deposit	USD	93	1/27/2015	2/1/2015
Term Deposit	USD	-73	1/28/2015	2/1/2015
Term Deposit	USD	5	1/29/2015	2/1/2015
Term Deposit	USD	42	1/30/2015	2/1/2015
Term Deposit	USD	10	2/1/2015	2/1/2015
Term Deposit	USD	11	2/2/2015	3/1/2015
Term Deposit	USD	12	2/3/2015	3/1/2015
Term Deposit	USD	13	2/4/2015	3/1/2015
Term Deposit	USD	14	2/5/2015	3/1/2015
Term Deposit	USD	15	2/6/2015	3/1/2015
Term Deposit	USD	23	2/9/2015	3/1/2015
Term Deposit	USD	17	2/10/2015	3/1/2015
Term Deposit	USD	18	2/11/2015	3/1/2015

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
Term Deposit	USD	34	2/12/2015	3/1/2015
Term Deposit	USD	20	2/13/2015	3/1/2015
Term Deposit	USD	21	2/16/2015	3/1/2015
Term Deposit	USD	22	2/17/2015	3/1/2015
Term Deposit	USD	23	2/18/2015	3/1/2015
Term Deposit	USD	24	2/19/2015	3/1/2015
Term Deposit	USD	3	2/20/2015	3/1/2015
Term Deposit	USD	26	2/23/2015	3/1/2015
Term Deposit	USD	27	2/24/2015	3/1/2015
Term Deposit	USD	28	2/25/2015	3/1/2015
Term Deposit	USD	29	2/26/2015	3/1/2015
Term Deposit	USD	3	2/27/2015	3/1/2015
Term Deposit	USD	-10	3/1/2015	3/1/2015
Term Deposit	INR	-41020	1/1/2015	2/1/2015
Term Deposit	INR	80810	1/2/2015	2/1/2015
Term Deposit	INR	35960	1/5/2015	2/1/2015
Term Deposit	INR	-36810	1/6/2015	2/1/2015
Term Deposit	INR	76760	1/7/2015	2/1/2015
Term Deposit	INR	-79960	1/8/2015	2/1/2015

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
Term Deposit	INR	-15000	1/9/2015	2/1/2015
Term Deposit	INR	-15000	1/12/2015	2/1/2015
Term Deposit	INR	-15000	1/13/2015	2/1/2015
Term Deposit	INR	-15000	1/14/2015	2/1/2015
Term Deposit	INR	-93350	1/15/2015	2/1/2015
Term Deposit	INR	-58280	1/16/2015	2/1/2015
Term Deposit	INR	-64150	1/19/2015	2/1/2015
Term Deposit	INR	72180	1/20/2015	2/1/2015
Term Deposit	INR	43710	1/21/2015	2/1/2015
Term Deposit	INR	-40990	1/22/2015	2/1/2015
Term Deposit	INR	36810	1/23/2015	2/1/2015
Term Deposit	INR	75630	1/26/2015	2/1/2015
Term Deposit	INR	108470	1/27/2015	2/1/2015
Term Deposit	INR	-58170	1/28/2015	2/1/2015
Term Deposit	INR	20060	1/29/2015	2/1/2015
Term Deposit	INR	56580	1/30/2015	2/1/2015
Term Deposit	INR	25000	2/1/2015	2/1/2015
Term Deposit	INR	26000	2/2/2015	3/1/2015
Term Deposit	INR	27000	2/3/2015	3/1/2015

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
Term Deposit	INR	-28000	2/4/2015	3/1/2015
Term Deposit	INR	-28000	2/5/2015	3/1/2015
Term Deposit	INR	280000	2/6/2015	3/1/2015
Term Deposit	INR	-280000	2/9/2015	3/1/2015
Term Deposit	INR	-28000	2/10/2015	3/1/2015
Term Deposit	INR	-28000	2/11/2015	3/1/2015
Term Deposit	INR	-50000	2/12/2015	3/1/2015
Term Deposit	INR	-50000	2/13/2015	3/1/2015
Term Deposit	INR	-50000	2/16/2015	3/1/2015
Term Deposit	INR	50000	2/17/2015	3/1/2015
Term Deposit	INR	-50000	2/18/2015	3/1/2015
Term Deposit	INR	-50000	2/19/2015	3/1/2015
Term Deposit	INR	-50000	2/20/2015	3/1/2015
Term Deposit	INR	-50000	2/23/2015	3/1/2015
Term Deposit	INR	-50000	2/24/2015	3/1/2015
Term Deposit	INR	-50000	2/25/2015	3/1/2015
Term Deposit	INR	44000	2/26/2015	3/1/2015
Term Deposit	INR	18000	2/27/2015	3/1/2015
Term Deposit	INR	5000	3/1/2015	3/1/2015

Output:

Product	Currency	N_EOP_BAL	N_EOP_BAL _LCY	N_EOP_BAL _RCY	D_FORWARD_DATE
Term Deposit	USD	10260	10260	10260	2/1/2015
Term Deposit	INR	2099240	2099240	34987	2/1/2015
Term Deposit	USD	10633	10633	10633	3/1/2015
Term Deposit	INR	1707240	1707240	28454	3/1/2015

5. **Constant Balance**:

The current contractual balance is held constant for each of the forward dates.

The application calculates the forward dates required for a particular run using the forward date calculation. Once forward dates are determined the forecasted balance is calculated for all forward dates.

The constant balance method is illustrated below. The spot information is as follows:

As of Date	31-Dec-14
Product	Term Deposit
Currency	USD
Current Balance	1,000

The forward balance, in case of the constant balance method, is calculated as follows:

Forward Date	Forward Balance
1-Jan-15	1,000
1-Feb-15	1,000

Forward Date	Forward Balance
1-Mar-15	1,000
1-Apr-15	1,000
1-May-15	1,000

6. **Cash Flow Download Method**:

   This method computes the balances for each forward date by summing up the forward cash flows received as download for that forward date. Refer to section Forward Cash Flow Method Mapping Rule in Run Parameters section of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library for more details.

4.1.5 Adjustment of Forward Balance Sheet

After computing the forward balances for all dimensional combinations, the application checks whether the total assets equal the total liabilities plus equity. If the total assets do not equal the total liabilities plus equity, an adjustment entry is made to balance the balance sheet, if specified by the user.

The application supports multiple methods for adjusting the balance sheet. The method to be used is determined through the selection of the balance sheet adjustment method in the Run Management window. Refer section Run Definition Parameters of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library for more details.

