Oracle Financial Services Liquidity Risk Measurement and Management

User Guide

Release 8.1.0.0.0

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OFS Liquidity Risk Measurement and Management User Guide

Document Control

Version Number	Revision Date	Change Log
1.0	Created: June 2020	Captured updates for 8.1.0.0.0 release
2.0	Updated: October 2020	Captured updates for 8.1.0.1.0 release.
3.0	Updated: March 2021	Added a new step in Defining a Custom Run Purpose section for F_CAST_ENABLED.
4.0	Updated: October 2021	Added a note regarding adding records from Excel in the Creating a Holiday Calendar section.

Table of Contents

1 About the Guide

This chapter provides a brief description of the scope, the audience, the references, the organization of the user guide and conventions used in this document.

Topics:

- Scope of the Guide
- Intended Audience
- Related Information Sources
- Abbreviations
- What Is New In This Release

1.1 Scope of the Guide

The objective of this user guide is to provide comprehensive working knowledge on Oracle Financial Services Liquidity Risk Measurement and Management (OFS LRMM), Release 8.1.0.0.0. This user guide is intended to help you understand the key features and functionalities of Oracle Financial Services Liquidity Risk Measurement and Management (LRMM) release 8.1.0.0.0. Additionally, it details the process flow and methodologies used in the computation and management of liquidity risk. This guide covers liquidity risk functionality that is not dependent on jurisdictional requirements, such as business assumptions, time bucketing, and so on. It is a pre-requisite for the jurisdictional SKUs, such as RBI, EBA, USFED, MAS, BNM, BOT, and HKMA. Additionally, it covers the regulatory calculations, both LCR and NSFR, as per Bank for International Settlements (BIS).

This User Guide should be used in conjunction with the documents listed in the Related Information Sources section to get a complete view of the LRMM application capabilities. Additionally, this document provides the configurations required to address all the liquidity risk related needs of a financial institution.

1.2 Intended Audience

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 is involved with cleaning, validation, and importing of data into the OFSAA Download Specification Format.

1.3 Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info

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

1.4   Related Information Sources

We strive to keep this document and all other related documents updated regularly; visit the OHC Documentation Library to download the latest version available. The list of related documents is provided here:

- OHC Documentation Library **for OFS Liquidity Risk Solution**

    For existing customers of OFS Liquidity Risk Management (LRM):

    - *OFS Liquidity Risk Solution Application Pack 8.1.0.0.0 Release*

    - *OFS Liquidity Risk Solution Application Pack 8.1.0.0.0 Installation Guide*

    - *OFS Liquidity Risk Measurement and Management Release 8.1.0.0.0 Analytics User Guide*

    - *OFS Liquidity Risk Measurement and Management Release 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Reserve Bank of India 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for US Federal Reserve 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for European Banking Authority 8.1.0.0.0 User Guide*

- For new customers of OFS Liquidity Risk Solution (LRS):

    - *OFS Liquidity Risk Solution Application Pack 8.1.0.0.0 Release Notes*

    - *OFS Liquidity Risk Solution Application Pack 8.1.0.0.0 Installation Guide*

    - *OFS Liquidity Risk Measurement and Management Release 8.1.0.0.0 Analytics User Guide*

    - *OFS Liquidity Risk Measurement and Management Release 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Reserve Bank of India 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for US Federal Reserve 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for European Banking Authority 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Bank of Thailand 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Bank Negara Malaysia 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Monetary Authority of Singapore 8.1.0.0.0 User Guide*

    - *OFS Liquidity Risk Regulatory Calculations for Hong Kong Monetary Authority 8.1.0.0.0 User Guide*

    - *OFS Deposit Insurance Calculations for Liquidity Risk Management 8.1.0.0.0 User Guide*

- OHC Documentation Library **for OFS AAAI Application Pack:**

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

    - *OFS Analytical Applications Infrastructure User Guide*

- *OFS Analytical Applications Infrastructure Administration Guide*
- *Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*

- **Additional Reference Documents:**
  - OFSAA Licensing User Manual, Release 8.1.0.0.0
  - OFS Analytical Applications 8.1.0.0.0 Technology Matrix
  - OFS Analytical Applications Infrastructure Security Guide
  - OFS LRS Security Guides Release 8.1.x
  - Oracle Financial Services Analytical Applications Infrastructure Cloning Guide
  - OFS LRS Cloning Guide release 8.0.x
  - OFS LRS Cloning Guide Release 8.1.x
  - OFS LRS Performance Tuning Guide
  - Oracle Financial Services Data Foundation Technical Documents (MOS Doc ID: 2170313.1). See the relevant version of the metadata sheet available in the MOS document (For CAS refer T2T Metadata Staging, and for SCD components refer SCD Metadata sheet).

1.5 Conventions

The following text conventions are used in this document.

Table 1: Document Conventions

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you need to update specific values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, file names, text that appears on the screen, or text that you enter.
Hyperlink	Hyperlink type indicates links to external websites and internal document links.

1.6 Abbreviations

The following table lists the abbreviations used in this document.

Table 2: Abbreviations

Abbreviation	Description
LRS	Liquidity Risk Solution

Abbreviation	Description
LRMM	Liquidity Risk Measurement and Management
LRRCHKMA	Liquidity Risk Regulatory Calculations for the Hong Kong Monetary Authority
LRRCEBA	Liquidity Risk Regulatory Calculations for the European Banking Authority
LRRCRBI	Liquidity Risk Regulatory Calculations for Reserve Bank of India
LRRCUSFED	Liquidity Risk Regulatory Calculations for US Federal Reserve
DICLRM	Deposit Insurance Calculations for Liquidity Risk Management
OFS	Oracle Financial Services
LCR	Liquidity Coverage Ratio
NSFR	Net Stable Funding Ratio

1.7   What is New in this Release

The Oracle Financial Services Liquidity Risk Measurement and Management Release 8.1.0.1.0 is an enhancement of the existing Oracle Financial Services Liquidity Risk Measurement and Management Release 8.1.0.0.0 which includes the following new feature.

- A new feature for Back dated execution is included as part of Run execution UI for the SKUs LRRCEBA, LRRCUSFR and LRRCRBI.

1.7.1   Installing this Major Release

For detailed instructions to install this Major Release, see the Oracle Financial Services Liquidity Risk Solution Installation Guide Release 8.1.0.0.0.

2   Introduction to Oracle Financial Services Liquidity Risk Solution

Starting Release 8.0.7, the approach to the application has changed with the introduction of separate Stock Keeping Units (SKUs) for each jurisdiction. This release splits the original liquidity risk application, Oracle Financial Services Liquidity Risk Management, into four SKUs. 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, the following new SKUs are introduced:

- Oracle Financial Services Liquidity Risk Regulatory Calculations for Bank of Thailand (LRRCBOT)

- Oracle Financial Services Liquidity Risk Regulatory Calculations for Bank Negara Malaysia (LRRCBNM)

- Oracle Financial Services Liquidity Risk Regulatory Calculations for Monetary Authority of Singapore (LRRCMAS)

- Oracle Financial Services Deposit Insurance Calculation for Liquidity Risk Management (DICLRM)

- Oracle Financial Services Liquidity Risk Regulatory Calculations for Hong Kong Monetary Authority (LRRCHKMA)

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 as part of the four new SKU's. Existing customers referring to the earlier Oracle Financial Services Liquidity Risk Management User Guides, Release 8.0.6, should refer to the following user guides for the complete functionality.

- OFS Liquidity Risk Measurement and Management Release 8.1.0.0.0 User Guide on OHC Documentation Library

- OFS Liquidity Risk Regulatory Calculations for Reserve Bank of India 8.1.0.0.0 User Guide on OHC Documentation Library

- OFS Liquidity Risk Regulatory Calculations for US Federal Reserve 8.1.0.0.0 User Guide on OHC Documentation Library

- OFS Liquidity Risk Regulatory Calculations for European Banking Authority 8.1.0.0.0 User Guide on OHC Documentation Library

Topics:

- Process Flow

- Getting Started with OFS LRS

2.1   Process Flow

The process flow of the application is as follows.

Figure 1 LRS Process Flow
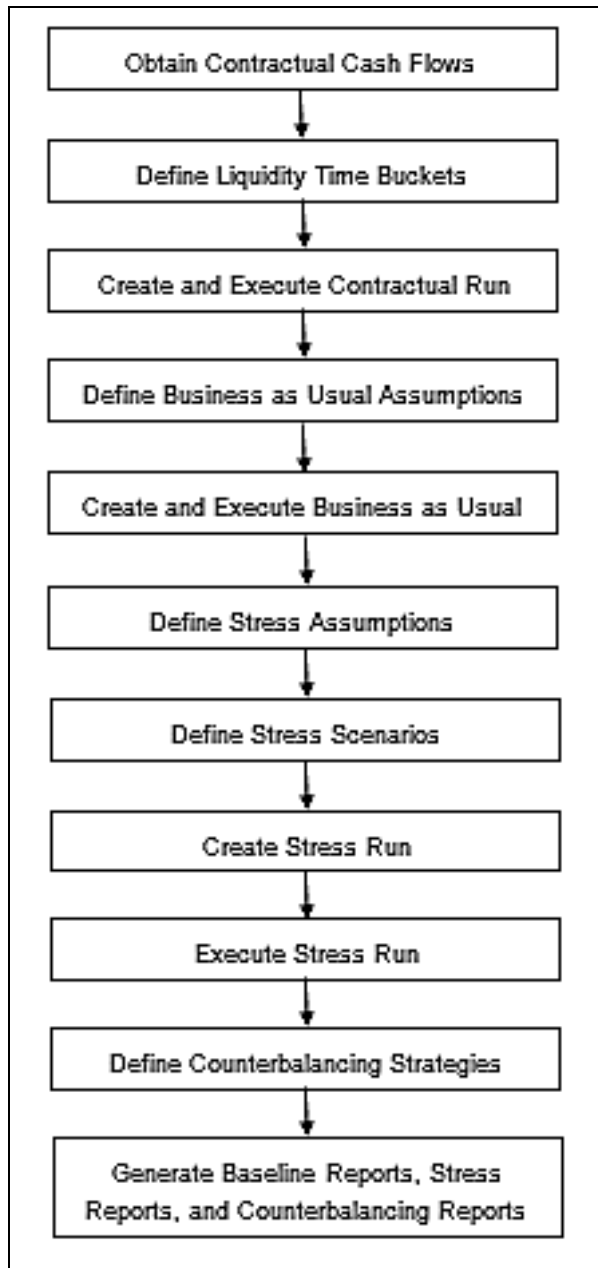
The process flow description is as follows:

1. **Obtaining Contractual Cash Flows and Liquidity Buckets**: The process of liquidity risk management begins in LRM, after obtaining the contractual cash flows as a download from the ALM systems. If OFS ALM is installed, the required cash flows can be selected from the **Application Preferences** window of LRM. After selecting the contractual cash flows, liquidity time buckets need to be defined. The liquidity buckets may be multi-level time buckets. The

contractual cash flows should be bucketed to calculate the liquidity gaps, ratios, and to perform other analysis. These may be estimated on a solo or consolidated basis.

2. **Executing Contractual Run**: The Contractual Run is then executed. A Contractual Run does not anticipate any change from normal behavior and goes according to the contractual terms. For that, the cash flows are first converted to the local or reporting currency. Cash flows are then assigned to time buckets and liquidity gaps under contractual terms are estimated. Cash flows should be aggregated, as they are large in number and it takes time to execute them individually. For example, during the Exadata tuning test that was conducted in October 2014, for OFS LRS, 20 billion cash flows were aggregated to 9 million cash flows. The Contractual Runs can be scheduled to run overnight, as and when data arrives from each Line of Business (LOB).

3. **Executing BAU Run**: After the liquidity gaps are estimated under contractual terms, the changes in cash flows during the normal course of business due to consumer behavior, are estimated. This involves defining business assumptions based on multiple rules and specifying assumption values. For example, the following is an assumption: "20% of retail loans with maturity less than 6 months are prepaid in the 1-month bucket". Assumption values specified for each dimension member combination is selected from pre-defined business hierarchies/dimensions. Once these assumptions are defined, they are grouped and applied to contractual cash flows as part of the BAU Run or Baseline Run execution process. BAU runs are scheduled to run overnight as and when data arrives from each LOB. The impact of these business assumptions on liquidity gaps, ratios, and other metrics is estimated.

4. **Executing Stress Run**: The next step in the liquidity risk process is stress testing, which begins with defining stress values for business assumptions. A baseline rule is replaced by one or more stress rules to create stress scenarios. The stress scenario is mapped to a Baseline Run, to generate a Stress Run. Stress values are specified for each dimension member combination, selected from pre-defined business hierarchies or dimensions. Stress runs are scheduled to run overnight, intra-day, or at any other frequency. The Stress Run is executed and the impact of the scenario on liquidity gaps, ratios, and other metrics is estimated.

5. **Counterbalancing Strategies**: Once the Runs are executed, the liquidity gaps are analyzed to identify liquidity mismatches which could cause potential losses. These are managed by defining and applying counterbalancing strategies. Counterbalancing strategies can be applied to Contractual Runs, BAU Runs, and Stress Runs. Counterbalancing strategies are a combination of one or multiple counterbalancing positions which include the sale of assets, creation or rollover of repos, new funding, and so on.

6. **LRS Reports**: Finally, LRS generates reports such as Baseline reports, Stress reports, and Counterbalancing reports, that enable a detailed view of the liquidity risk metrics.

2.2   Getting Started with OFS LRS

To access the LRS application, log in to the OFSAAI environment.

Figure 2 OFSAAI Log in
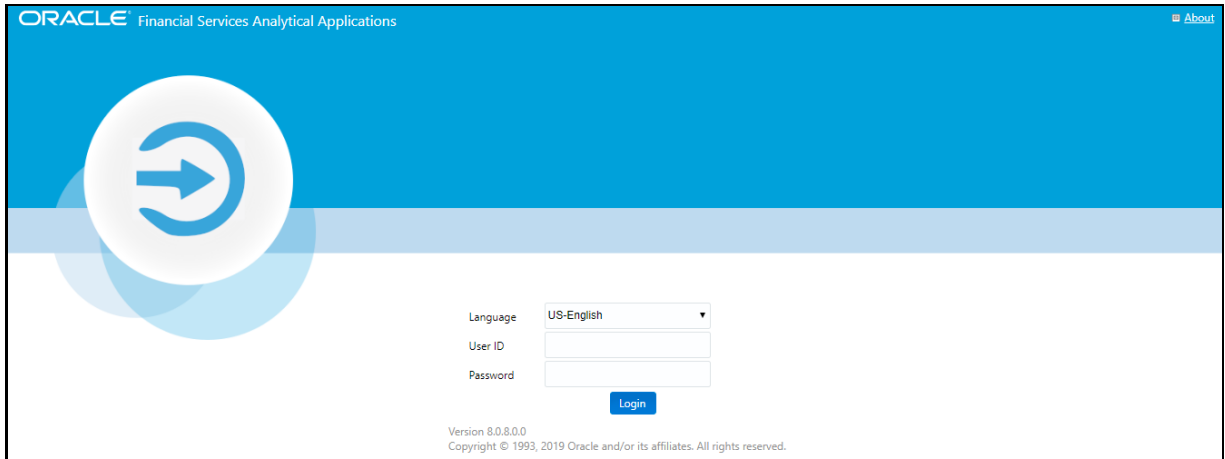
Table 3: OFSAAI Log In

Item	Description
Language	Select the language in this field.
User ID	Enter the User ID to log in.
Password	Enter the password to log in.
Login	Click the Login Button after providing the User ID and Password for Login.

When you log into OFSAAI, the Liquidity risk Solution (OFS LRS) home page is displayed. Click **Financial Services Liquidity Risk Management**. The landing page is displayed.

Figure 3 OFSAAI – Liquidity Risk Solution - Home Page
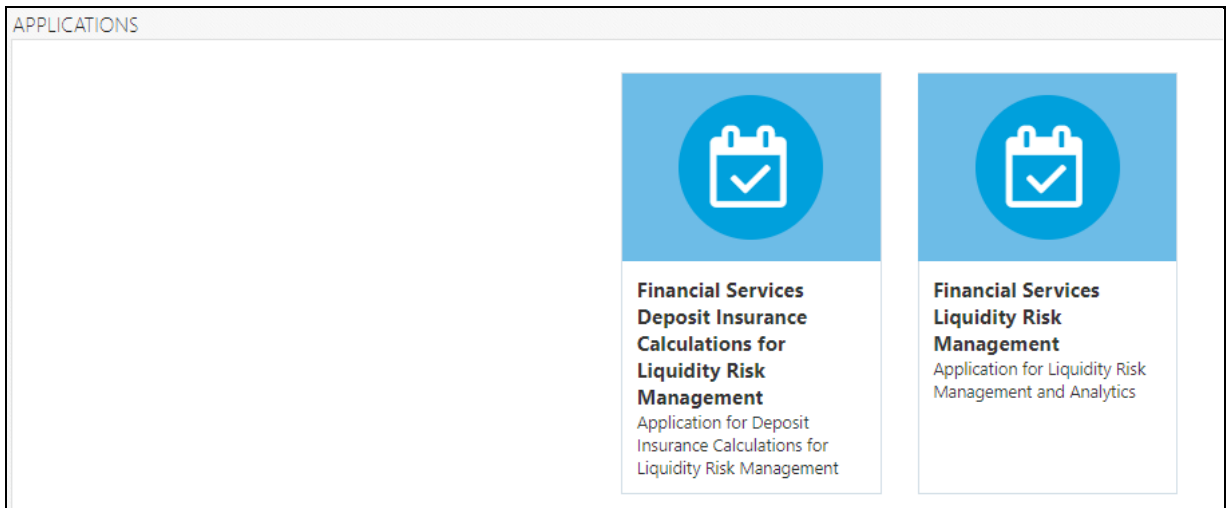
Figure 4 OFSAAI – Liquidity Risk Management - Landing Page
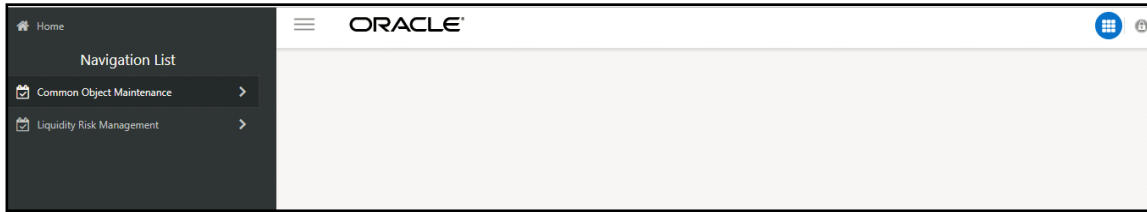
Table 4: Landing Page Icons

Item	Description
USERNAME	Click this button to select the following: • Preferences • About • Change Password • Logout
	Click the icon and select **Financial Services Liquidity Risk Management**.
	Click this icon to view the Administration related tools such as **Object Administration** and **Utilities**.
	Click this icon to view details of the last login and last failed login date and time.
Common Object Maintenance	Common Object Maintenance is an integral part of the Infrastructure system and facilitates system administrators to define the security framework with the capacity to restrict access to the data and metadata in the warehouse, based on a flexible, fine-grained access control mechanism. For more information refer to the OFS Analytical Applications Infrastructure User Guide.
Liquidity Risk Management Link	Click this link to view the options under Liquidity Risk Management.

3 Introduction to Oracle Financial Services Liquidity Risk Measurement and Management

Liquidity Risk Management (LRM) has emerged as a critical risk management function for banking institutions, as regulators across jurisdictions have placed a greater emphasis on improving liquidity risk practices within banks. To stay ahead of the liquidity curve and meet regulatory pressures, banks must have the ability to assess their liquidity resilience under multiple stress scenarios and efficiently manage their risk while devising counterbalancing strategies to mitigate potential risk.

Oracle Financial Services Liquidity Risk Measurement and Management (LRMM), comprehensively addresses an organization's liquidity risk requirements, both regulatory and management. It gives the bank an enterprise-wide, robust, and comprehensive liquidity risk framework to manage large data volumes, address computational complexity, and provide accurate results. It covers non-regulatory calculations required for managing liquidity risk within the bank itself, including stress testing, counterbalancing, liquidity gap calculation, comprehensive dashboard reporting and base regulatory calculations, such as Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), based on the guidelines issued by the Bank for International Settlements (BIS). OFS LRMM helps financial institutions to accomplish the following:

- Improve internal liquidity risk management through intraday and long-term assessment of their liquidity risk.

- Drive liquidity ratio regulatory compliance and adhere to tight regulatory deadlines through pre-packaged rules and computations.

- Engage in enterprise-wide comprehensive stress testing that feeds into the contingency funding planning process.

- Improve risk reporting practices by leveraging an extensive set of reports and dashboards built out of a unified data model.

The application addresses an organization's liquidity risk requirements through a flexible user interface, robust calculations, and advanced reporting. It helps banks to identify and assess liquidity risk under normal and stressed business conditions, and then efficiently manage this risk through tailor-made contingency funding strategies. It leverages the unified data foundation of OFSAA to ensure data reliability, consistency, accuracy, and timeliness. With the pre-configured regulatory scenarios, rules, and computations that address the liquidity ratio guidelines as per BIS, this application, together with the other liquidity risk regulatory calculation SKUs, helps achieve on-time regulatory compliance across multiple jurisdictions. Additionally, it enables banks to have a complete understanding of their liquidity position by providing the capability to define and apply bank-specific stress assumptions to quantify the behavior of cash flows under varied crisis situations.

LRMM covers the following key capabilities:

- Robust calculations including liquidity gaps, regulatory ratios such as LCR and NSFR, as per BIS, funding concentrations.

- Intraday liquidity management through intraday monitoring metric calculation and continuous monitoring of intraday metrics.

- An extensive set of business assumptions that enable stress testing under multiple varied scenarios.

- Supports Counterbalancing

- Supports multiple and multi-level time bucket definitions.

- Leverages a unified data model and a common cash flow engine.

- An extensive set of pre-built dashboard reports with drill-through capabilities.

- Workflows and versioning of business definitions.

4 Application Preferences

The Application Preferences tab helps to select some set-up parameters required for LRMM processing. These include the selection of Contractual Cash Flow processes, mandatory dimensions, and aggregation dimensions. LRM Functional Administrators can set the application preferences.

NOTE	For an LRM Analyst, with LRM Approver or LRM Reviewer role, to view the Application Preferences tab, you must map the function "View LRM Application Preference" in the **System Administration** > **Function – Role Map** in **Oracle Financial Services Analytical Applications** window. For more information, see Appendix A of the OFS Analytical Applications Infrastructure User Guide.

Topics:

- Understanding Application
- Contractual Cash Flow Process Selection
- Mandatory Dimension Configuration
- Aggregation Dimension Selection

4.1 Understanding Application Preferences

NOTE	Every SKU in the Liquidity Risk Solution (LRS) pack leverages this common user interface.

In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management**. To open the Application Preferences window, select **Liquidity Risk Management**, and then select **Application Preferences** on the Left-Hand Side (LHS) menu.

Figure 5 Application Preferences

The Application Preferences window has the following sections:

- Contractual Cash Flow Process Selection
- Mandatory Dimension Configuration
- Aggregation Dimension Selection

4.2 Contractual Cash Flow Process Selection

This section is applicable only when both OFS LRS and OFS ALM are installed in the same information domain (infodom).

Contractual Cash Flow Process Selection displays a list of ALM processes which are executed for cash flow generation. The cash flow engine in ALM can be executed in one or multiple processes; these can be Contractual, or Scenario-based. Each generates cash flows for various asset and liability products. LRM processes these cash flows and this list displays the available ALM cash flow processes.

To select the process for the Contractual Cash Flow Process, follow these steps.

1. In the **Application Preferences** window, under **Contractual Cash Flow Process Selection**, click to select the process. The browser is displayed.

Figure 6 Contractual Cash Flow Process Selection
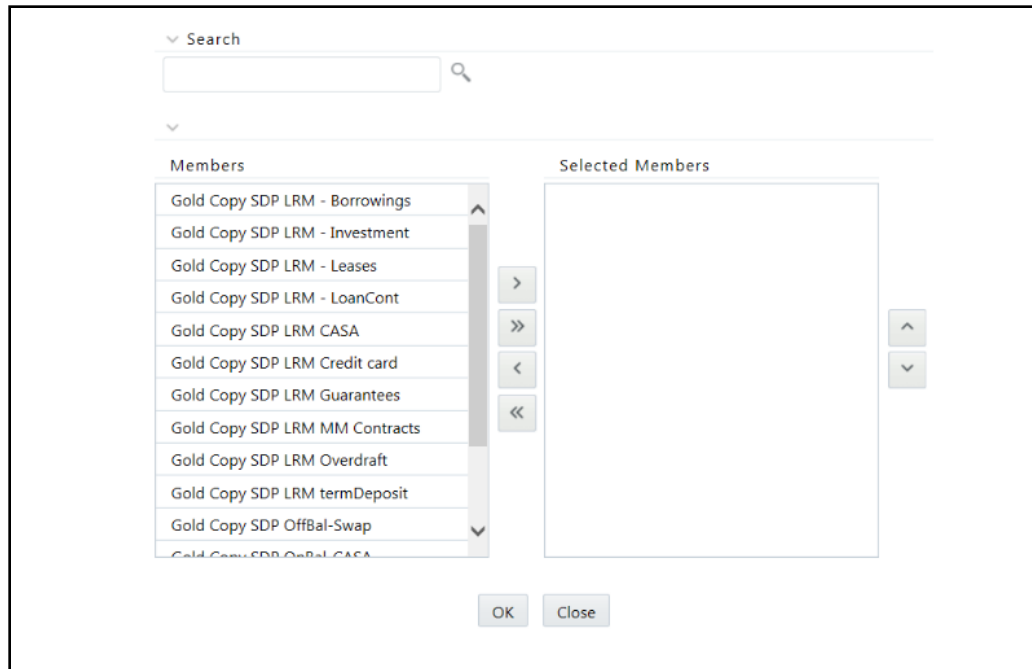
2. Select one or multiple contractual cash flow processes, the outputs of which will be used by LRS.

3. Click [>] to move the selected items to **Selected Members** section or click [»] to select all members.

4. Using [∧ ∨] up or down arrows, you can sequence the contractual cash flow processes.

5. Click **OK**. The process IDs are stored in appropriate tables. The application selects all the cash flows associated with the ALM cash flow engine's process IDs. It then picks up these ID. After it is stored, it picks up the relevant cash flows against the process IDs.

4.3   Mandatory Dimension Configuration

The application requires some dimensions to be selected mandatorily for downstream calculations. These include currency, organization structure, and standard product. The parameters selected as part of this field are displayed in the BAU window under the Dimension browser.

The Mandatory Dimension Configuration section has the following fields:

Figure 7 Mandatory Dimension Configuration

- **Currency**

  For Currency, only one hierarchy is present. LRM - Currency is automatically selected in the Currency field.

- **Customer**

  To identify the intercompany cash flows, customer dimension is mandatory. However, there is no hierarchy selection required.

- **Organization Structure**

  For Organization Structure, there are multiple selections available. Select from the available options:

  - **LRM – Legal Entity**: This is a BI Hierarchy where all the legal entities appear in a single level.

  - **LRM – Legal Entity – Parent Child**: This is a parent-child hierarchy where the legal entities are displayed in ascending/descending order of their parentage. The root being Business Holding Unit (BHU).

  - **LRM – Org Structure Country Flag**: This is a Non-BI Hierarchy used in 4G reporting line reclassification. Ignore this hierarchy in this selection.

  For example, if the LRM – Legal Entity is selected for Organization Structure, in the Application Preferences,

  the selected Organization Structure (LRM – Legal Entity) along with the aggregation dimension members appear under the Dimension Selection section in the BAU window.

Figure 8 Dimension Selection
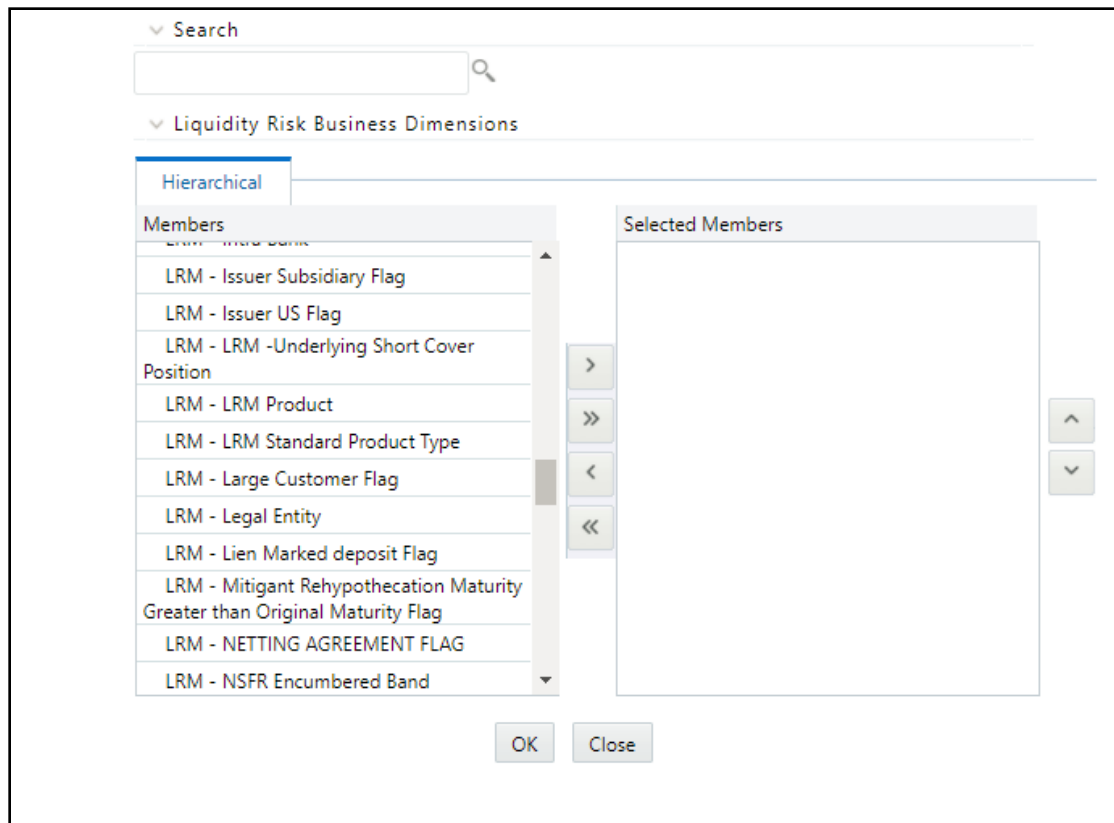
- **Netting Agreement Flag**

  This dimension identifies whether the derivative contract is part of the netting agreement. Based on this flag, the net derivative cash inflow or outflows are determined. Hierarchy selection is not required for this dimension.

- **Non-Contractual Obligation Type**

  This dimension identifies the non-contractual obligations part of the LRM Instrument table.

- **Product**

  For Product, there following two hierarchies are present as ready-to-use:

  - **LRM – Product**: This is a single level hierarchy that lists all the products at the lowest level. This is the default selection.

  - **LRM – Product Balance Sheet Category**: This is a five-level hierarchy describing the higher levels of the products.

- **Standard Product**

  For Standard Product, only one hierarchy is present. LRM – Standard Product Type is automatically selected in the Standard Product field.

  The mandatory dimensions selected as part of this section appear in the dimension browser to support liquidity risk calculations.

4.4 Aggregation Dimension Selection

The aggregation dimension selection is done to aggregate the cash flows for business assumption application. All cash flows are aggregated based on Aggregation Dimension Selection. For example, if you require cash flows to be aggregated at a very high level, you can select a lesser number of dimensions. If you require cash flows to be aggregated at a very granular level, then all dimensions are selected. Further, the business assumption works on the dimensions selected and is restricted to the dimensions selected in this particular selection.

The application preferences made in this field are displayed in the BAU window under the Dimension browser. You are allowed to select the required dimension. For a detailed list of dimensions refer to Annexure: Functional Details, LRS Data Flow and Dimensions.

Figure 9 Aggregation Dimension Selection
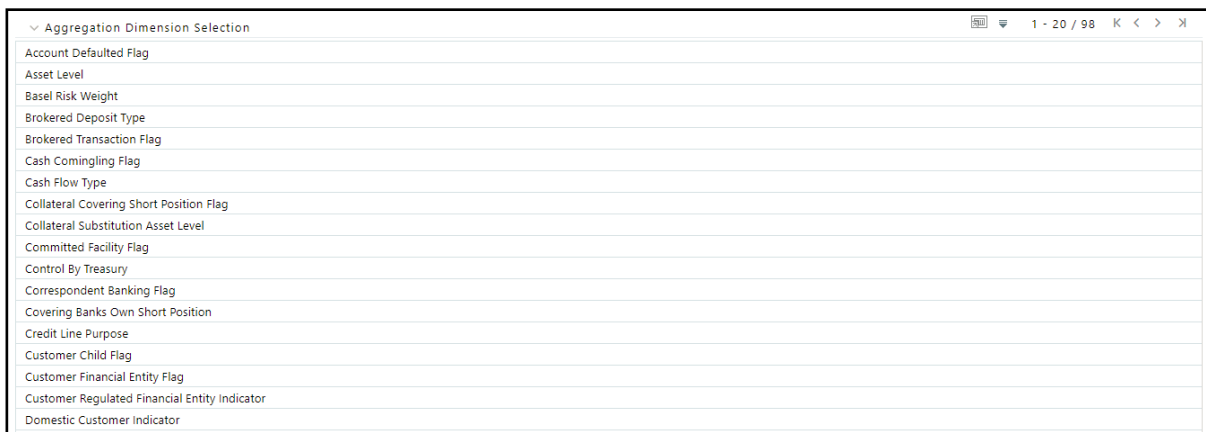
To select the required dimensions, follow these steps:

1. In the **Application Preferences** window, under **Aggregation Dimension Selection**, click to select the members. The browser is displayed.

Figure 10: Application Preferences – Hierarchy Browser
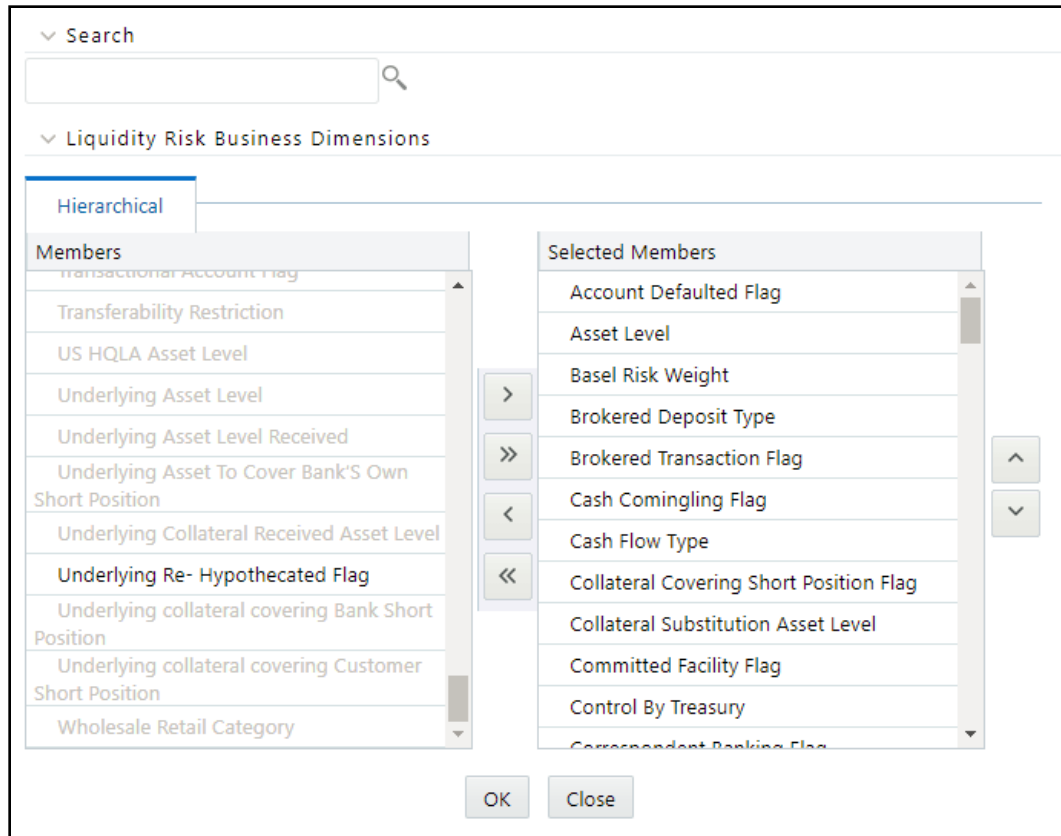
2. Select the required members.

3. Click [>] to move the selected items to **Selected Members** section or click [»] to select all members.

4. Using [^][v] up or down arrows, you can sequence the dimensions.

5. Click **OK** to complete the selection.

6. To save the selection, click **Save** and use it for liquidity risk calculations.

    Only the selected dimensions appear under the Dimension browser in the BAU window.

NOTE	To achieve better performance results, it is recommended to use only as many aggregation dimensions as needed by the user.

    For example, in the following window, only three members are selected in the application preferences dimension browser.

Figure 11: Application Preferences Dimension Browser
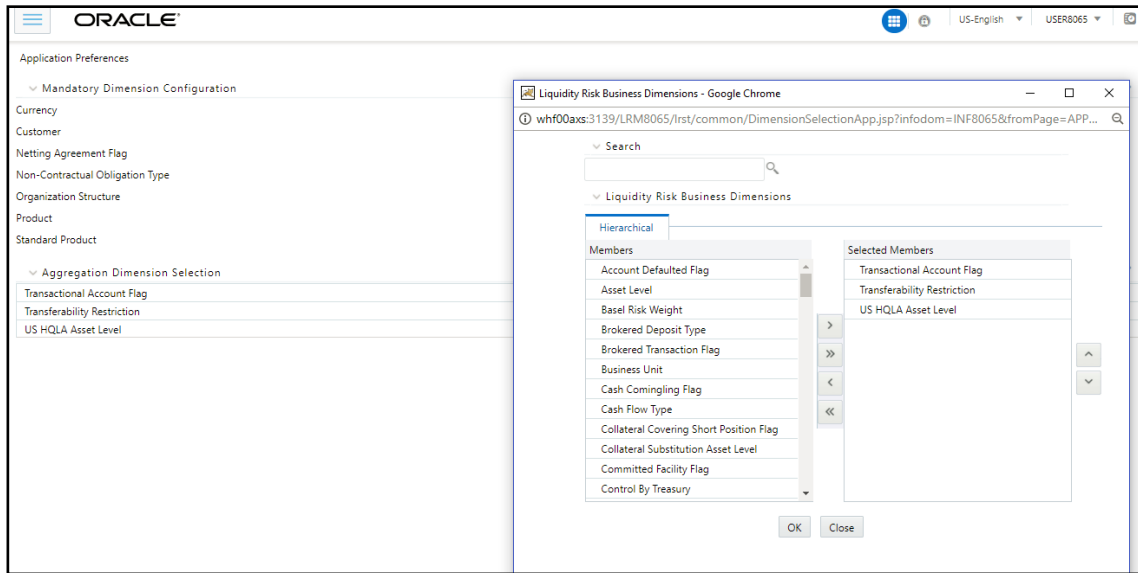
Only the selected aggregation dimensions and the mandatory dimensions appear under the Dimension Selection section in the Business Assumption window as shown in the following figure:

Figure 12: Selected Aggregation Dimensions and Mandatory Dimensions Appear Under The Dimension Selection
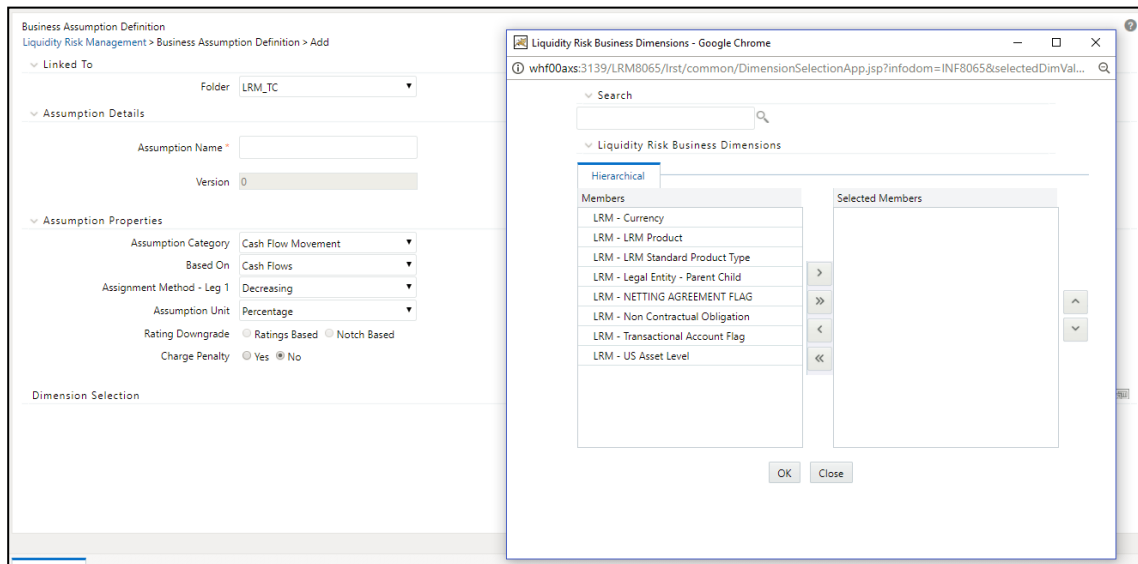
NOTE	To add a new mandatory or aggregation dimension, it is recommended to add the following seeded data in FSI_LRM_BUSINESS_DIMENSION and fsi_lrm_lookup_tl with Category ID 25:

- f_is_intraday_specific = 'Y'

    This dimension is used only for the intraday Run and it is not displayed in the Application Preference window. The f_selection_flag must be 'N' in this case as the US LCR Run must not be impacted.

- f_lcr_intraday_flag = 'Y'

    This dimension is used for both intraday and US LCR Run. This is displayed in the Application Preference window.

- f_account_dimension = 'Y'

    This dimension is an account level attribute and is used only for intraday assumptions. This is displayed in the Application Preference window.

- f_transaction_dimension = 'Y'

    This dimension is a transaction level attribute and is used only for intraday assumptions. This is displayed in the Application Preference window.

While adding new business dimensions, it is recommended to add those which have a small range of values. Adding dimensions with a large list of values such as account, party, date will defeat the purpose of aggregation of cash flows and will affect performance.

The application currently supports the following dimensions for Asset Level classification:

1. **Asset Level**

    This dimension is used for specifying business assumptions and classifying assets as HQLA as per guidelines other than US Federal Reserve.

2. **US Asset Level**

    This dimension is used for specifying business assumptions and classifying assets as HQLA as per US Federal Reserve guidelines.

Both the dimensions are available for selection as part of the Aggregate Dimension Selection section of the Application Preferences window. However, select only one at a time.

For instance, to define an assumption or execute a Run with the **Basel III Liquidity Ratios Calculation** or **RBI Basel III Liquidity Ratio Calculation** Run Purpose, select the Asset Level dimension. To execute a Run with the **U.S. Fed Liquidity Ratio Calculation** Run Purpose, to select the US Asset Level dimension.

Once a particular Run is executed after selecting the appropriate asset level dimensions, you must not change the asset level dimension until that Run is executed; or it will result in an error.

5   Holiday Calendar

This chapter discusses the procedure for creating a Holiday Calendar and generating a list of the weekend and holiday dates.

> | **NOTE** | Every SKU in the Liquidity Risk Solution (LRS) pack leverages this common user interface. |

A Holiday is a day designated as having special significance for which individuals, a government, or some religious groups have deemed that observance is warranted and thus no business is carried on this day. The Holiday Calendar code can range from 1 to 99999.

The procedure for working with and managing a Holiday Calendar is similar to that of other OFSAA business rules. It includes the following functionalities:

- Searching for a Holiday Calendar.
- Viewing and Updating a Holiday Calendar.
- Copying a Holiday Calendar.
- Deleting a Holiday Calendar.
- Check Dependencies in the Holiday Calendar definitions.
- Refresh the Holiday Calendar summary page.

Topics:

- Searching for a Holiday Calendar
- Creating a Holiday Calendar
- Executing Holiday Calendar
- Holiday Exceptions

5.1   Searching for a Holiday Calendar

Search for a Holiday Calendar to perform any of the following tasks:

- View
- Edit
- Copy
- Delete
- Check Dependencies
- Refresh

5.1.1   Prerequisites

Predefined Holiday Calendar

5.1.2   Procedure

1. In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management**.

2. To open the **Holiday Calendar** window, select **Liquidity Risk Management**, then select **Holiday Calendar** on the Left-Hand Side (LHS) menu. This page is the gateway to all Holiday Calendars and related functionality. You can navigate to other pages relating to Holiday Calendar from this page.

3. Enter the search criteria.

4. Enter the name of the Holiday Calendar.

5. Click Search. Only holiday calendars that match the search criteria are displayed.

> **NOTE**   You can control the number of rows to display on-screen by selecting the Pagination Options icon from the action bar.

5.2   Creating a Holiday Calendar

Holiday calendars are created to capture holidays for a given date range for any organization. It is possible to create and use multiple holiday calendars.

> **NOTE**   You can add records from the Excel file, by copying the records from the file and pasting it in the OFS LRS application UI.

5.2.1   Procedure

1. In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management**.

2. To open the **Holiday Calendar** window, select **Liquidity Risk Management**, then select **Holiday Calendar** on the Left-Hand Side (LHS) menu.

3. Click **Add Holiday Calendar**. The **Holiday Calendar Definition** page is displayed.

4. Enter a **code value** for the new holiday calendar.

> **NOTE**   The code is a numeric identifier for the holiday calendar. The code value must be a number between 1 and 99999. The code value you assign to the new holiday calendar must be unique.

5. In the **Name** and **Description** fields enter a name and brief description of the holiday calendar.

> **NOTE**   The name you assign to the holiday calendar must be unique. The Name field can hold a maximum of 30 characters.

6. In the **Holiday Properties** table, select not more than two weekend days. Then select the **Holiday Period**. The Holiday Period can be defined for a range of up to 40 years less than the current date, and 40 years greater than the current date, totally spanning a maximum of 80 years.

7. In the **Holiday Details** table, define the Holiday details for any period within the holiday range defined in step 6. There are two types of holidays that can be defined, Fixed and Moving.

   A fixed holiday is one which is deemed as a holiday for every year in the holiday period, for that particular day.

   Example: 25th December – Christmas, is a fixed holiday.

   To define a fixed holiday, input the holiday date for the first occurrence in the date range. For example, if your Date Range runs from 01-JAN-2000 to 31-DEC-2050, you should input the fixed holiday, Christmas, as 25-DEC-2000. The holiday calendar procedure populates all the subsequent 25-DEC entries in the holiday list table (FSI Holiday List).

   The holiday calendar procedure ensures that holiday and weekend entries are not duplicated. For example, if weekends are defined as Saturday/Sunday and Christmas falls on a weekend day, there will be only one entry in the FSI Holiday List table.

   A moving holiday is one which is deemed as a holiday only for that particular date and year, and not for every year in the holiday period. All occurrences of a moving holiday must be input manually.

   Example, 20th August 2012 is a moving holiday on account of the festival, Ramzan

8. Once the holiday calendar definition is saved, its status in the summary page is marked as Defined.

9. A holiday calendar created can also be deleted. Select one or more rows of holiday calendar definitions and click Delete.

5.2.2 Excel Export

Excel export functionality is used for adding and editing defined holiday calendars.

Figure 13 Holiday Calendar Definitions – Excel Export
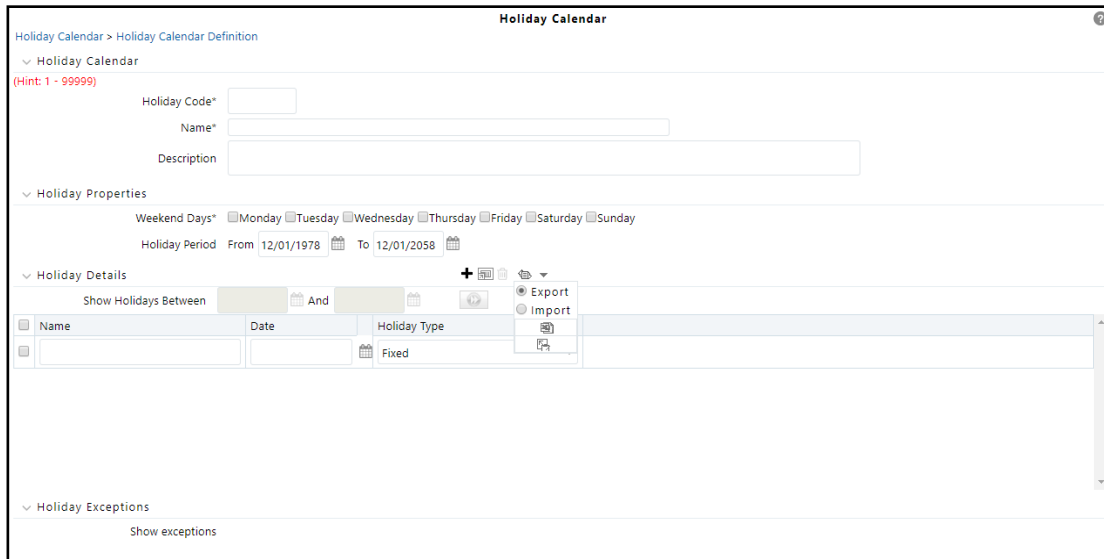
5.3 Executing Holiday Calendar

Execute a holiday calendar definition to generate calendar dates listing the various types of holidays for a given holiday period.

5.3.1 Prerequisites

- Predefined Rules

5.3.2 Procedure

1. In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management**.

2. To open the Holiday Calendar window, select **Liquidity Risk Management**, then select **Holiday Calendar** on the Left-Hand Side (LHS) menu.