The application supports the following four methods for adjusting the forward balance sheet.

- Current Profile Based Increase
- Current Profile Based Decrease
- Cash Adjustment
- Manual Adjustments

NOTE:

The adjustments are applied to forward balances prior to computing forward cash flows as part of the contractual Run.

4.1.5.1 Current Profile Based Increase

This method increases the total value of the side of the balance sheet that is lower than the other side in the proportion of the current profile. Suppose the spot balance sheet position and the current profile is as follows:

Assets Side	Asset Balance	Current Profile – Assets	Liabilities Side	Liability Balance	Current Profile – Liabilities	Liability Balance Excluding Equity	Revised Current Profile – Liabilities
Cash	300	35.29%	Equity	200	23.53%		
Asset 2	250	29.41%	Liability 1	300	35.29%	300	46.15%
Asset 3	200	23.53%	Liability 2	350	41.18%	350	53.85%
Asset 4	100	11.76%					
Total	850	100%	Total	850	100%	650	100%

The balance sheet position after forward balance calculation is as follows:

- Total Assets = 1000
- Total Liabilities plus Equity = 1200

Here, the assets side is lower than the liabilities side by 200 (1200-1000). As per this method, the side which is lower is adjusted and made equal to the other side in order for the balance sheet to be balanced. The difference on the assets side is allocated based on the current asset profile as follows:

Assets Side	Current Profile (a)	Forward Balance (b)	Adjustments to Assets (c = a* Difference)	Adjusted Forward Balance (d = b + c)

Assets Side	Current Profile (a)	Forward Balance (b)	Adjustments to Assets (c = a* Difference)	Adjusted Forward Balance (d = b + c)
Cash	35.29%	350	70.58	420.58
Asset 2	29.41%	270	58.82	328.82
Asset 3	23.53%	250	47.06	297.06
Asset 4	11.76%	130	23.52	153.52
Total	100.00%	1000	200	1200

NOTE:

If the liabilities side is increased, equity is excluded from any adjustments. The total difference is only allocated to all liabilities other than equity, based on the revised current profile calculated for all liabilities excluding equity.

4.1.5.2 Current Profile Based Decrease

This method decreases the total value of the side of the balance sheet that is higher than the other side in the proportion of the current profile. Based on the spot balance sheet position provided as part of the illustration above, the liabilities side is greater than the assets side and hence is reduced to match the assets side based on the current liability profile as follows:

Liabilities Side	Revised Current Profile (a)	Forward Balance (b)	Adjustments to Liabilities (c = a* Difference)	Adjusted Forward Balance (d = b + c)
Equity		275	0	275.00
Liability 1	46.15%	530	-92.30	437.70

Liabilities Side	Revised Current Profile (a)	Forward Balance (b)	Adjustments to Liabilities (c = a* Difference)	Adjusted Forward Balance (d = b + c)
Liability 2	53.85%	395	-107.70	287.30
Total	100.00%	1200	-200	1000

NOTE:

If the liabilities side is being decreased, equity is excluded from any adjustments as illustrated above. The total difference is only allocated to all liabilities other than equity, based on the revised current profile calculated for all liabilities excluding equity.

4.1.5.3 Cash Adjustment

This method increases or decreases the cash balance based on the side of the balance sheet which is greater. If the liabilities side is greater than the assets side after computing forward balances, then cash balance is increased by the difference amount. If the asset side is greater than the liabilities side, cash is decreased by the difference amount.

In the illustrations above, since the liabilities side is greater than the assets side, the cash balance is increased by 200, which is the difference amount. The adjusted forward cash balance is 550 (i.e. 350 + 200).

4.1.5.4 Manual Adjustments

Manual adjustments method allows users to specify the percentages by which assets and/or liabilities are to be increased or decreased in order to adjust the balance sheet. The application provides a pre-configured sample rule named “LRM - Manual Balance Adjustment – Forecast” to achieve this. When the ‘manual adjustments’ option is selected as part of the balance sheet adjustment method selection in the contractual Run.

This rule appears for selection of the adjustment of the balance sheet position can be specified based on certain dimensional combination as part of this rule. The most granular combination of dimensions equals the download dimensions for forward date liquidity calculations. Users can modify this rule as per their specific adjustment criteria or create a new rule to specify these criteria. The adjustment percentage

specified by the user is applied to the difference in the assets and liabilities side to compute the adjusted balance sheet. The various ways of specifying the manual adjustment criteria are illustrated below.

Illustration 1: Asset Adjustment Only

In this case, the manual adjustment is specified in such a manner that only the asset position changes. The adjustment percentages to be applied differ based on the condition.

Condition	Asset	Currency	Adjustment Percentage
Assets > Liabilities	Asset 2	US Dollar	- 20%
	Asset 3	Euro	-30%
	Cash	US Dollar	-50%
Assets < Liabilities	Cash	US Dollar	70%
	Asset 2	US Dollar	30%

Illustration 2: Asset or Liability Adjustment

In this case, either asset position or liability position is changed depending on the condition.

Condition	Asset	Currency	Adjustment Percentage
Assets > Liabilities	Liability 1	US Dollar	55%
	Liability 1	Euro	45%
Assets < Liabilities	Cash	US Dollar	70%
	Asset 2	US Dollar	30%

Illustration 3: Liability Adjustment Only

In this case, only liability position is changed depending on the condition.

Condition	Asset	Currency	Adjustment Percentage
Assets > Liabilities	Liability 1	US Dollar	55%
	Liability 1	Euro	45%
Assets < Liabilities	Liability 1	US Dollar	-70%
	Liability 1	US Dollar	-30%

Illustration 4: Asset and Liability Adjustment

In this case, both asset and liability positions are adjusted depending on the condition.

Condition	Asset	Adjustment Percentage
Assets > Liabilities	Asset 2	-55%
	Liability 1	45%
Assets < Liabilities	Asset 2	70%
	Liability 1	-30%

Suppose the balance sheet position after forward balance calculation is as follows:

Total Assets = 1000

Total Liabilities plus Equity = 1200

Here, the assets side is lower than the liabilities side by 200 (1200-1000). As per the criteria specified in illustration 4, this meets condition 2 i.e. Assets < Liabilities. The difference on the assets side is adjusted as follows:

Asset 2 = 200 * 70% = 140

Liability 1 = 200 * -30% = -60

Total Adjusted Assets = 1000 + 140 = 1140

Total Adjusted Liabilities plus Equity = 1200 – 60 = 1140

4.1.6 Forward Balance and Cash Flow Allocation

4.1.6.1 Forward Balance Allocation

The application computes forward balances based on a limited set of dimensional combinations such product, currency, customer type legal entity and facility type (refer section Granularity of Forward Records for granularity of forward records) as the information is generally not available at a very granular level for dates in the future. However, for the purpose of computing LCR, the information is required at a very granular level. To overcome this mismatch in granularity, the application allocates the adjusted forward balances to the granularity required for computing forward LCR as follows:

1. The dimensional combinations to which forward balance methods are mapped are identified.
2. The dimensional combination to which each forward balance is to be allocated is identified. The allocation granularity is the dimensions that are available as part of the FSI LRM Instrument table.
3. The application computes the current profile of all spot data, which corresponds to each download dimensional combination, at the granularity available in FSI LRM Instrument table i.e. the allocation dimension granularity.
4. The application applies the current profile percentage calculated as part of step 3 to the corresponding forward balances computed at the download dimension level to compute the allocation amount.

The forward balance allocation process is illustrated below. Suppose the forward balance is being computed at the Product – Customer Type dimensional combination. The current balance obtained as a download and forward balance computed for this dimensional combination are follows:

Product	Customer Type	Current EOP Balance (a)	Current Insured Balance (b)	Forward Balance (c)
Deposits	Retail	1000	600	1200

Product	Customer Type	Current EOP Balance (a)	Current Insured Balance (b)	Forward Balance (c)
Loans	SME	2000		1500

This illustration assumes that the most granular dimensional combination for computation is Product – Customer Type – Currency. The current balance available for this granular dimensional combination is provided below. The application computes the current profile and allocates balance to the granular combinations as follows:

Input					**Calculation**			
Product	**Customer Type**	**Currency**	**Current EOP Balance (d)**	**Current Insured Balance (e)**	**Current Profile - EOP Balance [f = d ÷ a]**	**Allocated Forward EOP Balance (c * f)**	**Current Profile - Insured Balance [g = e ÷ a]**	**Allocated Forward Insured Balance (c * g)**
Deposits	Retail	USD	800	450	80%	960	45%	540
Deposits	Retail	GBP	200	150	20%	240	15%	180
Loans	SME	USD	900		45%	675		
Loans	SME	GBP	1100		55%	825		

NOTE:

The allocation of liquidity pool balances are based on the Fair Value and not the EOP Balance. For all other products the balance allocation is done on the basis of EOP Balance.

4.1.6.2 Forward Cash Flow Allocation

In case of the Cash Flow Download method, the cash flows are obtained at a less granular level i.e. at the level specified in section Granularity of Forward Records. The application allocates these cash flows to the granularity required for computing LCR. The steps involved in allocating cash flows to a more granular level are as follows:

1. The dimensional combinations based on which Cash Flow Download method is mapped are identified.
2. The cash flows obtained as of each forward date are bucketed based on the Time Bucket Definition selected as part of the forward date liquidity risk Run.
3. The dimensional combination to which each forward cash flow is to be allocated is identified. The allocation granularity is the dimensions that are available as part of the Fact Aggregate Cash Flow table.
4. The application computes the current profile of all spot cash flows, which corresponds to each download dimensional combination, at the granularity available in Fact Aggregate Cash Flow table i.e. the allocation dimension granularity including the level 0 time bucket.
5. The application applies the current profile percentage calculated as part of step 4 to the corresponding forward cash flows computed at the download dimension level to compute the allocation amount. The granularity of allocation is the same as that available in Fact Aggregate Cash Flow table.

The forward cash flow allocation process is illustrated below. Suppose the following forward cash flows are obtained at the Product – Customer Type dimensional combination as of the forward date 25th February 2016:

Product	Customer Type	Forward Cash Flow Date	Forward Cash Flows
Loans	Retail	26-Feb-15	15
Loans	Retail	27-Feb-15	20
Loans	SME	26-Feb-15	30
Loans	SME	27-Feb-15	15

The bucketed current cash flows and forward cash flows for this dimensional combination are as follows:

Inputs			Calculation
Product	**Customer Type**	**Current Cash Flows**	**Forward Cash Flows**

		1-1 Day (a)	2-2 Day (b)	1-1 Day (c)	2-2 Day (d)
Loans	Retail	10	25	15	20
Loans	SME	20	15	30	15

This illustration assumes that the most granular dimensional combination for computation is Product – Customer Type – Currency. The current cash flow available for this granular dimensional combination is provided below. The application computes the current profile and allocates forward cash flows to the granular combinations as follows:

Inputs					**Calculation**			
Product	**Customer Type**	**Currency**	**Current Cash Flow**		**Current Profile**		**Allocated Forward Cash flow**	
			1-1 Day (e)	**2-2 Day (f)**	**1-1 Day [g = e ÷ a]**	**2-2 Day [h= f ÷ b]**	**1-1 Day (c * g)**	**2-2 Day (d * h)**
Loans	Retail	USD	5	10	0.50	0.40	7.50	8.00
Loans	Retail	GBP	5	15	0.50	0.60	7.50	12.00
Loans	SME	USD	9	9	0.45	0.60	13.50	9.00
Loans	SME	GBP	11	6	0.55	0.40	16.50	6.00

NOTE:

This allocation process is applicable only when the cash flow calculation method is selected as ‘Cash Flow Download’

4.1.7 Calculation of Forward Cash Flows

The application, as part of contractual Run, calculates forward cash flows based on the balances computed as of each forward date. It supports multiple methodologies for computing these forward cash flows which include:

- Contractual Profile
- Current Profile
- Current and Default Profile
- Cash Flow Download
- Incremental Run-off Assumption
- Growth Assumption
- Drawdown Assumption

The application allows users to map the forward cash flow calculation methods to the desired dimensional combinations such as product-currency or simply a single dimension such as product through a rule defined as part of the Rule Run Framework. The application supports a pre-configured rule for mapping the forward cash flow calculation methods named LRM - Cash Flow Method Reclassification - Forecast. This has default values mapped for assets and liabilities. These default mappings can be changed by the users and the rule can be re-saved to reflect these changes. Alternatively, users can create their own cash flow method mapping rules in the Rules Framework to address regulatory and risk management needs. However, only one mapping rule is allowed to be selected in the Run Management window for a given forward liquidity Run, based on which all further calculations are done as part of that forward Run. The application looks up the method for each dimensional combination and calculates the forward cash flows for each record based on the user-specified method,

The forward cash flow calculation methods supported by the application are explained in detail below:

4.1.7.1 Contractual Profile

The steps involved in calculating cash flows at a forward date under contractual terms when the method is selected as “Contractual Profile” are as follows:

1. The un-bucketed contractual cash flows as of the current date are obtained as a download. The current date is equal to the As of Date selected during Run execution.
2. The contractual cash flows prior to or on the forward date are excluded and the contractual cash flows occurring after the forward date are considered the forward cash flows.