3. Search for a rule.

4. Select a Holiday Calendar and click **Generate Calendar Dates** to execute the selected holiday calendar. The *Holiday list for holiday ID #1 generated successfully* message appears (where #1 is the holiday calendar code). The holiday list can be confirmed by querying the FSI Holiday List table.

   The status of a holiday calendar where holiday dates have been generated displays as Processed in the Status column of the summary page.

   Important: If you do not want to Generate Calendar dates immediately, you can select that particular holiday calendar anytime later from the summary page with its status defined, and then click Generate Calendar Dates to execute the selected holiday calendar.

5. The generated holiday list is no longer valid if the following is true:

   a. There is a change in the definition of the holiday calendar.

b. There is any update or modification to the Holiday Exceptions defined for that holiday calendar.

In such a case, you will get a message *This holiday calendar has been modified. Please generate the holiday list again* and the holiday calendar state will be changed to "*Defined*" until the holiday list is regenerated with a new definition.

5.4 Holiday Exceptions

You can specify exceptions to the holidays. As a prerequisite, a holiday calendar should be properly defined and the status of the holiday calendar should be *Processed* in the summary page. Generating the holiday list will populate the holidays (weekends, fixed and moving) along with the working days. The **Show Exceptions** button is enabled in the detail page. Any changes in the holiday definition will disable the **Show Exceptions** button. You must generate the holiday list again to define or view the exceptions.

1. Click **Show Exceptions** in the Holiday Exceptions grid. The **Holiday Exceptions** window opens.

2. The search block in the Exceptions page has the following:

    a. **From (Year), To (Year)**: Denotes the range of years which is a subset out of the holiday list generated, for which exceptions are required to be defined.

    b. **Fixed Holidays**: You can filter the list of holidays by the type of Fixed Holidays.

    c. **Moving Holidays**: You can filter the list of holidays by the type of Moving Holidays.

    d. **Holiday Date**: For a particular known holiday date, exceptions can be defined.

    e. **All Exceptions**: This check box lists all the exceptions when selected, if already defined, for the holidays within the From, To Date range.

    The search result gives the list of all holidays based on the selection of the search criteria fields.

3. In the **Holiday Exceptions** block, there are two types of exceptions that can be defined: Not a holiday and Shift to.

    Any holiday can be marked as not a holiday, in which case that day is removed from the Holiday List. If the drop-down list in the Exception type is selected as "Not a Holiday", then the "Shift To" date picker field is disabled.

    Example

    Spring earlier considered as a holiday in the holiday calendar can be marked as Not a Holiday in the Exceptions Window. Further, the user can write his comments or remarks in the Notes Text Box next to the Exception Type dropdown. Any holiday can be shifted to another day, in which case the declared holiday is removed from the Holiday List, while the Shifted To day is included as a holiday.

5.4.1 Excel Export

Excel export functionality is used for adding and editing holiday exceptions.

Figure 14 Holiday Calendar Exceptions – Excel Export

To use the holiday code configurations for LRS processing, refer to the Create/Execute LRM Batch from Command Line section.

6 Time Buckets

Time Bucketing is the process of allocating cash flows to defined time intervals, to identify, measure, and manage liquidity risk. The purpose of time bucketing is to increase operational efficiency as it helps process and report efficiently. A preliminary step in data preparation for application processing is to bucket the cash flows into the defined time buckets. Since the basic functionality of Asset and Liability Management (ALM) liquidity buckets and Liquidity Risk Solution (LRS) liquidity buckets are the same, there is a provision for a common bucket definition for OFS ALM and OFS LRS applications.

> **NOTE** Every SKU in the Liquidity Risk Solution (LRS) pack leverages this common user interface.

Topics:

- Liquidity Buckets
- Intraday Buckets
- Understanding Time Buckets Summary
- Cash Flow Bucketing

6.1 Liquidity Buckets

This section includes information about the liquidity buckets.

Topics:

- Overview
- Liquidity Time Buckets
- Inputs Required for Bucketing Cash Flows
- Types of Liquidity Time Buckets
- Time Bucketing Process Flow
- Defining a New Time Bucket
- Creating Reporting Bucket

6.1.1 Overview

The functionalities in the Time Buckets module are as follows:

- **Multiple time bucket definition**

    The application allows you to define multiple time bucket definitions and use them for different reporting purposes. For instance, FR 2052a, FR 2052b and LCR reporting and liquidity gap reporting require time buckets of different granularities.

- **Additional bucket levels supported**

  The application supports five-time bucket levels for each bucket definition. This is performed by grouping the defined level 0 buckets. There is a window to define multiple levels.

- **Reporting time bucket definition**

  The application allows you to define multiple reporting time buckets on a selected computational bucket definition. The Level 0 buckets of the computational and reporting time buckets are the same. The granularity of the other levels of reporting time buckets is different from that of the computational buckets. These are used for aggregating cash flows for reporting purposes. They are not used for defining business assumptions or for carrying out computations.

  In the Time Bucket summary screen, click 📊 to define the reporting time bucket for the selected time bucket. When you click 📊 , a new bucket definition screen appears with level 0 buckets for the selected time bucket. You can define the name and higher levels through the new window.

- **Pre-configured LRM Time Buckets**

  The list of pre-packaged definitions is as follows:

  - **FR 2052b Reporting Buckets**: This time bucket definition is used to address US Regulatory report - FR 2052b

  - **FR 2052a Reporting Buckets**: This time bucket definition is used to address US Regulatory report - FR 2052a

  - **LRM Time Bucket**: This time bucket definition is used in OOB assumptions.

- **User-specific Time Buckets**

  OFS ALM and OFS LRS users have access to their respective time bucket definitions only.

6.1.2 Liquidity Time Buckets

The following default time buckets are required by the application:

- **Open maturity time bucket**: All products which do not have a maturity associated with them are bucketed here. This time bucket is used to bucket all cash flows that have an open maturity. This will be the first-time bucket in the list. The start date and end date are not displayed for this time bucket. The start days and end days are set to -99999. These include products such as Current Account, Savings Account (CASA), and so on.

- **Overnight Bucket**: This will be the second time bucket in the list. The frequency and multiplier are 0 and days respectively. The start date and end date are set to as of date.

- **Unspecified bucket**: This is the bucket where all cash flows that are not included in normal computations such as the delinquent cash flows which will not be recovered are moved. This bucket is provided to view these cash flows and not for calculation purposes. This is available at all bucket levels and will not have a time period associated with it. The unspecified bucket will be the last time bucket in the list. The start date and end date are not displayed for this time bucket. The start days and end days are set to 99999.

6.1.3   Inputs Required for Bucketing Cash Flows

The following inputs are required for bucketing cash flows:

- Defining time buckets.

- Cash flows and cash flow dates.

- Legal entity details of the account to which the cash flow relates.

- Legal entity-specific holiday list.

6.1.4   Types of Liquidity Time Buckets

OFS LRS supports multiple time bucket definitions. Time bucket definitions are segregated as Computational Time Buckets and Reporting Time Buckets.

Topics:

- Computational Time Buckets
- Reporting Time Buckets

6.1.4.1   Computational Time Buckets

Computational time buckets are defined to enable business assumption definition and for carrying out liquidity risk calculations. LRS supports multiple sets of computational buckets with each set containing multiple time bucket levels. Users can define and maintain a library of such time bucket definitions and use it across business assumptions and runs for satisfying the varied regulatory as well as management requirements.

Time buckets are defined in terms of days and displayed in a hierarchical format. The definition of a day, whether business day or calendar day, will be a set-up parameter.

NOTE	• There is no restriction on the permitted number of bucket sets to be defined.
	• The number of bucket levels is restricted to five for a given computational bucket set.
	• You are allowed to provide bucket names for all bucket levels other than level 0. Level 0 bucket names will be displayed as a combination of the start and end days as the bucket. For instance, 2 - 2 Day for a 1-day bucket starting on day 2.

The following example shows Computational Time Bucket Definition 1:

Table 5: Computational Time Bucket Definition Example 1

Level 2	Level 1	Level 0
1 Year	0 to 6 Months	0 to 3 Months
		3 to 6 Months
	6 to 12 Months	6 to 8 Months
		8 to 10 Months
		10 to 12 Months

The following example shows Computational Time Bucket Definition 2:

Table 6: Computational Time Bucket Definition Example 2

Level 2	Level 1	Level 0
1 Year	1 to 3 Months	0 to 1 Week
		1 to 4 Week
		1 to 3 Months
	4 to 6 Months	12 to 16 Weeks
		4 to 6 Months
	7 to 12 Months	6 to 9 Months
		9 to 12 Months

6.1.4.2   Reporting Time Buckets

Reporting time buckets are defined over an existing computational time bucket set for the purpose of cash flow aggregation and reporting. This functionality allows liquidity gaps and cumulative gaps to be viewed across aggregation levels different from that of the computational bucket without re-executing the computations. This is enabled by ensuring that level 0 buckets of both the computational time buckets and the corresponding reporting time buckets are consistent.

To define a reporting time bucket set, Level 0 buckets of an existing computational time bucket set are obtained and are further grouped into multiple levels in case of computational buckets. Multiple reporting time bucket sets, consisting of multiple levels, are allowed to be defined for each computational time bucket set. The cash flows computed based on the contractual, baseline, or stress Runs are aggregated based on the reporting buckets and displayed in the ALM BI analytics on the selection of the relevant reporting bucket. Time buckets are displayed in a hierarchical format.

NOTE	• These buckets are used purely for aggregation and reporting purposes. Business assumptions are not allowed to be defined based on reporting time buckets.
	• The computational bucket set is automatically saved as a reporting bucket set.
	• You are allowed to view the reporting bucket sets in the Metadata browser.
	• There is no restriction on the number of reporting bucket sets defined based on a single computational bucket set.
	• The number of bucket levels for a given reporting bucket set is restricted to five.
	• You are allowed to provide bucket names for all bucket levels other than level 0. Level 0 bucket names will be displayed as a combination of the start and end days as the bucket name. For instance, 2 - 2 Day for a 1-day bucket starting on day 2.

The following example shows reporting time bucket set 1:

Table 7: Reporting Time Bucket Set Example 1

Based on: Computational Time Bucket Set 2			
Level 3	**Level 2**	**Level 1**	**Level 0**
0 to 1 Year	0 to 4 Months	0 to 4 Weeks	0 to 1 Week
			1 to Week
		1 to 4 Months	1 to 3 Months
			12 to 16 Weeks
	4 to 12 Months	4 to 6 Months	4 to 6 Months
		6 to 12 Months	6 to 9 Months
			9 to 12Months

The following example shows reporting time bucket set 2:

Table 8: Reporting Time Bucket Set Example 2

Based on: Computational Time Bucket Set 2		
Level 2	**Level 1**	**Level 0**
0 to 1 Year	0 to 1 Weeks	0 to 1 Week

Based on: Computational Time Bucket Set 2		
Level 2	**Level 1**	**Level 0**
	1 to 16 Weeks	1 to 4 Week
		1 to 3 Months
		12 to 16 Weeks
	4 to 9 Months	4 to 6 Months
		6 to 9 Months
	9 to 12 Months	9 to 12 Months

6.1.5   Time Bucketing Process Flow

Time bucket definitions are uploaded in the Dimension Result Bucket table. Once time buckets are uploaded, they can be viewed in the Time Buckets window.

The process flow for Time Bucketing is as follows:

1. Calculate the number of holidays between the execution date and cash flow date.

2. Calculate the number of business days for a cash flow based on cash flow date and holidays.

3. Assign the cash flow to the time buckets based on the business days.

6.1.6   Defining a New Time Bucket

1. In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management.**

2. To open the **Time Buckets** window, select **Liquidity Risk Management**, then select **Time Buckets** on the Left-Hand Side (LHS) menu.

3. Click ➕ . The Time Bucket Details – New window is displayed.

Figure 15 Time Bucket
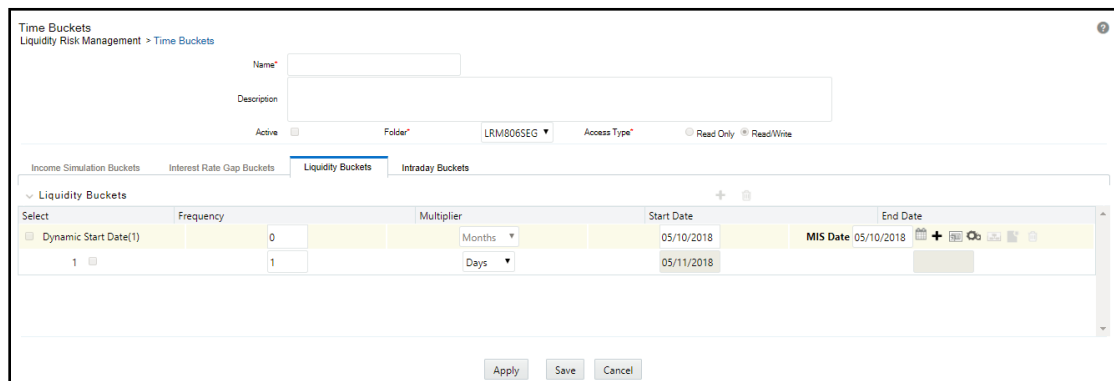
4. Enter the time bucket definition **Name**.

5. Enter the time bucket **Description**.

> | **NOTE** | Active option and dynamic start date selection are disabled for LRM users. |
> |---|---|

6. Select the **Folder** from the drop-down list.

7. Define the **Frequency** (number of days) and **Multiplier** (Dates/Months/Years).

> | **NOTE** | The time buckets tab name must be Liquidity Buckets for the purpose of defining time buckets used in LRM. |
> |---|---|

8. Click **Calendar** 📅 to select the Start Date from the MIS Date format.

9. You are allowed to add the bucket rows in the following ways:

    a. Click **Add** ✚ to add individual bucket rows and specify the frequency and multiplier.

    Or,

    Add multiple bucket rows by clicking **Add multiple Rows** ▼, which displays **Add Multiple**
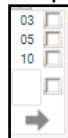
    Rows ➡ to select 3, 5, or 10 pre-specified bucket rows to be added or add a custom number of rows by specifying the number and click ➡ . In this case, frequency and multiplier must be specified by the user individually for each bucket row added.

    Or,

    b. Specify multiple time buckets of varying lengths by clicking **Add Multiple Buckets** ⚙. It opens up a window that allows you to specify multiple time buckets in a single instance as a combination of the number of buckets, frequency, and multiplier as illustrated below.

Figure 16 Time Bucket Liquidity Buckets

Liquidity Buckets				✚
Select		Number of Buckets	Frequency	Multiplier
1 ☑		10	2	Days ▼
2 ☑		20	5	Months ▼
3 ☑		30	7	Years ▼
4 ☑		40	8	Months ▼
5 ☑		50	9	Days ▼

Ok   Cancel

10. Click **Add** ✚ to add new rows. Each row allows you to specify the number of buckets of a particular size to be generated. In the previous example, you can define 10 one day buckets by specifying the number of buckets as 10, the bucket size frequency as 2, and bucket size

multiplier as days. The application automatically generates 10 rows of time buckets, each with a bucket size of 2 days as part of the level 0 bucket definition.

11. Click **OK**. The application saves the bucket definition and the defined time bucket appears in the Time Bucket Summary window.

   Once you define Level 0 time buckets, you can create multiple levels for this definition up to a maximum of 5 levels inclusive of level 0 buckets. This is optional. The time bucket definition is still saved with one level.

12. Once you define Level 0 time buckets, click **Apply** to define multiple bucket levels. The Time Bucket Grouping icon is enabled to create less granular time bucket levels.

13. Click **Add levels** . The Liquidity Bucket Grouping window is displayed.

Figure 17 Liquidity Bucket Grouping

14. Click ☑ against a time bucket and click **Add** ✚ to group the time buckets. You can select multiple time buckets that form a single higher-level bucket at a single instance by clicking the last time bucket. A dialog box is displayed to define the Level 1 Bucket name that is, a user-specified name for the higher-level time bucket is created.

15. Enter the Node Name and then click **OK**. Repeat steps 10 and 11 to group the other level 0 buckets into the level 1 bucket.

16. Click **Refresh** ↻ to reset all the levels defined for the time bucket definition.

17. Once all level 0 buckets are grouped, click **Group** ▦ to save the grouping. On clicking ▦, the level 1 grouping is displayed in a new section named Level 2 Bucket Definition.

   The process of grouping level 1 bucket to level 2 buckets is similar to Steps 10 through 12.

18. Once you have defined your multi-level time buckets, click **OK** to save the definition. The hierarchy for the specified time bucket definition is now created and can be used for further computations.

NOTE	• The application supports up to five levels.
	• A multi-level time bucket definition is optional. You can save the time bucket with a level less than or equal to five.
	• You cannot modify an intraday bucket to a liquidity bucket or vice-versa. You can only define one bucket at a time.

6.1.7   Creating Reporting Bucket
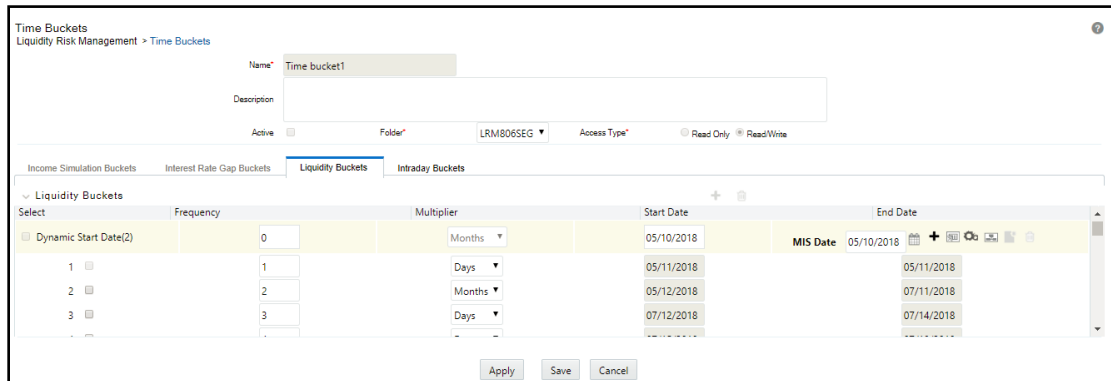
The Time Bucket definition screen allows you to define multi-level time buckets. Reporting time buckets are defined over an existing computational time bucket set.

To create a reporting bucket, follow these steps:

1. On the **Oracle Financial Services Analytical Applications Infrastructure** window under **Time Bucket Summary** window, select a created Computational Time Bucket and then click to create a reporting bucket.

    The Time Bucket Details – Edit window is displayed.

Figure 18: Time Bucket Details – Edit window

2. Enter the time bucket **Name**.

3. Enter the time bucket **Description**.

NOTE	Active option and dynamic start date selection are disabled for LRM users.

4. Select the **Folder** from the drop-down list.

5. Under the Liquidity Buckets section, the level 0 buckets defined as part of the selected computational bucket are displayed.

6. Click to select the Start Date from the MIS Date format.

7. To group, click **Apply**. The Time Bucket Grouping icon is now enabled to group different levels. Only the Level 0 buckets defined in computational time bucket are displayed. You must define new higher levels. It is possible to group up to 5 levels. Once the grouping is done you can save it.

8. Click **Add Levels** ⬚ . The Time Bucket Grouping window is displayed.

    The process of grouping more granular buckets in higher-level buckets is consistent for all bucket levels.

Figure 19: Time Bucket Grouping window
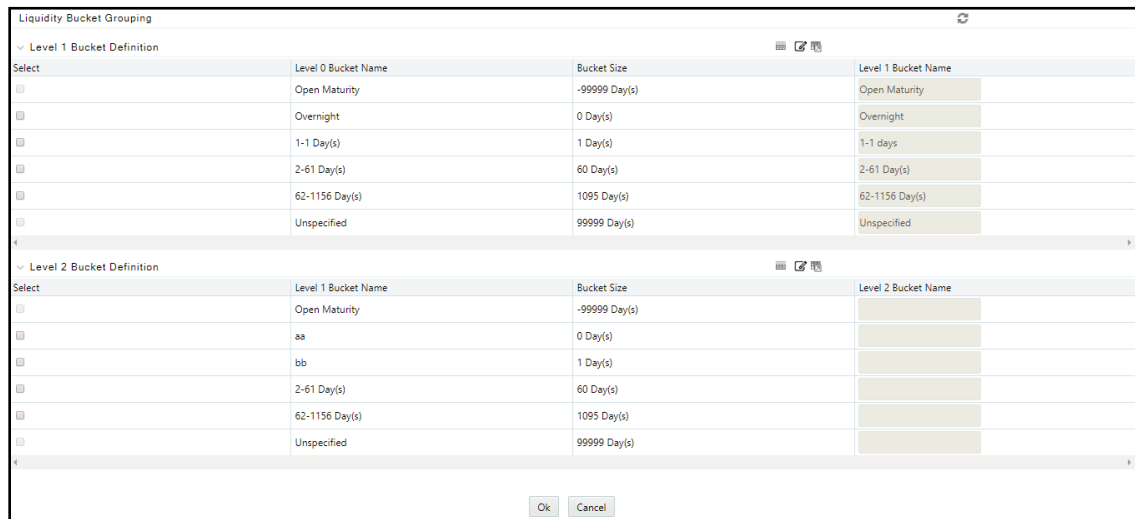
9. Click ☑ against a time bucket and click **Add** ✚ to group the time buckets. You can select multiple time buckets that form a single higher-level bucket at a single instance by clicking the last time bucket. A dialog box is displayed to define the Level 1 Bucket name that is, a user-specified name for the higher-level time bucket is created.

10. Enter the Node Name and then click **OK**. Repeat steps 10 and 11 to group the other level 0 buckets into the level 1 bucket.

11. Click **Refresh** ↻ icon to reset all the levels defined for the time bucket definition.

12. Once all level 0 buckets are grouped, click the **Group** ⬚ icon to save the grouping. On clicking the ⬚ icon, the level 1 grouping is displayed in a new section named Level 2 Bucket Definition.

    The process of grouping level 1 bucket to level 2 buckets is similar to that detailed in points 10 through 12.

13. Once you have defined your multi-level time buckets, click OK to save the definition. The hierarchy for the specified time bucket definition is now created and can be used for further computations.

NOTE	• For all bucket types, you are allowed to specify a bucket called Unspecified Bucket. This is available at all bucket levels and will not have a time period associated with it.
	• The Overnight bucket will be the second time bucket in the list. The frequency and multiplier are 0 and days respectively. The start date and end date are set to as of date.
	• Additionally, a time bucket called Open Maturity is present. This is the time bucket used to bucket all cash flows from accounts that have do not have a maturity associated with them.
	• On execution of a Run, the start and end date are stored against each time bucket. This is for reporting purposes only. All definitions will use bucket names.

6.2   Intraday Buckets

This section provides information about the Intraday Buckets.

Intraday time buckets are used for intraday metrics calculation and reporting. The maximum duration of an Intraday bucket definition is 24 hours. The granularity of definition is in hours, minutes, and seconds instead of days as in liquidity buckets.

NOTE	An intraday bucket is by default, a computational bucket. Reporting buckets are not a part of the Intraday bucket definition.

Topics:

- [Bucket Definition](#)
- [Defining an Intraday Bucket](#)

6.2.1   Bucket Definition

An Intraday bucket definition can support a maximum of 24-hour interval of time buckets. This interval is defined by the Start Time and End Time which is taken as an input by the application. The Start and End time are referred to as the bucket limits. Within each level, there are numerous buckets spanning from the start time up to the end time. Up to five levels can be defined within a time bucket definition. Level 0 definition is mandatory for defining an intraday bucket definition.

The inputs required and rules for defining an intraday bucket are as follows:

1. In the Start Time and End Time field, you can enter the maximum start and end times of payment systems with reference to a legal entity. For example, if a legal entity has 3 payments systems with the start time as follows:

- Payment system 1: 09:00 to 17:00

- Payment system 2: 00:00 to 13:00

- Payment system 3:10:00 to 20:00.

In this case, the from and to values are chosen as 00:00 and 20:00.

Only HH and MM are taken as input. The seconds part is automatically added by the application and SS is always 00. In this example; from and to values to be stored are 00:00:00 and 20:00:00.

2. The multiplier is in the form of Seconds, Minutes, and Hours.

3. Only uniform interval time buckets can be defined. For every level, the frequency and multiplier chosen under that level applies to the entire duration of the bucket limits.

4. The number of buckets at each level is computed by the application based on the bucket limits, frequency, and multiplier. For example: If bucket limits are 09:00 to 16:00 and level zero has frequency and multiplier of 1 second, then every second between 09:00:00 and 16:00:00 serves as one bucket.

5. Additionally, consider the following points before defining an intraday bucket:

   a. Maximum Frequency is 59 in case of seconds and minutes; and 23 in case of hours.

   b. Frequency cannot be zero or fractions. Frequency must be a whole number greater than zero always.

   c. Level 1 and the higher levels must be at a greater granularity than the underlying levels. The following must be considered before defining higher levels:

   - A multiplier of a higher level must always be equal to or greater than multiplier at a lower level. This implies that if level zero is defined in minutes, then the higher levels can only be in minutes/hours. Drop-down values for multipliers in the higher level reflect the same.

   - If the multiplier between higher and lower levels are the same, then it must be ensured that the frequency of the higher level must be greater than the frequency of the lower level.

   - The (frequency x multiplier) of the higher level must be a **whole multiple** of the (frequency x multiplier) of the lower level.

     — Example 1: Level 0= 1 second, Level 1 can be 5 seconds, 1 minute, 10 minutes, and so on.

     — Example 2: If Level 0 =5 seconds, then level 1 can be 10 seconds, 15 seconds, 1 minute, and so on. Level 1 in this case cannot have values like 7 seconds, 8 seconds, and so on.

6.2.2   Defining an Intraday Bucket

1. In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management**. To open the **Time Buckets** window, select **Liquidity Risk Management**, then select **Time Buckets** on the Left-Hand Side (LHS) menu.

2. In the Time Bucket summary window, click **Add** ✚ to add an intraday bucket.

   The **Time Bucket Details** window is displayed.

Figure 20 Time Bucket

3. Select the Intraday Buckets tab in the Time Buckets window.

> **NOTE**   By default, the Liquidity Buckets tab is selected.

4. Enter the time bucket definition Name.

5. Enter the time bucket Description.

> **NOTE**   Active option is checked by default for LRM users.

6. Select the **Folder** from the drop-down list.

7. Define the Start Time and End Time based on the Bucket Definition provided.

8. Define the **Frequency** (a whole number greater than zero) and Multiplier (Seconds/Minutes/Hours).

   Once you define Level 0 time buckets, you are allowed to create multiple levels for this definition up to a maximum of 5 levels inclusive of level 0 buckets. Creating higher levels is optional.

9. Once you have defined the multi-level time buckets, click **Apply** and **Save** the definition. The hierarchy for the specified time bucket definition is now created and can be used for further computations.

10. The application saves the bucket definition and the defined intraday bucket appears in the Time Bucket Summary window.

NOTE	• The application supports up to five levels.
	• A multi-level time bucket definition is optional. You can save the time bucket with level less than or equal to five.
	• You cannot modify an intraday bucket to a liquidity bucket or vice-versa. You can only define one bucket at a time.

6.3   Understanding the Time Buckets Summary

1. In the **Oracle** Financial **Services Analytical Applications Infrastructure** under **Select Applications,** select **Financial Services Liquidity Risk Management**.

2. To open the **Time Bucket Summary** window, select **Liquidity Risk Management**, then select **Time Bucket Summary** on the Left-Hand Side (LHS) menu.

Figure 21 Time Buckets Summary

The Time Bucket Summary window displays the following fields. The definitions based on the search criteria are listed under the list of Time Buckets.

This is the search section, which contains multiple parameters. You can specify one or multiple search criteria in this section. When you click Search, depending upon the search criteria, it filters and displays the relevant search combination parameters under the Time Bucket summary as a list.

Table 9: Time Bucket Fields and Descriptions

Field or Icon	Description
Search 🔍	This icon allows you to search the time buckets based on the search criteria specified. Search criteria include a combination of the Time Bucket Name, Folder, and Bucket Type. The time buckets displayed in the list of time bucket tables are filtered based on the search criteria specified before clicking this icon.
Reset 🔄	This icon allows you to reset the search section to its default state that is, without any selections. Resetting the search section displays all the existing time bucket definitions in the list of time buckets table.
Name	This field allows you to search the pre-defined time bucket definitions based on the time bucket name. Enter the time bucket name.

Field or Icon	Description
Folder	This drop-down list allows you to search for the predefined time bucket definitions based on the selected folder you have access. The selection of a folder from the drop-down list displays only those time buckets that have been defined within the selected folder or segment in the List of Time Bucket table.
Bucket Type	This drop-down list allows you to select either Computation and Reporting.
Intra Day Bucket	This drop-down list allows you to search for Intraday buckets, Non-intraday buckets, and both. If a 'Yes' is chosen, only Intraday buckets are searched and displayed. If a 'No' is chosen, Non- intraday buckets are searched and displayed. By not selecting from this drop-down list in the search criteria, the Application searches and lists both Intraday and Non-intraday buckets.

Table 10: Time Buckets Summary

Time Buckets Icon Name	Icon	Description
Add	✚	This icon allows you to define a new time bucket set.
Create Reporting Bucket	▥	This icon opens the Reporting Time Bucket window. The Level 0 buckets of the reporting time are the same as the selected time bucket.
View	▨	This icon allows you to view the selected time bucket definition.
Edit	✎	This icon allows you to edit the selected time bucket definition.
Delete	🗑	This icon allows you to delete the selected time bucket definition.
Copy	📇	The icon allows the selected definition to be copied and resaved as a new definition.

NOTE	It is not possible to switch from Intraday buckets to non-intraday buckets and vice versa from the Time Bucket Summary window.

6.4   Cash Flow Bucketing

The application computes the time buckets based on Calendar Days and Business Days.

The two aspects of Cash Flow Bucketing are as follows:

- Time buckets are generated based on calendar days and business days daily.
- Cash flows are bucketed based on the time buckets.

Topics:

- Calendar Days
- Business Days

6.4.1   Calendar Days

Under the calendar days approach, the start and end date of each time bucket are computed based on the number of calendar days. The time bucket dates are in running calendar day sequence. The time bucket dates are consistent across multiple legal entities, each with different holidays.

The process of computing the time buckets based on calendar days and subsequent bucketing of cash flows based on each business day convention is illustrated as follows.

1. Inputs

    a. Cash Flows

    The following table illustrates the cash flows based on each date for legal entities 1 and 2.

Table 11: Cash Flows Based On Each Date For Legal Entities 1 And 2

Date	Legal Entity 1		Legal Entity 2	
Item	Inflow	Outflow	Inflow	Outflow
1/28/2015	20	22	14	19
1/29/2015	11	29	15	27
1/30/2015	11	26	18	26
1/31/2015	22	22	23	10
2/1/2015	22	21	25	11
2/2/2015	24	18	26	14
2/3/2015	29	23	16	28
2/4/2015	30	21	26	22
2/5/2015	18	23	30	21
2/6/2015	11	22	23	26
2/7/2015	23	17	10	18
2/8/2015	28	29	24	19
2/9/2015	27	23	27	11
2/10/2015	23	18	23	21
Total	299	314	300	273

    b. Holiday Calendar

    The following table illustrates Holidays (including weekends) based on each date for legal entities 1 and 2.

Table 12: Holidays (Including Weekends) Based On Each Date For Legal Entities 1 And 2.

Legal Entity 1		Legal Entity 2	
Date	**Type**	**Date**	**Type**
1/31/2015	Weekend	1/30/2015	Weekend
2/1/2015	Weekend	1/31/2015	Weekend
2/4/2015	Holiday	2/6/2015	Weekend
2/7/2015	Weekend	2/7/2015	Weekend
2/8/2015	Weekend	2/10/2015	Holiday
2/14/2015	Weekend	2/13/2015	Weekend
2/15/2015	Weekend	2/14/2015	Weekend

c. Time Bucket Definition

The time bucket start, and end date are calculated by each of the level 0 time buckets which are specified as part of the time bucket definition above.

Table 13: Calculation of Time Bucket Start And End Date

Level 0 Buckets	Open Maturity	Overnight	1-1 Day	2-2 Day	3-3 Day	4-4 Day	5-5 Day	6-6 Day	7-7 Day	8-14 Day	>14 Days
Level 1 Bucket	Open Maturity	Overnight	1-5 Days					6-14 Days			>14 Days

d. As of Date

The time bucket As of Date is calculated as follows.

As of Date	1/27/2015

2. Calculation

   a. Time Bucket Start and End Date

   The following is an example of a time bucket start and end date.

   Table 14: Example - Time Bucket Start and End Date

Level 0 Bucket	Open Maturity	Overnight	1-1 Day	2-2 Day	3-3 Day	4-4 Day	5-5 Day	6-6 Day	7-7 Day	8-14 Day	>14 Days
Bucket Size (Days)			1	1	1	1	1	1	1	7	
Start Date			1/28/2015	1/29/2015	1/30/2015	1/31/2015	2/1/2015	2/2/2015	2/3/2015	2/4/2015	2/11/2015
End Date			1/28/2015	1/29/2015	1/30/2015	1/31/2015	2/1/2015	2/2/2015	2/3/2015	2/10/2015	

   b. Cash Flow Bucketing for Legal Entity 1

   The following is an example of cash flow bucketing under each Business Day Convention for legal entity 1:

Table 15: Cash Flow Bucketing Under Each Business Day Convention For Legal Entity 1:

Time Buckets			Bucketing under each Business Day Convention									
			Prior		Conditional Prior		Following		Conditional Following		No Adjustment	
Bucket Name	Start Date	End Date	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Open Maturity												
Overnight												
1-1 Day	1/28/2015	1/28/2015	20	22	20	22	20	22	20	22	20	22
2-2 Day	1/29/2015	1/29/2015	11	29	11	29	11	29	11	29	11	29
3-3 Day	1/30/2015	1/30/2015	55	69	11	26	11	26	55	69	11	26
4-4 Day	1/31/2015	1/31/2015									22	22
5-5 Day	2/1/2015	2/1/2015									22	21
6-6 Day	2/2/2015	2/2/2015	24	18	68	61	68	61	24	18	24	18
7-7 Day	2/3/2015	2/3/2015	59	44	29	23	29	23	29	23	29	23
8-14 Day	2/4/2015	2/10/2015	130	132	160	153	160	153	160	153	160	153
>14 Days	2/11/2015											
Total			299	314	299	314	299	314	299	314	299	314

c. Cash Flow Bucketing for Legal Entity 2

The following is an example of cash flow bucketing under each Business Day Convention for legal entity 1:

Table 16: Cash Flow Bucketing Under Each Business Day Convention For Legal Entity 1

Time Buckets			Bucketing under each Business Day Convention									
			Prior		Conditional Prior		Following		Conditional Following		No Adjustment	
Bucket Name	Start Date	End Date	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Open Maturity												
Overnight												
1-1 Day	1/28/2015	1/28/2015	14	19	14	19	14	19	14	19	14	19
2-2 Day	1/29/2015	1/29/2015	56	63	15	27	15	27	56	63	15	27
3-3 Day	1/30/2015	1/30/2015									18	26
4-4 Day	1/31/2015	1/31/2015									23	10
5-5 Day	2/1/2015	2/1/2015	25	11	66	47	66	47	25	11	25	11
6-6 Day	2/2/2015	2/2/2015	26	14	26	14	26	14	26	14	26	14
7-7 Day	2/3/2015	2/3/2015	16	28	16	28	16	28	16	28	16	28
8-14 Day	2/4/2015	2/10/2015	163	138	163	138	140	117	163	138	163	138
>14 Days	2/11/2015						23	21				

Time Buckets			Bucketing under each Business Day Convention									
			Prior		Conditional Prior		Following		Conditional Following		No Adjustment	
Bucket Name	Start Date	End Date	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Total			300	273	300	273	300	273	300	273	300	273

6.4.2   Business Days

Under the business days approach, the start and end date of each time bucket are computed based on the number of business days. The time bucket dates are not continuous calendar days in this approach but will exclude holidays. The time bucket dates will be different for each legal entity based on its respective holiday calendar.

The process of computing the time buckets based on business days and subsequent bucketing of cash flows based on each business day convention is illustrated below.

1. Input

    For Input data refer to the Calendar Days approach.

2. Calculation

    a. Time Bucket Start and End Date for Legal Entity 1

        The following is an example of a time bucket stand and end date for legal entity 1.

Table 17: Time Bucket Stand And End Date For Legal Entity 1.

Level 0 Bucket	Open Maturity	Overnight	1-1 Day	2-2 Day	3-3 Day	4-4 Day	5-5 Day	6-6 Day	7-7 Day	8-14 Day	>14 Days
Bucket Size (Days)			1	1	1	1	1	1	1	7	

Level 0 Bucket	Open Maturity	Overnight	1-1 Day	2-2 Day	3-3 Day	4-4 Day	5-5 Day	6-6 Day	7-7 Day	8-14 Day	>14 Days
Start Date			1/28/2015	1/29/2015	1/30/2015	2/2/2015	2/3/2015	2/5/2015	2/6/2015	2/9/2015	2/18/2015
End Date			1/28/2015	1/29/2015	1/30/2015	2/2/2015	2/3/2015	2/5/2015	2/6/2015	2/17/2015	

b. Time Bucket Start and End Date for Legal Entity 2

The following is an example of a time bucket stand and end date for legal entity 2.

Table 18: Time Bucket Stand And End Date For Legal Entity 2.

Level 0 Bucket	Open Maturity	Overnight	1-1 Day	2-2 Day	3-3 Day	4-4 Day	5-5 Day	6-6 Day	7-7 Day	8-14 Day	>14 Days
Bucket Size (Days)			1	1	1	1	1	1	1	7	
Start Date			1/28/2015	1/29/2015	2/1/2015	2/2/2015	2/3/2015	2/4/2015	2/5/2015	2/8/2015	2/18/2015
End Date			1/28/2015	1/29/2015	2/1/2015	2/2/2015	2/3/2015	2/4/2015	2/5/2015	2/17/2015	

c. Cash Flow Bucketing for Legal Entity 1

The following is an example of cash flow bucketing under each Business Day Convention for legal entity 1:

Table 19: Cash Flow Bucketing Under Each Business Day Convention For Legal Entity 1

Time Buckets			Bucketing under each Business Day Convention							
			Prior		Conditional Prior		Following		Conditional Following	
Bucket Name	Start Date	End Date	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Open Maturity										
Overnight										
1-1 Day	1/28/2015	1/28/2015	20	22	20	22	20	22	20	22
2-2 Day	1/29/2015	1/29/2015	11	29	11	29	11	29	11	29
3-3 Day	1/30/2015	1/30/2015	55	69	11	26	11	26	55	69
4-4 Day	2/2/2015	2/2/2015	24	18	68	61	68	61	24	18
5-5 Day	2/3/2015	2/3/2015	59	44	29	23	29	23	59	44
6-6 Day	2/5/2015	2/5/2015	18	23	48	44	48	44	18	23
7-7 Day	2/6/2015	2/6/2015	62	68	11	22	11	22	62	68
8-14 Day	2/9/2015	2/17/2015	50	41	101	87	101	87	50	41
>14 Days	2/18/2015									
Total			299	314	299	314	299	314	299	314

d. Cash Flow Bucketing for Legal Entity 2

The following is an example of cash flow bucketing under each Business Day Convention for legal entity 2:

Table 20: Cash Flow Bucketing Under Each Business Day Convention For Legal Entity 2

Time Buckets			Bucketing under each Business Day Convention							
			Prior		Conditional Prior		Following		Conditional Following	
Bucket Name	Start Date	End Date	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
Open Maturity										
Overnight										
1-1 Day	1/28/2015	1/28/2015	14	19	14	19	14	19	14	19
2-2 Day	1/29/2015	1/29/2015	56	63	15	27	15	27	56	63
3-3 Day	2/1/2015	2/1/2015	25	11	66	47	66	47	25	11
4-4 Day	2/2/2015	2/2/2015	26	14	26	14	26	14	26	14
5-5 Day	2/3/2015	2/3/2015	16	28	16	28	16	28	16	28
6-6 Day	2/4/2015	2/4/2015	26	22	26	22	26	22	26	22
7-7 Day	2/5/2015	2/5/2015	63	65	30	21	30	21	63	65
8-14 Day	2/8/2015	2/17/2015	74	51	107	95	107	95	74	51
>14 Days	2/18/2015									
Total			300	273	300	273	300	273	300	273

NOTE	The method of calculating the time buckets based on business days is applicable only when the Business Day Convention in the Run Management window is selected as either **Prior**, **Conditional Prior**, **Following,** or **Conditional Following**.
	If the Business Day Convention is selected as **No Adjustment**, then the process followed for calendar day based calculation is followed here as well. The time bucket start and end dates are calculated based on calendar days irrespective of the selection of Time Buckets Based On in the Run Management window. Cash flows are then bucketed without considering special treatment for holidays as illustrated in the Calendar Days section.

7   Business Assumptions

Business assumptions are behavior patterns exhibited by a bank's customers or by the bank itself, which result in a change in the cash flows that occur purely under contractual terms. These include run-offs, prepayments, rollovers, drawdowns, asset sale, delinquencies, recoveries, haircuts, and so on. The application allows business assumptions to be defined under normal conditions. That is, business-as-usual or under multiple stress conditions, through a parameterized and flexible graphical user interface.

The assumptions defined under multiple conditions differ in the magnitude of the behavior exhibited, which results in either change in the cash inflows and outflows. For instance, the run-off rate under normal conditions for certain deposits maybe 2%, under a mild stress scenario it maybe 8%, and under a severe and prolonged stress scenario, it maybe 20%. The application allows you to define and maintain a library of such business assumptions of varying magnitudes and with different parameters. Once saved and approved, a business assumption is registered as a Process in the Rules Framework of Oracle Financial Services Analytical Applications Infrastructure, and can be used across multiple scenarios, Runs, and time periods for computing liquidity risk metrics.

The assumptions can be used to compute liquidity gaps and liquidity ratios under BAU and stress scenarios. LRS supports pre-packaged business assumptions required for computing liquidity coverage ratio in accordance with the BIS Basel III guidelines.

On execution of a BAU or stress Run, one or multiple business assumptions are applied to the contractual cash flows whose attributes correspond to the dimensions specified in the assumption. The application of an assumption results in an increase or decrease in cash flows, movement of cash flows from one bucket to another, change in the value or the encumbrance status of an account depending on the type of business assumption.

> **NOTE**   Every SKU in the Liquidity Risk Solution (LRS) pack leverages this common user interface.

Topics:

- Business Assumptions Supported
- Intraday Business Assumptions Supported
- Impact of Assumptions on Interest Cash Flows
- Cash Flow Assignment Methodologies
- Business Assumption Definition
- Understanding Business Assumption Summary
- Defining a New Business Assumption
- Business Assumption Approval Process
- Editing a Business Assumption

7.1 Business Assumptions Supported

The application supports the following types of business assumptions:

Table 21: Supported Business Assumptions

Sl. No.	Assumption Category	Assumption Sub-category
1	Cash Flow Movement	Cash Flow Movement Asset Sale Cash Flow Delay Delinquency Prepayment Recovery Rollover Run-off
2	Encumbrance	Encumbrance Ratings Downgrade Valuation Changes
3	Incremental Cash Flow	Incremental Cash Flow Drawdown New Business Ratings Downgrade Run-off Secured Funding/Financing Valuation Changes
4	Value Change	Available Stable Funding Factor Haircut Required Stable Funding Factor

The computations related to each assumption category and sub-category are explained in detail in the following sections.

Topics:

- Cash Flow Movement
- Encumbrance
- Incremental Cash Flow
- Value Change

7.1.1 Cash Flow Movement

Cash Flow Movement is a category of Business Assumptions that moves the cash flows move from the original time bucket to a prior bucket or a subsequent time bucket, based on the selected Assumption Sub Category.

Topics:

- Cash Flow Movement
- Asset Sale
- Cash Flow Delay
- Delinquency
- Prepayment
- Recovery
- Rollover
- Run-Off

7.1.1.1 Cash Flow Movement

This is a generic assumption, which enables you to define cash flow movements based on all combinations available as part of the Cash Flow Movement category. That is, it is a superset of all functionality supported by each subcategory in this assumption category.

This assumption moves the cash flows occurring in the original time bucket to a new user-specified time bucket, occurring before or post the original time bucket, based on the assumption value specified.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

7.1.1.2 Asset Sale

This assumption is a specific case of cash flow movement category where cash flows posted in the original maturity bucket of an asset are moved to a prior bucket due to a sale.

- This assumption allows you to specify a sale of unencumbered marketable, fixed, or other assets to advance the cash inflows. Sale can be specified on each individual asset or as a combination of dimensions.

- This assumption allows you to specify a partial sale of assets by specifying the sale amount.

- The assumption reverses all original cash flows that occur between the sale bucket and maturity bucket and posts the market value less haircut in the sale bucket.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the asset sale assumption to cash flows:

1. The new inflows are calculated due to sale based on the current market or fair value (in case of marketable and fixed assets) or current outstanding balance (in case of other assets such as loans) and haircut.

2. For instance, if the face value of a bond is 100, the market value is 120, and the sale is specified as 50%, then new inflows are 60 (i.e. 120*50%). Similarly, if the outstanding balance of a loan is 10000 and sale is specified at 75% with a haircut of 5%, the new inflow is 7125 [10000*75 % *(1 – 5 %)].

3. The original time bucket(s) are identified in which the asset(s) matures and the original cash inflows, both principal and interest, in each time bucket.

4. The original cash inflows to be reversed are calculated. This is proportionate to the sale amount and is calculated based on the original value.

5. In the example of the bond, it will be 50 (that is, 100*50%). In the example of the loan, it will be 75% of the original principal and interest payments.

6. The cash inflows are assigned due to sale to the sale bucket and reverse the proportionate original cash flow in the respective original buckets.

7. The number of units held is updated post-sale in case of marketable assets and the outstanding balance in case of other assets. For all further computations, the revised asset balance is used.

If a sale is specified as an amount or in terms of units, it is converted into a percentage of the market value or outstanding balance to reverse the original cash flows. For instance, a bank has 10 bonds whose total market value is $1200 and the original value is $1000.

a. When the sale is specified as $900 pre-haircut value, the percentage sold is 75% (that is, 900/1200). The original cash flow to be reversed is $750 (1000*75%).

b. When the sale is specified as 5 units, the percentage sold is 50% (that is, 5/10). The original cash flow to be reversed is $500 (1000*50%).

NOTE	• Assets can only be sold in buckets that are before the original bucket. That is, their maturity bucket.
	• If an asset is currently encumbered but its encumbrance period is less than its maturity, it can be sold in the time bucket occurring between the last day of encumbrance and its maturity.
	• Other assets include unencumbered loans and other non-marketable assets.
	• A sale of assets removes all future cash flows, both principal and interest and results in a new inflow at the sale bucket.
	• The haircut is applied to the sale value only that is, market value in case of marketable and fixed assets and outstanding balance in case of other assets. Original cash flow reversal will not include haircut.
	• If the sale is specified as an amount, it is considered as the pre-haircut amount.
	• When converting the sale amount to a percentage, the pre-haircut amount is to be considered.

The following example illustrates the asset sale business assumption. This example is based on the equal cash flow assignment methodology. The original value of the asset in the 1-5 year bucket is 48000 and the greater than 5-year bucket is 32000. The current market value is 1245 per unit and the number of units held is 100.

Table 22: Cash Flow Movement - Asset Sale

Business Assumption Definition					Cash Flow Assignment		
Product Type	Rating	Sale Amount / Percentage	Haircut	Time Bucket	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Bond	BBB	40%	10%	8-15 Days	10000	Overnight	24940 [= 10000 + {(1245*100*40%*90%)/3}]
					5000	1-7 Days	19940 [= 5000 + {(1245*100*40%*90%)/3}]
					8000	8-15 Days	22940 [= 8000 + {(1245*100*40%*90%)/3}]
					119870	1-5 Years	100670 [=119870 – (48000*40%)]
					200907	> 5 Years	188107 [=200907 – (32000*40%)]

7.1.1.3 Cash Flow Delay

Due to market conditions, the payments or receipts that are expected at a particular time are delayed, thereby giving rise to liquidity risk. In such a scenario, the payments or receipts that were expected as on date will now be available at a future date. This assumption moves the expected cash flows in a particular time bucket to one or multiple future time buckets based on a percentage of the cash flow occurring in that bucket. In a cash flow delay assumption, cash flow movement happens from previous buckets to the future buckets.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption. This is the delayed payment or receipt amount excluding penalty which is reversed.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties on the delayed payments or receipts, if any.

In cash flow delay assumption, the cash flow movement is always to a future time bucket. Therefore, 0% is assigned to the previous buckets for Increasing or Decreasing assignment as illustrated in the table:

Illustration: Delays assigned to a selected time bucket.

Table 23: Cash Flow Movement - Cash Flow Delay

Business Assumption Definition						Computation Assignment			
Product	Currency	From Bucket	To Bucket	Delayed Amount	Penalty	Contractual Cash flow (From Bucket)	Contractual Cash flow (To Bucket)	Revised Cash flow – (From Bucket)	Revised Cash flow(To Bucket)
Vehicle Loan	US Dollars	10-10 Days	12-12 Days	10%	5%	30000	23000	27000 [= (30000-30000*10%)]	26150 [=23000+ (30000*10%) + {(30000*10%)*5% }]

7.1.1.4 Delinquency

This assumption caters to large and non-large customers. This assumption is based on the anticipation of the bank that there can be an emergency loss due to the delinquency of its customers which will affect the future cash flows. When a customer becomes delinquent, the cash flows of the delinquent buckets (as specified in percentage and amount) are moved to the overnight bucket. To specify delinquency on large customers, select a large customer dimension; however, the computation of cash flows is the same for both large and non-large customers. In a delinquency assumption, the cash flow movement happens from the forward bucket/s to the previous bucket (Overnight).

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

Cash flow assignment is done in the following manner:

$$Cash\ Flow_{for\ Original\ Bucket} = -1 * \left(Cash\ Flow_{Original\ Bucket}\right)$$

$$Cash\ Flow_{for\ Overnight\ Bucket} = \left(Cash\ Flow_{Overnight\ Bucket}\right) + \left(Cash\ Flow_{Original\ Bucket}\right)$$

An example of the assumption applied to product type (Business loan), and currency (USD) for Large and Non-Large Customers is illustrated in the table:

Illustration 1: Delays assigned to a selected time bucket.

Table 24: Delays assigned to a selected time bucket

Business Assumption Definition				Computation Assignment				
Product	Customer	From Bucket	Delinquent Value	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (Overnight Bucket)	Delinquent (Value)	Revised Cash flow (From Bucket)	Revised Cash flow (Overnight Bucket)
Business Loans	Large Customer	8-8Days	10%	30000	23000	3000 [= (30000* 10%)]	27000 [=(30000-3000)]	40600 [=(23000+3000+5000 +9600)]
		9-9Days	20%	25000		5000 [= (25000*20 %)]	20000 [=(25000-5000)]	

Business Assumption Definition				Computation Assignment				
Product	**Customer**	**From Bucket**	**Delinquent Value**	**Contractual Cash Flow (From Bucket)**	**Contractual Cash Flow (Overnight Bucket)**	**Delinquent (Value)**	**Revised Cash flow (From Bucket)**	**Revised Cash flow (Overnight Bucket)**
		10-10Days	30%	32000		9600 [= (32000*30%)]	22400 [=(32000-9600)]	

Illustration 2: Delays assigned to a selected time bucket

Table 25: Cash Flow Movement – Delinquency

Business Assumption Definition				Computation Assignment				
Product	Customer	From Bucket	Delinquent Value	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (Overnight Bucket)	Delinquent (Value)	Revised Cash flow (From Bucket)	Revised Cash flow (Overnight Bucket)
Home Loans	Non- Large Customer	3-3 Days	15%	15000	23000	2250 [= (15000*15%)]	12750 [=(15000-2250)]	27350 [=(23000+2250+2100)]
		4-4 Days	10%	21000		2100 [= (21000* 10%)]	18900 [=(21000- 2100)]	

7.1.1.5 Prepayment

Prepayment is a situation where the customer repays the loan in part or full, at any time before the maturity of the loan. Prepayment would lead the bank to lose out on the interest component that it would have received if the loan was not pre-paid. Prepayment results in a cash inflow in a time bucket before the original time bucket and reduced cash inflow in the original time bucket. The percentage of prepayment is to be specified by you and the balance is payable only when it is due.

The prepayment supports prepayments on liabilities as well as assets in a single business assumption definition.

If a prepayment is specified on an asset or liability backed by collateral, the encumbrance period of the underlying collateral is re-calculated based on the time bucket in which the asset or liability is completely paid up.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

    Cash flow assignment is done in the following manner:

$$Cash\ Flow_{for\ Original\ Bucket} = -1 * (Cash\ Flow_{Original\ Bucket} * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

$$Cash\ Flow_{for\ Revised\ Bucket}$$

$$= (Cash\ Flow_{Original\ Bucket}$$

$$* Percentage\ Specified)\ OR\ (Amount\ Specefied)$$

The following example explains the Assumption Value Based on Original Cash Flows across Business Assumptions.

A prepayment of 10% from 8-15 Day bucket to 1-7 Day bucket and a 20% rollover is defined from 1-7 Day bucket to 8-15 Day bucket. The contractual cash flow in the 1-7 Day bucket is 5000 and the 8-15 Day bucket is 8000. The impact on the 1-7 Day bucket based on original cash flows is illustrated below:

Table 26: Cash Flow Movement Prepayment

Cash Flow Assignment			
Assumption	**Contractual Cash Flow in 1-7 Day Bucket**	**Impact of Assumption**	**Post-Assumption Cash Flow**
No Assumption	5000	0	5000 [=5000 – 0]
Prepayment	5000	800 [= (8000*10%)]	5800 [=5000 + 800]
Rollover	5800	– 1000 [= – (5000*20%)]	4800 [= 5800 – 1000]

In this case, even though the cash flow has changed after applying the prepayment assumption, the original cash flow is used for estimating the impact of the rollover assumption.

7.1.1.6   Recovery

Recovery assumes the part/full amount is recovered from delinquent/ defaulted accounts. In this assumption, the contractual cash flows assigned to the overnight time bucket is considered. Even though contractually it is due immediately, the actual recovery takes place only over a period of time. In this assumption, the contractual cash flows assigned to the overnight time bucket is considered. You are allowed to specify

the percentage of recovery in each time bucket based on past experiences. The balance percentage which is not specified by you is placed in the unspecified time bucket. Therefore, the contractual cash flow is first deducted from the overnight time bucket and assigned to various other time buckets based on the defined percentages.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

Cash flow assignment is done for delinquent/defaulted cash flows in the following manner:

$$Cash\ Flow_{for\ Overnight\ Bucket} = -1 * (Cash\ Flow_{Overnight\ Bucket} * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

$$Cash\ Flow_{for\ Selected\ Bucket} = (Cash\ Flow_{Original\ Bucket} * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

$$Cash\ Flow_{for\ Unspecified\ Bucket} = (Remaining\ Cash\ Flow_{Overnight\ Bucket})$$

The following example shows the assumption applied to product type (loan), legal entity (LE 1), and currency (USD):

Table 27: Cash Flow Movement - Recovery

Business Assumption Definition						Cash Flow Assignment			
Product Type	Legal Entity	Currency	Loan Status	Time Bucket	Business Assumption	Time Bucket	Default Cash Flow	Business Assumption	Adjusted Cash flow
Product 01	LE 1	USD	Default	1 – 30 days	10%	Overnight	10000		0 [=(10000-10000)]
						1 – 30 days		10%	1000 [= (10% *10000)]
				30 – 60 days	15%	30 – 60 days		15%	1500 [=(15%* 10000)]

Business Assumption Definition						Cash Flow Assignment			
Product Type	Legal Entity	Currency	Loan Status	Time Bucket	Business Assumption	Time Bucket	Default Cash Flow	Business Assumption	Adjusted Cash flow
				60 – 180 days	25%	60 – 180 days		25%	2500 [=(25% * 10000)]
						Unspecified that is, 180 -			5000 [=(10000-1000-1500-2500)]

7.1.1.7   Rollover

Rollover refers to the rescheduling of a certain percentage of cash flows to a future time bucket. This occurs when an asset/liability is renewed for an additional term. The amount of cash flow rolled over is thus reduced/increased from the original time bucket and assigned to the new time bucket in the future.

The assumption specification and computation method for this subcategory remain unchanged. This subcategory allows rollovers to be specified even on repos, reverse repos and swaps. In the case of rollover of swaps, the user is required to select the transaction legs option as two.

If a rollover is specified on an asset or liability that has underlying collateral, then the availability of the underlying should be determined. Only if the underlying collateral is available during the extended period, the assumption should be allowed to be saved

Rollover of assets impacts the inflow amount and rollover of liabilities impacts the cash outflow amount. The signage and computation depends on the product type selected. In a rollover assumption, cash flow movement happens from previous bucket/s to the forward buckets.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

   Rollover of Assets refers to the rescheduling of a certain percentage of cash flows to a future time bucket. This occurs when an asset is renewed for an additional term. The amount of cash flow rolled over is thus reduced from the original time bucket and assigned to the

new time bucket. The effect of this assumption would be an altered final cash flow in the affected time buckets. The rollover of assets impacts the inflow amount.

Cash flow assignment is done in the following manner:

$$Cash\ Flow_{for\ Original\ Bucket} = -1 * \left(Cash\ Flow_{Original\ Bucket} * Percentage\ Specified_{for\ Revised\ Bucket}\right)$$

$$OR\ \left(Amount\ Specified_{for\ Revised\ Bucket}\right)$$

$$Cash\ Flow_{for\ Revised\ Bucket} = \left(Cash\ Flow_{Original\ Bucket} * Percentage\ Specified_{for\ Revised\ Bucket}\right)$$

$$OR\ \left(Amount\ Specified_{for\ Revised\ Bucket}\right)$$

For instance, Rollover of Assets is explained in the following example of the assumption applied to product type (Loan), legal entity (LE 1), and currency (USD).

Table 28: Cash Flow Movement - Rollover

Business Assumption Definition						Cash flow Assignment		
Product Type	Legal Entity	Currency	Original Maturity Bucket	Revised Time Bucket	Rollover %	Contractual Cash flow	Time Bucket	Revised Cash flow amount
Loan	LE 1	USD	15-30 Days	60-90 Days	10%	10000	15-30 Days	3000 [= 10000 – (10%* 10000) – (60% * 10000)]
						5000	60-90 Days	6000 [(= 5000 + (10* 10000)]

Business Assumption Definition						Cash flow Assignment		
Product Type	Legal Entity	Currency	Original Maturity Bucket	Revised Time Bucket	Rollover %	Contractual Cash flow	Time Bucket	Revised Cash flow amount
				180-360 Days	60%	7000	180-360 Days	13000 [= 7000 + (60%* 10000)]

Rollover of liabilities refers to the rescheduling of a certain percentage of cash flows to a future time bucket. It occurs when the liabilities are renewed for an additional term. The amount of cash flow rolled over is thus increased in the original maturity time bucket and assigned to the new maturity time bucket. The effect of the business assumption would be an altered final cash flow in the various time buckets. Rollover of liabilities impacts the cash outflow amount.

Cash flow assignment is done in the following manner:

$$Cash\ Flow_{for\ Original\ Bucket}$$
$$= -1$$
$$* \left(Cash\ Flow_{Original\ Bucket}\ Percentage\ Specified_{for\ Revised\ Bucket}\right)$$

$$OR\ \left(Amount\ Specified_{for\ Revised\ Bucket}\right)$$

$$Cash\ Flow_{for\ Revisied\ Bucket}$$
$$= \left(Cash\ Flow_{Original\ Bucket}\right.$$
$$\left. * Percentage\ Specified_{for\ Revised\ Bucket}\right)$$
$$OR\ \left(Amount\ Specified_{for\ Revised\ Bucket}\right)$$

7.1.1.8   Run-Off

In a Run-off assumption, the bank assumes that a certain percentage of deposits/liabilities will be withdrawn by their customers before the scheduled maturity of the deposit. This business assumption would result in an additional outflow in an earlier time bucket and a reduction in the contractual cash outflow in the original time bucket. The assumption can also be applied to assets as well, where the impact on cash flows will be opposite to that specified for deposits above.

The cash flow movement happens from forward bucket/s to the previous bucket/s since cash flows which were expected to be withdrawn at a future date are getting withdrawn as on date.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

    Cash flow assignment is done in the following manner:

$$Cash\,Flow_{for\,Original\,Bucket} = -1 * (Cash\,Flow_{Original\,Bucket} *$$
$$Percentage\,Specified)\,OR\,(Amount\,Specified)$$

$$Cash\,Flow_{for\,Revised\,Bucket}$$
$$= (Cash\,Flow_{Original\,Bucket}$$
$$* Percentage\,Specified)\,OR\,(Amount\,Specified)$$

An illustration is as follows:

Table 29: Cash Flow Movement - Run-off

Business Assumption Definition								
Legal Entity	Customer	From Bucket	To Bucket	Assumption Unit	Run-off	Assignment Method	Assumption Category	Based On
Legal Entity 1	Customer 2	6-6Days	3-3Days	Percentage	10%	Equal	Cash Flow Movement: Run - off	Cash Flows

Cash flow Assignment					
To Bucket	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off	Revised Cash flow (From Bucket)	Revised Cash flow (To Bucket)
Overnight	20000	10000	500	18000 [(20000-20000*10%)]	10500
			[=(20000*10%)/4]		[=(10000+500)]
1-1 Day		11000	500		11500
			[=(20000*10%)/4]		[=(11000+500)]
2-2 Days		22000	500		22500
			[=(20000*10%)/4]		[=(22000+500)]
3-3 Days		12000	500		12500
			[=(20000*10%)/4]		[=(12000+500)]

7.1.2   Encumbrance

This section provides information about Encumbrance.

Topics:

- [Encumbrance](#)
- [Ratings Downgrade](#)
- [Valuation Changes](#)

7.1.2.1   Encumbrance

This is a generic assumption that can be defined and caters to the different combinations available as part of rating downgrade and valuation changes of collateral.

See [Defining a New Business Assumption,](#) for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.
2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.
3. If time-specific or critical obligation, record the delay and indicate a breach.

7.1.2.2   Ratings Downgrade

Some financing transactions or derivatives with embedded downgrade triggers, downgrade a bank's rating by a recognized credit rating institution, requiring the bank to post additional collateral. This assumption impacts the numerator of LCR that is, a decrease in the market value of HQLA.

For some financing transactions or derivatives with embedded downgrade triggers, downgrade in a bank's rating by a recognized credit rating institution will require the bank to post additional collateral. The encumbrance assumption category assumes that the asset required to be posted as additional collateral is already available with the bank and will be encumbered. This results in the deduction of the relevant amount from the stock of high quality liquid assets as it is now no longer unencumbered.

NOTE	The assumption specification and computation method for this subcategory correspond to that available as part of the Additional Collateral - Rating Downgrade Decrease in Asset assumption type. This assumption is renamed as Ratings Downgrade in this version.

See [Defining a New Business Assumption,](#) for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

New Stock of HQLA assignment is done in the following manner:

$$Stock\ of\ High\ Quality\ Liquid\ Asset\ to\ be\ reduced$$

$$= \left(Collateral\ Amount_{for\ the\ specified\ notch} * Percentage\ Specified_{for\ Revised\ Bucket}\right)$$

$$OR\ \left(Amount\ Specified_{for\ Revised\ Bucket}\right)$$

Assuming a downgrade trigger of 3-Notches, this assumption is specified as follows:

Table 30: Encumbrance - Ratings Downgrade

Business Assumption Definition		Cash Flow Assignment		
Asset Level	Downgrade Impact Value	Downgrade Impact Amount	Downgrade	Decrease in HQLA
Level 1 Asset	80%	11000	1 Notch	8800 [= (11000*80%)]
Level 1 Asset	100%	9000	2 Notches	9000 [= (9000*100%)]
Level 1 Asset	80%	80000	3 Notches	64000 [= (80000*80%)]

7.1.2.3 Valuation Changes

This assumes that a bank would require posting additional collateral because of a decrease in the value of current assets.

This assumption impacts the numerator of LCR, which results in a decrease in the stock of HQLA.

In this assumption, the additional collateral posted will result in the selected assets being marked as encumbered. The relevant amount is deducted from the stock of high quality liquid assets where applicable. These assets will not be available for the purpose of counterbalancing or for estimating the cash inflows for LCR.

This assumption supports changes in the value of the collateral posted due to changes in the market valuation of transactions or changes in the contract value. This further leads to cash outflow.

This assumption impacts the denominator of LCR that is, increase in the outflow for the Legal Entity.

Some derivatives are secured by collateral to cover losses arising from changes in mark-to-market valuations. For changes in the value of the derivative, additional collateral is posted, resulting in a cash outflow. The valuation changes can be with Natural currency or Selected Currency. Valuation changes

can be specified in Amount or Percentage. Here, both ratings and notches downgrade are not applicable.

The time buckets selected as part of the assumption parameters are the impacted time buckets.

NOTE	The assumption specification and computation method for this subcategory correspond to that available as part of the Additional Collateral - Valuation Changes – Asset Value Decrease assumption type. This assumption is renamed as Valuation Changes in this version.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

    For example:

Based On	Assumption Unit	Assignment Method
Market Value	Percentage	Selected

Table 31: Encumbrance – Valuation Changes

Legal Entity	Product	Valuation Change Impact
LE 1	P4	100%
LE 2	P5	50%
LE 3	P4	20%
LE 4	P5	30%

Legal Entity	Product Type	Original Market Value	Revised Market Value
LE 1	P4	520000	0 [=520000-(100% * 520000)]
LE 2	P5	610000	305000 [610000- (50%*610000)]
LE 3	P4	160000	128000 [160000-(20% * 160000)]
LE 4	P5	120000	84000 [120000-(30% * 120000)]

7.1.3 Incremental Cash Flow

This section provides information about Incremental Cash Flow.

Topics:

- Incremental Cash Flow
- Drawdown
- Liability Run-off
- New Business
- Ratings Downgrade
- Run-off
- Secured Funding/Financing
- Valuation Changes

7.1.3.1 Incremental Cash Flow

This is a generic assumption which enables you to define and caters to the different combinations available as part of Incremental Cash Flow.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

7.1.3.2 Drawdown

The Drawdown of Unutilized Credit and Drawdown of Funding Line of Credit assumption types have been merged as part of the drawdown subcategory. The assumption specification and computation method for this subcategory remain unchanged. This subcategory allows drawdown to be specified on lines of credit extended as well as received by banks in a single business assumption.

There is an amount line given to the bank or received by the banks which are allowed to drawdown. This allows drawdown to be specified on lines of credit extended as well as received by Banks.

- **Drawdown of Unutilized Credit**: Banks generally allow customers to withdraw a certain amount which is a percentage of the value specified as the limit. This business assumption is applied to the undrawn portion, the assumption being that a certain portion of the undrawn amount is drawn by the customer at the specified time bucket thus leading to additional cash outflows. This assumption also allows you to specify the corresponding cash inflow for the specified cash outflow.

- **Drawdown of Funding Line of Credit**: Banks also receive lines of credit from other banks and financial institutions. The bank can drawdown these lines as per its requirement at any time

during the tenure of the facility. A percentage of the total undrawn amount is assumed to be drawn down over each time bucket. Drawdown of funding line of credit results in cash inflow first and outflow at a later date. This assumption also allows you to specify the corresponding cash outflow for the specified cash inflow

Additionally, this assumption allows you to specify the corresponding cash inflow for the specified cash outflow.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

   Various options for cash flow assignments are available. Refer section Cash Flows.

   Following is an illustration for drawdown:

$$\text{Cash Inflow} = \text{Undrawn Amount} \times \text{Drawdown \%}$$

$$\text{Cash Outflow} = \text{Cash Inflow} \times \text{Outflow \%}$$

Table 32: Incremental Cash Flow – Drawdown

Business Assumption Definition					Cash Flow Assignment		
Product Type	Primary Bucket	Off-Set Bucket	Undrawn amount	Drawdown Value	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Loan	1-7 Days	8-15 Days	10000	30%	5000	1-7 Days	8000 [= 5000 +30%* 10000]
					8000	8-15 Days	5000 [=8000 – 30%*10000]

Here,

Primary bucket = Inflow bucket

Offset bucket = Outflow bucket

7.1.3.3 Liability Run-off

When the markets are inaccessible to the banks due to several reasons, the cash flows continue to run-off contractually. However, no new business is allowed due to market inaccessibility. Banks are required to maintain a pre-defined level of balance at all times. In some cases, due to market

inaccessibility, the balance goes down and banks are required to restore the balance to the pre-defined levels over a period of time, called the restoration period.

The following steps are for calculating cash flows based on the liability run-off business assumption:

1. Run-off the contractual cash flows until the end of the market inaccessibility period.

2. The sum of cash outflows during the market inaccessibility period is computed.

3. The balance to be maintained at the end of the portfolio restoration period is computed as follows:

$$Post\ Restoration\ Target\ Balance$$
$$= Max[Minimum\ Balance, (Current\ Balance \times Restoration\ \%)]$$

4. The balance at the end of the market inaccessibility period is computed as follows:

$$Post\ Market\ Inaccessibility\ Balance$$
$$= Current\ Balance - Sum\ of\ Cash\ Outflows_{Market\ Inaccessibility\ Period}$$

5. The total re-issue amount is computed as follows:

$$Total\ Reissue\ Amount$$
$$= Post\ Restoration\ Target\ Balance - Post\ Market\ Inaccessibility\ Balance$$

6. If the re-issue amount is positive, the following occurs:

   a. All contractual cash flows occurring after-market inaccessibility period are removed.

   b. The re-issue allocation days as the number of business days in the portfolio restoration period is calculated.

   c. The re-issue amount per business day is calculated as follows:

$$Reissue\ Amount\ per\ Day = \frac{Total\ Reissue\ Amount}{Reissue\ Allocation\ Days}$$

   d. The reissue amount per day as a cash inflow on each business day during the portfolio restoration period is posted.

7. If re-issue amount is negative, the following occurs:

   a. If the outstanding contractual balance at the end of the portfolio restoration period is greater than the post-restoration target balance.

   i. The additional run off during per business day is computed as follows:

$$Additional\ Run - off\ per\ Day$$
$$= \frac{(-Total\ Reissue\ Amount) -\ Contractual\ Run\ off\ during\ restoration\ period}{Reissue\ Allocation\ Days}$$

   ii. The additional run off per day as a cash outflow on each business day during the portfolio restoration period in addition to contractual cash outflow is posted.

   b. If the contractual balance at the end of the portfolio restoration period is less than the post-restoration target balance.

   i. The contractual cash outflows on each business day following the market inaccessibility period, until the outstanding balance is equal to the post-restoration target balance is posted.

   ii. All contractual cash outflows after the day on which the outstanding balance is equal to the post restoration target balance are removed.

See the following example for Liability Run-off:

Table 33: Inputs

As of Date	13-Apr-14
EOP Balance	4698.24
Inaccessibility End Bucket	9-9 Day
Restoration End Bucket	20-20 Day
Minimum Balance	100
Restoration %	1%

Table 34: Time Periods and Balances

Market Inaccessibility End Date	22-Apr-14
Restoration End Date	3-May-14
Market Inaccessibility Period	9
Portfolio Restoration Period	11
Contractual Cash Outflows during Inaccessibility Period	2321.93
Post Restoration Target Balance	100.00
Post Market Inaccessibility Balance	2376.30
Contractual Run-off during Restoration	2056.58
Post Restoration Outstanding Contractual Balance	319.72
Total Reissue Amount	-2276.30
Reissue Allocation Days	8
Reissue Amount per Day	0.00

Additional Run-off per Day	27.47

The following example shows the cash flows when re-issue amount is negative and post-restoration outstanding contractual balance and post-restoration target balance.

Table 35: Illustration - Cash Flows When Re-Issue Amount is Negative

Inputs			Calculation				
Calendar Date	Contractual Cash Outflow	Contractual Cash Inflow	Day from As of Date	Holiday Indicator	Cumulative Cash Outflow (Post Inaccessibility Period)	Post Assumption Cash Outflow	Post Assumption Cash inflow
4/14/2014	919.85	0.00	1		0.00	919.85	0.00
4/15/2014	341.48	0.00	2		0.00	341.48	0.00
4/16/2014	320.37	0.00	3		0.00	320.37	0.00
4/17/2014	291.37	0.00	4		0.00	291.37	0.00
4/18/2014	131.73	0.00	5		0.00	131.73	0.00
4/19/2014	0.00	0.00	6	Y	0.00	0.00	0.00
4/20/2014	0.00	0.00	7	Y	0.00	0.00	0.00
4/21/2014	198.15	0.00	8		0.00	198.15	0.00
4/22/2014	118.98	0.00	9		0.00	118.98	0.00
4/23/2014	33.59	0.00	10		0.00	61.05	0.00
4/24/2014	295.54	0.00	11		33.59	323.00	0.00
4/25/2014	329.09	0.00	12		329.12	356.56	0.00
4/26/2014	0.00	0.00	13	Y	658.22	0.00	0.00
4/27/2014	0.00	0.00	14	Y	658.22	0.00	0.00
4/28/2014	440.79	0.00	15		658.22	468.25	0.00
4/29/2014	266.20	0.00	16		1099.01	293.66	0.00
4/30/2014	112.62	0.00	17		1365.20	140.08	0.00
5/1/2014	289.16	0.00	18		1477.82	316.63	0.00
5/2/2014	289.60	0.00	19		1766.98	317.06	0.00

Inputs			Calculation				
Calendar Date	Contractual Cash Outflow	Contractual Cash Inflow	Day from As of Date	Holiday Indicator	Cumulative Cash Outflow (Post Inaccessibility Period)	Post Assumption Cash Outflow	Post Assumption Cash inflow
5/3/2014	0.00	0.00	20	Y	2056.58	0.00	0.00
5/4/2014	0.00	0.00	21	Y	2056.58	0.00	0.00
5/5/2014	319.72	0.00	22		2056.58	0.00	0.00

7.1.3.4   New Business

The new business assumption accounts for both the initial outflows as well as corresponding inflows occurring due to growth in the business represented by Leg 1 and Leg 2. This assumption also accounts for both the outflows and corresponding inflows occurring due to the growth in business represented by Leg 1 and Leg 2.

The New Business assumption category supports the following assumptions:

- Deposit Balance Growth (when Based on = Cash Flows)

- Asset Book Growth (when Based on = Cash Flows)

- Liability Book Growth (when Based on = Cash Flows)

- EOP Balance Growth of Assets (when Based on = EOP Balance)

- EOP Balance Growth of Liabilities (when Based on = EOP Balance)

The change in the earlier deposit balance growth assumption is now the new business assumption. If you select the assumption type as Deposit Balance Growth, select Based On is selected as Cash Flows under this assumption.

The following five assumptions have been merged into a single assumption. This is how you can cater to each assumption:

- **Deposit Balance Growth (Based on = Cash Flows)**

   Deposits balance refers to the cash in hand and the deposits maintained by the bank with other institutions including the central bank. Increase in deposit balance results in an increased cash inflow in the maturing time bucket.

NOTE	Deposits Balance Growth can either be positive or negative.

- **Asset Book Growth (Based on = Cash Flows)**

   Asset book refers to the balances of loans and advances given by the bank. An increase in the asset balance results in increased cash outflow in the selected time bucket and corresponding inflows in future time buckets. This assumption accounts for both the initial outflows as well as corresponding inflows occurring due to growth in the business represented by Leg 1 and Leg 2.

- **Liability Book Growth (Based on = Cash Flows)**

   Liability Book Growth refers to the growth in the value of deposits which are maintained by the bank's customers or borrowings that have been taken by the bank. The growth in the value of deposits results in additional cash outflow in the maturing time bucket. This assumption also accounts for both the outflows and corresponding inflows occurring due to the growth in business represented by Leg 1 and Leg 2.

- **EOP Balance Growth of Assets (Based on = EOP Balance)**

  EOP Asset Balance of Growth assumption estimates new businesses based on the EOP balance of assets. It accounts for both legs of the transactions, that is, inflows as well as outflows.

- **EOP Balance Growth of Liabilities (Based on = EOP Balance)**

  EOP Liability Balance Growth assumption estimates new businesses based on the EOP balance of liabilities. It accounts for both legs of the transactions, that is, inflows and outflows.

See [Defining a New Business Assumption,](#) for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

   Various options for cash flow assignments are available. See the [Cash Flows](#) section.

See the following example for Asset Book Growth:

Table 36: Incremental Cash Flow – New Business Example 1

Business Assumption Definition						Cash Flow Assignment			
Product Type	Legal Entity	Primary Bucket	Off-set Bucket	Growth	Off-set Value	Contractual Cash Flow (Primary Bucket)	Revised Contractual Cash Flow (Primary Bucket)	Contractual Cash Flow (Off-set Bucket)	Revised Contractual Cash Flow (Off-set Bucket)
Loans	LE1	3-3 Days	60-60 Days	15%	60%	20000	17000 [=20000-(20000*15%)]	25000	26800 [= (20000*15%*60%) +25000]
			90-90 Days		20%			27000	27600 [=(20000*15%*20%)+27000]
			120-120 Days		20%			32000	32600 [=(20000*15%*20%)+32000]

Here,

Outflow Amount = Cash Flow * Growth %

Inflow Amount = Outflow Amount * Inflow %

An example of Liability Book Growth is as follows:

Table 37: Incremental Cash Flow – New Business Example 2

Business Assumption Definition						Computation			
Product Type	Legal Entity	Primary Bucket	Off-set Bucket	Growth	Off-set Value	Contractual Cash Flow (Primary Bucket)	Revised Contractual Cash Flow (Primary Bucket)	Contractual Cash Flow (Off-set Bucket)	Revised Contractual Cash Flow (Off-set Bucket)
Deposits	LE1	3-3 Days	4-4 Days	25%	60%	20000	25000 [= 20000+ (20000*25%)]	25000	22000 [=25000-(20000*25%*60%)]
			5-5 Days		40%			32000	30000 [=32000-(20000*25%*40%)]

Here,

Inflow Amount = Cash Flow * Growth %

Outflow Amount = Inflow Amount * Outflow %

NOTE

1. Regarding columns titled "Cash Flow", if the value is positive, it is a cash inflow. If the value is negative, it will be a cash outflow.

2. 'Contractual cash flow- Primary' and 'Contractual cash flow- Secondary' refers to cash flows that are already present in the respective buckets. Similarly, the revised column represents cash flows after the application of this business assumption.

3. The cash flow signage explanation provided before holds good for both asset growth and liability growth.

4. For a liability growth, such as deposits, a growth from the bank's perspective means that there will be an inflow of funds first (bank receives deposits from customers first) and then there will be a corresponding outflow later (Bank returns deposit proceeds on maturity to the customer). The converse holds good for asset growth. Note that the first transaction bucket is always the primary bucket. In the example above on deposits, 3-3 days is defined as a primary bucket (the first bucket). In this case, since it is a liability, it would result in an inflow in this bucket. The offset bucket will have an outflow.

5. The growth amount (delta) in the primary buckets and the offset buckets would be the same. For example: In the example of deposits above, the growth amount in the primary bucket is 5000 (25% of 20000). The offset buckets have an amount of 5000 which is the sum of 3000 and 2000.

7.1.3.5   Ratings Downgrade

This assumption supports both rating based, and notch-based downgrade. These downgrades are specified for each legal entity within the bank's organizational structure. This can come from multiple sources such as Moody's, S&P, and can be both short term and long term or a combination thereof. Since these rating downgrades are defined at a legal entity level, the legal entity is a mandatory dimension for this assumption. If the downgrade is the same across all legal entities, no individual legal entity is required to be selected.

For some financing transactions or derivatives with embedded triggers for downgrade, a downgrade of the bank's rating by a recognized credit rating institution requires the bank to post additional collateral. This will increase the cash outflow for all the accounts that are triggered based on the corresponding downgrade impact amount and downgrade impact value specified by the bank. The downgrade trigger and the corresponding downgrade impact amount are available as part of the account information. For calculation of downgrade impact amount see the Modified Liquidity Coverage Ratio Calculations, section Other Calculations in the OFS Liquidity Risk Regulatory Calculations for US Federal Reserve User Guide Release 8.1.0.0.0.

NOTE	The assumption specification and computation method for this subcategory correspond to that available as part of the Additional Collateral - Rating Downgrade Cash Flow Increase assumption type. This assumption is renamed as Ratings Downgrade in this version.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

    Cash flow assignment is done in the following manner:

$$\text{Cash Flow}_{\text{for Bucket n}} = \left(\text{Downgrade Impact Amount}_{\text{of the particular account which is triggered}} * \text{Percentage Specified} \right) \text{ OR (Amount Specified)}$$

    The following example illustrates the impact of a notch-based downgrade. Suppose legal entity 1 has 3 accounts whose downgrade triggers are specified as follows:

Table 38: Illustration - Impact of a Notch Based Downgrade

Account	Rating Type	Rating Source	Downgrade Trigger	Trigger Type	Impact Amount
Account 1	Short Term	Moody's	P-3	And	1000000
	Long Term	Moody's	A3	Or	
	Long Term	S&P	A-		
Account 2	Short Term	Moody's	P-2	And	250000
	Long Term	S&P	BBB+		
Account 3	Short Term	Internal	A-3	Or	3000000
	Long Term	Moody's	Baa2		
Account 4	Long Term	Moody's	Baa1		750000
Account 5	Short Term	Moody's	P-2		1250000

The downgrade assumption is specified as follows:

Table 39: Downgrade Assumption Specification

Rating Type	Rating Source	Downgrade Trigger	Impact %	Time Bucket
Short Term	Moody's	2-Notches	100%	7 Days
Long Term	Moody's	3-Notches		

The new rating post downgrade is assessed as follows:

Table 40: New Rating Post Downgrade Assessment

Rating Type	Rating Source	Current Rating	Rating Post Downgrade
Short Term	Moody's	P-1	P-3 [= P-1 – 2 Notches]
Long Term	Moody's	Aa3	A3 [= Aa3 – 3 Notches]

The impact of the downgrade assumption, considering weekly time buckets, is calculated as follows:

Table 41: Incremental Cash Flow - Ratings Downgrade

Account	Applicability of Assumption	Reason	Cash Outflow / Encumbrance	Outflow Bucket
Account 1	Applicable	Both parts of the first condition are fulfilled. The second condition is Or, hence not required to be fulfilled if the first one is.	1000000 [=1000000*100%]	5 – 5 Week [=(7+15 Days)/5 Business Days]
Account 2	Not Applicable	The second part of the condition is not fulfilled.		
Account 3	Not Applicable	Either of the conditions is not fulfilled.		
Account 4	Not Applicable	The condition is not fulfilled.		
Account 5	Applicable	The condition is fulfilled as the quantum of downgrade specified as part of the assumption is greater than the downgrade trigger set for this instrument.	1250000 [=1250000*100%]	3 – 3 Week [=(7+5 Days)/5 Business Days]

The total impact of this assumption is a cash outflow or asset encumbrance of 2250000.

7.1.3.6 Run-off

Incremental Cash Flow Run-off is applied to the End of Period (EOP) balances, indicating the amount that is withdrawn before their scheduled maturity. The computation methodology has one additional step; if cash flows exist for the dimension combination for which Run-off is specified, they are deleted, and then the new cash outflows are generated.

See the Defining a New Business Assumption, section for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

For instance, incremental cash flow Run-off is applied to Time Deposits whose EOP balance is $ 10000. The assumption is applied on the original balance to selected time buckets as follows:

Table 42: Incremental Cash Flow – Run-Off

Business Assumption Definition			Cash Flow Assignment		
Product Type	To Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	1-7 Days	10%	5000	1-7 Days	1000 [=5000 – 5000 +10000*10%]
	8-15 Days	20%	8000	8-15 Days	2000 [=8000 – 8000 +10000*20%]

7.1.3.7 Secured Funding/Financing

This assumption is based on debt backed or secured by collateral securities associated with lending. This assumption category refers to the generation of secured funding or creation of secured financing transactions including secured loans, repos, and so on. For example, in a mortgage, your house is considered collateral towards the debt. If you default on repayment, the bank seizes your house, sells it and uses the proceeds to pay back the debt.

Functionally, this assumption is similar to the new business assumption except for the inclusion of the underlying collateral and encumbrance status into the picture.

> **NOTE**
> - Assets can only be posted as collateral or specified as underlying only if they are unencumbered during the period between the Primary and Off-set bucket.
> - The ability to filter assets based on their encumbrance period is supported.

The following steps are involved in applying the secured funding/financing assumption to cash flows:

1. Map inflows and outflows of the transaction to respective time buckets.

2. Calculate the corresponding interest amount.

3. Mark the assets selected as collateral or underlying as encumbered and update the encumbrance period.

See Defining a New Business Assumption, for information on the steps involved in specifying this assumption.

For example: If a bank is giving out an additional loan with reference to an existing loan by taking in some collateral. This is an example of a secured funding transaction, as the bank receives collateral in exchange for the cash given out. Assume that the outstanding end of period balance of the original loan is 10,000. The bank extends another 10% of the loan by taking in collateral against it, Borrow_1. Further, the 10% being extended is completely offset as a bullet payment in a single bucket (100% in offset bucket).

This scenario is defined in the business assumption as follows:

BUSINESS ASSUMPTIONS

Table 43: Incremental Cash Flow – Secured Funding/Financing

Business Assumption Definition						
Standard product type	Primary bucket	Primary value-leg 1	Offset bucket	Offset value-leg 1	Collateral/underlying	Encumbered value
Loans	7-7 days	10	15-15 days	100	Borrow_1	50%

NOTE	The encumbered value represents the portion of the collateral which is used to secure the loan .

The cash flow computation for this definition is explained as follows:

Table 44: Cash Flow Computation

Buckets		Cash flow	
		Contractual	BaU
Primary bucket	7-7 days	5000	4000 (5000- (10%*10000)
Offset bucket	15-15 days	8000	9000 (8000+(10%*10000)

Given that the example is based on loans, the primary leg involves a deduction in cash and the secondary leg involves an addition in cash flow. The deduction/addition will be reverse in nature if the product type is an asset. The application identifies whether to deduct/add a primary bucket and offset bucket based on the product type chosen.

7.1.3.8 Valuation Changes

This assumption supports changes in the value of the collateral posted due to changes in market valuation of transaction or changes in the contract value. This further leads to cash outflow.

This assumption impacts the denominator of LCR that is, increase in the outflow for the Legal Entity.

Some derivatives are secured by a collateral to cover losses arising from changes in mark-to-market valuations. For changes in the value of the derivative, additional collateral is posted resulting in a cash outflow. The valuation changes can be with Natural currency or Selected Currency. Valuation changes can be specified in Amount or Percentage. Here, both ratings and notches downgrade are not applicable.

The time buckets selected as part of the assumption parameters are the impacted time buckets.

> **NOTE** The assumption specification and computation method for this subcategory correspond to that available as part of the Additional Collateral - Valuation Changes assumption type. This assumption is renamed as Valuation Changes in this version.

See the Defining a New Business Assumption, section for information on the steps involved in specifying this assumption.

The following steps are involved in applying the delay in cash flow timing assumption to cash flows:

1. Identify the original time bucket and calculate the cash outflow occurring in it due to the assumption.

2. Identify the corresponding revised time buckets and the cash inflow occurring in it, including penalties, if any.

3. If time-specific or critical obligation, record the delay and indicate a breach.

For example:

Table 45: Incremental Cash Flow - Valuation Changes

Based On	Assumption Unit	Assignment Method
Market Value	Percentage	Selected

Legal Entity	Product Type	Time Bucket	Valuation Change Impact
LE 1	PT 1	6-6 Days	100%
LE 2	PT 1	6-6 Days	80%

Account	Legal Entity	Product Type	Market Value	Valuation Change Impact
Account 1	LE 1	PT 1	100000	100000[=100% *100000]
Account 2	LE 2	PT 1	200000	160000[=80%*200000]
Account 3	LE 1	PT 1	300000	300000[=100%*300000]
Account 4	LE 2	PT 1	400000	320000[=80%*400000]

Legal Entity	Product Type	Outflow
LE 1	PT 1	400000[=100000 + 300000]
LE 2	PT 1	480000[=160000 + 320000]

Each of these does not calculate the impact of interest and has been explained in a principle perspective.

The examples provided for the business assumption do not illustrate the impact of interest cash flows.

For information on interest cash flow calculations from the perspective of assumptions, refer to the Impact of Assumptions on Interest Cash Flows section.

The example depicted in the section depicts only the additional outflow (delta) in the respective buckets due to the application of the assumption.

7.1.4 Value Change

This section provides information about Value Change.

Topics:

- Available Stable Funding Factor
- Haircut
- Required Stable Funding Factor

7.1.4.1 Available Stable Funding Factor

Available stable funding (ASF) factors are the multiplication factors specified for liabilities and equities to calculate the Net Stable Funding Ratio (NSFR). This business assumption allows you to specify the ASF factor in percentage terms only. The percentage specified is applied to the selected combination to calculate the NSFR.

See the Defining a New Business Assumption, section for information on the steps involved in specifying this assumption. In the following example, ASF factor is applied on EOP balances for a selected list of products and the resulting ASF amounts are calculated.

Table 46: Value Change - Available Stable Funding Factor

Business Assumption Definition		Balance Assignment	
Product	ASF Factor	EOP Balance	Available Stable Funding
P1	85%	10000000	8500000 [= (1000000*85%)]
P 2	100%	200000	200000 [= (200000*100%)]
Term deposits from retail	90%	320000	288000 [= (320000*90%)]
Unsecured funding from non-financial corporates	50%	21000	10500 [= (21000*50%)]

7.1.4.2 Haircut

Haircuts are applied to high quality liquid assets to determine the stock of high quality liquid assets. This assumption does not affect the cash flows. Haircuts are allowed to be specified in percentage terms only. The haircut percentage specified will be applied to all assets with the dimensional attributes specified to calculate the stock of high quality liquid assets to compute the Liquidity Coverage Ratio (LCR).

See the Defining a New Business Assumption, section for information on the steps involved in specifying this assumption.

Table 47: Value Change – Haircut

Business Assumption		
Product Type	**Asset Level**	**Haircut**
Cash	Level 1	0%
Covered bond	Level 1	0%
Covered bond	Level 2A	15%
Common Equity	Level 2B	50%

The assumption stores these haircuts at the account level granularity for further use while calculating the stock of HQLA for the purpose of LCR computation. The application then computes the haircut adjusted values of assets for inclusion in the stock of HQLA as follows:

Product Type	Asset Level	Haircut	Market Value	Haircut Adjusted Market Value
Cash	Level 1	0%	3000000	3000000 [=30000000*(1-0%)]
Covered bond	Level 1	0%	220000	187000 [=220000*(1-15%)]
Covered bond	Level 2A	15%	550000	412500 [=550000*(1-25%)]
Common Equity	Level 2B	50%	110000	55000 [=110000*(1-50%)]

7.1.4.3 Required Stable Funding Factor

Required stable funding factors are the multiplication factors specified for assets to calculate the NSFR. This assumption allows you to specify the amount in percentage only. The percentage specified is applied to the selected combination to calculate the Net Stable Funding Ratio (NSFR).

See the Defining a New Business Assumption, section for information on the steps involved in specifying this assumption. In the following example, RSF factor is applied on EOP balances for a selected list of products and the resulting RSF amounts are calculated.

Table 48: Value Change - Required Stable Funding Factor

Business Assumption		Computation	
Product	RSF Factor	EOP Balance	Required Stable Funding
Non-renewable loans to financial entities and financial corporates	0%	200000	0 [= (200000*0%)]
Gold	50%	150000	75000 [= (150000*50%)]
Corporate bonds rated A+ to A-	40%	220000	0 [= (220000*40%)]

7.2 Intraday Business Assumptions Supported

The application supports the following types of intraday business assumptions:

1. Cash Flow Movement
   - Time Shift in Payments
   - Payments Default

2. Encumbrance
   - Withdrawal of Credit Lines

3. Incremental Cash Flow
   - Intraday Drawdown
   - Large Unexpected Payments

4. Value Change
   - Intraday Valuation Changes

The computations related to each assumption category and subcategory are explained in detail in the following sections.

7.2.1 Cash Flow Movement

This section provides information about Cash flow Movement.

Topics:

- Time Shift in Payments
- Payments Default

7.2.1.1 Time Shift in Payments

When a bank is under financial stress, customers and counterparties defer payments, leading to a reduction in Intraday liquidity. The delayed payments affect other payments in the pipeline and also affect the fulfillment of time-specific obligations.

Similarly, when certain obligations of the bank are brought forward in time during the day, this leads to a stressed situation as well. The assumption supports a time shift in payments- either a forward or backward shift.

The application supports a time shift of payments from one time bucket to another. You can apply this assumption to both payments made and payments received.

> **NOTE**   All payments within the time bucket are affected and shifted according to the assumption definition.

The following is an example for Time Shift in Payment assumption category:

The Time buckets are defined as follows:

Table 49: Time Bucket Definition

Level 2	Level 1	Level 0
09:00:00 to 09:24:00	09: 00:00 to 09:12:00	09:00:00 to 09:06:00
		09:06:01 to 09:12:00
	09:12:01 to 09:24:00	09:12:01 to 09:18:00
		09:18:01 to 09:24:00

When a Business Assumption is defined:

- Dimensions: Legal entity - Payment system
- Based on: Payments received
- Time buckets from : 09:00:00 to 09:12:00
- Time buckets To: 09:12:01 to 09:24:00
- Percentage of delay: 60%

The payments made and received are as follows:

Table 50: Payments Made and Received

Time bucket (Level 0)	Payments Received (Inflows) Amount	Payments Made (Outflows) Amount
09:00:00 to 09:06:00	990	675
09:06:01 to 09:12:00	550	234
09:12:01 to 09:18:00	130	167
09:18:01 to 09:24:00	100	389

When the assumption is defined at level 1, the same is translated to level 0 buckets when the assignment method is selected.

In this example, the selected time bucket option as an assignment method is chosen. In this case, Inflows in the time period 09:00:00 to 09:12:00 moves to the time bucket 09:12:01 to 09:24:00. Since the 'to' bucket has two level 0 buckets, the assignment of the total amount, that is,(990 +550) must be done to both the buckets. After the assignment, the payments received and made are as follows:

Table 51: Payments Received After Assignment

Time bucket	Payments Received (Inflows) Amount	Payments Made (Outflows) Amount
09:00:00 to 09:06:00	396	675
09:06:01 to 09:12:00	220	234
09:12:01 to 09:18:00	592	167
09:18:01 to 09:24:00	562	389

Here, 60% of (990 +550) is delayed and is allocated equally between the level 0 buckets in the to bucket.

7.2.1.2   Payments Default

In this assumption, certain risky counterparties are assumed to default on their payments. Here, incoming payments from the respective counterparty type reduces to an extent as specified in the assumption definition. The counterparty is chosen through a dimensional selection.

For example, consider the following payments made and received for a legal entity - payment system combination.

Table 52: Example - Payments Made and Received for a Legal Entity

	Payments Received		Payments Made	
Time Stamp	Payments	Counterparty Type	Payments	Counterparty Type
9:00	100	A		
9:15	30	A	40	C
9:30			90	C
9:45	60	A	150	B
10:00	30	C	100	B
10:15	90	B	300	A
10:30	45			
10:45	89	B	70	D
11:30	90	C	100	B
12:00	56	C	90	E
12:15			70	E
12:30	78	A	100	B
13:15			20	C
13:30	96	E		
14:30	200	E	200	D
15:00	250	A		
15:15	300	B	87	D
15:30	60	B	40	E
15:45				
16:00	50	E	99	A
16:15			60	B
16:30	40	D		
16:45				
17:00				

Assume that one of the counterparty types A is in complete default (100%). This means that the incoming payment from A reduces to zero. The payments to be received by A flows normally. The new set of Inflows and Outflows are as follows:

Table 53: Example - New set of Inflows and Outflows

	Payments Received		Payments Made	
Time Stamp	**Payments**	**Counterparty Type**	**Payments**	**Counterparty Type**
9:00		A		
9:15		A	40	C
9:30			90	C
9:45		A	150	B
10:00	30	C	100	B
10:15	90	B	300	A
10:30	45			
10:45	89	B	70	D
11:30	90	C	100	B
12:00	56	C	90	E
12:15			70	E
12:30		A	100	B
13:15			20	C
13:30	96	E		
14:30	200	E	200	D
15:00		A		
15:15	300	B	87	D
15:30	60	B	40	E
15:45				
16:00	50	E	99	A
16:15			60	B
16:30	40	D		
16:45				
17:00				

In this example, the counterparty is in complete default.

However, a partial default in payments can also be defined. This can be defined by using the Assumption Unit in the Business Assumptions window. This consists of two options, Percentage and Value.

In case of a partial default, the remaining payments need to be shifted to a 'Residual' time bucket. If this bucket is specified at a higher level, the remaining payments are dispersed equally among the lower level buckets.

Examples: If the Assumption unit is in %, and 70% is the specified value, then 70% of the payments of the particular counterparty type is defaulted. The remaining 30% of payments are redistributed in the residual time bucket equally.

NOTE	1. The assignment method in payments default is only the Selected time bucket.
	2. When Assignment unit= value, the value specified is the value defaulted by the specific dimensional combination
	3. By default, if no value or percentage is given, the assumption unit appears as 0 for the possible dimensional combinations.
	4. The Residual time bucket is within the from time bucket or outside it.

For example, from 11:00:00 to 12:00:00; residual bucket: 11:45:00- 12:00:00

Or from bucket: 12:00:00 to 13:00:00; residual bucket: 14:15:00-14:30:00

The metrics affected by this assumption are as follows:

- Daily Maximum Intraday Liquidity Usage
- Total Payments
- Throughput

7.2.2 Encumbrance

This section provides information about Encumbrance.

7.2.2.1 Withdrawal of Credit Lines

This assumption is a specific case when a bank is under financial stress, counterparties and correspondent banks may withdraw intraday credit lines, thus reducing the intraday liquidity available to the bank. The direct impact of this assumption is on non-committed credit lines; since they can be withdrawn completely.

This withdrawal of Credit Lines is expected at the start of the day. When credit lines are withdrawn, the available intraday liquidity at the start of the day reduces by the same extent.

The metric which impacts due to this effect is 'Available Intraday Liquidity at the start of the business day'.

Sl. No.	Sources
1	Central Bank reserves
2	Collateral pledged at central bank
3	Collateral pledged at ancillary systems

Sl. No.	Sources
4	Unencumbered liquid assets on the balance sheet
5	Total credit lines available
5a	Of which secured
5b	Of which committed
6	Balances with other banks
7	Other

In this assumption, depending on the dimension selected, the intraday credit lines are reduced by the extent of the withdrawal.

7.2.3 Incremental Cash Flow

Topics:

- Intraday Drawdown
- Large Unexpected Payments

7.2.3.1 Intraday Drawdown

This assumption enables banks to provide correspondent banking services only. The payment system participants value intraday credit on electronic funds transfer networks because payments and receipts are not perfectly synchronized. In addition, it eliminates the necessity of holding clearing balances large enough to cover all expected outflows of funds.

When a customer bank is in stress, to maintain adequate liquidity, the customer may resort to excessive drawdown of Intraday credit lines.

In the following example, the correspondent bank has 5 customers. Under normal conditions, credit lines extended to customers and usage are as follows:

Table 54: Credit Lines Extended To Customers And Usage

Normal Conditions						
Financial Institution Customer	Intraday Credit Line Extended	Intraday Usage	Secured	Committed	Usage of Secured	Usage of Committed
Bank O	85	70	40	50	31	21
Bank E	80	60	25	10	26	30
Bank M	45	30	30	40	21	6
Bank G	35	25	30	30	12	13
Bank Z	30	20	15	20	12	17

Normal Conditions						
Financial Institution Customer	Intraday Credit Line Extended	Intraday Usage	Secured	Committed	Usage of Secured	Usage of Committed
TOTAL	275	205	140	150	102	87

One or more of the customer banks may be under stress, due to which maximum drawdown of Intraday credit lines may occur. The application supports the following dimensional inputs:

- Percentage of Drawdown

- Respective Customers

In this example, two customer banks are assumed to be under stress-Bank E and Bank O. Under this example, a 100% drawdown of credit lines by the customer is assumed. Hence the credit lines extended and used under stressed conditions are as follows:

Table 55: Credit Lines Extended and Used Under Stressed Conditions

Stress Conditions						
Financial Institution Customer	Intraday Credit Line Extended	Intraday Usage	Secured	Committed	Usage of Secured	Usage of Committed
Bank O	85	85	40	50	40	50
Bank E	80	80	25	10	25	10
Bank M	45	30	30	40	21	6
Bank G	35	25	30	30	12	13
Bank Z	30	20	15	20	12	17
TOTAL	**275**	**240**	**140**	**150**	**110**	**96**

Similarly, the application computes 'Peak Usage' for both normal conditions and stressed conditions.