   For example, the current date is taken as 28th February 2016 and the contractual cash flows for an account as of the current date are as follows:

Cash Flow Date	28-Mar-16	28-Apr-16	28-May-16	28-Jun-16	28-Jul-16
Cash Flow	80	70	60	50	40

   Under the contractual profile method, the cash flows as of the forward date 28th April 2016 are calculated as follows:

Cash Flow Date	28-May-16	28-Jun-16	28-Jul-16
Cash Flow	60	50	40

NOTE:

The cash flow calculation method ‘Contractual Profile’ is applicable only when the forward balance calculation method is selected as ‘Contractual Run-off’.

Only the principal cash flows are taken into account for forward liquidity calculations. Interest cash flows as of the current date are ignored.

4.1.7.2 Current Profile

The steps involved in calculating cash flows at a forward date under contractual terms when the method is selected as “Current Profile” are as follows:

1. The un-bucketed contractual cash flows as of the current date are obtained as a download. The current date is equal to the As of Date selected during Run execution.

2. The application calculates the current maturity profile of cash flows for each dimensional combination as follows:

$$\boldsymbol{Current\ Profile}_{\boldsymbol{x}} = \frac{\boldsymbol{Cash\ Flow}_{\boldsymbol{x}}}{\boldsymbol{EOP\ Balance}} \times \mathbf{100}$$

Where,

x : Day in which the contractual cash flow occurs from 1 to n

3. The application applies the current maturity profile percentage to each forward balance to obtain the forward cash flows as follows:

$$\boldsymbol{Forward\ Cash\ Flow}_{\boldsymbol{x}} = \boldsymbol{Forward\ Balance}_{\boldsymbol{f}} \times \boldsymbol{Current\ Profile}_{\boldsymbol{x}}$$

Where,

f : Forward dates from 1 to n

The current profile method is illustrated below. The inputs required for this method are provided below:

As of Date (a)	28-Feb-16
EOP Balance (b)	10000
Forward Date 1 (c)	15-Apr-16
Forward EOP Balance 1 (d)	8000
Forward Date 2 (e)	17-Apr-2016
Forward EOP Balance 2 (f)	8900

The application computes the current profile and subsequently the forward cash flows as of each forward date as follows:

Inputs		**Calculation**					
Cash Flow Date (g)	**Cash Flows (h)**	**Current Profile [i = (h ÷ b) * 100]**	**Calendar Day [j = (g – a)]**	**Forward Cash Flows as of 15-Apr-2016**		**Forward Cash Flows as of 17-Apr-2016**	
				Forward Cash Flow Date (c + j)	**Forward Cash Flows (d * i)**	**Forward Cash Flow Date (e + j)**	**Forward Cash Flows (f * i)**
1-Mar-16	979.00	9.79%	2	17-Apr-16	783.20	19-Apr-16	871.31
2-Mar-16	496.00	4.96%	3	18-Apr-16	396.80	20-Apr-16	441.44
3-Mar-16	377.00	3.77%	4	19-Apr-16	301.60	21-Apr-16	335.53
4-Mar-16	520.00	5.20%	5	20-Apr-16	416.00	22-Apr-16	462.80
7-Mar-16	718.00	7.18%	8	23-Apr-16	574.40	25-Apr-16	639.02
8-Mar-16	95.00	0.95%	9	24-Apr-16	76.00	26-Apr-16	84.55
9-Mar-16	226.00	2.26%	10	25-Apr-16	180.80	27-Apr-16	201.14
10-Mar-16	105.00	1.05%	11	26-Apr-16	84.00	28-Apr-16	93.45
11-Mar-16	1035.00	10.35%	12	27-Apr-16	828.00	29-Apr-16	921.15
14-Mar-16	726.00	7.26%	15	30-Apr-16	580.80	2-May-16	646.14
15-Mar-16	444.00	4.44%	16	1-May-16	355.20	3-May-16	395.16
16-Mar-16	333.00	3.33%	17	2-May-16	266.40	4-May-16	296.37
17-Mar-16	335.00	3.35%	18	3-May-16	268.00	5-May-16	298.15

Inputs		Calculation					
Cash Flow Date (g)	Cash Flows (h)	Current Profile [i = (h ÷ b) * 100]	Calendar Day [j = (g – a)]	Forward Cash Flows as of 15-Apr-2016		Forward Cash Flows as of 17-Apr-2016	
				Forward Cash Flow Date (c + j)	Forward Cash Flows (d * i)	Forward Cash Flow Date (e + j)	Forward Cash Flows (f * i)
18-Mar-16	508.00	5.08%	19	4-May-16	406.40	6-May-16	452.12
21-Mar-16	270.00	2.70%	22	7-May-16	216.00	9-May-16	240.30
22-Mar-16	414.00	4.14%	23	8-May-16	331.20	10-May-16	368.46
23-Mar-16	209.00	2.09%	24	9-May-16	167.20	11-May-16	186.01
24-Mar-16	310.00	3.10%	25	10-May-16	248.00	12-May-16	275.90
25-Mar-16	371.00	3.71%	26	11-May-16	296.80	13-May-16	330.19
28-Mar-16	564.00	5.64%	29	14-May-16	451.20	16-May-16	501.96
29-Mar-16	965.00	9.65%	30	15-May-16	772.00	17-May-16	858.85

NOTE:

The current profile can be computed on the basis of calendar days or business days.

4.1.7.3 Current and Default Profile

The current and default profile method is a combination of the current profile method and the incremental run-off method of generating cash flows. In this method, the cash flows are generated for some forward dates based on the current profile method and for others based on the default cash flow profile specified by the user as part of the incremental cash flow business assumption. Both these methods

are used for generating cash flows for the same dimensional combination. However, only one method is applicable for a given forward date within a single Run execution.