When a drawdown assumption is applied at a higher level of time buckets, a single assignment within any level zero buckets of the said amount is considered. An example is as follows:

- Primary bucket (level 3): 08:00 – 09:00, level zero buckets being minutes

- Offset Bucket (Level 3):16:00- 17:00

- Available balance: 1000, assumption value= 40%

An amount of 400 is the outflow in the primary bucket and an inflow in the offset bucket for banks providing credit lines to its customers. This amount is allocated as a single amount in any level zero time bucket which constitutes primary and offset buckets; like 08:03(outflow 400) and 16:06(inflow 400); or 08:44 (outflow 400) and 16:02 (inflow 400).

7.2.3.2   Large Unexpected Payments

This assumption allows the introduction of unforeseen large payments in the usual working day. The large payments can be either receipts or obligations or both. The introduction of large payments suddenly within the bank's payment system causes a scenario of liquidity stress whereby the bank has to arrange such funds in very short notice. The assumptions allows the user to specify the payment system affected, the time bucket at which the payment(s) is introduced, and the amount. The amounts introduced are included in the time buckets as specified in the assumption.

As with other intraday assumptions, all the intraday metrics are calculated post-application of the assumption through a Stress Run.

The following is an example of this assumption:

This example contains actual payments made through a particular payment system and the impact of the introduction of a large payment within the other payments.

Actual payments with time stamp are as follows:

Table 56: Actual payments with time stamp

Payments made	Payment system	Time stamp	Time bucket - 15 minutes
568	PS 1	12:08	12:01-12:15
876	PS 1	12:09	12:01-12:15
654	PS 1	12:12	12:01-12:15
655	PS 1	12:30	12:16-12:30
673	PS 1	12:31	12:31-12:45
890	PS 1	12:32	12:31-12:45
123	PS 1	12:44	12:31-12:45
876	PS 1	12:45	12:31-12:45

The Time bucket is defined as follows:

- Level 0: 1 minute
- Level 1: 15 minutes interval.

The bucketed payments at level 1 are as follows:

Table 57: Bucketed Payments at Level 1

Time bucket	Payments made
12:01-12:15	2098
12:16-12:30	655
12:31-12:45	2562

The business assumption is defined as follows:

- Based on: Payments made

- Payment system: PS1

- Time bucket: Level 1- 12:16 to 12:30

- Amount: 6765

The new bucketed payments after the application of the assumption are as follows.

Table 58: New Bucketed Payments After Application of the Assumption

Time bucket	Payments made
12:01-12:15	2098
12:16-12:30	7420
12:31-12:45	2562

The new payment can be introduced at any level of time bucket. In this example, it is introduced in Level 1 of the definition.

7.2.4 Value Change

This section includes information about Value Change.

7.2.4.1 Intraday Valuation Changes

In cases of particular currency shocks or a market-wide stress scenario, the value of the intraday assets held by the bank reduces to a certain extent. This assumption is applicable to all reporting banks.

The metric affected as a part of this assumption is "Available Intraday Liquidity at the start of the business day".

This assumption considers the particular intraday asset and the percentage amount by which it must be reduced. The legal entity under which the asset is held is considered.

This assumption works on all available intraday assets which constitute the metric "Available Intraday Liquidity at the start of the business day" except credit lines.

Legal Entity	Product	Percentage
LE1	Product 1	70%
LE2	Product 2	80%

The valuation change is explained as follows:

- Product 1 is reduced to 30% of its prior value.

- Product 2 is reduced to 20% of its total value.

7.3 Impact of Assumptions on Interest Cash Flows

OFS LRM considers the impact on both principal and interest cash flows. This is treated in the following ways:

- When business assumption values are applied to both principal and interest cash flows.

- When assumption values are applied on principal cash flows only and interest is approximated.

- When interest is calculated and is not approximated.

When you select the approximate Interest parameter in the Run Definition window as Yes, then interest is approximated as explained below. If the parameter is selected as No, then the assumption values are applied on both principal and interest cash flows.

The following steps are involved in approximating interest:

1. Obtain the principal and interest cash flows under contractual terms.

2. Bucket the contractual cash flows based on the time buckets selected while distinguishing between interest and principal cash flows in each time bucket.

3. Calculate the outstanding balance in each bucket under contractual terms. The outstanding balance in the first time bucket will be the EOP balance. The formula for calculating the outstanding balance for each subsequent bucket is as follows:

$$O/S\ Balance_{Bucket\ n,Contractual} = O/S\ Balance_{Bucket\ n-1,Contractual} - Principal\ CF_{Bucket\ n-1,Contractual}$$

Here,

O/S Balance: Outstanding Balance

CF: Cash Flows

4. Apply the business assumption to estimate principal cash flows. In the case of balance-based assumptions, this applies to the EOP balance. In the case of cash flow-based assumptions, this applies to the principal cash flows in a given bucket.

5. Calculate the outstanding balance in each bucket under business-as-usual or stress terms. The outstanding balance in the first time bucket will be the EOP balance. The formula for calculating the outstanding balance for each subsequent bucket is as follows:

$$O/S\ Balance_{Bucket\ n,Assumption} = O/S\ Balance_{Bucket\ n-1,Contractual} - Principal\ CF_{Bucket\ n-1,Contractual} - \sum_{i=0}^{n-1} Principal\ CF_{i,Assumption}$$

Calculate the proportionate impact on interest cash flows in each bucket under business-as-usual or stress terms as per the following formula:

$$Interest\ CF_{Bucket\ n,Assumption} = \left(\frac{O/S\ Balance_{Bucket\ n-1,Assumption} \times Interest\ CF_{Bucket\ n-1,Contractual}}{O/S\ Balance_{Bucket\ n-1,Contractual}} \right) - Interest\ CF_{Bucket\ n-1,Contractual}$$

6. Calculate the total principal and interest cash inflows and outflows in each time bucket post assumption.

7. Calculate the total inflows, outflows, and net gap in each time bucket post assumption.

> **NOTE** This computation is not applicable for the assumption types Rollover of Repos and Reverse Repos and Creation of Repos as the interest calculations are explicitly defined in these cases.

The following tables explain the impact of assumptions on Interest Cash Flows. The standard time buckets are Overnight, 1-7 Days, 8-15 Days, 16-30 Days, 1-3 Months, 3-6 Months, 6-12 Months, and > 1 Year. All examples consider an EOP balance of 5000 for time deposits.

Example 1: Impact on Interest Cash Flows under Growth Assumption

In this case, growth of 10 % on the EOP balance is defined in the 8-15 Days bucket. The offset bucket for this growth is a single bucket at 3-6 months. The cash flows are as shown below. The numbers for Contractual Principal and Interest cash flow are examples. The rest of the rows are computed values as per equations provided earlier in this section.

Table 59: Impact on Interest Cash Flows under Growth Assumption

Condition	Measure	Cash Outflow							
		Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months	3-6 Months	6-12 Months	> 1 Year
Contractual	Principal Cash Flow	221.00	195.00	244.00	283.00	163.00	263.00	257.00	3374.00
	Interest Cash Flow	112.00	129.00	87.00	147.00	65.00	88.00	84.00	1477.42
	O/S Balance	5000.00	4779.01	4584.00	4340.00	4057.00	3894.00	3631.00	3374.00
Business Assumption	Principal Cash Flow			-500.00			500		
	O/S Balance	5000.00	4779.00	4584.00	4840.00	4557.00	4394.00	3631.00	3374.00
	Proportionate Interest Cash Flow	0.00	0.00	0.00	0.0	16.94	8.01	11.30	0

The assumption cash flows provide the impact of the assumption only and not the change in the original cash flows due to the assumption.

Example 2: Impact on Interest Cash Flows under Rollover Assumption

In this case, a rollover of 10% is defined on the cash flows from the 1-7 Days bucket to the 3-6 Months bucket. The cash flows are as shown below. The numbers for Contractual Principal and Interest cash flow are examples. The rest of the rows are computed values as per equations provided earlier in this section.

Table 60 Impact on Interest Cash Flows under Rollover Assumption

Condition	Measure	Cash Outflow							
		Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months	3-6 Months	6-12 Months	> 1 Year
Contractual	Principal Cash Flow	221.00	195.00	244.00	283.00	163.00	263.00	257.00	3374.00
	Interest Cash Flow	112.00	129.00	87.00	147.00	65.00	88.00	84.00	1477.42
	O/S Balance	5000.00	4779.00	4584.00	4340.00	4057.00	3894.00	3631.00	3374.00
Business Assumption	Principal Cash Flow		-19.50				19.50		
	O/S Balance	5000.00	4779.00	4603.50	4359.50	4076.50	3913.50	3631.00	3374.00
	Proportionate Interest Cash Flow	0.00	0.00	0.0	0.37	0.66	0.31	0.44	0.00

Example 3: Impact on Interest Cash Flows under Run-off Assumption

In this case, a 10% EOP Balance Run-off is defined from the 3-6 Months bucket to the 1-7 Days bucket. The cash flows are as shown below. The numbers for Contractual Principal and Interest cash flow are examples. The rest of the rows are computed values as per equations provided earlier in this section.

Table 61 Impact on Interest Cash Flows under Run-off Assumption

Condition	Measure	Cash Outflow							
		Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months	3-6 Months	6-12 Months	> 1 Year
Contractual	Principal Cash Flow	221.00	195.00	244.00	283.00	163.00	263.00	257.00	3374.00
	Interest Cash Flow	112.00	129.00	87.00	147.00	65.00	88.00	84.00	1477.42
	O/S Balance	5000.00	4779.00	4584.00	4340.00	4057.00	3894.00	3631.00	3374.00
Business Assumption	Principal Cash Flow		500.00				-500.00		
	O/S Balance	5000.00	4779.00	4084.00	3840.00	3557.00	3394.00	3631.00	3374.00

Condition	Measure	Cash Outflow							
		Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months	3-6 Months	6-12 Months	> 1 Year
	Proportionate Interest Cash Flow	0.00	0.00	0	-9.49	-16.94	-8.01	-11.3	0.00

When interest is calculated and is not approximated

If include Interest Cash Flow is selected as Yes and Approximate Interest is selected as No, the application includes the interest cash flow. If you have selected cash flow type in dimension and node as Principal, then assumption impacts only principal cash flows. If you have selected cash flow type in dimension and node as Interest, then assumption impacts only Interest cash flows. If you have not selected the cash flow type in dimension, then the assumption ignores the cash flow type. This means it will include both principal and interest cash flows.

NOTE Interest cash flows occurring contractually are considered during calculations and the impact of assumptions on interest is calculated under BAU and stress conditions if the option 'Yes' is selected as part of the Include Interest Cash Flows field in the Run Definition window. See Run Management Definition section for details.

7.4   Cash Flow Assignment Methodologies

The complete list of cash flow assignment methods are as follows:

- Selected time bucket only
- Equally to all time buckets up to and including the selected bucket
- In decreasing order to all time buckets up to and including the selected bucket
- In increasing order to all time buckets up to and including the selected bucket
- In proportion to the bucket size

Detailed in the following sections are illustrations for each cash flow assignment method. The standard Level 0 time buckets are Overnight, 1-7 Days, 8-15 Days, 16-30 Days, 1-3 Months, 3-6 Months, 6-12 Months, 1-5 years, and > 5 Years. All examples consider an EOP balance of 500000 for time deposits.

1. Selected Time Bucket

    In this case, the assumption unit is applied to the cash flows and the assumption cash flows are mapped to the time bucket selected. If the assumption is not specified on Level 0 buckets, then the assignment to the lower buckets is done proportionately to the bucket size.

2. Equal Assignment

    Here, cash flows assigned to each bucket are up to the selected bucket. Assignments are made equally to the selected level and further assignment is done till the most granular level. The formulae under different conditions are as follows:

    a. EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Equal,Balance\ Based,\%} = \frac{EOP\ Balance \times Assumption\ \%}{Number\ of\ L0\ Buckets}$$

$$Cash\ Flow_{Equal,Balance\ Based,\%} = \frac{EOP\ Balance \times Assumption\ \%}{Number\ of\ Level\ X\ Buckets}$$

Where,

Level X Buckets: Higher granular buckets

Table 62: Equal Assignment under Balance Based Assumptions, %

Business Assumption			Cash Flow Assignment		
Product	From Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	– 2500 [= 10000 – {(500000*5%)/2}]
			5000	1-7 Days	– 7500 [= 5000 – {(500000*5%)/2}]

b. Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Equal,CF\ Based,\%} = \frac{Cash\ Flow_n \times Assumption\ \%}{Number\ of\ L0\ Buckets} Cash\ Flow_{Equal,CF\ Based,\%}$$
$$= \frac{Cash\ Flow_n \times Assumption\ \%}{Number\ of\ Level\ X\ Buckets}$$

Where, n: Selected bucket

Table 63: Equal Assignment under Cash Flow Based Assumptions, %

Business Assumption			Cash Flow Assignment		
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	9800 [= 10000 – {(8000*5%)/2}]
			5000	1-7 Days	4800 [= 5000 – {(8000*5%)/2}]

c. Assumption Unit = Value

$$Cash\ Flow_{Equal,\$} = \frac{Assumption\ Value}{Number\ of\ L0\ Buckets}$$
$$Cash\ Flow_{Equal,\$} = \frac{Assumption\ Value}{Number\ of\ Level\ X\ Buckets}$$

Table 64 Equal Assignment, Value

Business Assumption			Cash Flow Assignment		
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	3000	10000	Overnight	8500 [= 10000 – (3000/2)]
			5000	1-7 Days	3500 [= 5000 – (3000/2)]

3. Proportionate Assignment

Cash flows are assigned to each bucket up to the selected bucket in proportion to the bucket size. Assignments are made proportionately to the selected level and further assignment is done till the most granular level. The formulae under different conditions are as follows:

a. EOP Balance Based Assumptions, Assumption Unit = Percentage

$$CashFlow_{Proportionate,BalanceBased,\%} = (EOPBalance \times Assumption\%) \times \frac{t}{T}$$

Where,

t: Number of days in the given Level X bucket

Table 65 Proportionate Assignment under Balance Based Assumptions, %

T: Total number of days up to the selected bucket Business Assumption			Cash Flow Assignment		
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	10000 [= 10000 – {(500000*5%)*0/7]
			5000	1-7 Days	– 20000 [= 5000 – {(500000*5%)*7/7]

b. Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\,Flow_{Proportionate,CF\,Based,\%} = (Cash\,Flow_n \times Assumption\%) \times \frac{t}{T}$$

Table 66 Proportionate Assignment under Cash Flow Based Assumptions, %

Business Assumption			Cash Flow Assignment		
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	10000 [= 10000 – {(8000*5%)*0/7}]
			5000	1-7 Days	4600 [= 5000 – {(8000*5%)*7/7}]

c. Assumption Unit = Value

$$Cash\ Flow_{Proportionate,\$} = Assumption\ Value\ \times \frac{t}{T}$$

Table 67 Proportionate Assignment, Value

Business Assumption			Cash Flow Assignment		
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Revised Cash Flow
Time Deposits	8-15 Days	3000	10000	Overnight	10000 [= 10000 – (3000*0/7)]
			5000	1-7 Days	2000 [= 5000 – (3000*7/7)]

4. Decreasing Assignment

Cash flows are assigned to each bucket up to the selected bucket in decreasing order based on ranks assigned to cash flows. Assignments are made in decreasing order to the selected level and further assignment is done till the most granular level. The formulae under different conditions are as follows:

a. EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Decreasing,Balance\ Based,\%} = (EOP\ Balance \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Where,

Bucket Rank: This is the rank assigned to each Level X bucket within the bucket set. The rank is assigned in decreasing order that is, 1 is assigned to the last bucket in the set, 2 is assigned to the previous bucket, and so on.

Table 68 Decreasing Assignment under Balance Based Assumptions, %

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	1-3 Months	5%	10000	Overnight	4	0 [= 10000 – (500000*5%)*4/10]

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
			5000	1-7 Days	3	– 2500 [= 5000 – (500000*5%)*3/10]
			8000	8-15 Days	2	3000 [= 8000 – (500000*5%)*2/10]
			3000	16-30 Days	1	500 [= 3000 – (500000*5%)*1/10]

b. Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Decreasing,CF\ Based,\%} = (Cash\ Flow_n \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Table 69 Decreasing Assignment under Cash Flow Based Assumptions, %

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	1-3 Months	5%	10000	Overnight	4	9880 [= 10000 – (6000*5%)*4/10]
			5000	1-7 Days	3	4910 [= 5000 – (6000*5%)*3/10]
			8000	8-15 Days	2	7940 [= 8000 – (6000*5%)*2/10]
			3000	16-30 Days	1	2970 [= 3000 – (6000*5%)*1/10]

c. Assumption Unit = Value

$$Cash\ Flow_{Decreasing,\$} = Assumption\ Value \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Table 70 Decreasing Assignment, Value

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	1-3 Months	3000	10000	Overnight	4	8800 [= 10000 – (3000*4/10)]
			5000	1-7 Days	3	4100 [= 5000 – (3000*3/10)]
			8000	8-15 Days	2	7400 [= 8000 – (3000*2/10)]
			3000	16-30 Days	1	2700 [= 3000 – (3000*1/10)]

5. Increasing Assignment

Cash flows are assigned to each bucket up to the selected bucket in increasing order based on ranks assigned to cash flows. Assignments are made in increasing order to the selected level and further assignment is done to the most granular level. The formulae under different conditions are as follows:

a. EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Increasing,Balance\ Based,\%} = (EOP\ Balance \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Where,

Bucket Rank: Rank assigned to each Level 0 bucket within the bucket set. The rank is assigned in increasing order i.e. 1 is assigned to the first bucket in the set, 2 is assigned to the next bucket, and so on.

Table 71 Increasing Assignment under Balance Based Assumptions, %

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	1	1666.67 [= 10000 – (500000*5%)*1/3]

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
			5000	1-7 Days	2	– 11666.67 [= 5000 – (500000*5%)*2/3]

b. Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Increasing,CF\ Based,\%} = (Cash\ Flow_n \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Table 72 Increasing Assignment under Cash Flow Based Assumptions, %

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	8-15 Days	5%	10000	Overnight	1	9866.67 [= 10000 – (8000*5%)*1/3]
			5000	1-7 Days	2	4733.33 [= 5000 – (8000*5%)*2/3]

c. Assumption Unit = Value

$$Cash\ Flow_{Increasing,\$} = Assumption\ Value \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Table 73 Increasing Assignment, Value

Business Assumption			Cash Flow Assignment			
Product	Time Bucket	Run-off	Contractual Cash Flow	Time Bucket	Bucket Rank	Revised Cash Flow
Time Deposits	8-15 Days	3000	10000	Overnight	1	9000 [= 10000 – (3000*1/3)]
			5000	1-7 Days	2	3000 [= 5000 – (3000*2/3)]

NOTE	If assumptions are specified on bucket levels other than Level 0, the assignment is done at the selected level and further assignment is done at the higher granular levels, using the same cash flow assignment methodology selected, till assignment has been made to Level 0 buckets. The only exception is the selected time bucket method, where the cash flow is assigned proportionately to higher granular bucket levels based on the bucket size. Previously, the assignment to more granular levels was done equally.

An illustration of assignment across multiple levels is provided in the following table. Suppose $1000 is assigned in increasing order to buckets at multiple levels. The assignment is done as follows:

Table 74: Cash Flow Assignment to Multiple Bucket Levels

Level 2 Bucket	Rank	Amount Assigned	Level 1 Bucket	Rank	Amount Assigned	Level 0 Bucket	Rank	Amount Assigned
1 – 3 Week	1	333.33 [= (1000*1/3)]	1 Week	1	111.11 [= (333.33*1/3)]	1 Week	1	111.11 [= (111.11*1/1)]
			2 – 3 Week	2	222.22 [= (333.33*2/3)]	2 Week	1	74.07 [= (222.22*1/3)]
						3 Week	2	148.15 [= (222.22*2/3)]
4 – 8 Week	2	666.67 [= (1000*2/3)]	4 – 5 Week	1	222.22 [= (666.67*1/3)]	4 Week	1	74.07 [= (222.22*1/3)]
						5 Week	2	148.15 [= (222.22*2/3)]
			6 – 8 Week	2	444.44 [= (666.67*1/3)]	6 Week	1	74.07 [= (444.44*1/6)]
						7 Week	2	148.15 [= (444.44*2/6)]
						8 Week	3	222.22 [= (444.44*3/6)]

6. New Business

   End of Period (EOP) Asset Balance of Growth assumption allows you to select the method for cash flow assignment. Various options for cash flow assignment available are as follows:

   ▪ Decreasing: In decreasing order to all time buckets up to and including the selected time bucket.

- Equal: Equally to all time buckets up to and including the selected time bucket.

- Proportional: In proportion to the time bucket size.

- Selected: Selected time bucket only.

Decreasing Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = EOP\ amount * Percentage\ Specified * (1 - Percentage\ Specified)^{(n-1)}$$
$$where\ n = number\ of\ time\ buckets$$

Equal cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = \frac{(EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)}{Total\ number\ of\ Time\ Buckets}$$

Proportional Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n}$$
$$= (EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$
$$* \frac{Number\ of\ days\ in\ Time\ bucket\ n}{Total\ number\ of\ days\ in\ all\ the\ considered\ Time\ buckets}$$

Selected Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = (EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

EOP Liability Balance Growth assumption allows you to select the method for cash flow assignment. Available options for cash flow assignment are as follows:

- Decreasing: In decreasing order to all time buckets up to and including the selected time bucket.

- Equal: Equally to all time buckets up to and including the selected time bucket.

- Proportional: In proportion to the time bucket size.

- Selected: Selected time bucket only.

Decreasing Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = EOP\ amount * Percentage\ Specified * (1 - Percentage\ Specified)^{(n-1)}$$

$$where\ n = number\ of\ time\ bucket$$

Equal Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = \frac{(EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)}{Total\ number\ of\ time\ buckets}$$

Proportional Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n}$$
$$= (EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$
$$* \frac{Number\ of\ days\ in\ Time\ bucket\ n}{Total\ number\ of\ days\ in\ all\ the\ considered\ Time\ buckets}$$

Selected Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = (EOP\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

7. Drawdown

Funding Line of Credit allows you to select the method for cash flow assignment. This business assumption also allows you to select the method for the cash flow assignment. Available options for cash flow assignment are as follows:

- Decreasing: In decreasing order to all time buckets up to and including the selected time bucket.

- Equal: Equally to all time buckets up to and including the selected time bucket.

- Proportional: In proportion to the time bucket size.

- Selected: Selected time bucket only.

Decreasing Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = Undrawn\ amount * Percentage\ Specified * (1 - Percentage\ Specified)^{(n-1)}$$

$$where\ n = number\ of\ time\ bucket$$

Equal Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = \frac{(Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)}{Total\ number\ of\ Time\ Buckets}$$

Proportional Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n}$$
$$= (Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$
$$* \frac{Number\ of\ days\ in\ Time\ bucket\ n}{Total\ number\ of\ days\ in\ all\ the\ considered\ Time\ buckets}$$

Selected Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = (Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$

Credit Line Drawdown allows you to select the method for the cash flow assignment. This assumption also allows you to specify the corresponding cash outflow for the specified cash inflow.

Available options for cash flows assignment for this assumption are as follows:

- Decreasing: In decreasing order to all time buckets up to and including the selected time bucket.

- Equal: Equally to all time buckets up to and including the selected time bucket

- Proportional: In proportion to the time bucket size

- Selected: Selected time bucket only.

Decreasing Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = Undrawn\ amount * Percentage\ Specified * (1 - Percentage\ Specified)^{(n-1)}$$
$$where\ n = number\ of\ time\ bucket$$

Equal Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = \frac{(Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)}{Total\ number\ of\ Time\ Buckets}$$

Proportional Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n}$$
$$= (Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified)$$
$$* \frac{Number\ of\ days\ in\ Time\ bucket\ n}{Total\ number\ of\ days\ in\ all\ the\ considered\ Time\ buckets}$$

Selected Cash Flow assignment is done using the following formula:

$$Cash\ Flow_{for\ Bucket\ n} = (Undrawn\ amount * Percentage\ Specified)\ OR\ (Amount\ Specified$$

7.4.1 Assumption Calculation

In the Run Definition window, assumptions can either be "Applied To" Changing Balance/Cash Flows or Original Balance/Cash Flows. This calculation is applied across business assumptions in a single Run. It is applicable across business assumptions based on the option selected as part of the Assumption Applied To field in the Run Definition window. This means that all assumptions are now executed sequentially, and the effects of the previous assumption are considered if the Changing Balance/Cash Flows option is selected in the Run Definition window.

1. **Original Balance/Cash Flows:**

    When the user selects Original Balance/Cash Flows as a Run level parameter, it calculates the assumption based on the original balance. It has a standalone effect, or assumption, that value is always applied to the original balance. This basis applies to each subsequent business assumption where the effects of the previous assumption are ignored to estimate the impact of an assumption, such as the assumption cash flows arising out of the given assumption.

    Example 1: In case of the original balance, when a Run is executed with two assumptions, the assumption value is defined on the original balance and not on the revised balance of the selected bucket (Refer table 2 – Customer 2)

    Run 1: Original Balance (Run-off and Rollover)

    Assumption 1: Run-off

Table 75: Assumption Calculation - Original Balance/ Cash Flows (Run-off)

Business Assumption Definition								
Legal Entity	**Customer**	**From Bucket**	**To Bucket**	**Assumption Unit**	**Run-off**	**Assignment Method**	**Assumption Category**	**Based On**
Legal Entity 1	Customer 2	6-6Days	3-3Days	Percentage	10%	Equal	Cash Flow Movement : Run - off	Cash Flows

Computation					
To Bucket	**Contractual Cash Flow**		**Run-off**	**Revised Cash Flow**	
	(From Bucket)	**(To Bucket)**		**(From Bucket)**	**(To Bucket)**
Overnight	20000	10000	500	18000 (20000-2000)	10500
			(20000*10%)/4		(10000+500)
1-1 Day		11000	500		11500
			(20000*10%)/4		(11000+500)
2-2 Days		22000	500		22500
			(20000*10%)/4		(22000+500)
3-3 Days		12000	500		12500
			(20000*10%)/4		(12000+500)

Assumption 2: Rollover

Table 76: Assumption Calculation - Original Balance/ Cash Flows (Rollover)

Business Assumption Definition								
Legal Entity	**Customer**	**From Bucket**	**To Bucket**	**Assumption Unit**	**Rollover**	**Assignment Method**	**Assumption Category**	**Based On**
Legal Entity 1	Customer 1	6-6Days	7-7 Days	Percentage	10%	Selected	Cash Flow Movement: Rollover	Cash Flows
	Customer 2		8-8 Days		20%			

Computation					
To Bucket	**Contractual Cash Flow**		**Rollover**	**Revised Cash Flow**	
	(From Bucket)	**(To Bucket)**		**(From Bucket)**	**(To Bucket)**
7-7 Days	20000	7000	2000 (20000*10%)	14000 (20000-2000-4000)	9000 (7000+2000)
8-8 Days		10500	4000 (20000*20%)		14500 (10500+4000)

2. Changing Balance/Cash Flows:

This considers the cascading effect of an assumption on cash flows and EOP balance at a Run level parameter. Cascading effect refers to the scenario where the impact of the assumption value is calculated based on changing balance across assumptions and "not within an assumption". However, the cascading effect can be seen across assumptions at Run level taking into consideration the impact of the previous assumption on the EOP balance or cash flows. In this case, the cash flows or EOP balances are recalculated after each assumption and the subsequent assumption values are calculated based on the updated cash flows or balances.

Example 1: In the case of changing balance, when a Run is executed with two assumptions, the assumption value is defined on the revised balance of the selected buckets.

Run 2: Changing Balance (Run-off and Cash Flow Delay)

Assumption 1: Run-off

Table 77: Assumption Calculation - Changing Balance/Cash Flows (Run-off)

	Business Assumption Definition								
Legal Entity	Customer	From Bucket	To Bucket	Assumption Unit	Applied to	Run-off	Assignment Method	Assumption Category	Based On
Legal Entity 2	Customer 3	6-6 Days	3-3 Days	Percentage	Changing Balance	10%	Equal	Cash Flow Movement: Run - off	Cash Flows

Computation					
To Bucket	Contractual Cash Flow		Rollover	Revised Cash Flow	
	(From Bucket)	(To Bucket)		(From Bucket)	(To Bucket)
Overnight	20000	10000	500 (20000*10%)/4	18000 (20000- 2000)	10500 (10000+500)
1-1Days		11000	500 (20000*10%)/4		11500 (11000+500)
2-2Days		22000	500 (20000*10%)/4		22500 (22000+500)
3-3Days		12000	500 (20000*10%)/4		12500 (12000+500)

Assumption 2: Cash Flow Delay

Table 78 Assumption Calculation- Cash Flow Delay

Business Assumption Definition							
Customer	**From Bucket**	**To Bucket**	**Assumption Unit**	**Applied to**	**Assignment Method**	**Assumption Category**	**Based On**
Customer 3	6-6 Days	12-12 Days	Percentage	Changing Balance	Selected	Cash Flow Movement: Cash Flow Delay	Cash Flows

Computation				
Contractual Cash Flow (From Bucket)	**Contractual Cash Flow (To Bucket)**	**Delay + Penalty**	**Revised Cash flow (From Bucket)**	**Revised Cash flow (To Bucket)**
18000	23000	10% + 5%	16200 (18000-10%*18000)	24890 {23000+ (18000*10%) + (1800*5%)}

In the above computation, when Run is executed with a new assumption category, assumption value is applied on the changing balance.

7.5 Business Assumption Definition

The Business Assumption Definition window has the following sections for the purpose of defining assumption parameters:

Topics:

- Linked To
- Assumption Details
- Assumption Properties
- Filter Selection
- Dimension Selection
- Time Bucket Definition Selection
- Cash Flow Interval Selection
- Assumption Parameter Specification

7.5.1 Linked To

The details must be specified as follows:

- **Folder**: Select the Folder which is specific to the business assumption definition.
- **Access Type**: Choose the access type option, Read/Write or Read Only.

7.5.2 Assumption Details

The details for each business assumptions are entered here as follows:

- **Assumption Nam**e: Specify the Assumption Name.
- **Assumption Description**: Enter the assumption description.
- **Intraday Assumption**: Select **Yes** or **No** if it is an intraday assumption.

7.5.3 Assumption Properties

Assumption properties are the basic parameters required for defining a business assumption. They include the following:

- Assumption Category
- Assumption Subcategory
- Assumption Intraday Subcategory
- Based On
- Assumption Legs
- Assignment Method – Leg 1
- Assignment Method – Leg 2

- Intraday Assignment Method – Leg 1 and 2

- Assumption Unit

- Assumption Currency

- Ratings Downgrade

- Transaction Legs

- Charge Penalty

- Specify Collateral/Underlying

- Sale Specification By

- Reporting Line Classification

7.5.3.1 Assumption Category

The application supports multiple types of business assumptions, each of which is classified into 4 broad categories based on the behavior exhibited by the individual business assumptions. These categories are selected from a drop-down list as follows:

- Cash Flow Movement

- Encumbrance

- Incremental Cash Flow

- Value Change

The other assumption properties required to be specified by a user as part of this section will depend on the selection of the assumption category.

7.5.3.2 Assumption Subcategory

The application supports multiple types of business assumptions, each of which is classified into sub-categories based on the behavior exhibited by the individual business assumptions. These sub-categories are selected from a drop-down list as follows:

- Cash Flow Movement

  - Asset Sale

  - Cash Flow Delay

  - Cash Flow Movement

  - Delinquency

  - Prepayment

  - Recovery

  - Rollover

  - Run-off

- Incremental Cash Flow

  - Drawdown

- Incremental Cash Flow
- Liability Run-Off
- New Business
- Ratings Downgrade
- Run-off
- Secured Funding/Financing
- Valuation Changes

- Encumbrance
  - Encumbrance
  - Ratings Downgrade
  - Valuation Changes

- Value Change
  - Available Stable Funding Factor
  - Haircut
  - Required Stable Funding Factor

7.5.3.3 Assumption Intraday Subcategory

The application supports multiple types of business assumptions, each of which are classified into subcategories based on the behavior exhibited by the individual business assumptions.

When Intraday Assumption is selected Yes in the Business Assumption Definition window the following subcategories are available for selection from the drop-down list:

- Cash Flow Movement
  - Time Shift in Payments
  - Payments Default

- Encumbrance
  - Withdrawal of Credit Lines

- Incremental Cash Flow
  - Intraday Drawdown
  - Large Unexpected Payments

- Value Change
  - Intraday Valuation Changes

7.5.3.4 Based On

This option determines the measure that the assumption values are applied to obtain cash flows. From the drop-down list, you are allowed to select the option on which different assumption values are applied.

The following table helps to understand the set of parameters for each assumption category and subcategory.

Table 79: List of Based On

Assumption Category	Assumption Subcategory	Based On
Cash Flow Movement	Cash Flow Movement	- Cash Flows - EOP Balance - Fair Value - Fair Value of Collateral Posted - Fair Value of Collateral Received - High Run-off Category 1 Balance - High Run-off Category 2 Balance - High Run-off Category 3 Balance - Highly Stable Balance - Insured Balance - Less Stable Balance - Market Value - Market Value of Collateral Posted - Market Value of Collateral Received - Stable Balance - Uninsured Balance
	Run-Off	- Cash Flows - EOP Balance - High Run-off Category 1 Balance - High Run-off Category 2 Balance - High Run-off Category 3 Balance - Highly Stable Balance - Insured Balance - Less Stable Balance - Stable Balance - Uninsured Balance - Unsecured Balance - Secured Balance
	Prepayment	Cash Flows
	Cash Flow Delay	Cash Flows
	Delinquency	Cash Flows
	Recovery	Cash Flows

Assumption Category	Assumption Subcategory	Based On
	Rollover	- Cash Flows - Fair Value of Collateral Posted - Fair Value of Collateral Received - Market Value of Collateral Posted - Market Value of Collateral Received - Non-qualifying Amount - Non-qualifying Less Stable Amount - Non-qualifying Stable Amount - Non-qualifying Unsecured Balance - Qualifying Amount - Secured Cash Flows - Unsecured Cash Flows
	Asset Sale	- EOP Balance - Fair Value - Market Value
Encumbrance	Encumbrance	- Downgrade Impact Value - Fair Value - Fair Value of Collateral Posted - Fair Value of Collateral Received - Fair Value of Excess Collateral - Fair Value of Required Collateral - Largest 30 Day Cumulative Collateral Amount - Market Value - Market Value of Collateral Posted - Market Value of Collateral Received - Market Value of Excess Collateral - Market Value of Required Collateral
	Ratings Downgrade	Downgrade Impact Value

Assumption Category	Assumption Subcategory	Based On
	Valuation Changes	- Fair Value - Fair Value of Collateral Posted - Fair Value of Collateral Received - Fair Value of Excess Collateral - Fair Value of Required Collateral - Largest 30 Day Cumulative Collateral Amount - Market Value - Market Value of Collateral Posted - Market Value of Collateral Received - Market Value of Excess Collateral - Market Value of Required Collateral

Assumption Category	Assumption Subcategory	Based On
Incremental Cash Flow	Incremental Cash Flow	- Available Undrawn Amount - Cash Flows - Downgrade Impact Value - EOP Balance - Fair Value - Fair Value of Collateral Posted - Fair Value of Collateral Received - Fair Value of Excess Collateral - Fair Value of Required Collateral - General Ledger Balance - High Run-off Category 1 Balance - High Run-off Category 2 Balance - High Run-off Category 3 Balance - Highly Stable Balance - Insured Balance - Largest 30 Day Cumulative Collateral Amount - Less Stable Balance - Market Value - Market Value of Collateral Posted - Market Value of Collateral Received - Market Value of Excess Collateral - Market Value of Required Collateral - Non-Contractual Obligation Amount - Non Operational Balance - Penalty Free Portion of Stable Balance - Penalty Free Portion of Highly Stable Balance - Stable Balance - Undrawn Balance - Uninsured Balance

	Run-off	• Available Undrawn Amount
		• Dividend Payable
		• EOP Balance
		• EOP Balance net of Underlying HQLA Inflow
		• EOP Balance net of Underlying HQLA Outflow
		• EOP amount with significant penalty or withdrawal
		• Encumbered Balance
		• Fair Value of Collateral Posted
		• Fair Value of Collateral Received
		• Fund Value
		• General Ledger Balance
		• High Run-off Category 1 Balance
		• High Run-off Category 2 Balance
		• High Run-off Category 3 Balance
		• Highly Stable Balance
		• Insured Amount Withdrawal without penalty
		• Insured Balance
		• Insured Non-operational Amount
		• Insured Operational Amount
		• Less Stable Balance
		• Less Stable Balance withdrawable amount without penalty
		• Market Value
		• Market Value of Collateral Posted
		• Market Value of Collateral Received
		• Minimum Amount Due
		• Minimum Reserves
		• Net Derivative Cash Flow net of collateral
		• Net Derivative Cash Inflow net of collateral
		• Net Intra-group Outflow
		• Net Intra-group Inflow
		• Non Contractual Obligation Amount
		• Non Operational Balance
		• Non-qualifying Amount
		• Non-Qualifying Unsecured Balance
		• Non-qualifying Stable Amount
		• Non-qualifying Less Stable Amount
		• Operational Balance

Assumption Category	Assumption Subcategory	Based On
		- Penalty Free Portion of High Run-off Category 1 Amount - Penalty Free Portion of High Run-off Category 2 Amount - Penalty Free Portion of High Run-off Category 3 Amount - Penalty Free Portion of Highly Stable Balance - Penalty Free Portion of Stable Balance - Qualifying Amount - Returnable Asset Value - Secured Balance - Secured Lending inflow Amount - Segregated Inflow Amount - Stable Balance - Structured Outflow Amount - Uncleared Balance - Unencumbered Balance - Unencumbered Highly Stable Amount - Unencumbered Stable Amount - Unencumbered Less Stable Amount - Uninsured Amount Withdrawal without penalty - Uninsured Balance - Uninsured Non Operational Amount - Uninsured Operational Amount - Uninsured Operational Amount - Unsecured Lending Dues - Unsecured Balance - Unsettled Amount - Value of Fund
	Drawdown	- Adjusted Undrawn Amount - Available Undrawn Amount - Portion of the undrawn amount that can be drawn in liquidity horizon period - Structured Outflow Amount - Undrawn Balance
	Liability Run-off	Balance
	New Business	EOP Balance
	Ratings Downgrade	- Downgrade Impact Value - Underlying Mitigant Value

Assumption Category	Assumption Subcategory	Based On
	Secured Funding/Financing	• Cash Flows • EOP Balance
	Valuation Changes	• Additional Collateral Amount For Derivatives • Collateral Valuation Change Amount • Contractually Due Collateral • Dividend Payable • Excess Collateral Due • Excess Contractual Obligation Amount • Fair Value • Fair Value of Collateral Posted • Fair Value of Collateral Received • Fair Value of Excess Collateral • Fair Value of Required Collateral • Largest 30 Day Cumulative Collateral Amount • Market Value • Market Value of Collateral Posted • Market Value of Collateral Received • Market Value of Excess Collateral • Market Value of Required Collateral • Net Derivative Cash Outflow net of collateral
Value Change	Available Stable Funding Factor	• Cash Flows • EOP Balance • Less Stable Balance • NSFR Derivative Liabilities • Net NSFR Derivative Liabilities • Non-Operational Balance • Non-Operational Cash Flows • Operational Balance • Operational Cash Flows • Stable Balance • Standard Accounting Head Balance • Total Less Stable Balance • Total Less Stable Cash Flows • Total Stable Balance • Total Stable Cash Flows • Net CFR Derivative Liabilities • Variation Margin Received • Initial Margin Received

Assumption Category	Assumption Subcategory	Based On
	Haircut	• Fair Value • Market Value
	Required Stable Funding Factor	• Additional Derivative Liability for RSF • Cash Flows • Derivative Liability Amount • EOP Balance • EOP Carrying Value • Encumbered Balance • Encumbered Carrying Value • Fair Value • Fair Value or Collateral Posted • GL Balance • Initial Margin Posted • Market Value • Market Value of Collateral Posted • NSFR Derivative Assets • Net NSFR Derivative Assets • Non Contractual Obligation Amount • Non-Operational Balance • Non-Operational Carrying Value • Operational Balance • Operational Carrying Value • Standard Accounting Head Balance • Standard Accounting Head Carrying Value • Undrawn Amount • Unencumbered Balance • Unencumbered Carrying Value • Net CFR Derivative Assets • Derivative Asset Amount • Variation Margin Posted • Default Fund Value

When the Intraday Assumption is selected as **Yes** in the Business Assumption Definition window, the following set of parameters is shown for each assumption category and sub-category:

Table 80: List of Based On - Intraday

Intraday Assumption Category	Intraday Assumption Subcategory	Based On
Cash Flow Movement	Time Shift in Payments	Payments Received Payments Made
	Payments Default	Payments Received
Encumbrance	Withdrawal of Credit Lines	Undrawn Amount
Incremental Cash Flow	Intraday Drawdown	Undrawn Amount
	Large Unexpected Payments	Payments Made Payments Received
Value Change	Intraday Valuation Changes	Available Intraday liquidity

7.5.3.5 Assumption Legs

This option determines if only the off-set leg or both the primary and the off-set legs are required to specify the business assumption value as part of the assumption specification section. This is based on the type of business assumption being specified. For instance, in case of rollover, prepayments, Run-offs, and so on, assumption values are applied only to the off-set leg as the primary leg of the transaction has already occurred in the past. However, in case of a new business assumption, such as deposit growth, both the primary leg (amount deposited) and the off-set leg (repayment of the amount deposited) are required as both legs occur in the future. This selection is determined by the assumption subcategory selected. In the case of subcategories where only one option is applicable, the selection has defaulted to One in an un-editable mode. In cases where both values are applicable, Two can be selected.

The following options are present:

- **One**: If One is selected as assumption leg, then only one column appears for entering the off-set assumption value.

- **Two**: If Two is selected as the assumption leg, then two columns appear for entering primary assumption value and secondary or off-set value.

7.5.3.6 Assignment Method – Leg 1

This option determines how the primary assumption value is allocated to time buckets. There are specific methods in which the assumption value can be distributed across buckets. Assignment methods determine how the primary assumption values are assigned to multiple buckets to determine the cash flows. Leg 1 is applicable when only one leg of the transaction is affected, such as when the assumption legs field value is selected as One.

The options are as follows:

- Selected Time Bucket

- Increasing

- Decreasing

- Equal

- Proportionate

7.5.3.6.1 Selected Time Bucket

This method assigns the cash flows only to the time buckets against which the assumption value is specified. If the assumption is not specified on Level 0 buckets, then the assignment to the more granular buckets is done proportionately to the bucket size.

The formula is as follows:

$$Cash\ Flow_{Selected,Cash\ Flow\ Based,\%} = (Cash\ Flow\ \times Assumption\ \%)or\ Amount$$

The time buckets used for computation are as follows:

Table 81: Time Buckets Used For Computation

N_BUCKET_NO	V_BUCKET_NAME	V_BUCKET_NAME_CATEGORY
1	Overnight	Overnight
2	1-10Days	1-15Days
3	11-15Days	1-15Days
4	16-20Days	16-30Days
5	21-25Days	16-30Days
6	26-30Days	16-30Days

The following example shows the allocation of cash flows when the assumption value is specified for a Level 0 bucket.

Table 82: Assignment Method Leg 1 - Selected Time Bucket Example 1

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Cash Flow Movement: Run-off	Percentage	Original Balance	Selected	Cash Flow

Table 83: Assignment Method Leg 1 - Selected Time Bucket Example 2

Business Assumption					Computation				
Product	Customer	From Bucket	To Bucket	Run-off %	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off	Revised Cash flow - From Bucket	Revised Cash flow -To Bucket
Time Deposits	Customer 1	10-10Days	5-5Days	10%	30000	23000	3000 (30000* 10%)	33000 (30000+ 3000)	20000 (23000--3000)

However, this allocation differs for Levels other than Level 0 buckets as Illustrated in the following example.

The following example shows the selected Cash Flow assignment method on Level 1 buckets.

Business Assumption				Computation					
Customer	From Bucket	To Bucket	Run-off %	Contractual Cash Flow (From Bucket)	To Bucket	Contractua l Cash Flow (To Bucket)	Run-off	Revised Cash flow - From Bucket	Revised Cash flow -To Bucket
Customer 1	16-30Days	1-15Days	10%	50000	1-10Days	21000	5000 (50000* 10%)	45000 (50000-5000)	24333.33 {21000+(5000*10/ 15)}
					11-15Days	15000			16666.67 {15000+(5000*5/1 5)}

3. Increasing assignment:

The cash flows are assigned to each bucket up to the selected bucket in increasing order based on ranks assigned to cash flows. Assignments are made in increasing order to the selected level and further assignment is done until the most granular level.

The formulae under different conditions are as follows:

a. When, Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Increasing,CF\ Based,\%} = (Cash\ Flow_n \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

b. When Assumption Unit = Value

$$Cash\ Flow_{Increasing,\$} = Assumption\ Value \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

The following example shows Increasing Cash Flow assignment method based on Cash Flow.

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Cash Flow Movement: Run-off	Percentage	Original Balance	Increasing	Cash Flow

Table 84: Assignment Method Leg 1 - Increasing assignment Example 1

Business Assumption						Computation					
Product	Customer	From Bucket	To Bucket	Run-off %	To Bucket	Bucket Rank	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off (Value)	Revised Cash flow - From Bucket	Revised Cash flow -To Bucket
Assets	Customer 1	10-10Days	3-3Days	10%	Overnight	1	30000	20000	300 =(30000*10%)*1/10	27000 =(30000-3000)	20300 = (20000+300)
					1-1Days	2		21000	600 =(30000*10%)*2/10		21600 == (21000+600)

Business Assumption					Computation						
Product	Customer	From Bucket	To Bucket	Run-off %	To Bucket	Bucket Rank	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off (Value)	Revised Cash flow - From Bucket	Revised Cash flow -To Bucket
					2-2Days	3		19000	900 =(30000*10%)*3/10		19900 = (19000+900)
					3-3Days	4		27000	1200 =(30000*10%)*4/10		28200 = (27000+1200)

c. When, EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Increasing,Balance\ Based,\%} = (EOP\ Balance \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

The following example shows Increasing Cash Flow assignment method based on EOP Balance. Here, EOP Balance (Time Deposits) is assumed as 300000.

Table 85: Assignment Method Leg 1 - Increasing assignment Example 2

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Incremental Cash Flow: Run-off	Percentage	Original Balance	Increasing	EOP Balance

Business Assumption				Computation				
Product	Customer	From Bucket	Run-off %	Bucket Rank	Primary Bucket	Contractual Cash Outflow (Primary Bucket)	Run-off	Revised Cash Outflow (Primary Bucket)
Time Deposits	Customer 1	1-1 Days	10	1	Overnight	20000	10000 (300000*10%)*1/3	10000
				2	1-1 Days	30000	20000 (300000*10%)*2/3	20000

4. Decreasing Assignment

The Cash flows are assigned to each bucket up to the selected bucket in decreasing order based on ranks assigned to cash flows. Assignments are made in decreasing order to the selected level and further assignment is done until the most granular level.

The formulae under different conditions are as follows:

a. When, Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Decreasing,CF\ Based,\%} = (Cash\ Flow_n \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

b. When Assumption Unit = Value

$$Cash\ Flow_{Decreasing,\$} = Assumption\ Value \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

The following example shows Decreasing Cash Flow assignment method based on Cash Flow.

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Cash Flow Movement: Run-off	Percentage	Original Balance	Decreasing	Cash Flow

Table 86 Assignment Method Leg 1 - Decreasing Assignment Example 1

Business Assumption						Computation					
Product	Customer	From Bucket	To Bucket	Run-off %	To Bucket	Bucket Rank	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off (Value)	Revised Cash flow – From Bucket	Revised Cash flow -To Bucket
Assets	Customer 1	10-10Days	3-3Days	10%	Overnight	4	30000	20000	1200 (30000*10%)*4/10	27000 (30000-3000)	21200 (20000+1200)
					1-1Days	3		21000	900 (30000*10%)*3/10		21900 (21000+900)
					2-2Days	2		19000	600 (30000*10%)*2/10		19600 (19000+600)
					3-3Days	1		27000	300 (30000*10%)*1/10		30000 (27000+300)

c. When, EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Decreasing,Balance\ Based,\%} = (EOP\ Balance \times Assumption\ \%) \times \left(\frac{Bucket\ Rank}{\sum Bucket\ Rank}\right)$$

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Incremental Cash Flow: Run-off	Percentage	Original Balance	Decreasing	EOP Balance

The following example shows Decreasing Cash Flow assignment method based on EOP Balance. Here, EOP Balance (Time Deposits) is assumed as 300000.

Table 87: Assignment Method Leg 1 - Decreasing Assignment Example 2

Business Assumption				Computation				
Product	Customer	From Bucket	Run-off %	Bucket Rank	Primary Bucket	Contractual Cash Outflow (Primary Bucket)	Run-off	Revised Cash Outflow (Primary Bucket)
Time Deposits	Customer 1	1-1 Days	10	2		Overnight		20000
				1		1-1 Days		30000

5. Equal Assignment

The Cash flows are to be assigned equally up to the selected bucket. Assignments are made equally to the selected level and further assignment is done until the most granular level.

The formulae under different conditions are as follows:

a. When, Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Equal,CF\ Based,\%} = \frac{Cash\ Flow_n \times Assumption\ \%}{Number\ of\ Level\ X\ Buckets}$$

b. When Assumption Unit = Value

$$Cash\ Flow_{Equal,CF\ Based,\$} = \frac{Assumption\ Value}{Number\ of\ Level\ X\ Buckets}$$

The following example shows Equal Cash Flow assignment method based on Cash Flow. Here, Level X buckets are assumed as a higher granular bucket.

Cash Flow Movement- Run-off	Percentage	Original Balance	Equal	Cash Flow
Cash Flow Movement: Run-off	Percentage	Original Balance	Equal	Cash Flow

Table 88 Assignment Method Leg 1 - Equal Assignment Example 1

Business Assumption					Computation						
Product	Customer	From Bucket	To Bucket	Run-off %	To Bucket	Bucket Rank	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off (Value)	Revised Cash Flow - From Bucket	Revised Cash Flow -To Bucket
Assets	Customer 1	10-10Days	5-5 Days	10%	Overnight	30000	20000	500 (30000*10%)/6	27000 =(30000-3000)	20500 (20000+500)	
					1-1Days		21000	500 (30000*10%)/6		21500 (21000+500)	
					2-2Days		19000	500 (30000*10%)/6		19500 (19000+500)	
					3-3Days		27000	500 (30000*10%)/6		27500 (27000+500)	
					4-4Days		13000	500 (30000*10%)/6		13500 (13000+500)	
					5-5Days		11000	500 (30000*10%)/6		11500 (11000+500)	

    c. When, EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Equal,Balance\ Based,\%} = \frac{EOP\ Balance \times Assumption\ \%}{Number\ of\ Level\ x\ Buckets}$$

The following example shows Equal Cash Flow assignment method based on EOP Balance. Here, EOP Balance (Time Deposits) is assumed as 500000.

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Incremental Cash Flow: Run-off	Percentage	Original Balance	Equal	EOP Balance

Table 89 Assignment Method Leg 1 - Equal Assignment Example 2

Business Assumption				Computation			
Product	Customer	From Bucket	Run-off %	Primary Bucket	Contractual Cash Outflow (Primary Bucket)	Run-off	Revised Cash Outflow (Primary Bucket)
Time Deposits	Customer 1	1-1 Days	10	Overnight	20000	50000 (500000*10%)	45000 20000+(50000/2)
				1-1 Days	30000		55000 30000 + (50000/2)

6. Proportionate Assignment

The Cash flows are assigned to each bucket up to the selected bucket in proportion to the bucket size. Assignments are made proportionately to the selected level and further assignment is done until the most granular level.

The formulae under different conditions are as follows.

a. When, Cash Flow Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Proportionate,CF\ Based,\%} = (Cash\ Flow_n \times Assumption\ \%) \times \frac{t}{T}$$

b. When Assumption Unit = Value

$$Cash\ Flow_{Proportionate,\$} = Assumption\ Value \times \frac{t}{T}$$

The following example shows Proportionate Cash Flow assignment method based on Cash Flow.

Here,

t = Number of days in the given Level x bucket

T= Total number of days up to the selected bucket

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Cash Flow Movement: Run-off	Percentage	Original Balance	Proportionate	Cash Flow

The following time buckets are considered for the computation:

N_BUCKET_NO	V_BUCKET_NAME
1	Overnight
2	1-10Days
3	11-15Days
4	16-20Days
5	21-25Days
6	26-30Days

Table 90 Assignment Method Leg 1 - Proportionate Assignment Example 1

Business Assumption					Computation					
Product	Customer	From Bucket	To Bucket	Run-off %	To Bucket	Contractual Cash Flow (From Bucket)	Contractual Cash Flow (To Bucket)	Run-off (Value)	Revised Cash Flow - From Bucket	Revised Cash Flow -To Bucket
Assets	Customer 1	26-30Days	11-15Days	10%	Overnight	30000	20000	0 (30000*10%)*0 /15	27000 =(30000 - 3000)	20000
					1-10Days		21000	2000 (30000*10%)*10 /15		23000 (21000+2000)
					11-15Days		19000	1000 (30000*10%)*5 /15		20000 (19000+1000)

c. When, EOP Balance Based Assumptions, Assumption Unit = Percentage

$$Cash\ Flow_{Proportionate,Balance\ Based,\%} = (EOP\ Balance \times Assumption\ \%) \times \frac{t}{T}$$

The following example shows Proportionate Cash Flow assignment method based on EOP Balance. Here, EOP Balance (Time Deposits) is assumed as 300000.

Assumption Category	Assumption Unit	Applied to	Assignment Method	Based On
Incremental Cash Flow: Run-off	Percentage	Original Balance	Proportionate	EOP Balance

Table 91 Assignment Method Leg 1 - Proportionate Assignment Example 2

Business Assumption				Computation				
Product	Customer	Primary Bucket	Run-off (%)	Bucket Rank	Primary Bucket	Contractual Cash Outflow (Primary Bucket)	Run-off	Revised Cash Outflow (Primary Bucket)
Customer 1	1-10Days	10	1		Overnight	20000	0(300000*10%)*0/10	20000
			2		1-10Days	30000	30000 (300000*10%)*10/10	60000 (30000 + 30000)

7.5.3.7   Assignment Method – Leg 2

This option determines how the secondary assumption value is allocated to time buckets. Secondary assumption value refers to the off-set value which can be selected in addition to the primary assumption value. Assignment methods determine how the primary assumption values are assigned to multiple buckets to determine the cash flows. Leg 2 is applicable when only two legs of the transaction are affected, such as when the assumption legs field value is selected as Two. The secondary assumption value is the off-set value specified by you in addition to the primary assumption value and is applicable only when the assumption leg is selected as Two. This is applicable only when assumption legs are selected as Two.

The options are as follows:

- Selected Time Bucket

- Increasing

- Decreasing

- Equal

- Proportionate

The detailed calculations pertaining to each assignment method are explained in section Assignment Method Leg 1.

7.5.3.8   Intraday Assignment Method – Leg 1 and 2

When the Intraday Assumption is selected as Yes in the Business Assumption Definition window the Intraday Assignment Method – Leg 1 and 2 are applicable.

For Assumptions which include time bucket as a dimension, Assumption methods are defined in the Business Assumptions window. For each leg of the assumption, the intraday assignment method is chosen separately. Assignment methods signify the method by which payments at a higher level intraday time bucket flow down to lower level intraday time buckets. Assignment methods for intraday assumptions are listed as follows:

- Selected Time Bucket

  In this method, payments from one time bucket are aggregated and shifted to another selected time bucket. The size of the source and target time buckets is not the same; since the aggregation and /or dispersion occurs at a higher time bucket level. This assignment method is available in all assumptions. For a payments shift assumption, if the selected buckets are at a higher level, payments get aggregated and dispersed equally at all constituent lower buckets. In case of a drawdown assumption, if the selected bucket is at a higher level, a single drawdown for the input value occurs at any level zero bucket of the higher level. The same principle holds good for the offset bucket as well. For a payments default assumption, if the selected residual time bucket is at a higher level, the payments are dispersed equally at all constituent lower buckets.

- Parallel Time Bucket

  In this method, payments from one bucket are shifted in parallel to another bucket of the same level as the source bucket. In other words, a constant shift happens to all level 0 buckets constituting the higher level buckets.

This assignment method is available only for Payments Shift assumption:

For example: Within a Payments Shift Assumption, if

- Source bucket (level 3): 11-12 hrs
- Target Bucket- (level 3): 9-10 hrs

If the level 0 buckets are in minutes, then all payments under 11:00 moves to 09:00 bucket, all payments under 11:01 moves to 09:01 bucket, all payments from 11:02 moves to 09:02 and so on.

For a drawdown and value change assumption, the parallel bucket option is not applicable.

7.5.3.9 Assumption Unit

This option helps to identify the unit based on which the assumption is defined. The options which can be selected from the drop-down list are as follows:

- Amount
- Percentage
- Units

> **NOTE**   Units are only applicable on the selection of the subcategory Asset Sale as part of the Cash Flow Movement assumption category).

7.5.3.10 Assumption Currency

This option is applicable only when the assumption unit is selected as Amount. If the assumption unit is selected as Amount then the following options are displayed:

- Natural Currency
- Currency Selection

> **NOTE**   If you select Natural Currency, then the currency must be selected as part of dimension selection.

7.5.3.11 Ratings Downgrade

Ratings downgrade caters to the downgrade of a legal entity's rating. This option identifies the downgrade level for the purpose of triggering the need for additional collateral. This parameter identifies the downgrade specified for a legal entity.

This downgrade can be specified as follows:

- Rating Based
- Notches Based

NOTE	This is applicable only on the selection of the subcategory Encumbrance and Ratings Downgrade as part of the assumption categories Incremental Cash Flow or Encumbrance.

7.5.3.12   Transaction Legs

This option determines if one or two off-set legs are required to specify the business assumption value as part of the assumption specification section. This is based on the product type. For instance, for loans, deposits, and so on, there is only one primary leg and one off-set leg whereas for swaps there are two primary and two off-set legs for the same transaction.

One of the following options is selected:

- One: If One is selected, only one column for the specification of each assumption leg is displayed as part of the assumption specification table that is, one column each for primary and off-set assumption value specification.

- Two: If Two is selected, two columns are displayed for specifying each assumption leg that is two columns each for primary and off-set assumption value specification.

7.5.3.13   Charge Penalty

The Charge Penalty options are as follows:

- **Yes**: If Yes is selected, an additional column in the assumption value grid is added to specify the penalty.

- **No**: If No is selected, no Penalty is required.

NOTE	This option is enabled only for the following assumption sub-categories under Cash Flow Movement category:
	• Cash Flow Movement
	• Prepayment
	• Cash Flow Delay

7.5.3.14   Specify Collateral/Underlying

This option determines if existing unencumbered assets are required to be posted as collateral or underlying in the case of secured funding and repo transactions. The options are as follows:

- **Yes**: If Yes is selected, existing assets can be posted as collateral for each row in the assumption specification table.

- **No**: If No is selected, no collateral is required.

7.5.3.15 Sale Specification By

When the assumption category is selected as Cash Flow Movement and the subcategory is selected as Asset Sale, Sale Specification By field is allowed for selection. The two ways to specify a sale are as follows:

- **Individual Assets**: You can specify a sale by selecting the assets individually. In the dimension browser, you have only the Asset browser. Here, you must select each individual asset that you need to sell.

- **Dimensions**: You can select the relevant dimensions such as Product, Currency, and Rating. You are allowed to select individual members within this and all assets which have asset dimensional attributes that are selected are sold. All individual assets that have the attributes of the selected dimensions and dimension members are sold.

7.5.3.16 Reporting Line Classification

The field is available for reporting line configuration. You can use this field to configure reporting line items for a specific assumption criterion. The replines are seeded in the FSI_LRM_REP_LINE_ATTR_DETAILS table. Reporting Line Classification is enabled when the following assumption category and subcategory are selected.

Assumption Category	Assumption Sub- Category
Value Change	Available Stable Funding factor
	Required Stable Funding factor

7.5.4 Filter Selection

Filters are enabled when the following assumption category and subcategory are selected. You can select one or multiple dimensions from the list of dimensions displayed in the dimension browser. The application allows you to select a maximum of seven dimensions. The selected dimensions are displayed in the Filter section.

Assumption Category	Assumption Subcategory
Incremental Cash Flows	Run-off
	Drawdown
	Valuation Change
Cash Flow Movement	Rollover
Value Change	Available Stable Funding factor
	Required Stable Funding factor
	Haircut

The application provides two types of filters:

- **Inclusion Filters**: The application allows you to add a maximum of seven dimensions. If you want to add more, the dimensions with common hierarchies can be added as filters.

- **Exclusion Filters**: If you want to exclude any hierarchy from the common dimensions, they can be added as exclusion filters.

  For example, you want to include all the accounts of type deposits/Term Deposits but exclude only CASA from deposits. Select deposits in the inclusion filter, as a result, all accounts of type deposits get included. Add CASA in the Exclusion filter, as a result, the CASA type of deposits are excluded from the assumption definition.

7.5.5   Dimension Selection

The steps to select Dimensions are as follows:

- Dimension Selection: One or more dimensions can be selected from a list of dimensions displayed in the dimension browser. The selected dimensions are displayed in the Dimension Selection section and as columns in the Assumption Specification table. You are allowed to drag and drop the dimensions which are displayed as part of the Dimension Selection section for sequencing the dimensions. If the sequence of dimensions is changed, the respective columns in the Assumption Specification table are re-arranged.

  If new dimensions are added to an existing definition, the Assumption Specification table is reformed, and all assumption values are re-set.

- Dimension Member Selection: One or more members can be selected for each selected dimension. These are displayed as row items in the Assumption Specification table. If you change any dimension member or add any new dimension to the existing definition, the grid will be reset.

For an explanation on how to add dimensions that are displayed in the BAU window under the Dimension browser, refer to the Aggregation Dimension Selection section.

For more details on list dimensions, refer to the Annexure: Functional Details, LRS Data Flow and Dimensions section.

7.5.6   Time Bucket Definition Selection

The steps to select Time Buckets are as follows:

- **Time Bucket Definition Selection:** One time bucket definition can be selected from a list of definitions displayed in the Time Bucket Definition browser. Only one time bucket can be selected. The values which are defined in the Time Bucket Definition window are displayed here. For more information refer to the Time Buckets section. On selection of the time bucket definition, it is displayed in the time bucket definition selection against both <Time Bucket 1> Selection and <Time Bucket 2> Selection.

- **<Time Bucket 1> Selection**: One or more time buckets from the given time bucket definition can be selected as part of <Time Bucket 1> Selection. The selected time buckets are displayed as row items in the Assumption Specification table. The name of this parameter changes depending upon on the assumption category selected as per the following mapping:

Table 92 Time Bucket 1 Selection

Assumption Category	<Time Bucket 1> Selection
Cash Flow Movement	From Bucket Selection
Incremental Cash Flows	Primary Bucket Selection
Encumbrance	Not Applicable
Value Change	Not Applicable

- **<Time Bucket 2> Selection**: One or more time buckets defined as part of the selected time bucket definition can be selected as part of <Time Bucket 2> Selection. The time buckets selected are displayed as drop-down values in the <Time Bucket 2> column in each row of the Assumption Specification table. The name of this parameter changes depending upon the assumption category selected as per the following mapping:

Table 93 Time Bucket 2 Selection

Assumption Category	<Time Bucket 2> Selection
Cash Flow Movement	To Bucket Selection
Incremental Cash Flows	Off-set Bucket Selection
Encumbrance	Not Applicable
Value Change	Not Applicable

- For assumption category **Incremental Cash Flow**, sub-category **Liability Run-Off**, the following time buckets are available:

    - Inaccessibility End Bucket:

        This is a single selection from a list of time buckets selected as part of the Inaccessibility End Bucket parameter in the Time Bucket Definition Selection section. The last day of the Inaccessibility End Bucket is the end of the market inaccessibility period. Day 1 is the start of the inaccessibility period. If no time bucket is selected, then the market inaccessibility period is 0.

    - Restoration End Bucket:

        This is a single selection from a list of time buckets selected as part of the Restoration End Bucket parameter in the Time Bucket Definition Selection section. This time bucket is greater than the Inaccessibility End Bucket. The last day of the Restoration End Bucket is the end of the restoration period. Inaccessibility End Day+1 is the start of the restoration period.

        — The minimum Balance is specified as an amount (in terms of the assumption currency).

        — The Restoration percentage is specified as a percentage.

NOTE	• Time Bucket Selection is not applicable when the assumption category is selected as value change.
	• The values which are defined in the Time Bucket definition window are displayed as part of Time Bucket Definition Selection section in the Business Assumptions Definitions window.
	• When the Intraday Assumption is selected as Yes in the Business Assumption Definition window, only the Intraday Time Buckets are displayed in this section.

7.5.7 Cash Flow Interval Selection

The Cash flow interval selection allows the user to select appropriate cash flow time bands as required in the business assumption. This field appears and is applicable only to the following combination of category, subcategory and based on measure.

Category	Sub category	Based on measures
Value change	Required stable funding factor	Cash flows
	Available stable funding factor	Cash flows Total stable cash flows Total less stable cash flows Operational cash flows Non-operational cash flows

For these combinations, the selection of a cash flow interval is mandatory for assumption definition. By choosing the cash flow intervals, the user allows the cash flows to be grouped in time in accordance with the definition.

7.5.8 Assumption Parameter Specification

The Assumption Parameter Specification table is generated after all the assumption properties, dimensions, and time buckets are selected. This displays the dimensions selected as column values and the dimension members as row values. Additionally, it displays one or two time bucket columns based on the assumption properties selected.

The names of these columns change based on the assumption category selected as follows:

Table 94 Assumption Specification

Assumption Category	<Time Bucket 1>	<Time Bucket 2>
Cash Flow Movement	From Bucket	To Bucket
Incremental Cash Flows	Primary Bucket	Off-set Bucket

Assumption Category	<Time Bucket 1>	<Time Bucket 2>
Encumbrance	From Bucket	To Bucket
Value Change	Not Applicable	Not Applicable

7.6   Understanding Business Assumption Summary

> **NOTE**   Time bucket definitions must be created before defining a new business assumption. Refer to the Time Buckets section for more information.

In the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Financial Services Liquidity Risk Management.**

To open the Business Assumptions window, select **Liquidity Risk Management** then select **Business Assumptions** on the Left-Hand Side (LHS) menu.

Figure 22 Business Assumption Summary

The definitions based on the search criteria are listed under List of Business Assumptions.

This is the search section which contains multiple parameters. You can specify one or multiple search criteria in this section. When you click Search, depending upon the search criteria, this filters and displays the relevant search combination parameters under the Business Assumption Summary as a list.

The Business Assumption Summary window displays the following fields.

Table 95 Business Assumptions – Fields and Descriptions

Search Field or Icon	Description
Search 🔍	This icon allows you to search the Assumption based on the search criteria specified. Search criteria include a combination of Folder, Assumption Name, Assumption Category, Time Bucket Definition, Status, and Active Status. The business assumptions displayed in the List of Business Assumptions table are filtered based on the search criteria specified when clicking this icon.

Search Field or Icon	Description
Reset	This icon allows you to reset the search section to its default state that is, without any selections. Resetting the search section displays all the existing business assumption definitions in the List of Business Assumptions table.
Folder	This field allows you to search for the pre-defined business assumption definitions based on the selected folder. This field displays a list of folders that you have access to as a drop-down list. The selection of a folder from the drop-down list displays only those business assumptions that have been defined within the selected folder/segment in the List of Business Assumption table.
Assumption Name	This field allows you to search the pre-defined business assumption definitions based on the assumption name. Enter the assumption name.
Assumption Category	This field allows you to search the pre-defined business assumption definitions based on the assumption category. This field displays a list of categories that you have access to as a drop-down list. The selection of an assumption category from the drop-down list displays only those business assumptions that have been defined within the selected assumption category in the List of Business Assumption table.
Inclusion Filters	This field allows you to specify the Inclusion filters.
Exclusion Filters	This field allows you to specify the Exclusion filters.
Time Bucket Definition	This field allows you to search the pre-defined business assumption definitions based on the Time Bucket Definition. Enter the time bucket definition which was defined in the Time Bucket Definition window.
Status	This field allows you to search the pre-defined business assumption definitions based on approval status. This field displays a list of statuses that you have access to as a drop-down list, that is, Approved, Draft, In Review, Open, Pending Approval or Retired. Click the drop-down list to select Approved or Rejected status. The selection of a status from the drop-down list displays only those business assumptions that have been defined within the selected status in the List of Business Assumption table.
Active	This field allows you to search the pre-defined business assumption definitions based on active status. This field displays a status that you have access to as a drop-down list, that is, Yes or No. The selection of a status from the drop-down list displays only those business assumptions that have been defined within the selected status in the List of Business Assumption table.
Intraday Assumption	This field allows you to search the Intraday business assumption defined. This field displays options in the drop-down list, Yes or No. Selection of a Yes from the drop-down list displays only those intraday business assumptions that have been defined in the List of Business Assumption table. Selection of a No from the drop-down list displays only those business assumptions apart from intraday assumptions that have been defined in the List of Business Assumption table.

Table 96 Business Assumptions Summary

Business Assumptions Icon Name	Icon	Description
Add	+	This icon allows you to define a new assumption.
View		This icon allows you to view the selected assumption.
Edit		This icon allows you to edit the selected assumption.
Delete		This icon allows you to delete the selected assumption.
Copy		The icon allows a definition to be copied and resaved as a new definition.
Make Active		This icon allows activating the selected version of the assumption. The active version of the assumption is considered for Run definition.
Workflow Summary		The icon displays the approval summary for the definition.

7.7 Defining a New Business Assumption
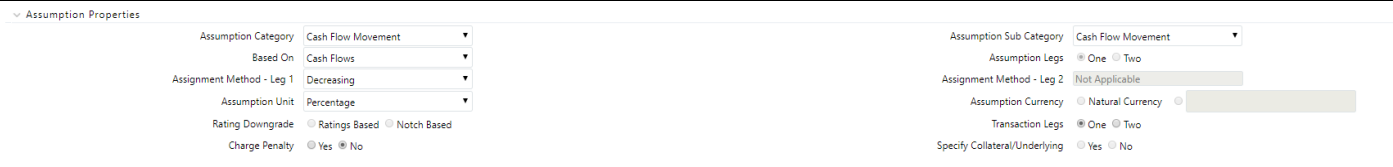
The Business Assumption Definition window allows you to define a new assumption definition in the LRM Application. See the Business Assumptions Supported section for a detailed explanation and calculations.

Figure 23 Business Assumption Definition

The assumption parameters enabled are specific to each assumption category and sub-category. To create a new business assumption, follow these steps:

1. Click ✚ in the **Business Assumption Summary** window.

2. The **Business Assumption Definition** window is displayed where you can define new business assumption definitions. See the following table for field details.
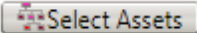
Table 97: Business Assumption Definition
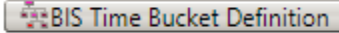
Field	Available Options
Section: Linked to	Business Assumption Definition Liquidity Risk Management > Business Assumption Definition > Add ⌄ Linked To Folder LRM806IUT ▼ Access Type ○ Read Only ◉ Read/Write
Folder	Select the folder specific to the business assumption definition.
Access Type	Select either **Read/Write** or **Read-Only**.
Section: Assumption Details	⌄ Assumption Details Assumption Name * Assumption1 Assumption Description Version 0 Intraday Assumption * ◉ No ○ Yes
Assumption Name	Enter a name unique across infodoms. This field allows special characters.
Assumption Description	Enter a brief description. This field allows special characters.
Version Number	Generated automatically.
Intraday Assumption	Select either **Yes** or **No.**
Section: Assumption Properties	⌄ Assumption Properties Assumption Category Cash Flow Movement ▼ Assumption Sub Category Cash Flow Movement ▼ Based On Cash Flows ▼ Assumption Legs ◉ One ○ Two Assignment Method - Leg 1 Decreasing ▼ Assignment Method - Leg 2 Not Applicable Assumption Unit Percentage ▼ Assumption Currency ○ Natural Currency ○ Rating Downgrade ○ Ratings Based ○ Notch Based Transaction Legs ◉ One ○ Two Charge Penalty ○ Yes ◉ No Specify Collateral/Underlying ○ Yes ○ No
Assumption Category	Select from the following options: • Cash Flow Movement • Incremental Cash Flow • Encumbrance

Field	Available Options	
	• Value Change	
Assumption Sub-Category	Based on the Assumption category selected, the following options are displayed: **Note:** If Intraday Assumption is selected as Yes, then intraday specific categories and sub-categories are displayed. See Assumption Intraday Sub-Category for details.	
	Assumption Category	**Assumption Sub-Category**
	Cash Flow Movement	• Cash Flow Movement • Asset Sale • Cash Flow Delay • Delinquency • Prepayment • Recovery • Rollover • Run-off
	Encumbrance	• Encumbrance • Ratings Downgrade • Valuation Changes
	Incremental Cash Flow	• Incremental Cash Flow • Drawdown • Liability Run-off • New Business • Ratings Downgrade • Run-off • Secured Funding/Financing • Valuation Changes
	Value Change	• Available Stable Funding Factor • Haircut • Required Stable Funding Factor

Field	Available Options
Based On	Choose the based on measure to which the assumption parameter values are applied for cash flows calculation. See Based On for details.
Assumption Legs	Select the number of Assumption Legs to specify the assumption parameter values, as either: • One • Two **NOTE**: This field is not available for all assumption sub-categories. When One is selected as assumption leg, in assumption specification only a column is displayed to add the primary assumption value. See Assumption Legs for details.
Assignment Method – Leg 1	Select from the following options: • Selected Time Bucket • Increasing • Decreasing • Equal • Proportionate See Assignment Method Leg 1, for details about the specific methods in which the assumption value can be assigned across multiple buckets.
Assignment Method – Leg 2	Select from one of the following options: • Selected Time Bucket • Increasing • Decreasing • Equal • Proportionate See Assignment Method leg 2, for details about the specific methods in which the assumption value can be assigned across multiple buckets.
Assumption Unit	Select from one of the following options: • Amount • Percentage • Unit: Applicable when Sale is specified. See Assumption Unit for details. This parameter is the unit based on which the assumption values are specified.

Field	Available Options
Assumption Currency	This option is enabled only when you select the assumption unit as **Amount**. See Assumption Currency for details. You can either select the option as **Natural Currency,** or choose any other currency from the drop-down list, which is required as part of the definition. **NOTE**: - If you select Natural Currency, ensure that the currency is selected as part of dimension selection. - Assumption Category - **Incremental Cash Flow**, sub-category - **Liability Run Off** is the only assumption where a currency is specified, even when the unit is specified as percentage. The assumption currency is required for specifying the minimum Balance.
Rating Downgrade	Select from one of the following options: - Notch Based - Ratings Based This is applicable only when you select the sub-category **Encumbrance** and **Ratings Downgrade**, for assumption categories **Incremental Cash Flow** or **Encumbrance**. See Ratings Downgrade for details.
Transaction Leg	Select from one of the following options: - One - Two See Transaction Legs, for details.
Charge Penalty	Select from one of the following options: - Yes (For this option, an additional column in the assumption value grid is added to specify penalty) - No See Charge Penalty for details.
Specify Collateral/Underlying	Select from one of the following options: - Yes - No This parameter determines if the existing unencumbered assets are required to be posted as collateral or underlying that is, if there are secured funding and repo transactions. See Specify Collateral/Underlying for details.

Field	Available Options
Sale Specification By	This field is available only when you select **Cash Flow Movement** as the Assumption Category and **Asset Sale** as the Sub-Category. Select from one of the following options to specify a sale: • Individual Assets • Dimensions • If you select **Individual Assets** follow these steps: 1. In the **Asset Browser Selection**, click [Select Assets] icon. The Asset Browser window appears. 2. Select the **Asset Type**, enter Name and Account ID. 3. Select one or more members from a list of members displayed. 4. Click [>] to move the selected members to Selected Members section or click [»] to select all members. 5. Click **OK**. If you select Dimensions, follow the steps in Dimension Selection. See Sale Specification By for details.
Reporting Line Classification	Select **Enable** or **Disable** for the field Reporting Line Classification. If you select Enable, the field Reporting Line Dimension is displayed. Click [icon] to view the hierarchy browser. All the dimensions in the FSI_LRM_REP_LINE_ATTR_DETAILS table are displayed. Click [>] to move the selected dimensions to the **Selected Members** section.
Section: Inclusion Filters/Exclusion Filters	
Inclusion Filters	This field is available only for specific Assumption categories and sub-categories. See Filter Selection for details. To add Inclusion Filters/Exclusion Filters, follow these steps: 1. Click the corresponding icon [icon]. The **Liquidity Risk Business Definition** browser window appears. 2. Select one or more (maximum of 7) dimensions. 3. Click [>] or [»] to move the selected dimensions, or all dimensions respectively, to the **Selected Members** section.
Exclusion Filters	4. Click **OK**. The selected dimensions are displayed in the **Inclusion Filters** section. 5. Click the selected dimension member. The Hierarchy Browser window appears.

Field	Available Options
	6. Select one or multiple members from the list of dimensions displayed in the Hierarchy browser. Click [>] or [»] to move the selected or all dimensions respectively to the Selected Members section. 7. Click **OK**.
Section: Dimension Selection	
Dimension	To add a dimension, follow these steps: 1. Click [icon] corresponding to **Dimension Selection**. The **Liquidity Risk Business Definition** browser window appears. 2. Select one or more (maximum of 7) dimensions. 3. Click [>] or [»] to move the selected dimensions, or all dimensions respectively, to the **Selected Members** section. 4. Click **OK**. The selected dimensions are displayed in the **Selected Members** section. 5. Click the selected dimension member. The Hierarchy Browser window appears. 6. Select one or more members from the list of hierarchies displayed in the Hierarchy browser. Click [>] or [»] to move the selected or all hierarchies respectively, to the Selected Members section. 7. Click **OK**. **Note**: • You can add a maximum of seven dimensions, one source or actual time bucket, and optionally a revised time bucket. • For the Intraday assumption category **Incremental Cash Flow**, sub-category **Large Unexpected Payments**, LRM - Intraday - Payment Settlement Systems dimension is selected by default. • See Dimension Selection for details.
Section: Time Bucket Definition Selection	
Time Bucket Definition	To add a time bucket definition, follow these steps: 1. Click [icon] to select a Time Bucket Definition. The **Time Bucket Definition Browser** window appears. 2. Select time bucket definitions from a list of definitions displayed in the time bucket definition browser. Here it is a single selection. Only one time bucket can be selected. The values which are defined in the Time Bucket definition window are displayed here. 3. Click **OK**. The selected time bucket definition is displayed in the time bucket definition selection against both <Time Bucket 1> Selection, and <Time Bucket 2> Selection. 4. Click the [BIS Time Bucket Definition] icon corresponding to <Time Bucket 1> Selection and then <Time Bucket 2> Selection to define the time buckets. You can select one or multiple time buckets from the given time bucket definition.

Field	Available Options
	The selected time buckets are displayed as row items in the Assumption Specification table. The name of this parameter changes depending on the assumption category selected as per the following mapping.

Note:

For category **Incremental Cash Flow**, subcategory **Liability Run-off**, the selected time bucket definition is displayed in the time bucket definition selection against both Inaccessibility End Bucket selection, and Restoration End Bucket selection.

For Inaccessibility End Bucket, click the selected time bucket icon.

One or multiple time buckets from the given time bucket definition can be selected as part of Inaccessibility End Bucket selection. The selected time buckets are displayed as row items in the assumption specification table.

For Restoration End Bucket, click the selected time bucket icon.

A single selection of a time bucket greater than the Inaccessibility End Bucket can be selected as part of Restoration End Bucket selection. The time buckets selected are displayed as drop-down values in the Off-set Bucket column in each row of the assumption specification table.

Assumption Category	<Time Bucket 1> Selection	<Time Bucket 2> Selection
Cash Flow Movement	From Bucket Selection	To Bucket Selection
Incremental Cash Flows	Primary Bucket Selection	Off-set Bucket Selection
Encumbrance	From Bucket Selection	To Bucket Selection
Value Change	Not Applicable	Not Applicable

NOTE:

- When the Intraday Assumption is selected as **Yes** in the Business Assumption Definition window, only the Intraday Time Buckets are displayed in this section.
- This field is available only for specific Assumption categories and sub-categories. See Time Bucket Definition for details.
- For Category Encumbrance, sub-category Ratings Downgrade, category Value Change, sub-category – Available Stable Funding Factor, the time bucket selection is not required as they are not determined, and these factors are applied to balances and market values of assets and liabilities.

Field	Available Options
	• For Category Value Change, sub-category – Haircut, the time bucket selection is not required as they are not determined. These haircut values are further used in the Run for the calculation of stock of HQLA. • For Category Incremental Cash Flow, sub-category Incremental Cash Flow and Liability Run off, if you have selected Assumptions Legs as One, in Time Bucket Definition Selection only Off-set Bucket is displayed. Whereas, if you have selected Assumptions Legs as Two, in Time Bucket Definition Selection both Primary Bucket and Off-set Bucket is displayed.
Section: Cash flow Interval Selection	
Cash Flow Interval Selection	To select a cash flow interval, follow these steps: 1. Click 🖅 corresponding to **Cash Flow Interval Selection**. The **Cash Flow Interval Selection** browser window is displayed. 2. Select a defined cash flow interval displayed in the browser. 3. Click **OK**. The selected Cash Flow Interval is displayed in the Cash Flow Interval selection section. 4. Click the selected dimension member. The Hierarchy Browser window appears. 5. Select one or multiple members from a list of hierarchies and click ⟩ or ⟫ to move the selected member or all the members, respectively, to the **Selected Members** section. 6. Click **OK**. **Note**: This field is available only for specific Assumption categories and sub-categories. See Cash Flow Interval Selection for details. For category Value Change, sub-category Available Stable Funding Factor, this selection is enabled only when you select the Based On measure as Cash Flows, Less Stable Cash Flows, Non-operational Cash Flow, Operational Cash Flow or Stable Cash Flow.

3. Click ➡ . The **Assumption Parameter Specification** table is generated with the selected dimensions as column values and dimension members as row values. Additionally, depending on your selection, one or two time bucket columns are displayed.
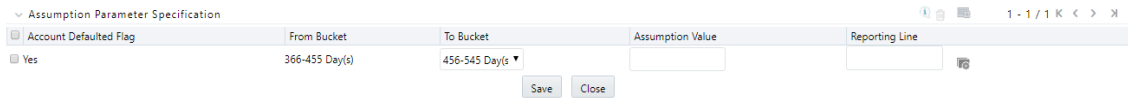
Assumption Parameter Specification						
☐ Account Defaulted Flag	From Bucket	To Bucket	Assumption Value	Reporting Line		1 - 1 / 1
☐ Yes	366-455 Day(s)	456-545 Day(s) ▼				

Save   Close

The names of these columns change based on the assumption category selected as follows:

Assumption Category	<Time Bucket 1>	<Time Bucket 1>
Cash Flow Movement	From Bucket	To Bucket
Incremental Cash Flows	Primary Bucket	Off-set Bucket
Encumbrance	From Bucket	To Bucket
Value Change	Not Applicable	Not Applicable

The unique combinations of selected dimension members and the From buckets are displayed as rows. If you have enabled **Reporting Line Classification**, then the Reporting Line column is displayed. Click 🖩 to view the hierarchy browser. Select the reporting line item from the list. Click OK.

The names of these columns change based on the assumption category selected as follows:

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
Cash Flow Movement	Cash Flow Movement	- Each selected dimension - From Bucket - To Bucket - Assumption Value – Leg 1 (if Transaction Legs is one) - Assumption Value – Leg 2 (if Transaction Legs is two) - Penalty (if charge penalty is yes)
	Run-Off	- Each selected dimension - From Bucket - To Bucket - Run-off

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
	Prepayment	- Each selected dimension - From Bucket - To Bucket - Prepayment Value - Penalty (if charge penalty is yes)
	Cash Flow Delay	- Each selected dimension - From Bucket - To Bucket - Assumption Value - Penalty (if charge penalty is yes)
	Delinquency	- Each selected dimension - From Bucket - Delinquent Value
	Recovery	- Each selected dimension - To Bucket - Recovery Value
	Rollover	- Each selected dimension - From Bucket - To Bucket - Rollover Value – Leg 1 (if Transaction Legs is One) - Rollover Value – Leg 2 (if Transaction Legs is Two)
	Asset Sale	- Each selected dimension (if Sale Specification by is Dimensions) - Each selected asset (if Sale Specification by is Individual Assets) - Sale Bucket - Sale Value - Haircut (in %)
Encumbrance	Encumbrance	- Each selected dimension - Downgrade Impact
	Ratings Downgrade	- Each selected dimension - Downgrade Impact
	Valuation Changes	- Each selected dimension - Valuation Change Impact

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
Incremental Cash Flow	Incremental Cash Flow	• Each selected dimension • Primary Bucket (if Assumption Legs is Two) • Incremental Value – Leg 1 (if Transaction Legs is One) • Incremental Value – Leg 2 (if Transaction Legs is Two) • Off-set Bucket • Off-set Value – Leg 1 (if Transaction Legs is One) • Off-set Value – Leg 2 (if Transaction Legs is Two) • Collateral/Underlying (if Specify Collateral/Underlying is yes) • Encumbered Value (if Specify Collateral/Underlying is yes)
	Run-Off	• Each selected dimension • Time Bucket • Run-off
	Drawdown	• Each selected dimension • Primary Bucket • Downgrade Value – Leg 1 • Off-set Bucket • Off-set Value – Leg 1
	Liability Run-Off	• Each selected dimension • Inaccessibility End Bucket:
	New Business	• Each selected dimension • Primary Bucket • Growth Value – Leg 1 (if Transaction Legs is 1) • Growth Value – Leg 2 (if Transaction Legs is 2) • Off-set Bucket • Off-set Value – Leg 1 (if Transaction Legs is 1) • Off-set Value – Leg 2 (if Transaction Legs is 2)
	Ratings Downgrade	• Each selected dimension • Time Bucket • Downgrade Impact

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
	Secured Funding/Financing	• Each selected dimension • Each selected dimension • Primary Bucket • Primary Value – Leg 1 • Primary Value – Leg 2 (if Transaction Legs is Two) • Off-Set Bucket • Off-Set Value – Leg 1 • Off-Set Value – Leg 2 (if Transaction Legs is Two) • Collateral/Underlying • Encumbered Value
	Valuation Changes	• Each selected dimension • Time Bucket • Downgrade Impact
Value Change	Available Stable Funding Factor	• Each selected dimension • ASF Factor
	Haircut	• Each selected dimension • Haircut (%)
	Required Stable Funding Factor	• Each selected dimension • RSF Factor
Intraday Assumption Category		
Cash Flow Movement	Time Shift in Payments	• Each selected dimension • From Bucket • To Bucket • Assumption Value
	Payments Default	• From Bucket • Residual Bucket • Assumption Value
Encumbrance	Withdrawal of Credit Lines	• Each selected dimension • Assumption Value
Incremental Cash Flow	Intraday Drawdown	• Each selected dimension • Primary Bucket • Off-Set Bucket • Downgrade Value • Off-Set Value

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
	Large Unexpected Payments	- Each selected dimension - Time Bucket - Assumption Value **Note**: The unique combinations of selected dimension members and the from buckets are displayed as rows. An additional text field "Transaction Amount" is displayed where you can enter the amount value.
Value Change	Intraday Valuation Changes	- Each selected dimension - Assumption Value

Only for an assumption category and sub-category which support Rating Downgrade, the **Downgrade Specification** table is generated with the selected dimensions as column values and dimension members as row values. The Downgrade Specification table has the following columns:

Assumption Category	Assumption Sub-Category	Columns Displayed in Assumption Parameter Specification
Encumbrance	Ratings Downgrade	- Each selected dimension - Rating Type - Rating Source - Downgrade
	Encumbrance	
Incremental Cash Flow	Ratings Downgrade	

NOTE	• You can sort and filter on each dimension column.
	• The dimensions columns are re-arranged based on drag and drop enabled in the Dimension Selection section.
	• To delete a table row in the Assumption Specification table, select a row and then click the 🗑 icon.
	• To add a sub row to each row, for instance, to specify multiple <Time Bucket 2>, select a row and then click the ⊞ icon.
	• To delete sub rows, right-click on the sub row to delete.
	• To enable Collateral Posting, select a row, and then click the ⊞ icon. The Asset Browser window with only unencumbered assets is displayed. This icon is enabled only when the Post Collateral parameter is selected as Yes.
	• The assets that are unencumbered during the selected period are displayed even if they are encumbered currently. These are allowed to be posted as collateral for the unencumbered period.
	• After selecting the members, click › to move the selected member, or click » to move all the members, to the Selected Members section, and click **OK**.
	• The selected collateral is displayed in the respective row in Assumption Specification. Encumbrance value can be specified as a percentage against each collateral. This column enables the specification of partial encumbrance. You can select one or multiple members for each selected dimension. These are displayed as sub rows against the dimensional combination row for which this is being specified in the Assumption Specification table.

4. Follow these steps to add values to **Collateral/Underlying**, and **Encumbered value** columns for assumption category - Incremental Cash Flow, sub-category - Secured Funding/Financing:

   a. Click the check box on the left of the dimensional combination. Once the dimensional combination is chosen in the grid, click the Add Assets (⊞) icon. The Add Assets icon allows you to add as many assets as needed for the particular row in the grid.

☑ Cash Flow Type	Primary Bucket	Primary Value- Leg 1	Off-Set Bucket	Off-Set Value- Leg 1	Collateral/Underlying	Encumbered Value
☑ Dividends Paid	001 - 001 Days		003 - 003 Day ▾			

   Save   Close

   b. Once the **Add** Assets icon is clicked, enter values in the following screen.

The business assumption definition after collateral and encumbered value is specified are displayed as follows.

5. To save the definition, click **Save**.

6. To return to the **Business Assumption Definition Summary** window, click **Close**.

NOTE	• Stress assumptions are defined in the business assumption definition window as that explained above. These assumptions will have adverse values for Run-offs, rollovers, drawdowns, haircuts, and so on. The dimensions used for stress testing may also be different from those under BAU conditions. However, the process of defining a stress business assumption does not change.
	• After you save a Business Assumption, it is registered as a process in the *Rules Framework* of *Oracle Financial Services Analytical Applications Infrastructure*.
	• A Business Assumption is available for selection in the Run Management window only after it is approved.
	• If a Business Assumption is edited, it is saved as a new version.
	• After including additional dimension members, the existing Assumption Specification table must not be reset.

7.8 Business Assumption Approval Process

OFS LRM supports approval workflows based on user roles. Business assumptions that are defined within the application are required to be approved. These are defined within the application before they can be used for computations. The user who creates the assumption will send it for approval after finalizing it. Assumptions can be approved only by users with the required access levels. For more information refer to the User Roles and Access section.

Topics:

- Sending Business Assumption Definition for Approval

- Approving a business assumption definition

- Retiring a business assumption definition

7.8.1 Sending Business Assumption Definition for Approval

To send a definition for approval, follow these steps:

1. Click Business Assumption on the LHS menu of the LRM Application to open the Business Assumption Summary window.

NOTE	Assumptions in the following stages can be sent for approval:
	• A new definition which in "Draft" status.
	• A version of a definition that is rejected and is in "Open" status.
	• A definition that is edited and a new version of which is created and is in "In Review" status.
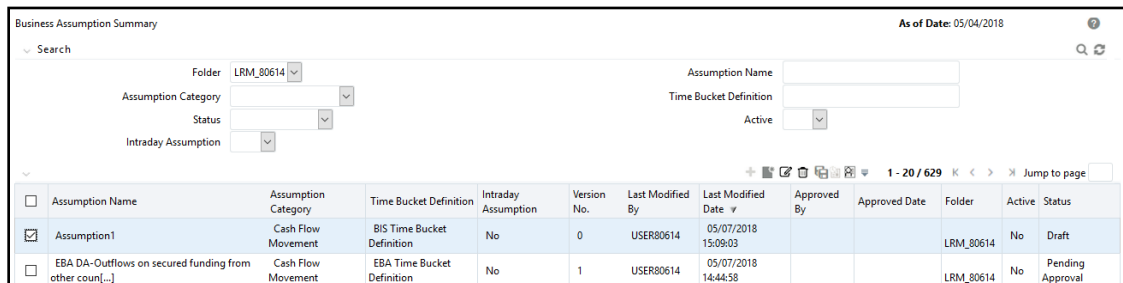
2. Click ☑ to select a definition with the status "Draft", "Open" or "In Review" from the list of business assumptions and then click the ✏ icon.

Figure 24 Business Assumption Summary – Draft Status

Figure 25 Business Assumption Summary – Open Status

Figure 26 Business Assumption Summary – In Review Status

The Business Assumption Definition window is displayed with all the parameters defined.

Figure 27 Business Assumption Summary – Send for Approval

To send a definition for authorization, click **Send for Approval**. This changes the status of the definition to Pending Approval. The definition is successfully sent for approval and the status changes to Pending Approval.

7.8.2   Approving a business assumption definition

To approve a business assumption, follow these steps:

1. Click **Business Assumption** on the LHS menu of the LRM Application to open the **Business Assumption Summary** window. Only assumptions which are in Pending Approval status can be approved or rejected by the approver.

2. Click [icon] to select a definition with the status **Pending Approval** from the list of business assumptions and then click the [icon] icon.

Figure 28 Business Assumption Summary – Pending Approval

The Business Assumption Definition window is displayed with all the parameters defined.

Figure 29 Business Assumption Definition – Approve/Reject

3. To approve the definition that is sent for authorization, click **Approve**.

The Approve dialog box is displayed with the assumption name and description.

Figure 30 Business Assumptions - Approve

4. Enter Approver comments and then click **Approve**.

5. To reject the definition that is sent for authorization, click **Reject**.

   The Reject dialog box is displayed with the assumption name and description.

Figure 31 Business Assumptions - Reject

6. Enter Approver comments and then click **Reject**.

7. Click the ⬚ icon to view the summary of the entire approval workflow. It displays approval history showing the start date, completion date, status owner, and comments if any.

Figure 32 Business Assumptions – Approval Summary

NOTE	The Approve or Reject buttons are present only for the users who have the right to approve or reject the definition.
	If the definition is rejected, it changes back to 'Open' status. When the definition is in open status, click View to view the definition. You cannot edit the values in the View window.

7.8.3   Retiring a Business Assumption Definition

You can retire a business assumption definition when a definition is no longer valid and not required to be included in the selection of a new run calculation. To retire a definition once it is approved, follow these steps:

1. To retire a definition, click ☑ to select a definition from the list of business assumptions and then click 🖼 or 📝.

Figure 33 Business Assumptions – Retire

The Business Assumption Definition window is displayed.

2. Click **Retire**. A retired definition will not be available for selection as part of a new Run definition.

NOTE	• After approval, when an assumption is edited and is in **In Review** status, it is not picked up for execution. Only when the definition goes through the entire approval process and is approved it is marked as latest and it can be used for execution.
	• After the definition is approved, the latest version of such approved definitions are executed. While executing the Run executes the latest version of that assumption (that is, the version marked as latest). Run automatically picks up the definition which is marked as latest. Only the version marked as latest will be executed at a given point of time.
	• If the business conditions change, and you require a previously defined version number to make it active, select the assumption from the Business Assumption Summary window and click Make Active. Once it is approved, that version is automatically marked as latest, but you can always go back and mark a previous version as the latest in Business Assumption Summary window (Make Active).
	• The status updated in the Business Assumptions Summary window allows you to search the pre-defined business assumption definitions on the basis of approval status. This field displays a list of statuses that you have access to as a drop-down list that is, Approved, Draft, In Review, Open, Pending Approval or Retired. Click the drop-down list to select the status. The selection of a status from the drop-down list displays only those business assumptions that have been defined within the selected status in the List of Business Assumption table.
	• Business assumption definitions can be edited before or post-approval. If edited before approval, it is resaved with the same version number. If edited post-approval, it is resaved with a new version number. You cannot edit the definition once sent for approval and in Pending Approval status.
	• The business assumption definition, once saved and approved, is registered as a Rule in the Rules Framework of Oracle Financial Services Analytical Applications Infrastructure.

7.9 Editing a Business Assumption

The process of editing a business assumption is as follows:
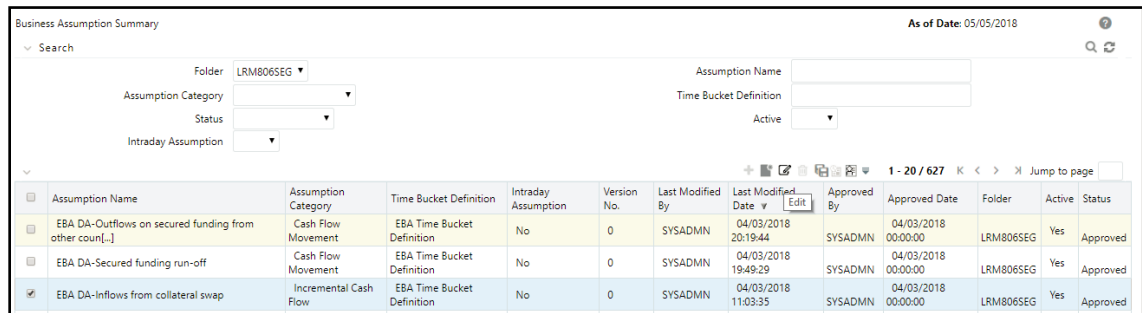
1. To edit a definition, click ☑ to select a definition from the list of business assumptions and then click ✏.

Figure 34 Business Assumptions – Editing a Business Assumption

- You can edit a definition which is in **Draft**, **Open** and **In Review** status. An LRM Analyst has the privileges to edit.

- When the definition is in **Draft** status, all the parameters can be edited in the Business Assumption Definition window.

- When the definition is in **Open** status and **In Review** status, all the parameters except the Assumption Name can be edited in the Business Assumption Definition window.

- When you edit a definition which is **Draft** status, it remains in version 0.

- When you edit a definition that is in **Open** status, the version number does not change.

| **NOTE** | In Draft and Open status, the changes made are overwritten and the version number does not change. |

2. When you edit a definition that is in Approved status, the version number is changed, and a new version is created. This changes the status to **In Review**.

8 Run Management

The Run Management screen of the LRS pack allows you to define, approve, and execute Runs. All Runs except stress Runs are defined in the Run Management window of LRM application. The Run, once saved and approved, is registered in the **Rules Framework** select **Run** in Oracle Financial Services Analytical Applications Infrastructure.

NOTE	Every SKU in the Liquidity Risk Solution (LRS) application pack leverages this common user interface. Run management parameters specific to the SKUs licensed will be displayed in the user interface.

Topics:

- Run Definition Parameters
- Understanding Run Management Summary
- Defining a Run
- Run Definition Approval Process
- Adding a Custom Task to a Run
- Preparing for Execution
- Run Execution Parameters
- Executing a Run
- Run Execution Summary

8.1 Run Definition Parameters

The Run Definition window has the following sections for defining parameters:

- Linked To
- Run Definition Details
- Run Parameters
- Legal Entity Selection
- Business Assumptions

8.1.1 Linked To

The details must be specified as follows:

- **Folder**: Select the Folder which is specific to the Run definition.
- **Access Type**: Choose the access type option, Read/Write or Read-Only.