For example, the current profile method can be used to generate cash flows for all forward dates occurring within the next 30 calendar days and default profile method for all forward dates later than 30 days. This is specified as part of the rule named "LRM - Cash Flow Method Reclassification - Forecast". Considering the As of Date to be 28th February 2016 and the forward liquidity calculations are being executed for 6 forward dates which are at weekly intervals starting 1st March 2016, the cash flow methodology applicable for each forward date is determined as follows:

Forward Date	Days from As of Date	Cash Flow Calculation Method Applied
1-Mar-16	2	Current Profile
8-Mar-16	9	Current Profile
15-Mar-16	16	Current Profile
22-Mar-16	23	Current Profile
29-Mar-16	30	Current Profile
5-Apr-16	37	Default Profile

The process of generating forward cash flows based on the current profile method is documented as part of the Current Profile section above. The process of generating forward cash flows based on the default profile method is available as part of the Incremental Run-off Assumption section below.

4.1.7.4 Cash Flow Download

The forward cash flows as of each forward date are taken as a download at the dimensional combination specified in section Granularity of Forward Records These cash flows, which are obtained as a download at a less granular level, are allocated by the application to the level of granularity required for computing LCR. Cash flow download method is applicable only in when the balance forecasting method selected is either 'Balance Download' or 'Balance Change Download'.

4.1.7.5 Incremental Run-off Assumption

This method involves leveraging the existing incremental run-off business assumption to apply user-specified run-off pattern on the forward balances in order to generate forward cash flows based on user-specified pattern. The run-off rates for each time bucket are specified through the business assumption definition window by selecting the assumption category as 'Incremental cash flow' and sub category as 'Run-off'.

The user is allowed to select one or multiple incremental cash flow business assumptions as part of the forward date contractual Run definition UI. For the purpose of forward cash flow calculations, the only allowable 'Based On' measure is EOP balance i.e. only those assumptions which are based on EOP balance are displayed for selection as part of the contractual Run in the Run Management window. This restriction does not apply to business-as-usual or stress Runs. The application applies the user-specified run-off rates to each forward balance to compute cash flows as of each forward date. Refer to section Run-Off of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library for more details on defining the incremental run-off business assumption.

4.1.7.6 New Business Assumption

This method involves leveraging the existing business assumption, new business, to generate cash flows due to business growth over and above the baseline forward cash flows computed by the application. For instance, the cash flow computation method may be selected as Contractual Run-off for a given product. This method considers only the current contractual cash flows occurring beyond the forward date. In this case, users can specify new business over and above the current business using the New Business assumption. The initial cash flows due to new business and subsequent off-set cash flows signifying repayment of assets or liabilities are specified through the business assumption definition window by selecting the assumption category as 'Incremental cash flow' and sub category as 'New Business'.

The user is allowed to select one or multiple new business assumptions as part of the forward date contractual Run definition UI. For the purpose of forward cash flow calculations, the only allowable 'Based On' measure is EOP balance i.e. only those assumptions which are based on EOP balance are displayed for selection as part of the contractual Run in the Run Management window. This restriction does not apply to business-as-usual or stress Runs. The application

applies the user-specified growth and off-set rates to each forward balance to compute additional cash flows as of each forward date. Refer to section New Business of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library, for more details on defining the new business assumption

4.1.7.7 Drawdown Assumption

This method involves leveraging the existing drawdown business assumption to specify additional drawdown of the undrawn commitments and lines. The drawdown rates and corresponding repayment rates for each time bucket are specified through the business assumption definition window by selecting the assumption category as 'Incremental cash flow' and sub category as 'Drawdown'.

The user is allowed to select one or multiple drawdown assumptions as part of the forward date contractual Run definition UI. For the purpose of forward cash flow calculations, the only allowable 'Based On' measure is Undrawn Amount i.e. only those assumptions which are based on undrawn amount are displayed for selection as part of the contractual Run in the Run Management window. This restriction does not apply to business-as-usual or stress Runs. The application applies the user-specified drawdown and off-set rates to each forward undrawn balance to compute additional cash flows as of each forward date. Refer to Drawdown section of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library for more details on defining the drawdown assumption.

4.1.8 Calculation of Forward Liquidity Coverage Ratio

Once the forward balances and cash flows are computed for multiple forward dates as part of the forward date liquidity risk contractual Run, the application computes the Liquidity Coverage Ratio (LCR) in a manner similar to that followed for the spot calculations currently. The calculation of LCR is done as part of the BAU Run where the regulatory scenario is applied and its impact on inflows, outflows and stock of HQLA is assessed. The application currently supports forward LCR calculation as per US Federal Reserve and the pre-packaged US regulatory scenario can be used to compute forward LCR under regulatory inflow and outflow rates. For details on LCR computations as per US Federal Reserve, refer OFS Liquidity Risk Regulatory Calculations for US Federal Reserve User Guide on OHC Documentation Library.

The application also allows users to apply stress scenarios over and above the baseline regulatory scenario in order to assess the impact of stress of varying magnitudes on a bank's LCR. This is as per the current stress testing functionality supported by OFS Liquidity Risk Management. Refer to section Run Type, of the OFS Liquidity Risk Measurement and Management User Guide on OHC Documentation Library for more details on stress testing.

4.1.9 Pre-configured Forecasting Rules

The following are the three different rules which have been preconfigured for forecasting:

- Cash Flow Calculation Method
- Balance Calculation Method
- Manual Adjustments

4.1.9.1 Cash Flow Calculation Method

In the Run Definition window, Include Forward Date Calculations is selected as Yes and the Forward Cash Flow Method Mapping Rule is selected as LRM – Cash Flow Method Reclassification.

The Out of Box Rule name is “LRM - Cash Flow Method Reclassification – Forecast”.

The Out of Box rule has sample mappings and it is expected to change the mapping as per the requirement.

The list of mandatory source dimensions for Cash Flow Calculation rule is as follows:

- Standard Product Type
- Legal Entity
- Currency

The above source dimensions are mapped to “Forward Method Type”, which is the target dimension.