8.1.2   Run Definition Details

The details for each Run definition are entered here as follows:

- **Run Name**: Specify the Run name.

- **Run Description:** Enter the Run description.

8.1.3   Run Parameters

The parameters for each Run definition are entered here as follows:

- Purpose

- Run Type

- Contractual Run

- NSFR Ratio

- Time Bucket Definition

- Time Buckets Based On

- Consolidation Type

- Consolidation Level

- Payment System Consolidation Type

- Business Day Convention

- Include Interest Cash Flows

- Approximate Interest

- Forward Rate Interpolation Method

- Assumptions Applied To

- Include Forward Date Calculations

- Forward Balance Method Mapping Rule

- Forward Cash Flow Method Mapping Rule

- Exclude Holidays

- Balance Sheet Adjustment

- Balance Sheet Adjustment Method

- Balance Sheet Adjustment Rule

- Fixed Interval Forward Date

- First Forward Date Interval

- Forward Date Frequency

- Number of Forward Calculations

- Time Bucket Type

8.1.3.1 Purpose

The purpose is the reason for executing each Run. Each purpose has a set of specific calculations associated with it that require different pre-packaged rules and processes to be executed. On selection of a purpose, the relevant rules to support that computation are selected and executed.

Select the Purpose from the drop-down list. The drop-down list displays the following:

- **Basel III Liquidity Ratios Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio and Net Stable Funding Ratio in accordance with BIS guidelines.

- **EBA Delegated Act Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio in accordance with EBA Delegated Act guidelines

- **FR 2052a Report Generation**: Selection of this purpose enables re-classification of accounts into the regulatory reporting lines required to generate the FR 2052a report of US Federal Reserve

- **FR 2052b Report Generation:** Selection of this purpose enables the re-classification of accounts into the regulatory reporting lines required to generate the FR 2052b report of the US Federal Reserve.

- **Intra-Day Metrics Calculation**: Selection of this purpose enables the calculation of the intraday metrics based on the actual payment transaction data received from the bank.

- **Long Term Gap Calculation**: Selection of this purpose enables the calculation of liquidity gaps.

- **RBI Basel III Liquidity Ratio Calculation**: Selection of this purpose enables calculation of the RBI Liquidity Coverage Ratio which caters to the final guidelines on the LCR, Liquidity Risk Monitoring Tools, and LCR Disclosure Standards.

- **RBI Short-Term Dynamic Liquidity Report Generation**: Selection of this purpose enables calculation of the RBI Liquidity Coverage Ratio which caters to the final guidelines on the LCR, Liquidity Risk Monitoring Tools, and LCR Disclosure Standards.

- **RBI Structural Liquidity Report Generation:** Selection of this purpose enables calculation of the RBI Liquidity Coverage Ratio which caters to the final guidelines on the LCR, Liquidity Risk Monitoring Tools, and LCR Disclosure Standards.

- **U.S Fed Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio in accordance with the guidelines of the US Federal Reserve. The FR502a (5G liquidity report) is also generated as part of this Run. The 5G report gets generated when you execute the LCR Run.

- **Regulation YY Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio in accordance with the Regulation YY guidelines.

- **BOT Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio, LCR Disclosure Standards, and Net Stable Funding Ratio in accordance with BOT guidelines.

- **BNM Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio, LCR Disclosure Standards, and Net Stable Funding Ratio in accordance with BNM guidelines.

- **MAS Liquidity Ratio Calculation**: Selection of this purpose enables the calculation of the Liquidity Coverage Ratio, LCR Disclosure Standards, and Net Stable Funding Ratio in accordance with MAS guidelines.

- **Minimum Liquidity Asset Calculation**: Selection of this purpose enables the calculation of the Minimum Liquidity Asset Ratio in accordance with MAS guidelines.

- **Deposit Insurance Calculation**: Selection of this purpose calculates the Insurance amounts for all deposits in accordance with FDIC guidelines.

- **HKMA Liquidity Ratios for Category 1 Institutions**: Contains out of box Rules and Scenarios as prescribed by the Hong Kong Monetary Authority pertaining to Liquidity ratios for Category 1 institutions. The selection of this purpose enables the user to calculate the Liquidity Coverage Ratio in accordance with HKMA guidelines.

- **HKMA Liquidity Ratios for Category 2 Institutions**: Contains out of box Rules and Scenarios as prescribed by the Hong Kong Monetary Authority pertaining to Liquidity ratios for Category 2 institutions. The selection of this purpose enables the user to calculate the Liquidity Maintenance Ratio in accordance with HKMA guidelines.

NOTE	• The list of purposes is available to execute the relevant rules and processes required to achieve a specific computation. The business assumptions are applied over and above these rules and can be selected as part of a BAU or stress run for each purpose.
	• FR 2052 a Report Generation and FR 2052 b Report Generation purposes are available only in Contractual Run.
	• For Intra-Day Metrics Calculation, the Run Type can be either a Contractual or a Stress Run.

8.1.3.2 Run Type

There are three types of Runs supported by Liquidity Risk Solution (LRS):

- Contractual Run
- Business-as-Usual (BAU)
- Stress Run
- Home-Host Treatment

8.1.3.2.1 Contractual Run

This is the first Run defined using the Run Management window of the LRM Application and carries out the data preparation, aggregation and reclassifications required for computation of liquidity risk metrics under multiple scenarios. Contractual Run computes the as-of-date liquidity position of the organization without considering any behavioral conditions and forms the base for all subsequent calculations.

A contractual Run allows you to estimate liquidity gaps based on the contractual cash flows received as a download from the bank. It aggregates cash flows based on user-specified aggregation dimensions, identifies HQLA, allocates insurance and identifies deposit stability and so on. All cash inflows and outflows are assumed to be generated under contractual terms. Contractual execution caters to the as of date liquidity status of the organization without the application of any business assumption.

8.1.3.2.2   Business-as-Usual (BAU)

In BAU execution one or multiple business assumptions under normal conditions are applied to the contractual cash flows and the cash inflows and outflows are modified accordingly. A BAU Execution allows you to estimate and analyze the liquidity gaps under normal business conditions. The liquidity gap report (after BAU Execution) provides the liquidity status of the organization based on the impact of these business assumptions on the contractual cash flows. Additionally, liquidity ratios are estimated based on cash flows adjusted for normal conditions in accordance with the Basel III liquidity ratio guidelines prescribed by BIS (See section BIS Basel III Liquidity Ratios Calculation) as well as LCR based on US guidelines (See Liquidity Risk Regulatory Calculations for US Federal Reserve User Guide Release 8.1.0.0.0 on OHC documentation Library.)

The features of BAU Run are as follows:

- One or multiple business assumptions are applied to the cash flows and other interim metrics computed as part of the underlying contractual Run. These assumptions and defined as part of the Business Assumption window and selected in a BAU Run for execution.

- All BAU Run parameters are the same as those specified for the underlying contractual Run except for Assumptions Applied To.

- Assumptions are applied on original balance or cash flows or changing balance or cash flows across business assumptions based on user selection.

- Contractual Run is a pre-requisite for defining a BAU Run.

Figure 35: Process Flow of a Business-as-Usual Run
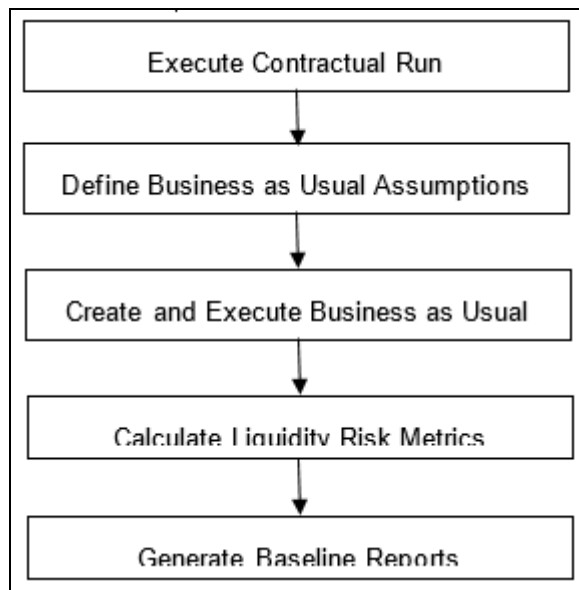
1. **Executing BAU or Baseline Run**: A Contractual Run is executed before the Business As Usual Run. Once the liquidity gaps are estimated under contractual terms, the changes in cash flows during the normal course of business due to consumer behavior are to be estimated. This involves defining business assumptions based on multiple rules and specifying assumption values. The assumptions include, drawdown, prepayments, rollovers, asset or liability book growth, run-offs, asset value changes, recovery from delinquent accounts, available stable funding factors, required stable funding factors, and so on. Assumption values specified for each dimension member combination is selected from predefined business hierarchies or dimensions. Once these assumptions are defined, they are grouped together and applied to contractual cash flows as part of the BAU Run or Baseline Run execution process. The impact of these business assumptions on liquidity gaps, ratios, and other metrics is estimated.

2. **Baseline Reports:** LRM generates the Baseline reports that enable a detailed view of the liquidity risk metrics.

8.1.3.2.3   Stress Run

Stress testing is now an integral part of a bank's risk measurement system and plays an important role in estimating the effects of potential financial crises on a bank's operations. Stress testing, from a liquidity risk management perspective, refers to the process of assessing the liquidity position of a financial institution under adverse conditions. It involves defining stress assumptions and applying them to baseline results to obtain stressed results.

The application leverages the stress testing module of Oracle Financial Services Advanced Analytical Applications Infrastructure to carry out stress testing in an enterprise-wide consistent manner. The stress testing module is an integrated framework of OFSAAAI which supports the stress testing requirements across the entire suite of OFS analytical applications.

Stress Runs are defined as part of the Stress Testing module of OFSAAAI by selecting the baseline Run that is, the LRS BAU Run in the Stress Definition screen and replacing the BAU assumptions which are part of the baseline Run with stress business assumptions. Stress assumptions are business assumptions with adverse values and are defined as part of the Business Assumption screen of LRS. The replacement of BAU assumptions with the stress assumptions constitutes the stress scenario. Once defined and saved, the Stress Run can be viewed, approved, and executed from the Run Management screen of LRS.

The Stress Run defined appears in the list of Runs in the Run Management Summary window. You can approve the definition and then execute it. BAU Run is a pre-requisite for defining stress Runs.

On execution, the stress business assumptions are applied to the contractual cash flows to assess the impact of the adverse scenario on the liquidity position of the institution.

NOTE	Contractual and BAU Run are defined in the Run Management window and are automatically registered in OFSAAAI.
	Stress Runs are defined in the Stress Testing module of OFSAAAI and registered in OFSAAAI and appear in the Run Management window. The stress Runs appear in Draft status with a Run type as Stress in the Run Management window of LRS. You are allowed to approve and execute these Runs.

Figure 36: Process flow of a Stress Run
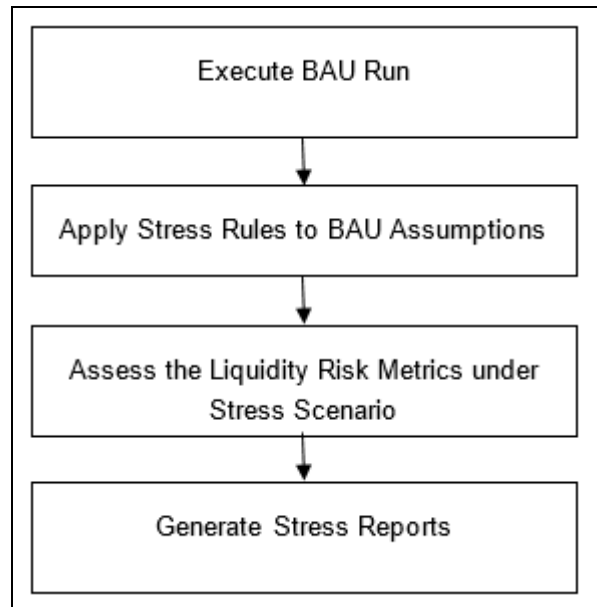
1. **Executing Stress Run**: The Contractual Run is executed first. The BAU Run is executed next. For executing Stress Runs, the Contractual or BAU cash flows are stressed. A combination of stressed assumptions or a stress value of higher magnitude becomes a stress scenario. The values can be applied as absolute values, or they can be percentages. The liquidity gaps under the given stress scenario are calculated. The impact of the stress scenario is assessed on Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR,) and Funding Concentrations.

2. **Stress Reports**: LRS generates the Stress reports that enable a detailed view of the liquidity risk metrics like Liquidity Gaps across time buckets, Cumulative Gaps, Gaps across time, Comparison across scenarios, LCR, NSFR, Funding Concentrations, and so on.

8.1.3.2.4 Home-Host Treatment

This run is available only for Liquidity Risk Regulatory Calculations for European Business Authority (LRRCEBA). See the [Liquidity Risk Regulatory Calculations for European Banking Authority User Guide](#) for details.

8.1.3.3 Contractual Run

When the Run type is selected as Business-As-Usual, the Contractual Run is required to be selected from the Contractual Run browser. The Contractual Run browser displays a list of contractual Runs. The list is filtered by the purpose selected. For example, if the purpose is selected as Basel III Liquidity Ratios Calculation for a BAU Run, it displays only those Contractual Runs which are specified with that purpose. You are allowed to select a single Contractual Run.

Figure 37 Run Definition – Contractual Run window

8.1.3.4 NSFR Ratio

When the purpose is selected as Basel III Liquidity Ratios Calculation and the Run type is selected as BAU the Liquidity ratio button is enabled for selection in the Run Definition window. Select either of the following options:

- **LCR**: If you select LCR, only LCR is calculated.

- **NSFR**: If you select NSFR, then only NSFR is calculated.

- **Both**: If you select Both, both NSFR and LCR is calculated in the same Run.

8.1.3.5 Time Bucket Definition

When the Run type is selected as Contractual, the Time Bucket Definition is available for selection from the Time Bucket Definition browser. The Time Bucket Definition browser displays the list of computational time buckets defined as part of the Time Bucket window. You are allowed select a single time bucket definition.

NOTE	When the Run purpose is selected as Intraday Metrics Calculation, only intraday buckets are listed under the list time bucket definitions section.

Figure 38 Run Definition - Time Bucket Definition window

8.1.3.6 Time Buckets Based On

When the Run type is selected as Contractual, Time Buckets Based On selection is allowed in the Run Definition window. Select either of the following options:

- Calendar Days: The start and end date of each time bucket are computed based on the number of calendar days when this parameter is selected. The time bucket dates are in running calendar day sequence. The time bucket dates are consistent across multiple legal entities each with different holidays.

- Business Days: The start and end date of each time bucket is computed based on the number of business days when this parameter is selected. The time bucket dates are not continuous calendar days in this case but will exclude holidays. The time bucket dates will be different for each legal entity based on its respective holiday calendar.

> **NOTE** The default option is calendar days in the case of Business-as-Usual.

8.1.3.7 Consolidation Type

When the Run type is selected as Contractual, Consolidation Type selection is allowed in the Run Definition window. This parameter determines if the calculations are to be executed on a standalone basis for one or multiple selected legal entities or on a consolidated basis at the level of the selected legal entity. Select either of the following options from the drop-down list:

- Solo

- Consolidated

NOTE	The liquidity gaps, ratios and other metrics are estimated on a standalone (Solo) basis for each selected legal entity or on a consolidated basis at the level of the selected legal entity based on this selection.

8.1.3.8   Consolidation Level

In case you have selected Consolidation Type as Consolidated, you must select in the Consolidation Level to launch the Legal Entity browser for selecting the consolidation level. Select a single legal entity, at which the consolidated liquidity risk measures are to be calculated, from the list of legal entities available in the Legal Entity browser.

NOTE	This selection is applicable only when the **Run Type** is selected as **Contractual Run** and **Consolidation Type** is selected as **Consolidated**. If you have selected the **Consolidation Type** as **Solo**, then Consolidation Level field is disabled, and the solo legal entities are to be selected as part of the **Legal Entity Selection** section.

8.1.3.9   Payment System Consolidation Type

When the Run type is selected as **Contractual** and the purpose is selected as **Intra-Day Metrics Calculation** Payment System Consolidation Type is allowed for selection.

This parameter determines if the calculations are to be executed on a consolidated or standalone basis for one or multiple payment systems. Select either of the following options:

- Consolidated
- Standalone

NOTE	By default, the Payment System Consolidation Type is selected as Standalone.

8.1.3.10   Business Day Convention

When the Run type is selected as Contractual, Business Day Convention selection is allowed in the Run Definition window for the purpose of bucketing cash flows. Select either of the following options from the drop-down list:

- Conditional Following
- Conditional Prior
- Following

- No Adjustment

- Prior

8.1.3.11 Include Interest Cash Flows

When the Run type is selected as Contractual, Include Interest Cash Flows selection is allowed in the Run Definition window. Select either of the following options:

- Yes: In case you select Yes, both principal and interest cash flows are considered for calculations.

- No: In case you select No, only principal cash flows are considered, and interest cash flows are ignored.

8.1.3.12 Approximate Interest

When the Run type is selected as Contractual and when Include Interest Cash Flows are selected as Yes, Approximate Interest selection is allowed in the Run Definition window. Select either of the following options:

- Yes: When Approximate Interest is selected as Yes, the business assumption is applied only to the principal cash flows, and the interest cash flows are approximated based on changes to the principal.

- No: If you select No, the business assumption values are applied to both principal and interest cash flows. However, this application depends on how the business assumption is defined as follows:

  - If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Principal, then the assumption is applied only to the principal cash flows.

  - If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Interest, then assumption impacts only Interest cash flows.

  - If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Principal and Interest, then the assumption is applied to both principal and interest cash flows.

  - If you have not selected Cash Flow Type as a dimension in the business assumption, then the assumption is applied to both principal and interest cash flows.

8.1.3.13 Forward Rate Interpolation Method

When the Run type is selected as Contractual, Forward Rate Interpolation Method selection is allowed in the Run Definition window. Select either of the following options from the drop-down:

- Linear

- Log Linear

8.1.3.14 Assumptions Applied To

When the Run type is selected as Business-As-Usual, Assumptions Applied To selection is allowed in the Run Definition window. Select either of the following options:

- Changing Balance/Cash Flows: In this case, the change in the cash flows or balances due to the previous assumption will be considered while applying subsequent assumptions.

- Original Balance/Cash Flows: In this case, the assumptions are always applied to the original cash flows or balances without considering the effect of the previous business assumption.

8.1.3.15   Include Forward Date Calculations

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled. Select either of the following options:

- Yes: If you select Yes, the below parameters are enabled to calculate forward date liquidity risk calculations. You can select one or multiple rules, defined as part of the Rule-Run Framework.

- No: If you select No, the current spot calculations are carried out.

8.1.3.16   Forward Balance Method Mapping Rule

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This selection has LRM - Balance Method Reclassification – Forecast selected by default which is a single selection from a list of forward balance calculation method mapping rules defined in the Rule-Run Framework. This option helps to calculate forward balances for each dimensional combination.

8.1.3.17   Forward Cash Flow Method Mapping Rule

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This selection has LRM – Cash Flow Method Reclassification – Forecast selected by default which is a single selection from a list of forward cash flow calculation method mapping rules defined in the Rule-Run Framework. This option helps to calculate forward cash flows for each dimensional combination.

8.1.3.18 Exclude Holidays

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on <u>OHC Documentation Library</u> for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This option helps to determine if holidays are included or excluded in Forward Date Liquidity Risk Calculation. This is determined at the time of defining the forward run. Select either of the following options:

- Yes: If you select Yes, holidays are included in Forward Date Liquidity Risk Calculations at the time of defining a forward Run. For each legal entity, the entity-specific holidays are considered if this option is selected.

- No: If you select No, holidays are excluded in Forward Date Liquidity Risk Calculations.

8.1.3.19 Balance Sheet Adjustment

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on <u>OHC Documentation Library</u> for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled. Select either of the following options:

- Yes: If you select Yes, then the application calculates post balance calculation for each forward date and the balance sheet adjustments are made.

- No: If you select No, then there is no balance sheet adjustment and no "post balance calculation".

8.1.3.20 Balance Sheet Adjustment Method

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on <u>OHC Documentation Library</u> for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

When the Balance Sheet Adjustment is selected Yes, this method is enabled. From the drop-down list select one of the following balance sheet adjustment methods:

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

8.1.3.21   Balance Sheet Adjustment Rule

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

When the Balance Sheet Adjustment is selected Yes, and the Balance Sheet Adjustment Method is selected as Manual Adjustment this option is enabled. This selection has LRM - Manual Balance Adjustment – Forecast is selected by default.

8.1.3.22   Fixed Interval Forward Date

NOTE	This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled. Select either of the following options:

- Yes: If you select Yes, then the parameters First Forward Date Interval, Forward Date Frequency and Number of Forward Calculations are displayed for selection.
- No: If you select No, then the Ad Hoc Forward Date Selection section is enabled. You must provide the ad-hoc forward Run details and select one or multiple dates from the calendar.

8.1.3.23   First Forward Date Interval

> **NOTE**   This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This is the interval between the as of date and the first forward date for forward balance and cash flow calculations. You must enter the value in terms of days.

8.1.3.24 Forward Date Frequency

> **NOTE**   This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This is the interval between each forward date in terms of days, weeks, and months. You must enter the value which is a whole number greater than 0. From the drop-down list choose Days, Months, or Weeks.

8.1.3.25 Number of Forward Calculations

> **NOTE**   This field is available only for the jurisdictions - US Federal Reserve and Reserve Bank of India. Refer to the capabilities in the respective user guides on OHC Documentation Library for more information.

When the Run purpose is selected as U.S. Fed Liquidity Ratio Calculation and the Run type is selected as Contractual this parameter is enabled.

This determines the number of forward starting days for which forward balances, cash flows, and liquidity metrics are calculated as part of the forward date contractual Run. You must enter the value which is a whole number greater than 0.

8.1.3.26 Time Bucket Type

When the Run purpose is selected as the EBA Delegated Act Liquidity Ratio and the Run type is selected as Contractual this parameter is enabled.

The options available are:

Actual: This option allows for time buckets to be based on a fixed, user-specified number of days. The end-date for a bucket is computed as these many days from the start date.

Calendar Based: This option for generating time buckets is introduced in Release 8.0.8.1. This option allows for time buckets to be based on actual calendar dates and months. Under this option, a 1-month time bucket goes from dd/mm (MIS Date) to (dd-1)/(mm+1). For instance, when running the process for 21-Oct-2019, a 1-month bucket will end on 20-Nov-2019. Necessary adjustments are made in case the end date is in February. The attached example provides details on this new option for the time bucket.

NOTE	The calendar-based approach is available only for OOTB Time Bucket definitions.

8.1.4   Legal Entity Selection

When Run type is selected as Contractual and the consolidation type is selected as Solo, the **Legal Entity Selection** is enabled. You are allowed to select one or multiple legal entities from the Hierarchy browser. The selected legal entities are listed under the Legal Entity Selection section of the browser.

Figure 39 Run Definition – Hierarchy window
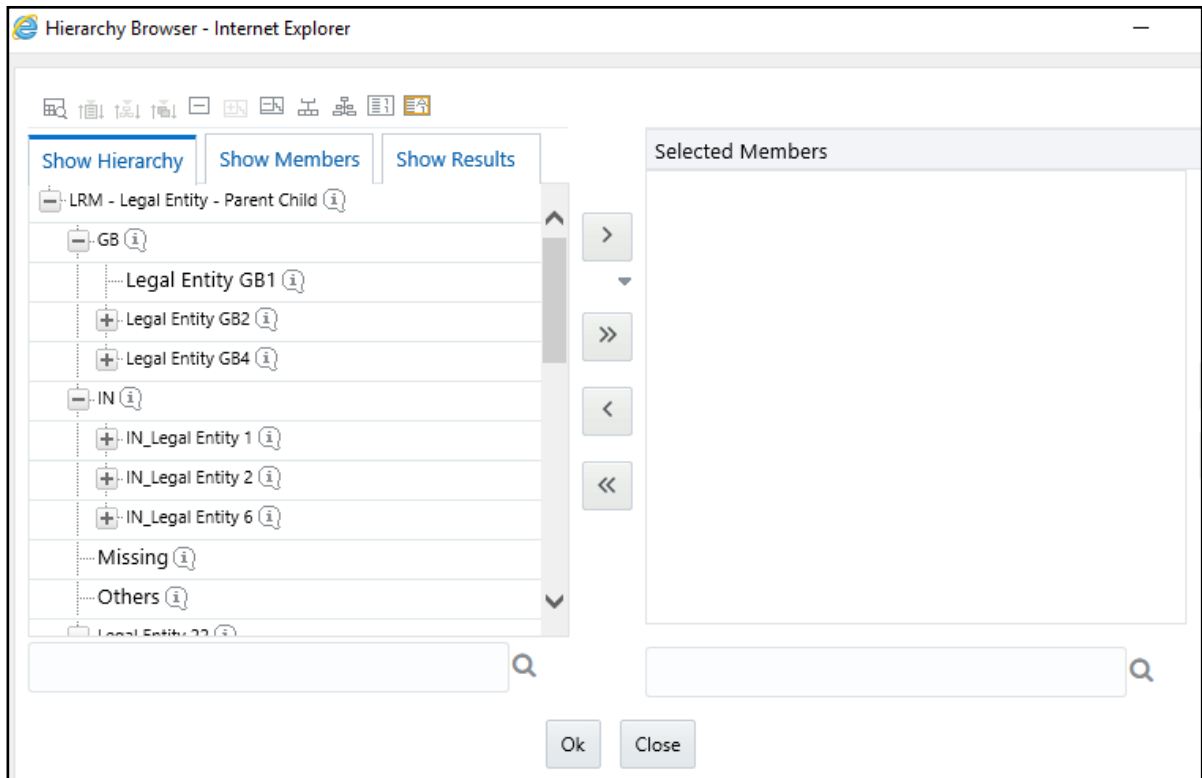
NOTE	The parameters Contractual Run and Assumptions Applied to are applicable only when BAU Run is defined. All other parameters of the BAU Run are the same as those of the underlying contractual Run.
	All parameters of the Stress Runs are the same as those of the underlying BAU Run.

8.1.5   Business Assumptions

When the Run type is selected as Business-As-Usual, you are required to select one or multiple business assumptions to be applied to contractual calculations. The Business Assumptions browser displays a list of all approved business assumptions which have a time bucket definition that corresponds to the definition selected as part of the Run Parameters section. Select one or more business assumptions that you want to apply.

Figure 40 Run Definition – Business Assumption window
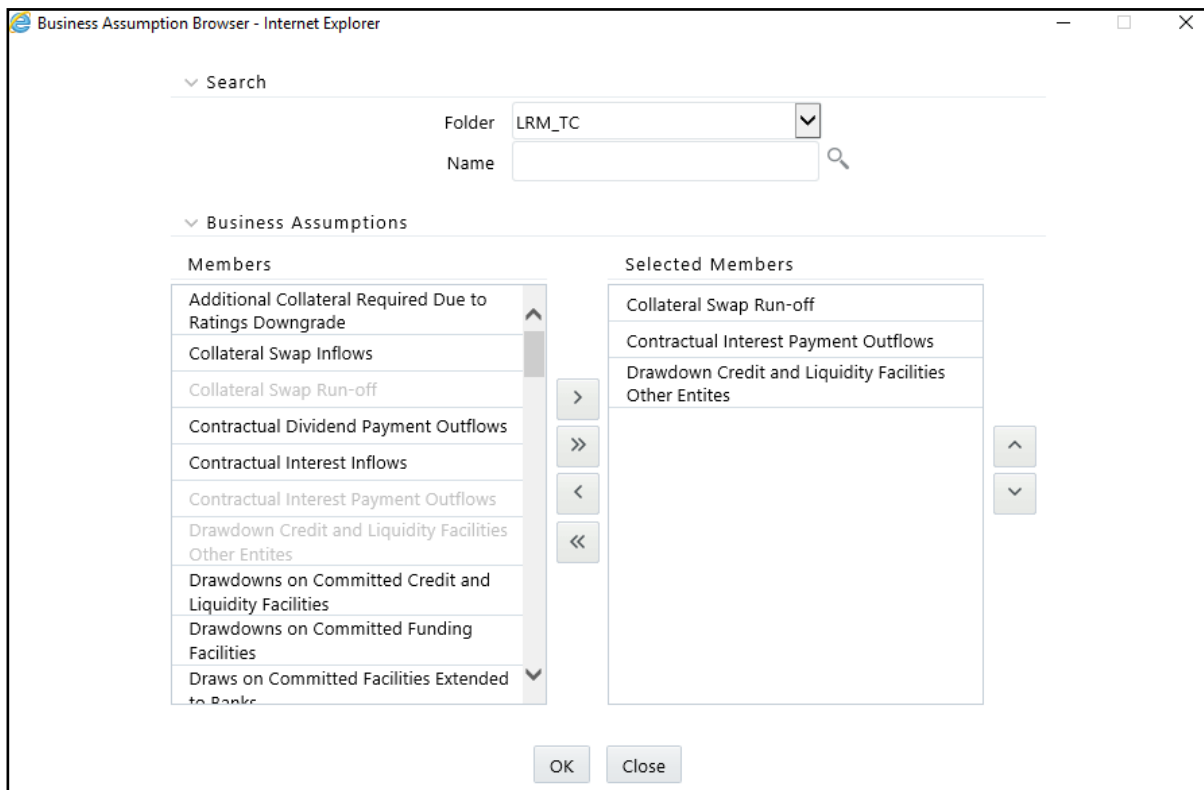
8.2   Understanding Run Management Summary

In **Oracle Financial Services Analytical Applications Infrastructure** home screen select, **Financial Services Liquidity Risk Management.**

To open the Run Management window, select **Liquidity Risk Management** then select **Run Management** on the Left-Hand Side (LHS) menu.

Figure 41 Run Management Summary

The Run management summary window of the LRMM application allows you to define, approve and execute Run or Runs.

This is the search section which contains multiple parameters. You can specify one or multiple search criteria in this section. When you click the search icon, depending upon the search criteria, this filters and displays the relevant search combination parameters under the Run Management Summary as a list.

Table 98 Run Management – Fields and Descriptions

Search Field or Icon	Description
Search	This icon allows you to search the Run definition based on the search criteria specified. Search criteria include a combination of Run Name, Folder, Approval Status, and Run Type. The Run definitions displayed in the Run Management Summary table are filtered based on the search criteria specified on the clicking of this icon.
Reset	This icon allows you to reset the search section to its default state that is, without any selections. Resetting the search section displays all the existing Run definitions in the Run Management Summary table.
Run Name	This field allows you to search the pre-defined Run based on the Run name. Enter the Run name.
Folder	This field allows you to search for the pre-defined Run definitions based on the selected folder. This field displays a list of folders that you have access to as a drop-down. The selection of a folder from the drop-down list displays only those Run definitions that have been defined within the selected folder/segment in the Run Management Summary table.
Run Type	This field allows you to search the pre-defined Run based on Run Type (Contractual, BAU, or Stress Run). You need to specify the Run Type here for searching pre-defined Run.

Search Field or Icon	Description
Approval Status	This field allows you to search the pre-defined Run based on approval status. This field displays a list of statuses that you have access to as a drop-down that is, Approved, Draft, In Review, Open, Pending Approval or Retired. Click the drop-down list to select Approved or Rejected status. The selection of a status from the drop-down list displays only those Run definitions that have been defined within the selected status in the Run Management Summary table.

Table 99 Run Management Summary - icons

Runs Icon Name	Icon	Description
Add	✚	This icon allows you to define a new Run.
View	▪	This icon allows you to view the selected Run definitions.
Edit	✎	This icon allows you to edit the selected Run definition. Once the definition is approved, it cannot be edited in the case of Run definitions.
Delete	🗑	This icon allows you to delete the selected Run definition.
Copy	▦	The icon allows a definition to be copied and resaved as a new definition.
Run Execution Parameters	⚙	This icon allows you to specify execution parameters and execute the Run from the Run Execution Parameters screen. Select the check-box against a Run definition and click the Run Execution Parameters icon to view the Run Execution Parameter Specification window.
Run Execution Summary	📄	This icon displays the Run Execution Summary window. The Run parameters specified as part of the Run Definition window are displayed in an un-editable form in the Run Parameters window. The entire list of executions and their details are displayed for the selected definition in this screen.
Workflow Summary	📋	The icon displays the approval summary for the definition.

8.3 Defining a Run

This section includes information about the runs that can be defined in the application.

Topics:

- Defining a Contractual Run
- Defining a Business-As-Usual (BAU) Run
- Defining a Stress Run

- [Defining a Home-Host Run](#)

- [Defining a DIC Run](#)

8.3.1   Defining a Contractual Run

The Run Management window allows you to define a new Run or create a new Run definition.

Figure 42 Run Definition - Contractual Run
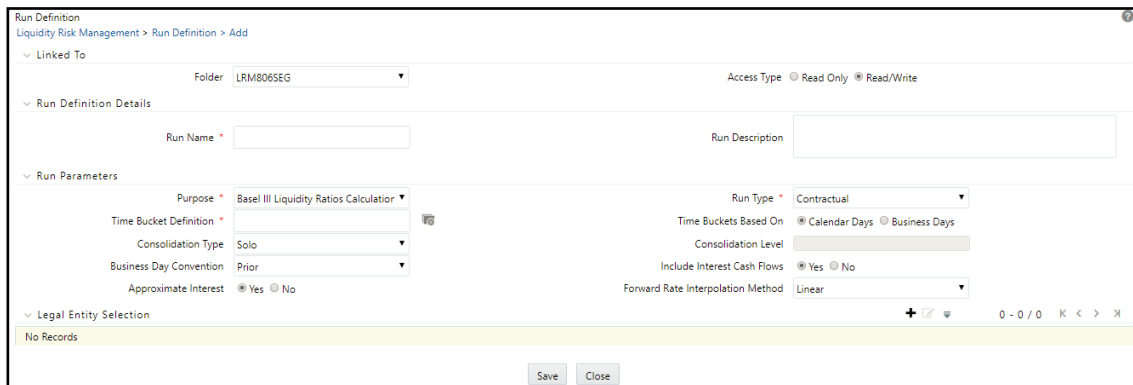
To define a Contractual Run, follow these steps:

1. Click Add ✚ on the **Run Management** window.

   The **Run Definition** window is displayed where you can define a Run.

2. In **Linked To** section, follow these steps:

   a. Select the **Folder** from the drop-down list, which is specific to the Run definition. The Run definitions are linked to a segment.

   b. Select **Access Type**. It is either Read/Write or Read Only option

3. In **Run Definition Details** section, follow these steps:

   a. Enter the **Run Name** which is unique across infodoms.

   b. Enter the **Run Description**.

NOTE	Both the Run Name and Run Description fields allow special characters

4. In **Run Parameters** section, follow these steps:

   a. Select the **Purpose** from the drop-down list. The drop-down list displays the following:

   — Basel III Liquidity Ratios Calculation

   — EBA Delegated Act Liquidity Ratio Calculation

   — FR 2052a Report Generation

   — FR 2052b Report Generation

— Intra-Day Metrics Calculation

— Long Term Gap Calculation

— RBI Basel III Liquidity Ratio Calculation

— RBI Short-Term Dynamic Liquidity Report Generation

— RBI Structural Liquidity Report Generation

— Regulation YY Liquidity Risk Calculation

— U.S Fed Liquidity Ratio Calculation

— BOT Liquidity Ratio Calculation

— BNM Liquidity Ratio Calculation

— MAS Liquidity Ratio Calculation

— Minimum Liquid Asset Calculation

— HKMA Liquidity Ratios for Category 1 Institutions

— HKMA Liquidity Ratios for Category 2 Institutions

> **NOTE**   Run purposes for the SKUs licensed only, will be displayed.

b. Select the **Run Type** as Contractual from the drop-down list. The drop-down list displays the following:

— Contractual

— Business-as-Usual

> **NOTE**   If the Purpose is selected as Intra-Day Metrics Calculation, Run Type is selected as Contractual by default.

5. When the Run type is selected as **Contractual** and the purpose is selected as **Basel III Liquidity Ratios Calculation** or **Long Term Gap Calculation** follow these steps:

a. In the **Time Bucket Definition** field, click   to select the time bucket definition. The Time Bucket Definition browser displays the list of computational time buckets defined as part of the Time Bucket screen. Select the required time bucket definition and then click OK.

b. In the Time Bucket Definition **Based On** field, select either **Calendar Day**s or **Business Days.**

c. Select **Consolidation Type** from the drop-down list. It is either **Consolidated** or **Solo**.

If you have selected Consolidation Type as Consolidated, in the Consolidation Level field, click [icon] to launch the Legal Entity browser for selecting the consolidation level. Select a legal entity, at which the consolidated liquidity risk measures are to be calculated, from the list of legal entities available in the Legal Entity browser.

This selection is applicable only when the Run Type is selected as Contractual Run and Consolidation Type is selected as Consolidated. If you have selected the Consolidation Type as Solo, then the Consolidation Level field is disabled.

d. Select the **Business Day Convention** from the drop-down list. The drop-down list displays the following:

— Prior

— Conditional Prior

— Following

— Conditional Following

— No Adjustment

This is applicable only when Run Type is selected as Contractual Run.

e. Select the Include Interest Cash Flows as either Yes or No.

NOTE	• The **Approximate Interest** field is disabled if you select Include Interest Cash Flows as No.
	• Select the F**orward Rate Interpolation Method** from the drop-down list. It is either **Linear** or **Log Linear.** This is applicable only when the Run type is selected as Contractual.

6. When the Run type is selected as **Contractual** and the purpose is selected as **FR 2052a Report Generation** or **FR 2052b Report Generation**, follow these steps:

a. Select the **Consolidation Type** from the drop-down list. It is either **Consolidated** or **Solo**.

b. If you have selected Consolidation Type as Consolidated, in the Consolidation Level field, click [icon] to launch the Legal Entity browser for selecting the consolidation level. Select a legal entity, at which the consolidated liquidity risk measures are to be calculated, from the

list of legal entities available in the Legal Entity browser. This is selection is applicable only when the Run Type is selected as Contractual Run and Consolidation Type is selected as Consolidated.

c. If you have selected the Consolidation Type as Solo, then the **Consolidation Level** field is disabled.

d. Select the **Include Interest Cash Flows** as either **Yes** or **No**.

NOTE	• The **Approximate Interest** field is disabled if you select **Include Interest Cash Flows** as **No**.
	• Select the F**orward Rate Interpolation Method** from the drop-down list. It is either **Linear** or **Log Linear.** This is applicable only when the Run type is selected as Contractual.

7. When the Run type is selected as **Contractual** and the purpose is selected as **Intra-Day Metrics Calculation**, follow these steps:

a. In the **Time Bucket Definition** field, click ⬚ to select the time bucket definition. The Time Bucket Definition browser displays the list of computational time buckets defined as part of the Time Bucket screen. Select the required time bucket definition and then click **OK**.

NOTE	Note: Only intraday buckets are listed under the list time bucket definitions section.

b. Select the **Legal Entity Consolidation Type** from the drop-down list. It is either **Consolidated** or **Solo**.

c. If you have selected **Legal Entity** Consolidation Type as Consolidated, in the **Legal Entity Consolidation Level** field, click ⬚ to launch the Legal Entity browser for selecting the consolidation level. Select a legal entity, at which the consolidated liquidity risk measures are to be calculated, from the list of legal entities available in the Legal Entity browser.

This selection is applicable only when the Run Type is selected as Contractual Run and Legal Entity Consolidation Type is selected as Consolidated. If you have selected the Consolidation Type as Solo, then **the Legal Entity Consolidation Level** field is disabled.

d. Select **Payment System Consolidation Type** as either **Consolidated** or **Standalone**.

By default, Standalone is selected.

8. When the Run type is selected as **Contractual** and the purpose is selected as **RBI Basel III Liquidity Ratio Calculation** or **RBI Short-Term Dynamic Liquidity Report Generation** or **RBI Structural Liquidity Report Generation**, follow these steps:

   a. In the **Time Bucket Definition** field, click [icon] to select the time bucket definition. The Time Bucket Definition browser displays the list of computational time buckets defined as part of the Time Bucket screen. Select the required time bucket definition and then click OK.

NOTE	• When **RBI Short-Term Dynamic Liquidity Report Generation** is selected as the purpose, **RBI DLR Time Bucket** is selected as the default time bucket.
	• When **RBI Structural Liquidity Report Generation** is selected as the purpose, **RBI SLR Assumption Time Bucket** is selected as the default time bucket.

   b. In the **Time Bucket Definition Based On** field, select either **Calendar Days** or **Business Days**.

NOTE	• When **RBI Short-Term Dynamic Liquidity Report Generation** is selected as the purpose, **Calendar Days** is selected as the default.
	• When **RBI Structural Liquidity Report Generation** is selected as the purpose, **Calendar Days** is selected as the default.

   c. Select the **Consolidation Type** from the drop-down list. It is either Consolidated or Solo.

   d. If you have selected Consolidation Type as Consolidated, in the Consolidation Level field, click [icon] to launch the Legal Entity browser for selecting the consolidation level. Select a legal entity, at which the consolidated liquidity risk measures are to be calculated, from the list of legal entities available in the Legal Entity browser.

   This selection is applicable only when the Run Type is selected as Contractual Run and Consolidation Type is selected as Consolidated. If you have selected the Consolidation Type as Solo, then the Consolidation Level field is disabled.

   e. Select the **Business Day Convention** from the drop-down list. The drop-down list displays the following:

   — Prior

— Conditional Prior

— Following

— Conditional Following

— No Adjustment

This is applicable only when Run Type is selected as Contractual Run.

NOTE	• When **RBI Short-Term Dynamic Liquidity Report Generation** is selected as the purpose, this field is not applicable.
	• When **RBI Structural Liquidity Report Generation** is selected as the purpose, this field is not applicable.

f. Select the Include Interest Cash Flows as either Yes or No.

NOTE	• The **Approximate Interest field** is disabled if you select **Include Interest Cash Flows** as No.
	• When **RBI Short-Term Dynamic Liquidity Report Generation** is selected as the purpose, **Include Interest Cash Flows** is selected as Yes by default.
	• When **RBI Structural Liquidity Report Generation** is selected as the purpose, **Include Interest Cash Flows** is selected as Yes by default.

g. Select the **Forward Rate Interpolation Method** from the drop-down list. It is either **Linear** or **Log Linear**. This is applicable only when the Run type is selected as **Contractual**.

9. When the Run type is selected as **Contractual** and the purpose is selected as **EBA Delegated Act Liquidity Ratio Calculation** or **Regulation YY Liquidity Risk Calculation** or **U.S Fed Liquidity Ratio Calculation**, **BOT Liquidity Ratio Calculation**, **BNM Liquidity Ratio Calculation**, **MAS Liquidity Ratio Calculation**, or **Minimum Liquid Asset Calculation** follow these steps:

a. In the **Time Bucket Definition** field, click to select the time bucket definition. The Time Bucket Definition browser displays the list of computational time buckets defined as part of the Time Bucket screen. Select the required time bucket definition and then click **OK**.

b. In the **Time Bucket Definition Based On** field, select either **Calendar Days** or **Business Days**.

c. Select the **Consolidation Type** from the drop-down list. It is either **Consolidated** or **Solo**.

d. If you have selected Consolidation Type as Consolidated, in the **Consolidation Level** field, click [icon] to launch the Legal Entity browser for selecting the consolidation level. Select a legal entity, at which the consolidated liquidity risk measures are to be calculated, from the list of legal entities available in the Legal Entity browser.

    This selection is applicable only when the Run Type is selected as Contractual Run and Consolidation Type is selected as Consolidated. If you have selected the Consolidation Type as Solo, then **Consolidation Level** field is disabled.

e. Select the **Business Day Convention** from the drop-down list. The drop-down list displays the following:

    — Prior

    — Conditional Prior

    — Following

    — Conditional Following

    — No Adjustment

    This is applicable only when Run Type is selected as Contractual Run.

f. Select the **Include Interest Cash Flows** as either **Yes** or **No**.

> **NOTE**   The **Approximate Interest** field is disabled if you select **Include Interest Cash Flows** as **No**.

g. Select the **Forward Rate Interpolation Method** from the drop-down list. It is either **Linear** or **Log Linear**. This is applicable only when the **Run type** is selected as **Contractual**.

h. When the Purpose is selected as **U.S Fed Liquidity Ratio Calculation**, select **Include Forward Date Calculations** as either **Yes** or **No**. In case you select **Yes**, the following options are enabled:

    i. The **Forward Balance Method Mapping Rule** displays **LRM - Balance Method Reclassification – Forecast** selected as default.

    ii. The **Forward Cash Flow Method Mapping Rule** displays **LRM – Cash Flow Method Reclassification – Forecast** selected by default.

    iii. Select the **Exclude Holidays** as either **Yes** or **No**.

    iv. Select the **Balance Sheet Adjustment** as either **Yes** or **No**.

    v. When you select Balance Sheet Adjustment as Yes, the **Balance Sheet Adjustment Method** option is enabled. Select one of the following from the drop-down list, Current Profile Based Increase, Current Profile Based Decrease, Cash Adjustment, Manual Adjustment.

vi.   The **Balance Sheet Adjustment** Rule displays **LRM - Manual Balance Adjustment –
Forecast** is selected by default when the Balance Sheet Adjustment Method is
selected as **Manual Adjustment.**

vii.   Select the **Fixed Interval Forward Date** as either **Yes** or **No**.

viii.   In **First Forward Day Interval field**, enter a value in terms of days.

ix.   In the **Forward Date Frequency** field, enter a value which is a whole number greater
than 0. From the drop-down list choose Days, Months or Weeks.

x.   In the **Number of Forward Calculations field**, enter a value which is a whole number
greater than 0.

If you have selected consolidation type as **Solo**, in the Legal Entity Selection section, click ✚ to
select one or multiple legal entities from the Hierarchy browser and then click **OK**. The selected
legal entities are listed under the Legal Entity Selection section. If you wish to add or edit the
legal entities click ✎ .

Figure 43 Run Definition – Hierarchy Browser
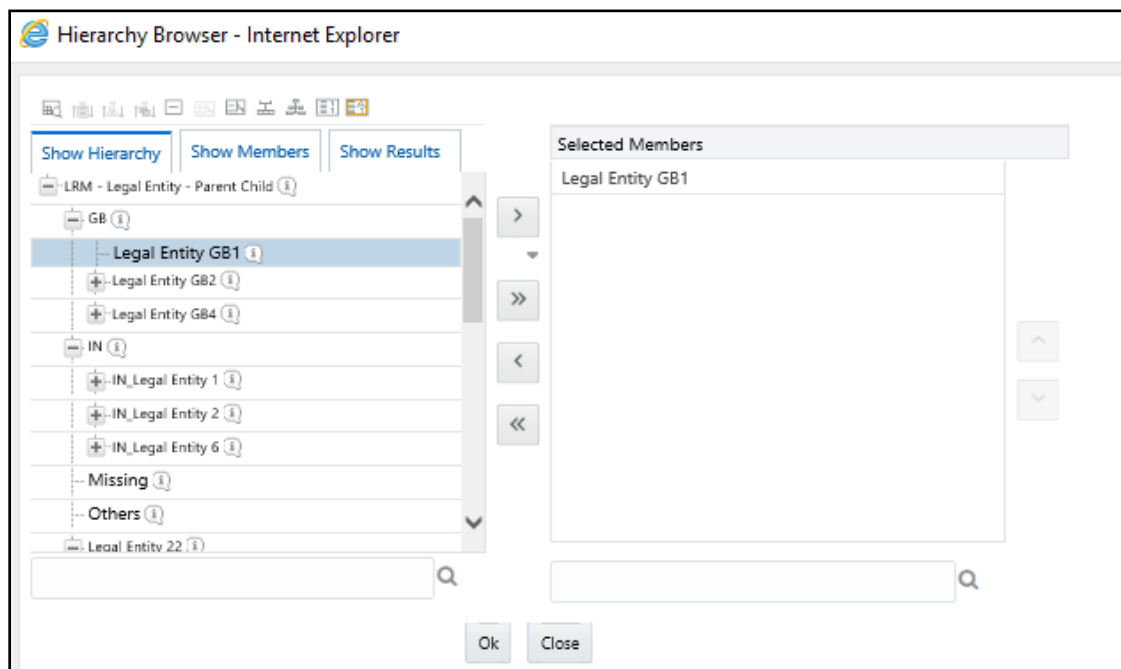
i.   When the Purpose is selected as **EBA delegated Act Liquidity Ratio**, the field **Time Bucket
Type** is displayed. Select either **Actual** or **Calendar Based**.

10. When the Purpose is selected as **U.S Fed Liquidity Ratio Calculation** or **BIS III Liquidity Ratio
Calculations** and you have included the **Include Forward Date LCR Calculations**, perform
these additional steps:

a.   When the **Fixed Interval Forward Date** is selected as **No**, the **Ad Hoc Forward Date
Selection** section is available for selection. Follow these steps:

i.   Click ✚ to add one or multiple dates.

ii.   Click 📅 to select the calendar dates.

> **NOTE**   This section is enabled only when the **Fixed Interval Forward Date** is selected as **No**.

b. When Include **Forward Date Calculations** is selected as **Yes**, and all the other parameters are selected the Forward Cash Flow Calculation Business Assumptions section is available for selection. Follow these steps:

i. Click ✚ to select one or multiple business assumptions from the Business Assumptions browser and then click OK. The selected business assumptions are listed under the Forward Cash Flow Calculation Business Assumptions section. If you wish to add or edit the business assumptions click ✎.
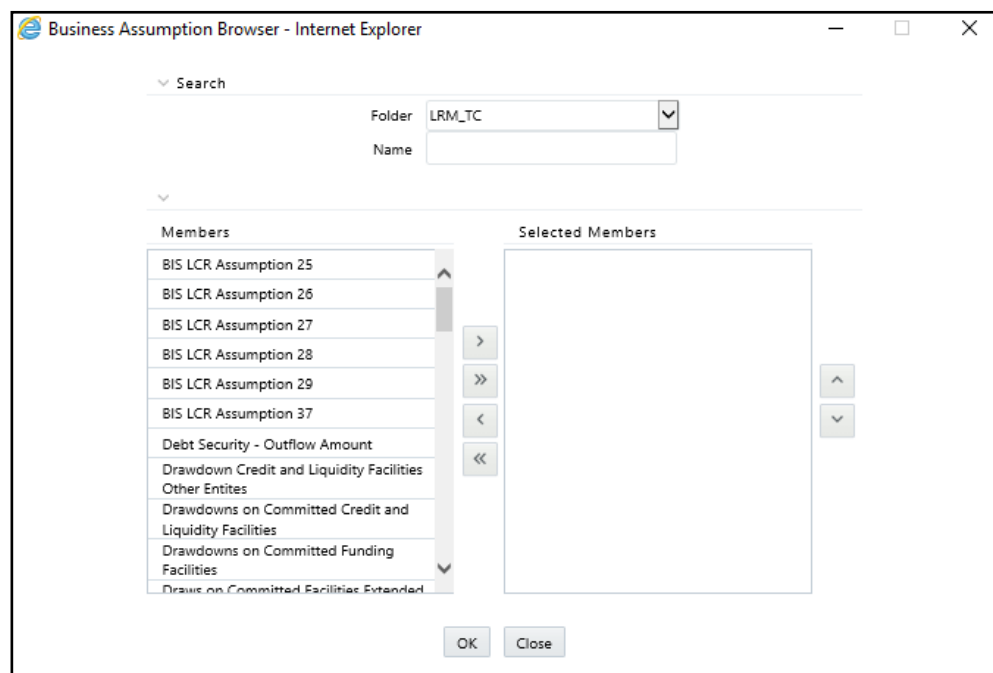
11. For Purpose HKMA Liquidity ratios for Category 1 institutions, **Deposit Insurance scheme** selection is available with one option **Hong Kong Deposit Protection Board**. The selection is optional. If you select it, then no DIC prerequisites selection is required during execution. If not selected, then during execution, select DIC Run and DIC Run Execution ID as a prerequisite.

12. Click **Save**. The Run is saved in the Run Framework of Oracle Financial Services Analytical Applications Infrastructure. A Run is available for execution only after it has been approved. Once approved, Run parameters cannot be edited.

8.3.2   Defining a Business-As-Usual (BAU) Run

The Run Definition window in the LRS application allows you to define a new Run.

Figure 44 Run Definition - Business-As-Usual Run

To define a BAU Run, follow these steps:

1. Click the ✚ icon on the **Run Management** window. The **Run Definition** window is displayed where you can define a BAU Run.

2. In the **Linked To** section, follow these steps:

   a. Select the **Folder** from the drop-down list, which is specific to the Run definition. The Run definitions are linked to a segment.

   b. Select **Access Type**. It is either Read/Write or Read Only option

3. In **Run Definition Details** section, follow these steps:

   a. Enter the **Run Name** which is unique across infodoms.

   b. Enter the **Run Description**.

   > **NOTE**   Both the Run Name and Run Description fields allow special characters.

   a. In **Run Parameters** section, select the **Purpose** from the drop-down list. The drop-down list displays the following:

   — Basel III Liquidity Ratios Calculation

   — EBA Delegated Act Liquidity Ratio Calculation

   — FR 2052a Report Generation

   — FR 2052b Report Generation

   — Intra-Day Metrics Calculation

   — Long Term Gap Calculation

   — RBI Basel III Liquidity Ratio Calculation

   — RBI Short-Term Dynamic Liquidity Report Generation

— RBI Structural Liquidity Report Generation

— Regulation YY Liquidity Risk Calculation

— U.S Fed Liquidity Ratio Calculation

— BOT Liquidity Ratio Calculation

— BNM Liquidity Ratio Calculation

— MAS Liquidity Ratio Calculation

— HKMA Liquidity Ratios for Category 1 Institutions

— HKMA Liquidity Ratios for Category 2 Institutions

NOTE	Run purposes for the SKUs licensed only, will be displayed.

4. Select the **Run Type** as **Business-As-Usual** from the drop-down list. The drop-down list displays the following:

- Contractual

- Business-As-Usual

5. When the Run type is selected as **Business-As-Usual** and the purpose is selected as **Basel III Liquidity Ratios Calculation** or **Long Term Gap Calculation** or **RBI Basel III Liquidity Ratio Calculation** or **Regulation YY Liquidity Risk Calculation** or **U.S Fed Liquidity Ratio Calculation**, **BOT Liquidity Ratio Calculation**, **BNM Liquidity Ratio Calculation**, or **MAS Liquidity Ratio Calculation**, follow these steps:

a. In the **Contractual Run** field, click 🖼 to select from the list of contractual Runs available in the contractual Run browser.

b. When the **Purpose** is selected as **Basel III Liquidity Ratios Calculation**, **RBI Basel III Liquidity Ratio Calculation**, **BOT Liquidity Ratio Calculation**, **BNM Liquidity Ratio Calculation**, or **MAS Liquidity Ratio Calculation** the '**Liquidity Ratio**' field is enabled. This field has three options: **LCR**, **NSFR**, **Both**.

- When the **LCR** option is selected, the Run computes the Liquidity Coverage ratio only.

- When the **NSFR** option is selected, the Run computes the Net Stable Funding ratio only

- When **Both** is selected, the Run computes both ratios that is, Liquidity Coverage Ratio and Net Stable Funding Ratio.

NOTE	All other fields in the Run parameters section are consistent with the parameters specified as part of the selected Contractual Run. These fields are in un-editable form based on the Contractual Run selected.
	For details on how to add a new custom Run Purpose, and enable NSFR, see Adding a Custom Run Purpose.
	Select the Assumptions Applied To. It is either Changing Balance/Cash Flows or Original balance/Cash Flows. This field is applicable only when the Run type is selected as BAU.
	For information on Changing Balance/Cash Flows or Original balance/Cash Flows, see the Assumption Supported section.

    c. When the **Purpose** is selected as **HKMA Liquidity Ratios for Category 2 Institutions** the '**Liquidity Ratio**' field is enabled, with LMR option

6. In the **Business Assumptions** section, click ➕ . The Business Assumptions browser is displayed. All the approved business assumptions with the latest record indicator Y are listed. These have a time bucket definition that corresponds to the definition selected as part of the Run Parameters section.

7. Click ❯ to select one or click ❯❯ to select multiple business assumptions that you want to apply to the contractual cash flows and move them to the Selected Members section.

8. Using ⌃ ⌄ up or down arrows, you can view the sequencing of assumptions.

Figure 45 Run Definition – Business Assumption window
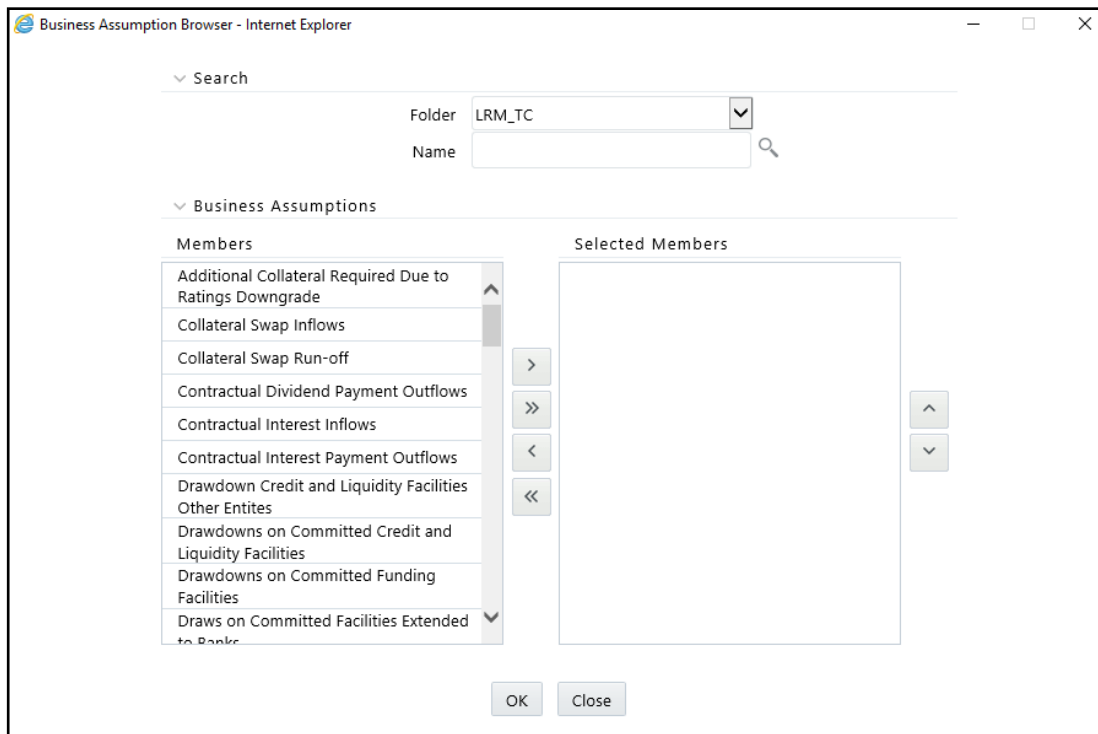
The application saves the assumptions on the BAU Run definition window.

9. If you wish to add or edit the business assumptions click ⬛. If you do not wish to save the assumption, click **Close**.

10. The details are displayed under the Business Assumption section for each selected business assumption as follows:

    ▪ Assumption Name

    ▪ Version Number

    ▪ Assumption Category

NOTE	• Only the approved business assumptions appear in the list.
	• For information on Assumption Category, refer section Assumption Category.
	• The assumptions are executed as per the sequence in which they are selected in the Run Definition screen. This sequence is stored for the purpose of reporting.

11. Click **Save**. The Run is saved in the Run Framework of Oracle Financial Services Analytical Applications Infrastructure. A Run is available for execution only after it has been approved. Once approved, Run parameters cannot be edited.

8.3.3   Defining a Stress Run

A stress Run is created in the Stress Definition window of the **Stress Testing** module of **Oracle Financial Services Advanced Analytical Applications Infrastructure** (OFSAAAI). A business-as-usual Run or Contractual Run is selected as the baseline Run and one or multiple BAU assumptions that are part of the selected baseline Run can be replaced or inserted by stress business assumptions to create a stress Run.

Each stress definition created in the Stress Testing module of OFSAAAI appears as a line item in the Run Management Summary window with the Run type as Stress. You can view, approve, and execute a stress Run from the Run Management screen of the LRM application.

There are two ways of defining a Stress Run:

- **Contractual Run**: When the purpose is selected as Intra-Day Metrics Calculation.

- **BAU Run**: For all the purposes other than Intra-Day Metrics Calculation which is Basel III Liquidity Ratios Calculation, FR 2052a Report Generation, FR 2052b Report Generation and U.S Fed Liquidity Ratio Calculation, EBA Delegated Act Liquidity Ratio Calculation, RBI Basel III Liquidity Ratio Calculation, BOT Liquidity Ratio Calculation.

Topics:

- [Defining a Stress Run on Contractual Run](#)
- [Defining a Stress Run on BAU Run](#)

8.3.3.1   Defining a Stress Run on Contractual Run

For a Contractual Run, insertion of a set of BAU assumptions with another set of stress assumptions constitutes a scenario for stress testing within LRM. Stress business assumptions are similar to BAU assumptions, but with adverse or stressed values. On execution of the stress Run, the stress assumptions are applied to BAU cash flows to assess the impact of the stress scenario on the liquidity metrics.

> **NOTE**   The following procedure is applicable for Stress Testing of Intraday Monitoring Metrics.

For Intraday, when Run Purpose is selected as Intra-Day Metrics Calculation and the Run type is Contractual Run follow these steps:

1. Create a Stress Run in Oracle Financial Services Advanced Analytical Applications Infrastructure window through Stress Definition window under Enterprise Modeling, after selecting baseline as **Contractual Run**.

2. Remove the first 4 processes from the base line run one by one:

   a. LRM - Intraday - Party and Product Type Reclassification

   b. LRM - Intraday - Time Bucket Population

   c. LRM - Intraday - Instrument Data Population

   d. LRM - Intraday - Transaction And Aggregated Transaction Data Population

    e. LRM - Intraday - Available Intraday Liquidity Classification

3. Select the process as **LRM - Intraday - Bucketed Transactions Data Population** and then click **Insert Task**.

4. In the **Task** window, select the new process that is, **LRM – Intraday Stress Data Preparation** and **LRM - Intraday - Propagating Effect Of Assumptions On Outflows And Inflows**.

5. Set the precedence of the processes in the following order:

    a. LRM – Intraday - Stress Data Preparation

    b. LRM - Intraday - Propagating Effect Of Assumptions On Outflows And Inflows

    c. LRM - Intraday - Bucketed Transactions Data Population

6. Click **OK**.

    The data preparation processes are stitched in the Stress Run.

7. Select the process **LRM – Intraday Stress Data Preparation** and then click **Insert**.

8. In the **Task** window, select the defined assumption processes.

    All the versions of the defined assumptions are displayed (Assumption name and version number. You can select the latest one).

    The selected assumptions appear after the process **LRM – Intraday Stress Data Preparation**.

9. Click **OK**. The assumptions are stitched in Stress Run.

10. Click **Save**. The definition is saved.

8.3.3.2 Defining a Stress Run on BAU Run

For a BAU Run, replacement or insertion of a set of BAU assumptions with another set of stress assumptions constitutes a scenario for stress testing within LRM. Stress business assumptions are similar to BAU assumptions, but with adverse or stressed values. On execution of the stress Run, the stress assumptions are applied to BAU cash flows to assess the impact of the stress scenario on the liquidity metrics.

> **NOTE**   For more details on the step-by-step creation of a stress Run see the Stress Testing chapter in the Advanced Analytical Applications Infrastructure module in the OFSAAI User Guide.

8.3.4 Defining a Home-Host Run

This feature is available only for European Business Authority SKU.

See section *Home-Host Configuration* in the OFS Liquidity Risk Regulatory Calculations for European Banking Authority, Release 8.1.0.0.0 User Guide, for details.

8.3.5 Defining a DIC Run

See section *Defining a DIC Run* in the OFS Deposit Insurance Calculations for Liquidity Risk Management, Release 8.1.0.0.0 User Guide, for details.

8.4 Run Definition Approval Process

OFS LRMM supports approval workflows based on user roles. Run definitions that are defined within the application are required to be approved which are defined within the application before they can be used for computations. The user who creates the Run definition sends it for approval after finalizing it. Run definitions can be approved only by users with the required access levels. For more information refer to the User Roles and Access section.

Topics:

- Sending Run definitions for approval
- Approving Run definitions
- Retiring a Run definition

8.4.1 Sending Run definitions for approval

To send a definition for approval, follow these steps:

1. Click **Run Management** on the LHS menu of the LRS application to open the **Run Management Summary** window.

NOTE	Run definitions in the following stages can be sent for approval:
	- A new definition which in **Draft** status.
	- A version of a definition that is rejected and is in "Open" status.
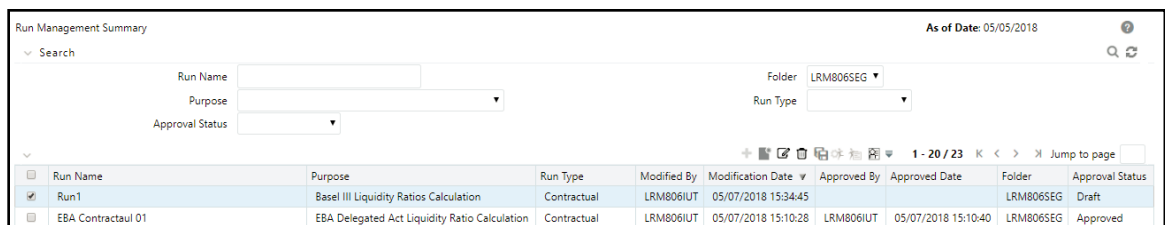
2. Click ☑ to select a definition with the status **Draft**, **Open** from the list of business assumptions and then click 🖉 .

Figure 46 Run Management Summary – Draft Status

Figure 47 Run Management Summary – Open Status

3. The **Run Definition** window is displayed with all the parameters defined.

> **NOTE**   Stress Runs cannot be edited. The definition is opened in the view mode. To edit the Stress Runs, go to Stress Testing Framework in Advanced Analytics Infrastructure module. If you have any changes, edit the parameters and click **Save**.

4. To send a definition for authorization, click **Send for Approval**. This changes the status of the definition to Pending Approval. The definition is successfully sent for approval and the status changes to Pending Approval.

> **NOTE**   Stress Runs can be sent for approval only when the Time Bucket Definition under Run Parameters section and the Time Bucket Definition under the Business Assumptions section in Run Definition match.

8.4.2   Approving Run definitions

To approve a Run definition, follow these steps:

1. Click **Run Management** on the LHS menu of the LRS application to open the Run Management Summary window. Only definitions that are in **Pending Approval** status can be approved or rejected by the approver.

2. Click to select a definition with the status **Pending Approval** from the list of Run definitions and then click.

3. To view the definition in the approval summary window, click **Approval Summary.** You can view the status changes for the definition created.

Figure 48 Run Management Summary – Pending Approval

You cannot edit the values in the view window.

4. To approve the definition that is sent for authorization, click **Approve**.

   The **Approve** dialog box is displayed with the assumption name and description.

Figure 49 Run Definition - Approve

5. Enter **Approver Comments** and then click **Approve**.

6. To reject the definition that is sent for authorization, click **Reject**.

   The **Reject** dialog box is displayed with the assumption name and description.

Figure 50 Run Definition - Reject

7. Enter **Approver Comments** and then click **Reject**.

8. Click ⊞ to view the summary of the entire approval workflow. It displays approval history showing the start date, completion date, status owner, and comments if any.

Figure 51 Run Management – Approval Summary
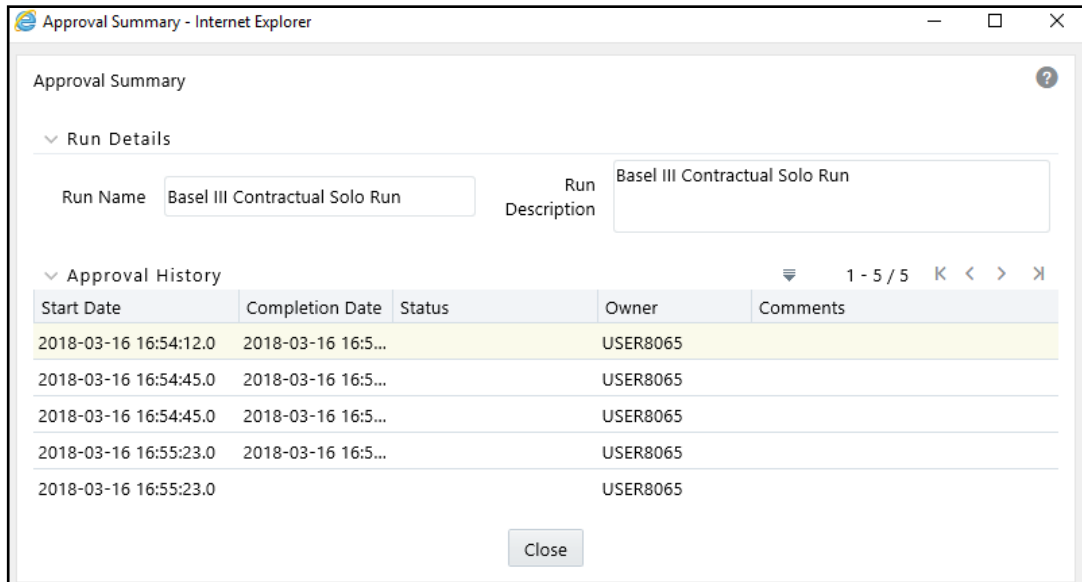
NOTE	• The Approve or Reject buttons are present only for the users who have the right to approve or reject the definition.
	• If the definition is rejected, it changes back to 'Open' status. When the definition is in open status, click View to view the definition. You cannot edit the values in the view window.
	• Once the definition is approved, it cannot be edited in the case of Run definitions.

8.4.3 Retiring a Run definition

You can retire a Run definition when a definition is no longer valid and not required to be included in the selection of a new run calculation. To retire a definition once it is approved, follow these steps:

1. To retire a definition, click ☑ to select a definition from the list of Run definitions and then click the ▢ . The **Run Definition** window is displayed.

Figure 52 Run Management Summary – Retire
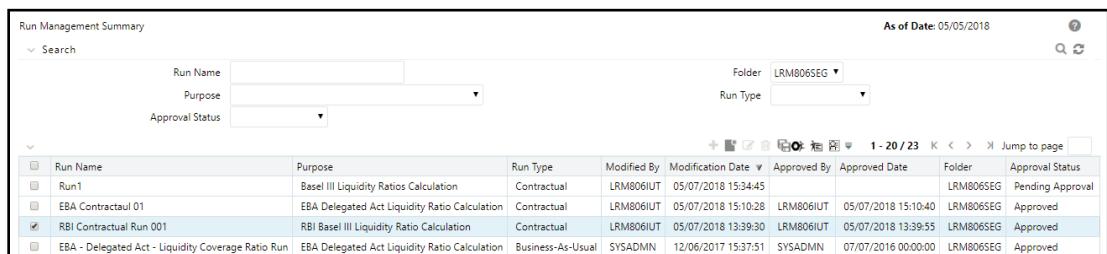
2. Click **Retire**. A retired definition will not be available for selection as part of a new Run definition.

> **NOTE**
> - The approval status field in the Run Management Summary window allows you to search the pre-defined Run based on approval status. This field displays a list of statuses that you have access to as a drop-down that is, Approved, Draft, In Review, Open, Pending Approval or Retired. The selection of a status from the drop-down list displays only those Run definitions that have been defined within the selected status in the Run Management Summary table.
> - Assumption definitions can be approved only by those mapped to the LRM role who has defined the assumption. Multiple levels of approvals are supported.
> - The Run definition, once saved and approved, is registered as a Rule in the Rules Framework of Oracle Financial Services Analytical Applications Infrastructure.

8.5   Adding a Custom Task to a Run

When a Run is defined from LRS Run Management window, it is also registered in the Run window of Rules Framework under the Oracle Financial Services Analytical Applications Infrastructure window.

To add a task to a Run, follow these steps:

1. On the **Oracle Financial Services Analytical Applications Infrastructure** home screen, select **Liquidity Risk Management** select **Manage LRM Rules** then select **Run** on the LHS menu.

> **NOTE**
> For Deposit Insurance Calculation, navigate to **Liquidity Risk Management** select **Manage DIC Rules** then select **Run** on the LHS menu.

On the RHS menu, you can view all the processes which are used and the tasks in the process. You can decide which process needs an additional custom task.

Figure 53: Processes Used
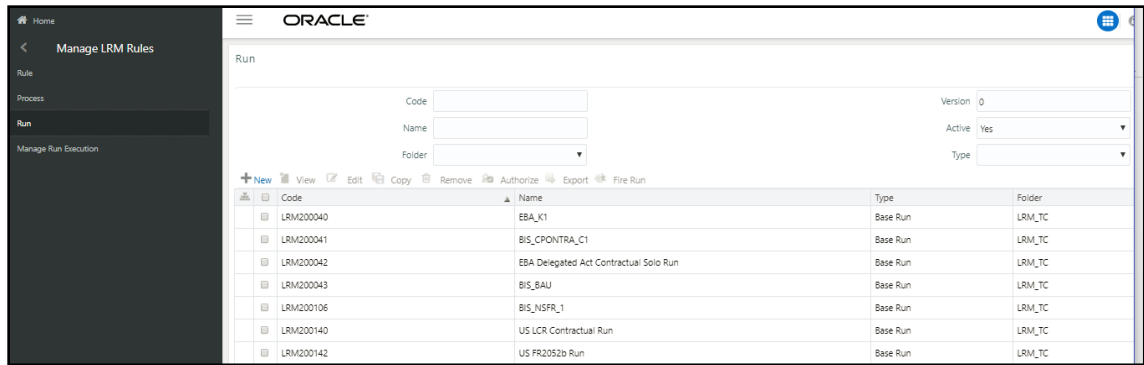
2. Select **Manage LRM Rules** and then select **Process** on the LHS menu.

Figure 54: Process Selection
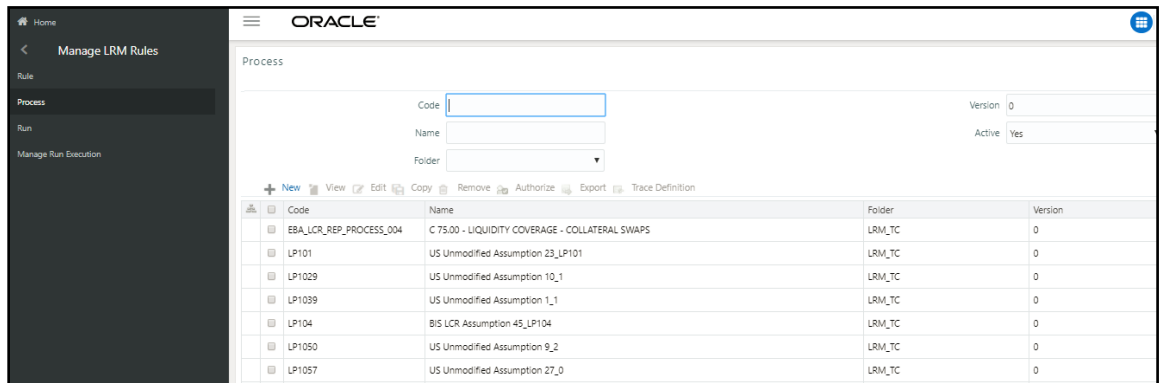
3. Select ☑ the process you wish to edit and then click Edit 📝.

   The **Process** window is displayed.

Figure 55: Process Window
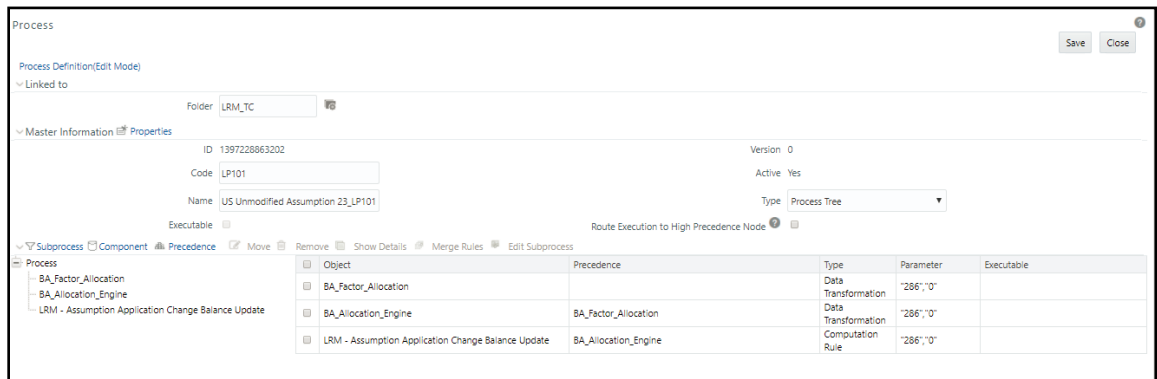
4. In the **Process** window, you can add a **Custom Task**. For more information on how to add a task to the process, see the *Edit Process Definition* section in the OFSAAI User Guide.

5. Click **Save**. You must save it to the existing version.

NOTE	• Only Process can be edited and this is a custom change that may get overwritten when subsequent product patches are applied. Run must not be edited from the RRF window if it is created through the OFS LRS Run Management window.
	• You can make the required edits to additionally include custom tasks. For more information, see the OFSAAI User Guide.
	• To execute this Run, you must go to the Run Management window of LRM. The Run must be approved before execution.

8.6 Preparing for Execution

This section aims to detail the important activities that you must perform before executing Contractual, Business As Usual (BAU) or Stress Runs. It aims to provide details on the data required to be populated in the LRS application and the steps to be followed to define business assumptions which will help identify liquidity gaps.

Topics:

- Data Requirements
- Data Quality Checks
- Defining Time Buckets
- Dimension Maintenance
- Defining Business Assumptions

8.6.1 Data Requirements

Configuring data into the LRS application is the basic and most important activity to commence working on the LRS application. Data to be configured in the LRMM application can be divided into three types:

- Setup Role Management
- Setup Data Management
- Run Data Management

Under Setup Role Management, you are requested to create specific roles to access the respective functionality of the screens and map these roles to user groups.

Setup data is a set of dimension tables which does not change frequently and can be categorized as a onetime setup activity required to be populated in OFS LRMM.

Run or Execution data management details the staging data to be populated that change with each execution.

8.6.2   Data Quality Checks

To maintain the integrity and accuracy of the data populated into the OFS LRMM application, certain data quality checks have been pre-configured under the Data Quality Framework link in OFSAAI.

For information on out-of-box Data Quality checks, refer the following LRMM DQ Checks excel sheet:

For more information, see the OFS Analytical Applications Infrastructure User Guide section 'DQ framework usage' on OHC Documentation Library.

8.6.3   Defining Time Buckets

After configuring setup data and Run or staging data in the LRMM application, the next step is to define the time buckets. Time Buckets can be defined by you in the Time Bucket Definition window of the LRMM application. Refer to the Time Buckets section for more information.

8.6.4   Dimension Maintenance

Before executing Runs as part of dimension maintenance, you must execute the <INFODOM>_SCD_COMPONENT and <INFODOM>_DimAccountPop batch. See the OFS Liquidity Risk Solution V8.1.0.0.0 Run Chart for more information on the batch.

Further some of the staging data which moves to processing area on MIS date basis have to be executed through ICC batches. See the OFS Liquidity Risk Solution V8.1.0.0.0 Run Chart for further details.

| NOTE | If ALM-LRM is integrated, then you must execute only one batch either, <INFODOM>_DIMENSION_ACCOUNTS at ALM or <INFODOM>_DIMACCOUNTPOP at LRM. |

8.6.5   Defining Business Assumptions

After configuring setup data and dimension maintenance as well as defining time buckets in the LRS application, the next step is to define the parameters of the business assumption before executing a Run. Business Assumptions can be defined by you in the Business Assumptions Definition window of the LRS application. Refer to the Business Assumptions section for more information.

8.7   Run Execution Parameters

In the **Run Management Summary** window, select a Run from the list of Runs and click ⚙. The **Run Execution Parameters** window appears.

The **Run Execution Parameters** window has the following sections:

- Linked To
- Run Definition Details
- Run Parameters

- Legal Entity Selection
- Run Execution Parameters

8.7.1 Linked To

This field displays the information about Linked To, which is selected as part of Run definition window. The details are displayed as follows:

- **Folder**: The folder which is specific to the Run definition.
- **Access Type:** Read/Write or Read-Only is selected.

8.7.2 Run Definition Details

This section displays the details which have already been specified for the selected Run as part of Run Definition window. These details may not be edited. The details are displayed as follows:

- **Run Name**: Displays the Run name.
- **Run Description**: Displays the Run description.

8.7.3 Run Parameters

This section displays the parameters which have already been specified for the selected Run as part of Run Definition window. These parameters are not allowed to be edited. The parameters displayed include the following:

- Purpose
- Run Type
- Contractual Run (only in case of a Business-as-Usual Run)
- Baseline Run (only in case of Stress Run)
- Time Bucket Definition
- Consolidation Type
- Legal Entity Consolidation Legal Entity Consolidation Level Payment System Consolidation Type (only when the purpose is selected as **Intraday Metrics Calculation**)
- Business Day Convention
- Include Interest Cash Flows
- Approximate Interest
- Forward Rate Interpolation Method
- Assumptions Applied To (only in case of Business-as-Usual and Stress Run)

8.7.4 Legal Entity Selection

This section displays the Legal Entity Selection which is selected as part of Run definition window.

8.7.5 Run Execution Parameters

The Run execution parameters must be specified for the selected Run.

Topics:

- As of Date
- Run Execution Description
- Contractual Run Execution ID
- Reporting Currency
- Exchange Rate Source
- LCR Horizon
- Buffer Horizon
- Stress Horizons
- Back Dated Run

8.7.5.1 As of Date

This is a selection of a date from the calendar. The As of Date is with reference to the date of the input data required for computations. This is different from the execution date. The data available in the staging area which has a date corresponding to the As of Date is used for computations.

8.7.5.2 Run Execution Description

This field allows you to provide a brief description of the Run execution. It is optional.

8.7.5.3 Contractual Run Execution ID

When the Run type is selected as Business-As-Usual or Stress Run, execution ID of the underlying contractual Run is required to be selected from the Contractual Run Execution ID browser in the Run Execution Parameters window. Business assumptions, both BAU, and stress, are applied to the cash flows aggregated as part of the selected contractual Run execution, and further computations are carried out based on these aggregated cash flows and other interim metrics.

8.7.5.4 Reporting Currency

When the Run type is selected as Contractual, Reporting Currency is allowed for selection from the browser in the Run Execution Parameters window.

When the Run type is selected as Business-As-Usual, this field displays the reporting currency selected as part of the Contractual Run execution.

When the Run type is selected as Stress Run, this field displays the reporting currency selected as part of the Contractual Run execution.

For the first execution of a run, you must select the reporting currency. For subsequent executions, the previously executed reporting currency is automatically displayed but can be edited for each execution.

All the cash flows and balances in natural currency are converted to the reporting currency selected as part of this section for computation and reporting. Additionally, the application also supports conversion to the local currency of each legal entity in a single Run execution.

8.7.5.5   Exchange Rate Source

This field allows you to select the source from which the exchange rate is obtained.

When the Run type is selected as Contractual, exchange rate source is allowed for selection from the drop-down in Run Execution Parameters window. The selection is as follows:

- Bloomberg
- Internal
- Reuters

If you have different exchange rates, follow these steps to add a new exchange rate source:

1. Add a LOOKUP_CD in the table FSI_LRM_LOOKUP_B for the CATEGORY_ID = 19 (Exchange Rate Source).

2. Add a description for LOOKUP_CD added in the above mentioned table (FSI_LRM_LOOKUP_B) in the table FSI_LRM_LOOKUP_TL.

When the Run type is selected as Business-As-Usual or Stress Run, this field displays the reporting currency selected as part of the Contractual Run execution.

8.7.5.6   LCR Horizon

This field allows you to enter the LCR Horizon (in days) for liquidity coverage ratio calculation. By default, this value is displayed is 30, which is the regulatory horizon for LCR. This can be edited. This parameter determines the number of days to which the LCR scenario applies that is net cash outflows will be calculated.

When the Run type is selected as Business-As-Usual or Stress Run, this field displays the LCR Horizon selected as part of the Contractual Run execution.

NOTE	- You have the option of defining and executing any number of Runs. - A Run can be executed multiple times for the same execution date. - You also have the option of re-executing the same Run for different execution dates.

8.7.5.7   Buffer Horizon

This field allows you to enter the Buffer Horizon (in days) for the purpose Regulation YY Liquidity Risk Calculation. By default, this value is displayed is 30, which is the regulatory horizon for LCR. This can be edited.

8.7.5.8   Stress Horizons

This field allows you to enter the Stress Horizons (in days) for the purpose Regulation YY Liquidity Risk Calculation. The application provides the 4 stress horizons specified by the regulator, such as 0, 30, 90, and 360 days pre-configured for selection by the user. Additionally, users can add multiple horizons which will be stored by the application for subsequent selection as well. This can be done based on the parameters Days and Multiplier.

Days: This field allows you to specify the width of the horizon. A value of 10 indicates a 10-day width.

Multiplier: This field allows you to specify the number of horizons of a particular width to be included. A value of 2, in conjunction with a day value of 10, means that 2 horizons, 10 day and 20 day, will be added to the horizon list.

> **NOTE**
> - When only days are provided without having a multiplier specified, then the particular day is added to the pre-configured list as a single horizon value (in the example, 10 days are added.)
> - If the multiplier is provided along with days, then the application updates the list with the records equal to the multiplier and width equal to the days specified. For instance Days = 15, Multiplier = 4 will result in 4 horizons each with a width of 15 days, that is, 15, 30, 45, 60. However, in this instance, since the value 30 is already seeded, only the remaining 3 horizons are added.
> - When you click ✚ , it adds the horizons to the list available in the drop-down with the check box selected and also in the stress horizons field.
> - When you click ♻ , it resets the Days and Multiple fields.

8.7.5.9   Back Dated Run

This feature is available for Contractual Runs, for the run purpose **EBA Delegated Act Liquidity Ratio Calculation, RBI Basel III Liquidity Ratio Calculation**, **US Fed Deposit Insurance Calculation** and **U.S Fed Liquidity Ratio Calculation**.

Prior to Release 8.1.0.1, during a Contractual Run execution for a previous date, the application considered the dimensions that are currently used having the Latest Record Indicator (LRI) as **Y**, for execution.

Back Dated Execution feature enables you to specify a back dated MIS Date which will consider the dimensions which were being used during that specific period, for execution.

The SCD Mode must be updated for the back dated execution for the following batches:

- SCD_COMPONENT
- SCDINSTRCONTRACT
- DimAccountPop

- SCDCUSTOMER

- SCD for ALM LRM integration

Navigate to **Common Objects Maintenance** select **Data Management** select **Data Management Framework** select **Data Management Tools** and then select **DMT Configurations** to update the **SCD Mode**.

Figure 56 Back Dated - SCD Mode
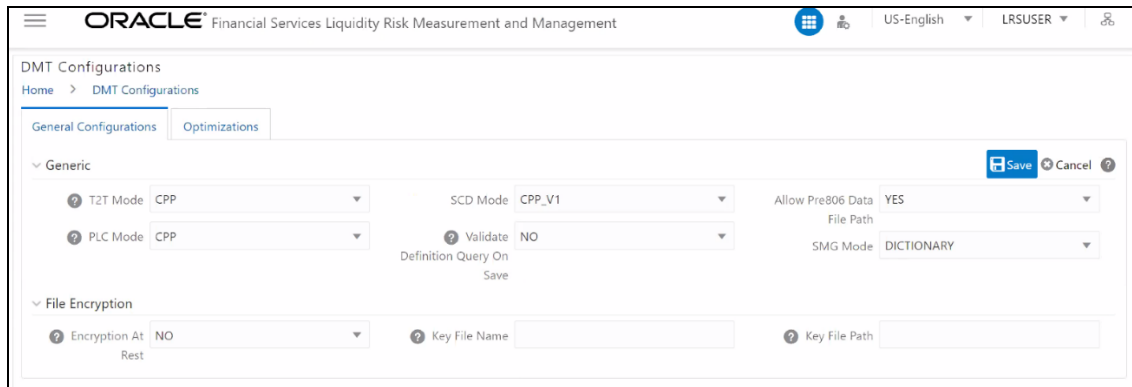
The SCD Mode field is applicable only if SCD uses a merge approach.

- CPP_V1- Select this option to perform SCD execution using CPP engine with a single Merge query for both Update and Insert. This is the default execution mode.

- CPP_V2- Select this option to perform SCD execution using CPP engine with a Merge query for updates and Insert query for inserts. Since Insert is a separate query, the sequence used for SKEY will be incremented only for the required records making the SKEY column value continuous.

- BACKDATED_V1-Backdated support for CPP_V1.

- BACKDATED_V2- Backdated support for CPP_V2.

NOTE	For the Backdated Executions containing type 2 column mappings, below column mappings are mandatory : • Start date • End date

8.8 Executing a Run

The application contains a Run Management window, which contains the functionality of executing Runs, by selecting different Run level parameters for each execution. Runs can be defined in the Run framework of OFSAAI. Run execution is allowed through the Run Management window.

A Run can be executed as a solo Run or a consolidation Run.

Once a Run has been defined and approved, you can execute a Run by providing the Run execution parameters. You can perform an Ad Hoc execution or batch execution. For an Ad Hoc execution from the **Run Execution** window, you can provide the parameters and click **Execute**. For a batch execution,

you can provide the parameters and click **Create Batch**. This creates a batch and you must schedule the batch scheduler module which is available in OFSAAI.

NOTE	If you are not executing the Run for the first time, then the parameters in the Run Parameters Link will be the same as the one selected for the previous Run.

You have the option of defining and executing any number of Runs. For each Run defined, you can select all or few assumptions to be applied to the Run. You also have the option of re-executing the same Run for different Execution dates.

NOTE	On Execution of the Run, due to DB overload any of the DT fails with the error "ORA-12841: Cannot alter the session parallel DML state within a transaction", Update the Parameter DT_PARALLEL_ENABLE to 'N' in SETUP_MASTER table to proceed with the Run Execution.

Topics:

- Executing a Contractual Run
- Executing a BAU Run
- Executing a Stress Run

8.8.1 Executing a Contractual Run

To execute a Contractual Run, follow these steps:

1. Click **Run Management** on the LHS menu of the application to open the **Run Management Summary** window.

2. Click ☑ to select a contractual Run from the list of Runs and click ⚙.

Figure 57 Run Management Summary

NOTE	All fields except for Run execution parameters are non-editable fields for the selected Run.

Figure 58 Run Execution Parameters

3. When the Run type is selected as **Contractual** and the purpose is selected as **Basel III Liquidity Ratios Calculation** or **Long Term Gap Calculation** or **U.S Fed Liquidity Ratio Calculation**, **EBA Delegated Act Liquidity Ratio Calculation**, **RBI Basel III Liquidity Ratio Calculation**, **BOT Liquidity Ratio Calculation**, **BNM Liquidity Ratio Calculation**, **MAS Liquidity Ratio Calculation** in the **Run Execution Parameters** section, follow these steps:

   a. The **Back Dated Run** toggle field allows you to select toggle On or toggle Off only when the **Purpose** is selected as **EBA Delegated Act Liquidity Ratio Calculation**, **RBI Basel III Liquidity Ratio Calculation**, **Deposit Insurance Calculation** (available only for FDIC) and **U.S Fed Liquidity Ratio Calculation**. For **U.S Fed Liquidity Ratio Calculation run**, the **Back Dated Run** Toggle field is enabled or disabled based on the selected Deposit Insurance **Calculation** Run. For example, if the selected Deposit Insurance Calculation Run is Back Dated, then the respective US FED LCR run will be considered for backdated execution (the Back Dated Run toggle field is disabled for user selection).

   b. Click ▦ to select the **As of Date**.

   c. Enter the **Run Execution Description**.

   d. Enter details in the fields **Deposit Insurance Run** and **Deposit Insurance Execution ID**. This is applicable only if selected run purpose is **U.S Fed Liquidity Ratio Calculation**, **BNM Liquidity Ratio Calculation**, or **MAS Liquidity Ratio Calculation.**

   e. Click ▦ to select the **Reporting Currency** from the **Hierarchy** window and then click **OK**. Only a single selection is allowed here.

Figure 59 Run Definition – Hierarchy Browser
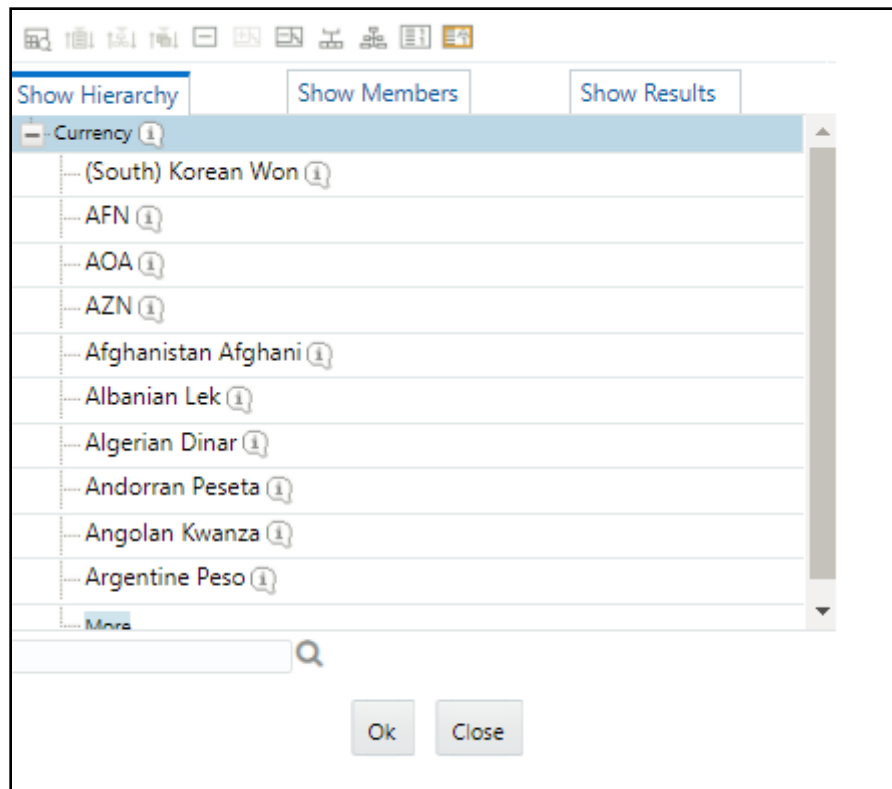
f.   Select the **Exchange Rate Source** from the drop-down list.

g.   Enter the **LCR Horizon** (in days). The default value is **30**. This applies only when the purpose is selected as **Basel III Liquidity Ratios Calculation** or **U.S Fed Liquidity Ratio Calculation**.

4.   When the Run type is selected as **Contractual** and the purpose is selected as **FR 2052a Report Generation** or **FR 2052b Report Generation**, in the **Run Execution Parameters** section, follow these steps:

a.   Click [calendar icon] to select the **As of Date.**

b.   Enter the **Run Execution Description.**

c.   Click [icon] to select the **Reporting Currency** from the **Hierarchy** window and then click **OK**.

    d. Select the **Exchange Rate Source** from the drop-down list.

5. When the Run type is selected as **Contractual** and the purpose is selected as **Intra-Day Metrics Calculation**, in the **Run Execution Parameters** section, follow these steps:
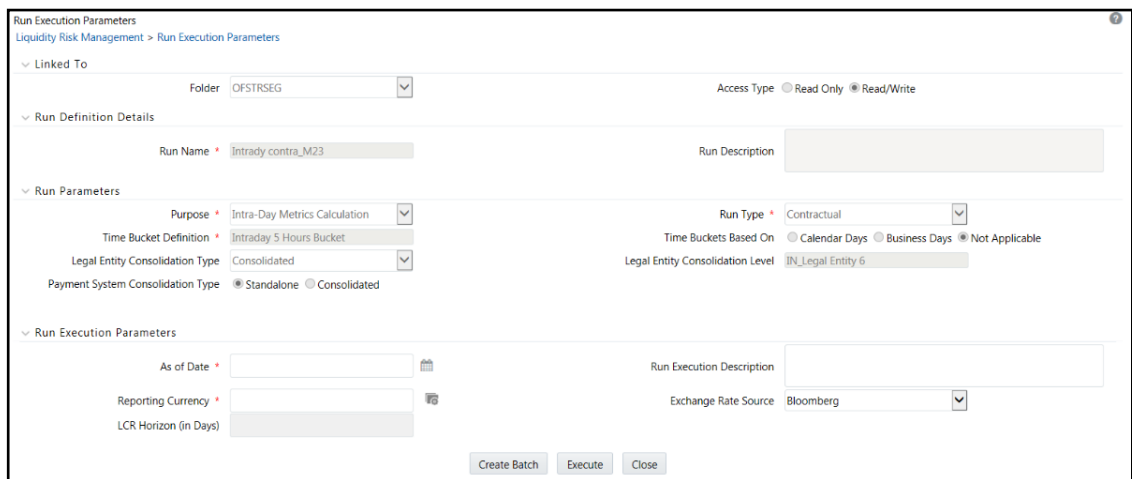
    a. Click ▦ to select the **As of Date**.

    b. Enter the **Run Execution Description**.

    c. Click ▦ to select the **Reporting Currency** from the **Hierarchy** window and then click **OK**.
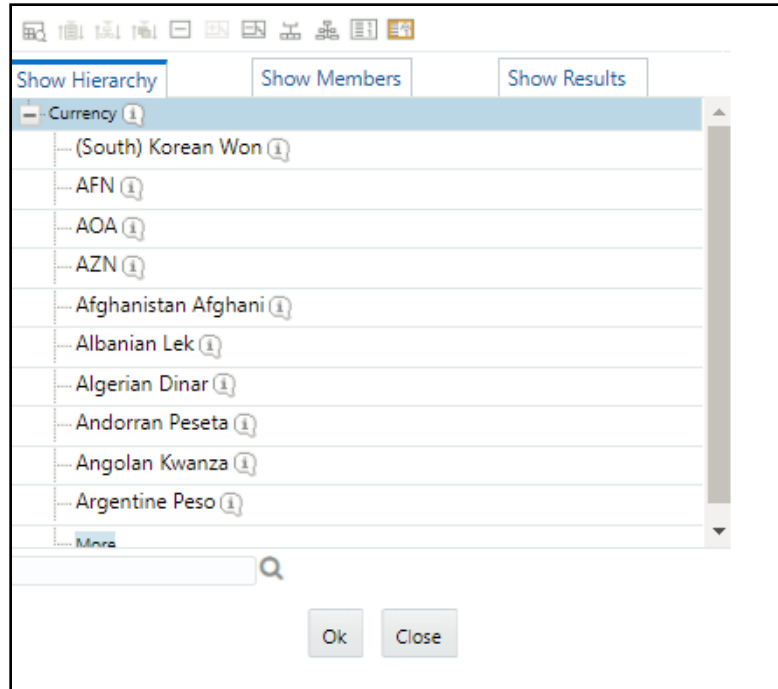
d. Select the **Exchange Rate Source from** the drop-down list.