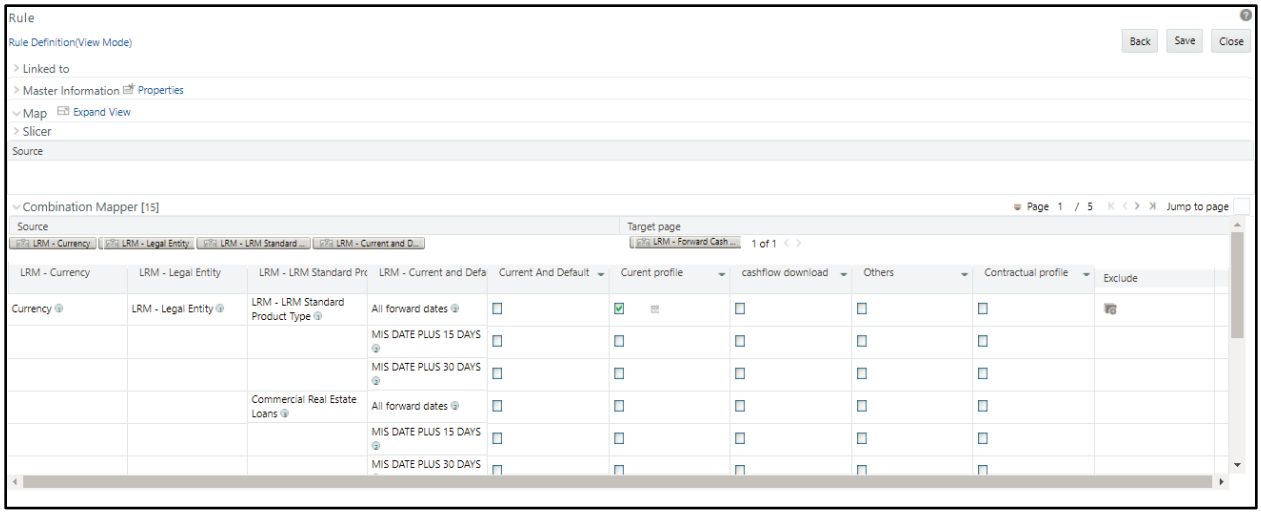
The additional Dimension – “LRM- Current and Default Method – Forecast” (Source hierarchy) must be selected when you wish to map “Current and Default Profile” method to any of the dimensions (product, currency and legal entity).

For Cash Flow Calculation, the following methods are available from the Liquidity Risk Management > Manage LRM Rules > Rule > Run Definition window:

- Contractual Profile
- Current Profile
- Current and Default Profile
- Cash Flow Download

The additional Dimension – “LRM- Current and Default Method – Forecast” (Source hierarchy) must be selected when you wish to map “Current and Default Profile” method to any of the dimensions (product, currency and legal entity).

This hierarchy contains MIS Date plus number of days which is mapped to Current and Default Profile.



4.1.9.2 Balance Calculation Method

In the Run Definition window, Include Forward Date Calculations is selected as Yes and the Forward Balance Method Mapping Rule is selected as LRM – Balance Method Reclassification.

The Out of Box Rule name is “LRM - Balance Method Reclassification – Forecast”.

The Out of Box rule has sample mappings and it is expected to change the mapping as per the requirement

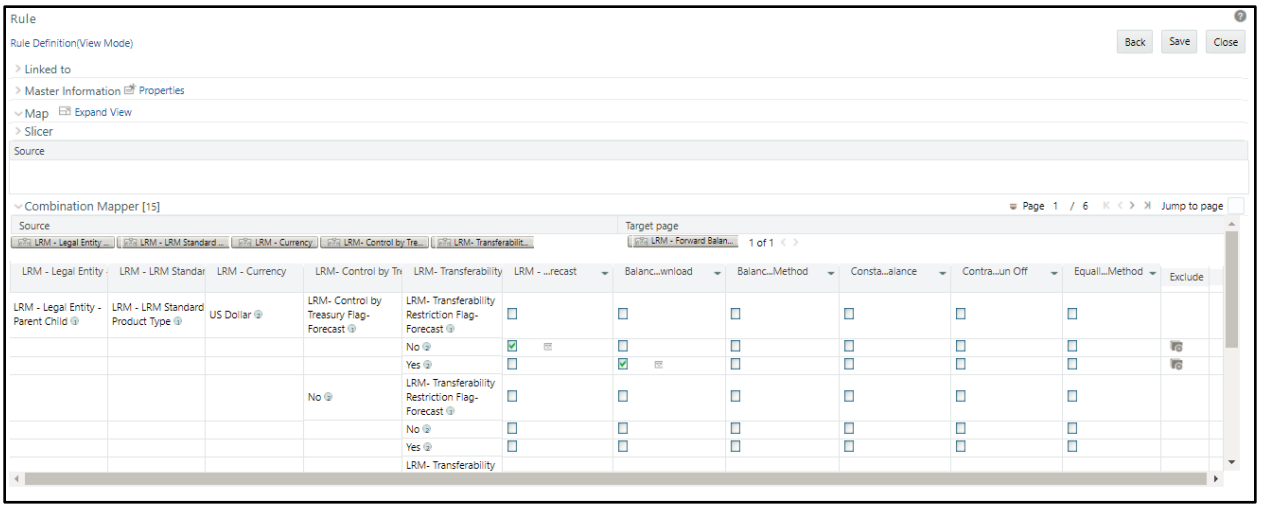
The list of mandatory source dimensions for this rule is follows:

- Standard Product Type
- Legal Entity
- Currency
- Transferability Restriction
- Control By Treasury Flag.

These are mapped to the target dimension “Forward Balance Method Type”. For Balance Calculation, following methods are available from the Liquidity Risk Management > Manage LRM Rules > Rule > Run Definition window:

- Contractual Run Off
- Equally Changing Balance
- Balance Download
- Balance Change Download

- Constant Balance
- Cash Flow Download Method



4.1.9.3 Manual Adjustments Rule

In the Run Definition window, **Include Forward Date Calculations** is selected as **Yes** and the **Balance Sheet Adjustment Method** is selected as **Manual Adjustment** then, the rule for Manual Balance Adjustment has to be selected.

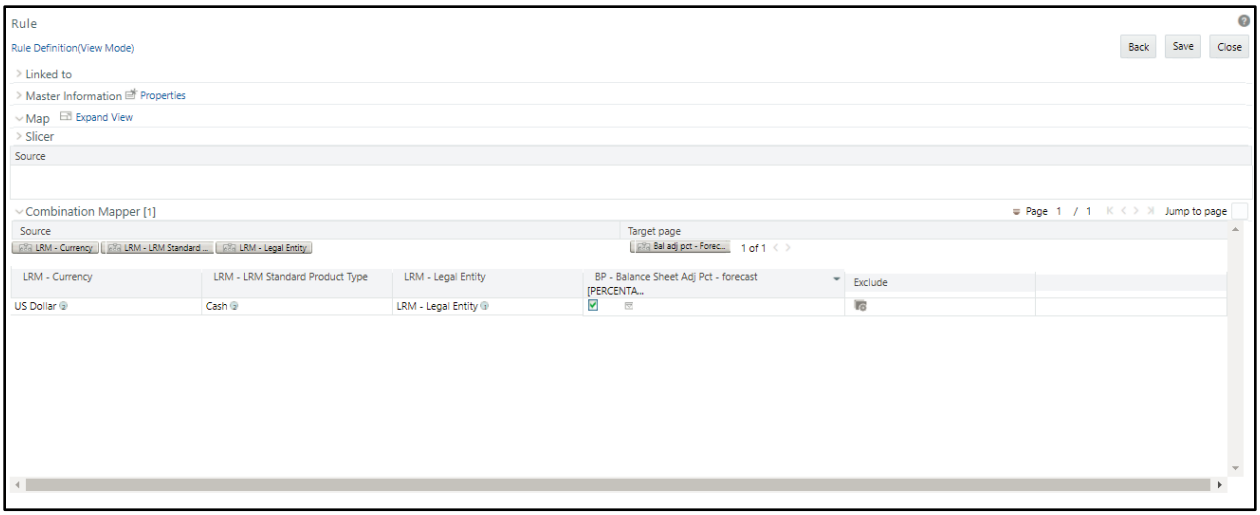
The Out of Box Rule name is “LRM - Manual Balance Adjustment – Forecast”.

The list of mandatory source dimensions for this rule is as follows:

- Standard Product Type
- Legal Entity
- Currency

The Out of Box rule has sample mapping and values in the target. The Manual Adjustment percentage (the target BP, a parameterized BP) is an input as per the requirement.

The sum total of the Manual Adjustment percentage has to be 100%.



You can also create new rules as per the procedure to replace the existing pre-configure forecasting rules. However, these rules must be mapped in the set up master table. The new rules are seeded in FSI_LRM_FWD_METHOD_RULES. Once it is available in the set up master table then, it will be available in the Method selection drop downs in Run Management window for selection.

	V_RULE_TYPE	V_RRF_RULE_OBJECT_ID
Manual Balance Adjustment Rule	BAL_ADJ_RULE	LRMFRULE019
Forward Balance Calculation Rule	FWD_BAL_RULE	LRMFRULE034
Forward Cash Flow Calculation Rule	FWD_CF_RULE	LRMFRULE040

5 Appendix A – Data Transformations/Functions used in LRRCRBI

This section provides information about the Data Transformations (DTs) or functions used in the application.

- **TB_DATE_ASSIGNMENT**

  This function performs the following:

  a. Identifies the dates between the bucket start day and bucket end day.
  b. Populates the intermediate dates based on the chosen FIC-MIS date, in FSI_LRM_TIME_BUCKET_DAYS.
  c. The business day convention (prior, conditional prior, following, no-Adjustment) gets applied, taking into account the holiday calendar applicable for a Legal Entity, and gets populated in FSI_LRM_TIME_BUCKET_DETAILS for each Legal Entity.

- **BOT_INS_UNINS_AMT_CALC**

  This function calculates the insured and uninsured amounts, and updates this information at an account-customer combination in the FSI_LRM_ACCT_CUST_DETAILS table.

- **UPD_PROCESS_SCENARIO_KEY**

  This function updates the process scenario Skey in DIM_FCST_RATES_SCENARIO tables. It performs the following:

  a. Reads the current Run information from FCT_LRM_RUN_PARAM and DIM_RUN tables.
  b. Populates the Contractual/Business as usual Run name, Run type, Run description into DIM_FCST_RATES_SCENARIO table from DIM_RUN.
  c. Updates the process key for current Run in FCT_AGG_BASE_CCY_LR_GAP table storing liquidity risk gap measures in base currency.
  d. Updates the process key for current Run in FCT_AGG_BASE_CCY_LR_GAP table storing liquidity risk gap measures in consolidated currency.
  e. Updates both local and natural, inflow and outflow amount columns in FCT_AGG_CASH_FLOWS using exchange rate conversion.
  f. Updates both inflow and outflow local currency amount columns in FCT_ACCOUNT_CASH_FLOWS using exchange rate conversion.
  g. Updates both local and natural currency amount columns in FCT_LRM_LE_SUMMARY using exchange rate conversion.

- **UPDATE_UNDERLYING_ASSETS**

This function updates all the attributes of the underlying assets, mitigants or placed collateral of an account such as asset level, fair value, market value, and so on, in the FSI_LRM_INSTRUMENT table. For example, consider a loan contracts for which a mitigant is received. This loan account is captured in STG_LOAN_CONTRACTS table and the mitigant information is captured in STG_MITIGANTS. The link between the loan account and the mitigant is captured in STG_ACCOUNT_MITIGANT_MAP table. From STG_ACCOUNT_MITIGANT_MAP table, data moves to FCT_ACCOUNT_MITIGANT_MAP table.

The function identifies the account mitigant mapping from FCT_ACCOUNT_MITIGANT_MAP and updates the attributes of the mitigant against the loan account in FSI_LRM_INSTRUMENT table. For example, if the market value of the mitigant is $500, then the function updates the column FSI_LRM_INSTRUMENT.N_UNDERLYING_RECV_LEG_MKT_RCY as $500 for the loan contract account.

Similarly, consider another example of repo contract where the bank has placed collateral. The repo contract is captured in STG_REPO_CONTRACTS and moved to FSI_LRM_INSTRUMENT table. The collateral placed against the repo contract is captured in STG_PLACED_COLLATERAL table. The relationship between placed collateral and the REPO contract is captured in STG_ACCT_PLACED_COLL_MAP and is moved to FCT_ACCT_PLACED_COLL_MAP.

The function updates the asset level of the placed collateral against the repo contract in FSI_LRM_ISNTRUMENT table, which indicates that the FSI_LRM_INSTRUMENT.N_UNDERLYING_ASSET_LEVEL_SKEY is updated.

Similarly, the function updates the following attributes of the underlying asset (Mitigant/Placed Collateral) in FSI_LRM_ISNTURMENT table:

- N_UNDERLYING_ASSET_LEVEL_SKEY
- N_UNDERLYING_MKT_RCY
- N_UNDERLYING_FAIR_RCY
- F_UNDERLY_QUALIF_UNENCUMB
- N_UNDERLY_RISK_WEIGHT_SKEY
- N_UNDERLY_STD_ISSUER_TYPE_SKEY
- N_UNDERLY_STD_PROD_TYPE_SKEY
- N_UNDERLYING_INST_BASEL_RATING
- F_UNDERLY_COLL_COVER_SHORT_POS
- F_UNDRLY_COVER_BANK_SHORT_POS

- F_UNDRLY_COVER_CUST_SHORT_POS
- F_UNDERLY_ISSUER_FINAN_ENTITY
- F_UNDERLY_REHYPOTHECATED_FLAG
- F_UNDERLYING_ISSUER_US_FLAG
- F_UNDERLYING_GUARANTOR_US_FLAG
- F_UNDRLYNG_PLACED_HQLA_FLAG
- F_UNDERLYING_HELD_BY_CLIENT
- F_UNDRLYNG_ASST_SEGREGATED_IND
- N_HQLA_MIT_VAL_RCY
- N_NON_HQLA_MIT_VAL_RCY
- N_EXP_NOT_COV_BY_HQLA_MIT_RCY

These columns are used for calculating the adjustments to be performed in the stock of HQLA process and also in business as usual assumptions.

This DT identifies the underlying asset of an account from the mapping tables (FCT_ACCOUNT_MITIGANT_MAP and FCT_ACCT_PLACED_COLL_MAP), reads the attributes of the underlying asset (mitigant from FCT_MITIGANTS and placed collateral from FSI_LRM_INSTRUMENT) and updates the same against the account in FSI_LRM_INSTURMENT table using the following steps:

a. Assigns the used portion of a placed collateral in FCT_ACCT_PLACED_COLL_MAP table, that is, updates FCT_ACCT_PLACED_COLL_MAP.N_DRWN_PORTION_COLL_AMT.
b. Assigns the underlying asset level.
c. Assigns the underlying asset level Skey of SUBSTITUTABLE COLLATERAL to
    - Derivative Products
    - Non-Derivative Products

    Updates the N_COLL_SUBSTITU_ASSET_LVL_SKEY and N_SBSTBL_ASST_LVL_ENT_SKEY of FSI_LRM_INSTRUMENT table
d. Assigns revised maturity date Skey for ('CS','REVREPO','DRB','SECBORR') product, that is FLI.N_REVISED_MATURITY_DATE_SKEY.

Updates the encumbrance percent in FSI_LRM_INSTRUMENT against the placed collateral records, that is, FLI.N_PERCENT_ENCUMBERED.

6 Appendix B – User Configuration and Settings

6.1 Standard Reclassifications

The regulatory guidelines specify classifications and computations based on certain generic product and party types. Each bank, internally, will have its own product and party types, which differ from bank to bank. In order to ensure consistency in computations, the application supports two standard dimensions based on the regulatory guidelines:

- Standard Product Type
- Standard Party Type

The bank specific product and party types, which are accepted as a download in the staging tables, are required to be reclassified to standard product and party types supported by the application respectively.

6.1.1 Standard Product Type Reclassification

Banks should to map their specific product types to the Standard Product Types as part of the rule RBI LCR - Standard Product Type Reclassification. The application then reclassifies the bank product types to Standard Product Types and utilizes the Standard Product Types for further processing.

6.1.2 Standard Party Type Reclassification

Banks are required to map their specific party types to the Standard Party Types as part of the rule LRM - Standard Party Type Reclassification. The application then reclassifies the bank party types to Standard Party Types and utilizes the Standard Party Types for further processing. Party types include customer type, issuer type and guarantor type.

6.2 Mitigant Sub Type Classifications

Banks are required to map their mitigant product types to the Standard Product Types as part of the rule LRM - Mitigant Sub Type Classification. The application then reclassifies the bank mitigant types to Standard product Types, and utilizes this for further processing.

7 Appendix C - Pre-requisite for RBI LCR Batch Execution

The following are the pre-requisites which must be performed before you begin the RBI LCR batch executions.

The batch users must resave the two given hierarchies and update Setup_Master table as follows:

SL NO.	Bug ID	Metadata Objects	Metadata Type	Actions
1	22312455	FN_GATHER_STATS_FCT	DT	Update V_COMPONENT_VALUE in SETUP_MASTER to Atomic schema name against V_COMPONENT_CODE -> GATHER_STAT_OWNER
2	22587030	LRMRBIRULE0706 - RBI LCR - HQLA Reclassification - Level 2A - Market Asset-Issuer	Hierarchy	Resave HLRM468
3	22572654	LCR RetDepRnOff Stble	Business Assumption	Resave HLRM0346

8 Appendix D - Performance Related Configurations for RBI Contractual

Follow the below steps for setting performance related configurations for RBI Contractual:

1. Parameter Settings OracleDB Configuration File

   OFSAAI provides enabling of Parallelism and setting of DOP for every DML sessions invoked by the applications. These parameters are listed in the OracleDB Configuration file (OracleDB.conf) located in the DB layer of the OFSAAI Installation. Navigate to the path `$FIC_HOME/ficdb/conf`, to access the file. Modify the values for the below parameters

   ```
   CNF_PARALLEL_QUERY=ENABLE

   CNF_PARALLEL_DML=ENABLE

   CNF_DEGREE_OF_PARALLELISM=2

   CNF_PARALLEL_DEGREE_POLICY=MANUAL
   ```

NOTE: The CNF_DEGREE_OF_PARALLELISM value can be 40% of the available parallel threads per CPU on the database server.

2. Parameter Settings for SETUP_MASTER Table

   a. In the SETUP_MASTER table in the atomic schema, update the below mentioned component codes:

      ```
      PARAMNAME      PARAMVALUE

      DT_PARALLEL_ENABLE Y

      DT_PARALLEL_DOP     2
      ```

NOTE: The component value set against the component code DT_PARALLEL_DOP should be same as the CNF_DEGREE_OF_PARALLELISM parameter value set in the OracleDB configuration file as mentioned in step 1 Parameter Settings for OracleDB Configuration File.

   b. Enable the gather stats by setting the component code “GATHER_TABLE_STATS” as “Y” in the setup_master table.

   c. Update the atomic schema name for the component code “GATHER_STAT_OWNER” in the setup_master table.

NOTE: You can turn-off the configuration, by disabling the gather stats by setting the component code “GATHER_TABLE_STATS” as “N” in setup_master table.

3. Parameter Settings for Configuration Table

In the configuration table in config schema, update the below mentioned component code:

```
PARAMNAME   PARAMVALUE

QRY_OPT_USE_ROWID       Y
```

4. Partition the table FLI_LRM_INSTRUMENT based on the n_run_skey.
5. Disable all the foreign key constraints for the table FSI_LRM_INTRUMENT.

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