6. When the Run type is selected as **Contractual** and the purpose is selected as **Regulation YY Liquidity Risk Calculation**, in the **Run Execution Parameters** section, follow these steps:

a. Click [calendar icon] to select the **As of Date.**

b. Enter the **Run Execution Description**.

c. Click [icon] to select the **Reporting Currency** from the **Hierarchy** window and then click **OK**.
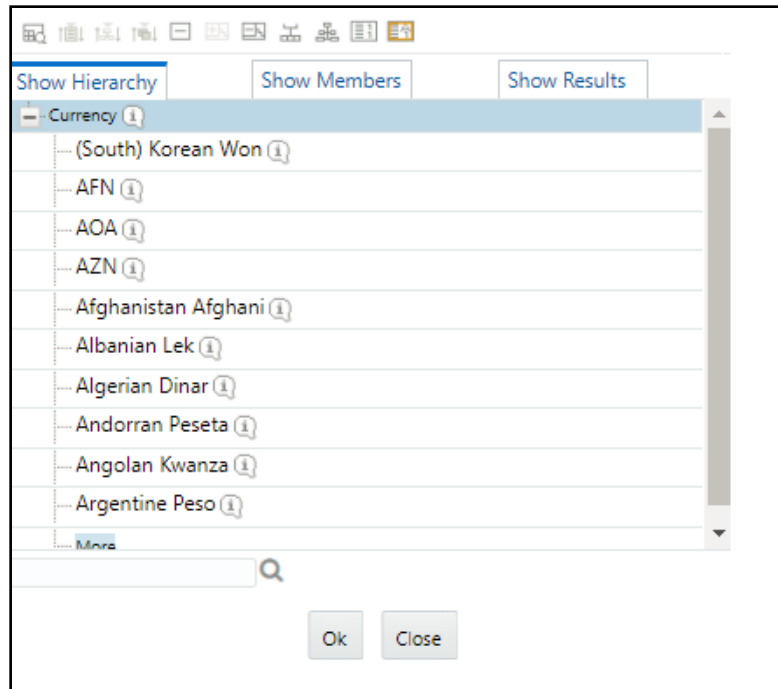
d. Select the **Exchange Rate Source** from the drop-down list.

e. Enter the **Buffer Horizon** value in days.

f. Enter the **Stress Horizon** value or click ![icon] to select from the available options.
This field allows you to specify the value in terms of days and allows multiple horizons to be provided as an input.

7. Execute the **Run** as per one of the following methods:

a. Click **Create Batch** to create batches for execution from the batch execution window.

Or,

b. Click **Execute** to execute the Run from the **Run Execution Parameters** window.

c. Click **Close** to return to the **Run Management Summary** window.

NOTE	Run Execution Parameter Definition does not have an approval process.

8.8.2   Executing a BAU Run

To execute a BAU Run, follow these steps:

1. Click **Run Management** on the LHS menu of the LRMM application to open the **Run Management Summary** window.

2. Click ![icon] to select a BAU Run from the list of Runs and click ![icon] .

The **Run Execution Parameters** window appears. Here, the parameters of the Run are displayed in an un-editable form and the execution parameters are allowed to be specified for the selected Run.

Figure 60 Run Definition – Run Execution Parameters

3. When the Run type is selected as **Business-As-Usual** and the purpose is selected as **Basel III Liquidity Ratios Calculation** or **Long Term Gap Calculation** or **U.S Fed Liquidity Ratio Calculation**, **EBA Delegated Act Liquidity Ratio Calculation, RBI Basel III Liquidity Ratio Calculation**, **BOT Liquidity Ratio Calculation**, in the **Run Execution Parameters** section.

NOTE	The Back Dated Run toggle field, is enabled to select toggle On or toggle Off only when the selected Contractual Run is Back Dated enabled. It is available only when the **Purpose** is selected as **EBA Delegated Act Liquidity Ratio Calculation, RBI Basel III Liquidity Ratio Calculation**, and **U.S Fed Liquidity Ratio Calculation**. For example, if the selected Contractual Run is Back Dated, then the respective BAU run will be considered for backdated execution (the Back Dated Run toggle field is disabled for user selection).

a. Click to select the **As of Date.**

b. Enter the **Run Execution** Description.

c. Click ![icon] to select the **Contractual Run Execution ID** from the window and then click **OK**. This is the execution ID of the underlying Contractual Run.

Figure 61 Contractual Run Execution ID Browser
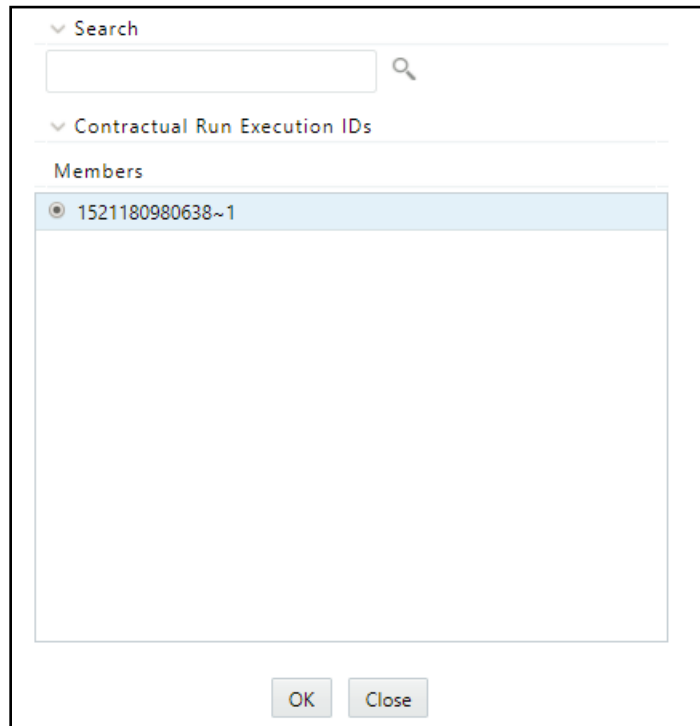
Reporting Currency, Exchange Rate Source, and LCR Horizon fields are disabled and display the values which are selected as part of the contractual Run execution.

| **NOTE** | Except for business assumptions that are selected as part of the Run parameters all other Run parameters are displayed. |
| | Run Execution Parameter Definition does not have an approval process. |
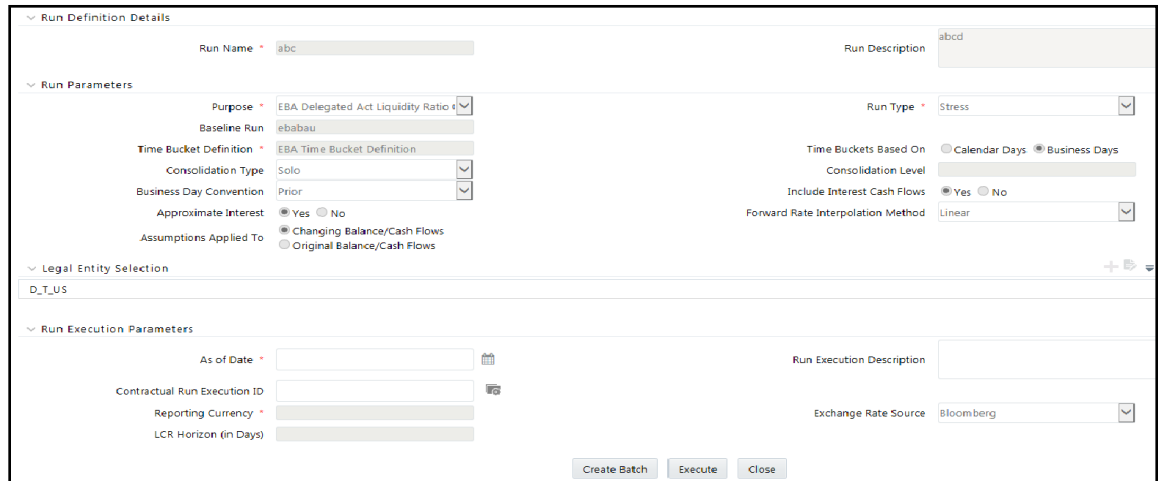
4. Execute the Run as per one of the following methods:

   a. Click **Create Batch** to create batches for execution from the batch execution window.

   Or,

   b. Click **Execute** to execute the Run from the **Run Execution Parameters** window.

5. Click **Close** to return to the **Run Management Summary** window.

8.8.3   Executing a Stress Run

To execute a Stress Run, follow these steps:

1. Click **Run Management** on the LHS menu of the application to open the **Run Management Summary** window.

2. Click ☑ to select a **Stress Run** from the list of Runs and click ⚙ .

3. All the fields are same as explained for Contractual and BAU Runs. The only exception is that a stress Run is based on a Business as usual Run. All the parameters specified as part of the Run execution parameter window are displayed in an un-editable form. This is based on the selection of the BAU Run. There is a direct mapping between a BAU and a Stress definition in the stress testing framework.

4. For Intraday Stress execution, follow these steps:

NOTE	Intraday Stress Run is based on Intraday Contractual Run.

    1. Click 📅 to select the **As of Date**.

    2. Enter the **Run Execution Description**.

    3. Click 🔲 to select the **Contractual Run Execution ID** from the window and then click **OK**. This is the execution ID of the underlying Contractual Run.
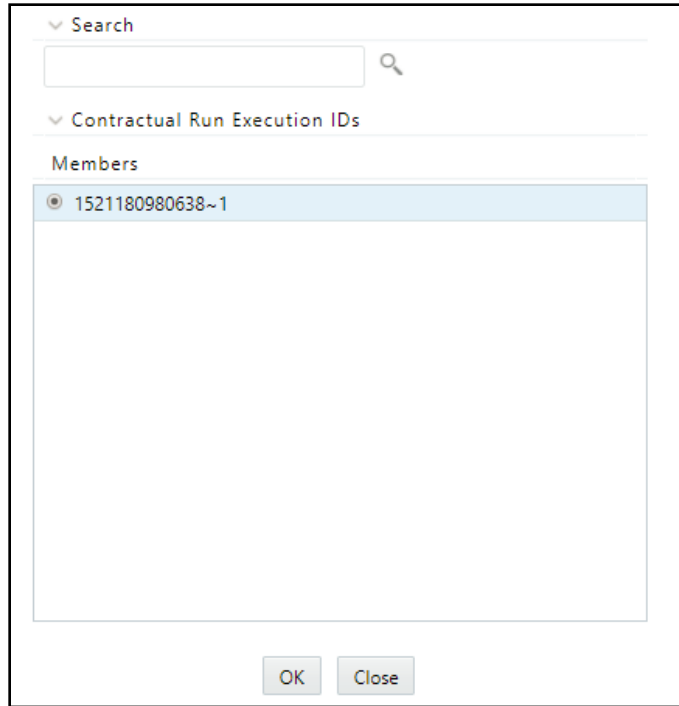
The application prompts you to enter the **Contractual Run Execution ID** if you fail to enter these details.

5. Execute the Run as per one of the following methods:

   a. Click **Create Batch** to create batches for execution from the batch execution window.

   Or,

   b. Click **Execute** to execute the Run from the **Run Execution Parameters** window.

6. Click **Close** to return to the **Run Management Summary** window.

8.9   Run Execution Summary

To view the summary of all the Run executions of a particular Run, click to select a Run from the list of Runs in the **Run Management Summary** window and click .

The **Run Execution Summary** window is displayed as follows:

Figure 62 Run Execution Summary

1. All the parameters entered as part of the **Run Definition** window are displayed in an uneditable form.

2. **Run Execution Details** section displays the Run execution parameters specified for each execution.

   a. You can select a successful **Run Execution ID** and click Reporting Execution Flag to report it for execution.

      A confirmation message appears before updating the Reporting flag.
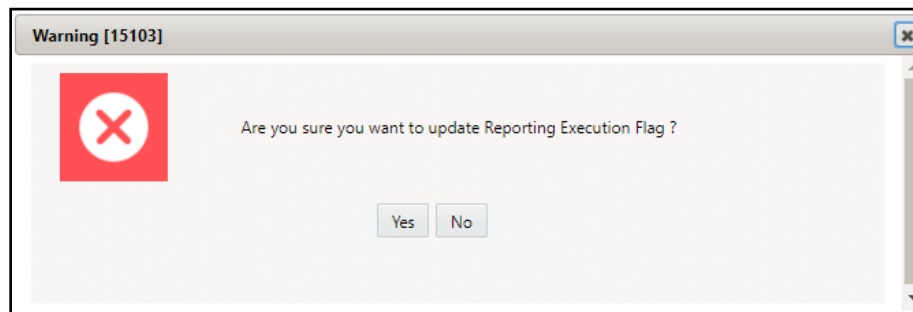
   b. Click **Yes**. This Run ID is now listed in the List of Reporting Run Execution per As-of-Date section.

   c. When you select a Run execution that has failed, the Reporting Execution Flag is disabled.

3. List of Reporting Run Execution per As-of-Date section displays the Run execution parameters which are reported for execution.

4. The business assumptions section displays the details of the business assumptions selected as part of each Run. This is applicable only in case of a Business-as-Usual or Stress Run. The details are displayed in a tabular format in the Business assumption section as follows:

   a. **Assumption Name**: This column displays the name of the business assumption selected as part of the Run.

b. **Version Number**: This column displays the version number of the BAU or stress assumption that was used for computations as part of the selected Run execution. Click the version number to launch the Business Assumption Definition window that displays the specific version of the selected business assumption.

c. **Assumption Category**: This column displays the assumption category selected as part of the Run.

Additionally, for Stress Run, the following fields are displayed:

a. **Stress Assumption Name**: This column displays the name of the stress assumption selected as part of the Run.

b. **Stress Version Number**: This column displays the version number of the BAU or stress assumption that was used for computations as part of the selected Run execution. Click the version number to launch the Business Assumption Definition window that displays the specific version of the selected business assumption.

c. **Stress Assumption Category**: This column displays the stress assumption category selected as part of the Run.

d. **Time Bucket Definition Validation**: This column checks and displays if the Time Bucket Definition under Run Parameters section and the Time Bucket Definition under the Business Assumptions section in Run Definition match.

See the Approving a Run Definition section for how to retire a definition and view the approval summary.

9   Counterbalancing Strategies

The Counterbalancing Strategy module of Oracle Financial Services Liquidity Risk Measurement and Management aids banks in developing contingency funding plans to address the liquidity hotspots observed during stress scenarios of varying magnitudes. A counterbalancing strategy or a contingency funding plan refers to certain measures undertaken by banks to minimize or nullify the gaps identified under the BAU and Stress conditions. The purpose is to identify the large negative and positive liquidity gaps across defined time buckets and apply counterbalancing actions that will reduce the gaps.

A range of counterbalancing strategies, consisting of one or multiple counterbalancing positions covering the fire sale of marketable and fixed assets, creation of new repos, rollover of existing repos and raising fresh deposits or borrowings, can be defined easily to bridge the liquidity gaps observed under different business conditions. This module enables banks to dynamically assess and update their contingency funding plans based on the changing market and business conditions thereby ensuring complete preparedness to combat potential liquidity shocks.

The application gives you the option of applying five different types of counterbalancing positions to generate new cash flows and manage huge negative and positive liquidity gaps. These include the following:

- Sale of Marketable Assets

- Sale of Other Assets

- Rollover of Existing Repo's

- New Repo's

- New Funding

The liquidity gaps and other metrics, calculated post counterbalancing, are displayed in the Liquidity Risk dashboard of ALM Analytics for each counterbalancing strategy definition.

> **NOTE**   Counterbalancing strategies are applied to the liquidity gap results of a specific execution of an existing contractual, business-as-usual, or stress Run.

Topics:

- [Counterbalancing Strategy Definition](#)
- [Understanding Counterbalancing Strategy Summary](#)
- [Defining Counterbalancing Strategies](#)

9.1 Counterbalancing Strategy Definition

> **NOTE** Every SKU in the Liquidity Risk Solution (LRS) application pack leverages this common user interface.

The Counterbalancing Strategy Definition has the following sections for defining the parameters:

- Details
- Liquidity Gap Report
- Counterbalancing Positions
- Liquidity Gap Report Post Counterbalancing

9.1.1 Details

The following details must be specified for the counterbalancing strategy:

- **Counterbalancing Strategy Name**: Enter Counterbalancing Strategy Name.
- **Description**: Enter the description of the counterbalancing strategy.

The following details of a particular execution of the underlying Run to which the counterbalancing strategy is to be applied are selected.

- **FIC MIS Date**: Select the as of date of the Run to which the counterbalancing strategy is to be applied.
- **Run Type:** Select the type of Run on which you want to apply the counterbalancing strategy. Options available in the drop-down are Contractual, BAU and Stress.
- **Run Selection**: Select the Run to which the Counterbalancing Strategy must be executed.
- **Run Execution ID**: Select the Run execution ID of the selected Run to which a counterbalancing strategy must be executed.
- **Currency**: Select the reporting currency or local currency as an option. This will be executed on the selected currency type over the selected Run.
- **Legal Entity**: Select the legal entity to which the counterbalancing strategy must be executed.

> **NOTE** Data at the selected LE level only is displayed. This applies to LEs which have child entities as well.

- **Baseline Run**: Select the baseline Run to which the counterbalancing strategy needs to be executed. When you click the selection button, Run Selection Browser appears which will allow you to select the Run.
- **Time Bucket Level Selection**: Select the time bucket level selection to which the counterbalancing strategy must be executed.

- **Values to be shown in multiples of**: Click this drop-down list to select to display the values in multiples of thousands, millions, and billions.

9.1.2   Liquidity Gap Report

This section displays Liquidity gaps calculated as part of the selected execution and Run selected at the time bucket levels which are in terms of multiples selected as part of the Details section.

It will be at the selected level and value. It will either be in millions or billions or thousands based on your selection. The Liquidity Gap report is generated once you click ➡ button.

9.1.3   Counterbalancing Positions

This section allows you to add one or multiple counterbalancing positions, which together constitute a counterbalancing strategy. When you click the Add ➕ icon, the Counterbalancing Strategy Definition window is displayed where you can specify the counterbalancing positions to be applied.

The Counterbalancing Strategy Definition window supports the following types of counterbalancing positions in the application.

- Sale of Marketable Assets
- Sale of Other Assets
- Rollover of Existing Repos
- New Repos
- New Funding

9.1.3.1   Sale of Marketable Assets

This counterbalancing position type allows you to sell a marketable instrument before its maturity. Sale of marketable assets generates new cash inflow in the sale bucket and reverses all original cash flows occurring between the sale bucket and maturity. Only unencumbered marketable assets (identified through encumbrance status and marketable asset indicator) are available for selection as a part of this counterbalancing strategy.

As part of this counterbalancing position, you are required to select a marketable instrument and provide the following sale parameters:

- **No. of Units / Percentage to be Sold**: This is the number of units or percentage of the instrument that is to be sold. This value has to be within the sale limit, if any, specified for the asset.
- **Discount (in %)**: This is the discount applied to the asset value to determine the inflows on sale.
- **Revised Inflow Bucket**: This is the sale bucket, or bucket where the cash inflows are generated due to the sale.

The cash flows on the sale of marketable assets are calculated as follows:

1. The original maturity bucket and maturity amount of the asset are identified.
2. Cash inflows to be posted to the sale bucket are calculated as follows:

$$Cash\ Inflow_{Sale\ Bucket}$$
$$= Market\ Value\ Per\ Unit \times Number\ of\ Units \times Sale\ Percentage \times (1$$
$$- Discount)$$

3. Original cash flows occurring from the sale bucket to the maturity bucket are reversed as follows:

$$Cash\ Outflow_{Time\ Bucket > Sale\ Bucket} = Original\ Cash\ Inflow \times Sale\ Percentage$$

NOTE	• The units or amount available for sale depends on the sale limit specified for each instrument. For instance, if the total units of Bond A held by the legal entity are 100 and a sale limit of 50% is specified, then, only 50 units of Bond A are allowed to be sold while counterbalancing.
	• If all the available units of an asset are sold, then this asset will not appear in the Marketable Assets Browser for selection.
	• For a partial sale, only the balance units or amount are available for further counterbalancing actions including sale and repo. If an instrument is sold partially, it is allowed to be selected again for sale provided the sale parameters differ, such as a different haircut or sale bucket.

9.1.3.2 Sale of Other Assets

This counterbalancing position type allows you to sell a non-marketable asset such as a fixed asset or an earning asset before its maturity. The sale of other assets generates new cash inflow in the sale bucket and reverses all original cash flows occurring between the sale bucket and maturity. Only unencumbered assets (identified through encumbrance status) are available for selection as a part of this counterbalancing strategy.

As part of this counterbalancing position, you are required to select a non-marketable asset and provide the following sale parameters:

- **Value of Assets to be Sold**: This is the percentage of the asset that is to be sold. This value has to be within the sale limit, if any, specified for the asset.

- **Discount (in %)**: This is the discount applied to the asset value to determine the inflows on sale.

- **Revised Inflow Bucket**: This is the sale bucket, or bucket where the cash inflows are generated due to the sale.

The cash flows on sale of other assets are calculated as follows:

1. The original maturity bucket and maturity amount of the asset are identified.

2. Cash inflows to be posted to the sale bucket are calculated as follows:

$$Cash\ Inflow_{Sale\ Bucket} = EOP\ Balance \times Sale\ Percentage \times (1 - Discount)$$

3. Original cash flows occurring from the sale bucket to the maturity bucket are reversed as follows:

$$Cash\ Outflow_{Time\ Bucket > Sale\ Bucket} = Original\ Cash\ Inflow \times Sale\ Percentage$$

NOTE	• The sale of other assets includes loans and fixed assets. All assets of the banks excluding marketable assets are available for sale as part of this counterbalancing position.
	• The amount available for sale depends on the sale limit that is specified. For example, if the total value of land held by the legal entity is $10000000 and a sale limit of 30% is specified, then the land worth of a maximum of $3000000 is allowed to be sold while counterbalancing.
	• For a partial sale, only the balance amount is available for further counterbalancing actions including sale and repo. If an asset is sold partially, it is allowed to be selected again for sale provided the sale parameters differ, such as a different haircut or sale bucket.

9.1.3.3 Rollover of Existing Repos

This counterbalancing position type allows you to extend the maturity of an existing repo/reverse repo by rolling it over to a later time bucket. This results in rescheduling of cash outflows/inflows to a future date and reversal of cash outflows/inflows at the original maturity. This is applied at an individual instrument position level.

As part of this counterbalancing position, you are required to select an existing repo and provide the following rollover parameters:

- Units to be Rolled Over: This is the number of units of the underlying asset that are to be rolled over.

- Revised Maturity Bucket: This is the new maturity bucket post rollover. Revised maturity bucket should be less than or equal to the maturity bucket of the underlying instrument.

- Haircut (in %): Provide the Haircut in %.

The cash flows on rollover of repos and similar instruments are calculated as follows:

1. Original maturity bucket and maturity amount of the repo is identified.

2. Original cash outflows occurring in the original maturity bucket are reversed:

$$Cash\ Inflow_{Original\ Maturity\ Bucket} = MTM\ Value \times Rollover\ Percentage \times (1 - Haircut)$$

3. Cash outflows to be posted to the revised maturity bucket are calculated as follows:

$$Cash\ Outflow_{Revised\ Maturity\ Bucket} = MTM\ Value \times Rollover\ Units$$

The cash flows on rollover of reverse repos and similar instruments are calculated as follows:

1. Original maturity bucket and maturity amount of the reverse repo is identified.

2. Original cash inflows occurring in the original maturity bucket are reversed:

$$Cash\ Outflow_{Original\ Maturity\ Bucket} = MTM\ Value \times Rollover\ Percentage \times (1 - Haircut)$$

3. Cash inflows to be posted to the revised maturity bucket are calculated as follows:

$$Cash\ Inflow_{Revised\ Maturity\ Bucket} = MTM\ Value \times Rollover\ Units$$

> **NOTE**
> - Revised maturity buckets cannot exceed the maturity bucket of the underlying security.
> - All repo-like instruments are supported as part of this counterbalancing action including repo's, reverse repo's, buy/sell backs and sell/buy backs.

9.1.3.4 New Repos

This counterbalancing position type allows you to create new repo transactions by selecting an existing asset. The creation of new repo results in a cash inflow on the repo start date and a corresponding outflow at the repo maturity date specified as part of the counterbalancing position. New repos can be created for the following types of marketable instruments:

- Unencumbered securities (identified through encumbrance status)
- Securities for which the bank has re-hypothecation rights (indicator for re-hypothecation rights)

As part of this counterbalancing position, you are required to select an existing repo and provide the following rollover parameters:

- No of Units to be Repo'd: This is the number of units of the asset to be repo'd.
- Haircut (in %): This is the haircut applied to calculate the repo value.
- Revised Inflow Bucket: This is the bucket where the inflows from the repo are received and the asset is encumbered, or the repo start bucket.
- Revised Maturity Bucket: This is the time bucket in which the repo contract matures, that is where the asset is received, and cash is paid to the counterparty.

The cash flows on repo creation are calculated as follows:

1. Cash inflows occurring in the repo start bucket are calculated as follows:

$$Cash\ Inflow_{Repo\ start\ Bucket} = MTM\ Value \times Units\ to\ be\ Repo'd \times (1 - Haircut)$$

2. Cash outflows to be posted to the revised maturity bucket are user-specified.
3. The underlying asset is encumbered, meaning the encumbrance status is updated.

The cash flows on repo creation are calculated as follows:

1. Cash outflows occurring in the reverse repo start bucket are calculated as follows:

$$Cash\ Outflow_{Reverse\ Repo\ start\ Bucket} = MTM\ Value \times Units\ to\ be\ Repo'd \times (1 - Haircut)$$

2. Cash inflows to be posted to the revised maturity bucket are user-specified.

NOTE	• Revised maturity buckets cannot exceed the maturity bucket of the underlying security.
	• All repo-like instruments are supported as part of this counterbalancing action including repo's, reverse repo's, buy/sell backs and sell/buy backs.
	• The units of the asset available to be repo'd depend on the repo limit that is specified. For instance, if the total units of Bond A held by a legal entity are 100 and a repo limit of 40% is specified, then only 40 units of Bond A are allowed to be repo'd while counterbalancing.
	• If all available units of an asset are repo'd then it does not appear for selection in the Marketable Assets Browser.
	• For a partial repo, only the balance units/amount appears in the Units Available column for further counterbalancing actions (for example. sale of marketable assets). If only some units of an instrument are repo'd, then it can be selected again for repo provided the repo parameters differ (such as with a different haircut or time bucket).
	• Exposure to an existing counterparty while creating new repos is allowed only up to the counterparty limit specified. For instance, if the counterparty limit is specified as 1 Million for Counterparty X, the current exposure is 900000, then the creation of new repo's is allowed only up to an exposure of 100000 against Counterparty X.

9.1.3.5 New Funding

This counterbalancing position type allows you to raise new funding either as a deposit or borrowing. A new funding creates a cash inflow in the specified time bucket and a corresponding outflow in a later time bucket. The LRMM application allows you to specify the product, borrowing date (inflow date), borrowed amount, maturity date, and amount.

As part of this counterbalancing position, you are required to select a funding product and provide the following parameters:

- **Legal Entity:** This is the legal entity that is raising the new funding in the context of the counterbalancing position.

- **Line of Business**: This is the line of business of the legal entity which is raising the new funding.

- **Natural Currency**: This is the natural currency of the new deposit or borrowing account.

- **Counterparty**: This is the counterparty who is deemed to have provided the new funding.

- **Inflow Bucket:** This is the transaction start bucket that is, the bucket in which the inflows from the new deposit or borrowing is recorded.

- **Inflow Amount**: This is the cash received from the new funding.
- **Maturity Bucket:** This is the maturity bucket of the transaction that is, the bucket in which cash outflows are recorded.
- **Maturity Amount**: This is the outflow amount at the maturity of the new funding.

The cash flows do not have any calculations. It posts the inflows and outflows amount as provided by you.

9.1.4 Liquidity Gap Report Post Counterbalancing

This section displays the Post Counterbalancing Gap Report of the selected Run. Once all counterbalancing positions are defined, clicking the Apply Counterbalancing button triggers the calculation of changes to the cash flow position due to the counterbalancing strategy. The effect of counterbalancing positions on the baseline liquidity gaps is displayed in a tabular format. The counterbalancing strategy is allowed to be edited and its effect can be re-calculated within the application.

9.2 Understanding Counterbalancing Strategy Summary

In the **Oracle Financial Services Analytical Applications Infrastructure** home screen select **Financial Services Liquidity Risk Management.**

To open the Counter Balancing Strategy window, choose L**iquidity Risk Management** > **Counter Balancing Strategy** on the Left-Hand Side (LHS) menu.

Figure 63 Counterbalancing Strategies Summary

The Counterbalancing Strategies Summary window of the application allows you to define and execute a Counterbalancing Strategy in the application.

The search section contains multiple parameters. You can specify one or more search criteria in this section. When you click the Search icon, depending upon the search criteria, this filters and displays the relevant search combination parameters under the list of Counterbalancing Strategies.

Table 100 Counterbalancing Strategy – Fields and Descriptions

Search Field or Icon	Description
Search ^{Q}	This icon allows you to search the counterbalancing strategy based on the search criteria specified. Search criteria include a combination of Name, Run Name, Execution Date, or Legal Entity. The counterbalancing strategies displayed in the Counterbalancing Strategy summary table are filtered based on the search criteria specified on the clicking of this icon.
Reset	This icon allows you to reset the search section to its default state that is, without any selections. Resetting the search section displays all the existing counterbalancing strategies in the Counterbalancing Strategies Summary table.
Counterbalancing Strategy Name	This section allows you to search the pre-defined Counterbalancing Strategy based on the Counterbalancing Strategy name. Specify the Counterbalancing Strategy Name to search for the pre-defined Counterbalancing Strategy.
Run	This section allows you to search the pre-defined Counterbalancing Strategy based on the Run Name. Specify the Run Name here to search for the pre-defined Counterbalancing Strategy.
Run Execution Date	This section allows you to search the pre-defined Counterbalancing Strategy based on Execution Date. Specify the Execution Date here to search for the pre-defined Counterbalancing Strategy.
Legal Entity	This section allows you to search the pre-defined Counterbalancing Strategy based on Legal Entity. Specify the Legal entity to search for the predefined Counterbalancing Strategy.

Table 101 Counterbalancing Strategy Summary - Icons

Runs Icon Name	Icon	Description
Add	✚	This icon allows you to define a new Counterbalancing Strategy.
View	📄	This icon allows you to view the selected Counterbalancing Strategy.
Edit	✎	This icon allows you to edit the selected Counterbalancing Strategy.
Delete	🗑	This icon allows you to delete the selected Counterbalancing Strategy.

9.3   Defining Counterbalancing Strategies

After executing Contractual, BAU, and Stress Runs, Counterbalancing Strategies are applied to the liquidity gaps which are identified after the execution of the Run.

Follow these steps to apply Counterbalancing Strategies on identified liquidity gaps:

1. Click ✚ in the counterbalancing strategy summary window. The **Counterbalancing Strategy Definition** window appears to define the counterbalancing strategy.

Figure 64 Counterbalancing Strategy Definition

2. Enter the name of the counterbalancing strategy in the field **Counterbalancing Strategy Name**.

3. Enter the **Description** of the Counterbalancing Strategy.

4. Click to select the **As of Date** field.

> | **NOTE** | Depending on the As of Date selected, the other fields are filtered and then values are displayed. |
> |----------|---|

5. Select the type of Run (Contractual or Business-As-Usual) under field Run Type.

6. Click to select the Run Name in the **Run Selection** field.

7. Select the **Run Execution ID** from the dropdown.

8. Select the **Currency** for which the Counterbalancing Strategy is to be executed.

9. Select the **Legal Entity** for which the Counterbalancing Strategy is to be executed.

10. Select the level at which the **Time Buckets** are to be displayed.

11. Select the **Values to be shown in multiples of** Thousands, Million, or Billion, shown in the preceding figure:

12. Click to display the **Liquidity Gap Report**, shown in the following figure. If there are any negative gaps, they are highlighted in red.

Figure 65 Liquidity Gap Report

13. Click ✚ in the **Counterbalancing Positions** section to add the counterbalancing strategies. The **Add Counterbalancing Position** window appears.

Figure 66 Add Counterbalancing Positions

a. In the **Add Counterbalancing Position window**, follow these steps:

i. In this window, you can define five different types of counterbalancing strategies. See the Adding Counterbalancing Positions section.

ii. Each counterbalancing strategy has its edit option (✚) which will allow you to select the instrument from the **Instrument Selection** browser window and apply the counterbalancing strategy to the identified Liquidity Gap. A detailed explanation about the inputs required for each counterbalancing strategy is provided in the Counterbalancing Positions section.

iii. If an additional instrument is to be added, then click ✚ and repeat the procedure.

NOTE	The following errors may appear while defining Counterbalancing Strategies:
	• The Counterbalancing strategy name already exists. Please specify a different name: This error appears if you enter the name of the counterbalancing strategy which is already defined then system.
	• The upper bound of the Inflow Bucket cannot be less than MIS Date + No. of Days for Liquidation: This error appears when the time bucket selected is less than the execution date.
	• Units to be sold cannot be greater than the Units Available: This error message appears if the given units to be sold are more than the units available for the selected instrument.
	• Discount % needs to be between 0 and 100%: This error message appears if the values provided in the discount field is not between Zero and Hundred.
	• Revised Maturity Bucket should fall within the range of the number of days to maturity of the underlying instrument: This error message appears, if the revised maturity date bucket entered is greater than the maturity date of the underlying.

iv. After adding counterbalancing positions, click **OK** or,

v. Click **Validate** to validate the entries updated by you.

The **Validate Counterbalancing Positions** window appears which indicates the positions which have breached limits specified as well as exceed available units.

Figure 67 Validate Counterbalancing Positions

vi. The Validations section displays the following:

— **Positions**: The selected positions in which breach occurs is displayed.

— **Counterbalancing Method**: The counterbalancing method of the position is displayed.

— **Exceeds Available Units**: The positions which exceed available units are marked in red. These are treated as errors and must be changed to save the strategy. If any position has this error, the strategy cannot be saved.

— **Sale Limit Breach**: The positions which breach the sale limit specified are marked in yellow. These are warning messages which are displayed when you continue to save. You are allowed to save the strategy without changing these positions.

— **Repo Limit Breach**: The positions which breach repo limit specified are marked in yellow. These are warning messages which are displayed when you continue to save. You are allowed to save the strategy without changing these positions.

— **Counterparty Limit Breach**: The positions which breach counterparty limit specified are marked in yellow. These are warning messages which are displayed when you continue to save.

vii. You are allowed to change the discounts and continue with the definition.

viii. To revalidate, click **Revalidate** button. The same window appears with all positions which are rectified and no longer exceed units available or breach limits are marked in green.

ix. On the **Validate Counterbalancing Positions** window, click **OK** to return to the **Add Counterbalancing Positions** window.

x. On the **Add Counterbalancing Positions** window, click **OK** to return to the **Counterbalancing Strategy Definition** window.

| NOTE | • The positions are grouped according to the counterbalancing method. |
| | • The Add Counterbalancing Positions window is displayed only when all positions marked in red are rectified. |

14. Click **Apply** in the **Counterbalancing Strategy Definition** window to execute the Counterbalancing Strategy and view the updated report with the revised liquidity gaps.

You can now view the time bucket wise gap report and see the impact of each counterbalancing strategy selected in the Liquidity Gap Report Post Counterbalancing section. You can save these strategies for future use by clicking the Save button.

9.3.1 Adding Counterbalancing Positions

This section allows you to add one or more counterbalancing positions, which together constitute a counterbalancing strategy. When you click Add ➕, the Counterbalancing Strategy Definition window is displayed where you can specify the counterbalancing positions to be applied.

Topics:

- Sale of Marketable Assets
- Sale of Other Assets
- Rollover of Existing Repos
- New Repos
- New Funding

9.3.1.1   Sale of Marketable Assets

To add Sale of Marketable Assets Counterbalancing Strategy, follow these steps:

1. To select individual marketable instruments that are to be sold, click **Add** ✚ in the **Sale of Marketable Assets** section. The **Instrument Selection** window is displayed.

2. Select the **Instrument** to which Sale of Marketable Asset Counterbalancing Strategy is to be applied and click.

3. The list of instruments displayed in the **Instrument Selection** window is taken from the table **FSI LRM Instrument** table where **Marketability Indicator** is set to Y.

4. You can alternatively search for the instrument by selecting the various filter options in the **Advanced Filter** field.

5. The selected information is auto-populated from the FSI LRM INSTRUMENT table when you select the instrument in the **Instrument Selection** window.

6. The following details of each selected instrument are displayed:

   - Instrument
   - Natural Currency
   - Legal Entity
   - Instrument Maturity Date
   - Units Available
   - Market Value Per Unit (NCY)
   - Market Value Per Unit (Converted)
   - No. of Days for Liquidation
   - Sale Limit
   - No. of Units / Percentage to be Sold
   - Discount (in %)
   - Revised Inflow Bucket

7. You must specify the following sale parameters:

   - No. of Units / Percentage to be Sold: Enter the number of units or percentage of the instrument to be sold based on the Sale Limit parameter selected.
   - Discount (in %): Provide information on the discount on the price of the instrument. The discount should be entered in Percentage.
   - Revised Inflow Bucket: Select the inflow bucket where the stated cash inflow will occur.

For a detailed explanation of Sale of Marketable Assets, see the Sale of Marketable Assets section.

9.3.1.2   Sale of Other Assets

To add Sale of Other Assets Counterbalancing Strategy, follow these steps:

1. To select individual assets that are to be sold, click **Add** ✚ in the **Sale of Other Assets** section. The **Non-Marketable Asset Selection** window is displayed.

2. Select the **Non-Marketable Asset** to which Sale of Other Assets Counterbalancing Strategy is to be applied and click **OK**.

3. The information is auto-populated from the **FSI LRM Instrument** table when you select the **Asset** in the **Instrument Selection** window.

4. The following details of each selected instrument are displayed:

   - Asset

   - Natural Currency

   - Legal Entity

   - Asset Value(NCY)

   - Asset Value (Converted)

   - Number of Days for Liquidation

   - Sale Limit

   - Value of Assets to be Sold

   - Discount (in %)

   - Revised Inflow Bucket

5. You must specify the following sale parameters:

   - Value of Assets to be Sold: Enter the percentage of the instrument to be sold based on the Sale Limit parameter selected.

   - Discount (in %): Provide information on discount provided on the price of the instrument. The discount should be entered in percentage.

   - Revised Inflow Bucket: Select the inflow bucket where the cash inflow will occur.

For a detailed explanation on Sale of Other Assets, see the Sale of Other Assets section.

9.3.1.3 Rollover of Existing Repos

To add Rollover of Existing Repos Counterbalancing Strategy, follow these steps:

1. To select individual repos, click **Add** ✚ in the **Rollover of Existing Repos** section. The **Repo Selection** window is displayed.

2. Select the **Repo** to which Rollover of Existing Repos Counterbalancing Strategy is to be applied and click **OK**.

3. The list of Repos to be rescheduled, displayed in the **Instrument Selection** window is taken from the **FSI LRM Instrument** table where encumbrance status is set to **N** and it is a Repo Transaction.

4. You can alternatively search for the instrument by selecting the various filter options in the **Advanced Filter** field.

5. The information is auto-populated from the **Fact Common Account Summary** table when you select the **Repos** in the **Instrument Selection** window.

6. The following details of each selected instrument are displayed:

   - Repo Name
   - Natural Currency
   - Legal Entity
   - Counter Party
   - Repo Maturity Date
   - Repo Maturity Amount (NCY)
   - Repo Maturity Amount (Converted)
   - Underlying Instrument
   - Instrument Maturity Date
   - Units Available
   - Market Value Per Unit (NCY)
   - Market Value Per Unit (Converted)
   - Units to be Rolled Over
   - Revised Maturity Bucket
   - Haircut (in %)

7. You must specify the following parameters:

   - Units to be Rolled Over: Provide information on the number of units to be rolled over.
   - Revised Maturity Bucket: Specify the Revised Time Bucket into which the repo values are to be readjusted. Revised Maturity Bucket should fall within the range of the number of days to maturity of the underlying instrument.
   - Haircut (in %): Provide the Haircut in %.

For a detailed explanation on Rollover of Existing Repos, see the Rollover of Existing Repos section.

9.3.1.4 New Repos

To add New Repos Counterbalancing Strategy, follow these steps:

1. To select individual new repos, click **Add** ➕ in the **New Repos Counterbalancing Strategy** section. The **New Repos** window is displayed.

2. Select the **Instrument** to which New Repos Counterbalancing Strategy is to be applied.

3. The list of instruments displayed in the **Instrument Selection** window is taken from the **FSI LRM Instrument** table where the underlying is a Repo.

4. You can alternatively search for the instrument by selecting the various filter options in the **Advanced Filter** field.

5. The information is auto-populated from the **Fact Common Account Summary** table when you select the Instrument to be purchased.

6. The following details of each selected instrument are displayed:

- Instrument
- Natural Currency
- Legal Entity
- Availability Start Date
- Availability End Date
- Units Available
- Market Value per Unit(NCY)
- Market Value per Unit (Converted)
- Repo Limit
- Counter Party
- Revised Maturity Amount
- No. and Units to be Repo'd
- Haircut (in %)
- Revised Inflow Bucket
- Revised Maturity Bucket

7. You must specify the following parameters:

   - No. and Units to be Repo'd: Enter the number of units to be repo'd.
   - Haircut (in %): Provide the Haircut in %.
   - Revised Inflow Bucket: Enter the Revised Inflow Bucket, that is, in which bucket you are going to purchase the Instrument.
   - Revised Maturity Bucket: Enter the Revised Maturity Bucket

For detailed explanation on New Repos, see the New Repos section.

9.3.1.5   New Funding

To add New Funding Counterbalancing Strategy, follow these steps:

1. To select new funding, click **Add** ✛ in the **New Funding Counterbalancing Strategy** section. The **Product** window is displayed.

2. Select the **Product** to which the New Funding Counterbalancing Strategy is to be applied.

3. The list of products to be purchased displayed in the **Instrument Selection** window is taken from the **DIM GL Account** table, where GL items with GL Type as Liability is considered.

4. You can alternatively search for the instrument by selecting the various filter options in the **Advanced Filter** field.

5. Select the **Product**, **Borrowing Date (inflow date)**, **Borrowed Amount**, **Maturity Date**, and **Amount**.

6. Select a funding product and provide the following parameters:

- Legal Entity: Enter the legal entity which is raising the new funding in the context of the counterbalancing position.

- Line of Business: Enter the line of business of the legal entity which is raising the new funding.

- Natural Currency: Enter the natural currency of the new deposit or borrowing account.

- Counterparty: Enter the counterparty who is deemed to have provided the new funding.

- Inflow Bucket: Enter the transaction start bucket that is, the bucket in which the inflows from the new deposit or borrowing are recorded.

- Inflow Amount: Enter the cash received from the new funding.

- Maturity Bucket: Enter the maturity bucket of the transaction that is, the bucket in which cash outflows are recorded.

- Maturity Amount: Enter the outflow amount at the maturity of the new funding.

For a detailed explanation on New Funding, see the New Funding section.

10   Metadata Lineage

This screen enables you to view the metadata lineage of the business tasks. There are four filters available:

- **Business Task Search**: Enables you to search for Business tasks by name.

- **Jurisdiction**: Enables you to search for tasks specific to a jurisdiction. For example, if you select EBA, it lists out only the EBA related tasks.

- **Ratio Type**: Enables you to search based on the type of ratio, such as LCR or DIC.

- **Run List**: Enables you to search based on the seeded runs.

Additionally, you can use a combination of filters, such as **Jurisdiction** and **Run List**. For example, if you select EBA and EBA-Delegated Act-Contractual Run, then EBA related business tasks, specific to EBA-Delegated Act-Contractual Run only, will be displayed.

Figure 68: Metadata Lineage Window

Business Tasks	Section	Page	Paragraph
LRM - Mitigant HQLA Reclassification - Level 2A - Covered Bonds		42	Paragraphs 52 b, 31, 39 to 40
LRM - Mitigant HQLA Reclassification - Level 2B RMBS		43	Paragraphs 54 a, 31, 39 to 40
Additional Collateral Required Due to Ratings Downgrade		98	Paragraph 118
Loss of Re-hypothecation Rights Due to Ratings Downgrade		99	Paragraph 118
ASF-Deposits from co op banks with mat more than 1 yr		168	Paragraph 24 d and footnote 10
ASF-UOD from central bank with maturity less than 1 yr		172	Paragraph 24 d and 25 a
RSF- Encumbered residential mortgage loans		206	Paragraph 41 a and 40 e
LRM - HQLA Reclassification - Level 2B RMBS		31	Paragraph 54 a
ASF- Sec borr and dep from corp with maturity less than a yr		134	Paragraph 21c, 24, 25a
NFC, Sov, CB, MDB, PSE Non-operational UWF Run-off		88	Paragraphs 107 to 108

The article references are mentioned for every business task. After the filtered records are displayed, click the task name to view the complete metadata lineage. In the **Lineage Metadata** window, you can select the level up to which the records must be displayed from the drop-down list:

- **Level 2**: Displays lineage up to Process level.

- **Level 3**: Displays lineage up to Task level.

- **Level 4**: Displays lineage up to Measures level.

- **All**: Displays lineage in all levels

Figure 69: Lineage Metadata Window
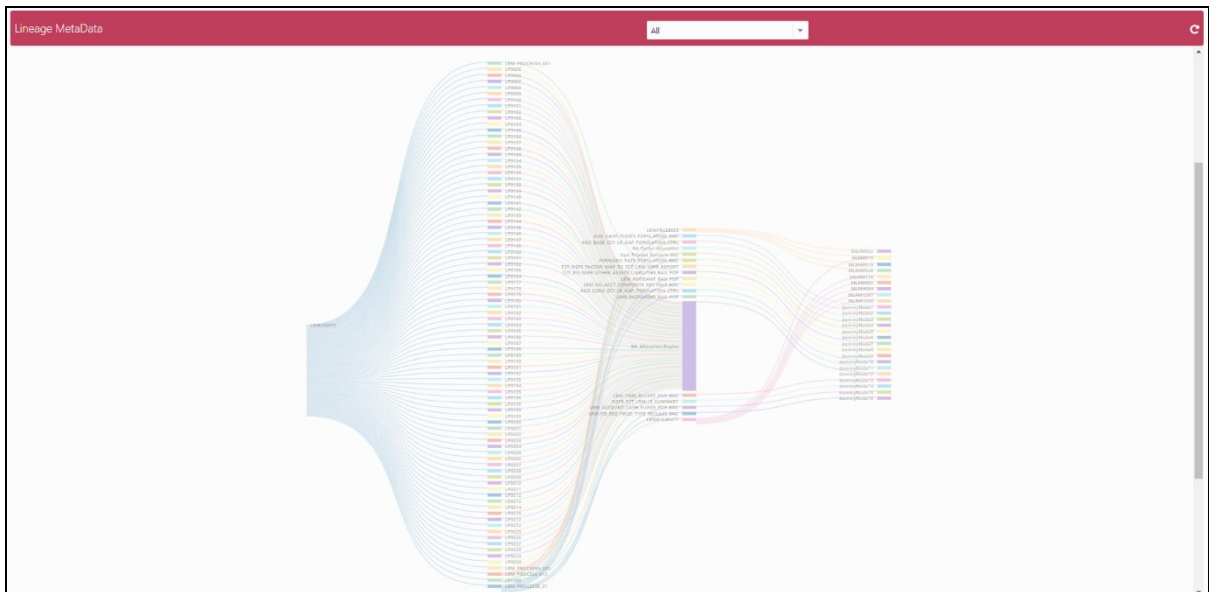
To return to the previous page, click the **Reset** icon. Select any process, and right-click to view the following details:

- **Focus**: Displays information about that specific process only.

- **Show Parentage**: Displays the parent component.

- **Show Definition**: Displays the definition page for the specific component.

Figure 70: Process Details
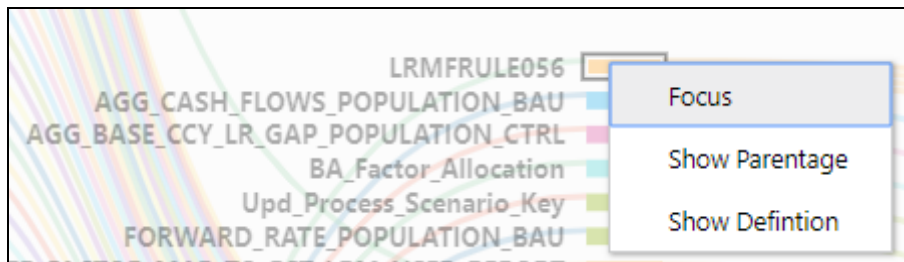
11   Viewing LRS objects in Metadata Browser

The Liquidity Risk Solution under Oracle Financial Services Analytical Applications has the Metadata Browser (MDB). The MDB window displays RRF Runs in application view and LRM objects in object view.

For details, see the Metadata Browser User Guide Release 8.1 available on the OHC Documentation Library.

12   Cash Flows

Every Product is identified based on its Balance Sheet Category as one of the following:

- Asset
- Liability
- Off-Balance Sheet

Topics:

- Types of Cash Flows
- Cash Flow Aggregation
- Currency Conversion

12.1   Types of Cash Flows

This section describes the types of cash flows.

Topics:

- Account Cash Flow
- Mitigant Cash Flow or Collateral Cash Flow
- Inflows and Outflows
- Principal and Interest Cash Flows

12.1.1   Account Cash Flow

Account cash flows consist of inflows and outflows that occur from a particular account periodically under contractual terms. The account can be either an asset or a liability. For example, a bank could disburse a bullet loan where interest payments occur periodically, on say a quarterly basis, while the principal is repaid as a single bullet payment at the maturity of the loan. Also, a bank could disburse a loan on an EMI basis where both principal and interest are repaid in equal monthly installments across the life of the loan.

12.1.2   Mitigant Cash Flow or Collateral Cash Flow

Mitigant or collateral cash flows are cash flows received from the underlying collateral given to the bank by its counterparty, provided, the ownership of the underlying collateral has been transferred to the bank. For example, if a bank has received bonds as collateral against a 5-year loan that it has disbursed, and if the ownership of the collateral is transferred to the bank, then the bank has the right to receive the periodic coupon payments on the underlying bonds till the maturity of the loan. If the ownership of the underlying collateral is not transferred to the bank, then the periodic coupon payments are not payable to the Bank but will remain with the owner of the collateral.

Similarly, in case of collateral posted by a bank to its counterparty, if the ownership of such an asset is transferred then the cash flows occurring on the collateral will not be considered by the bank during the encumbrance period of the collateral. If the ownership of the collateral is not transferred, then all cash flows from the underlying asset are considered by the bank for its computations.

12.1.3   Inflows and Outflows

Contractual cash flows could either be inflows or outflows. Inflows and outflows can occur for both assets and liabilities. For instance, a forward-starting liability transaction can have one or multiple inflows signifying the start of the transaction and one or multiple outflows including principal and interest payment signifying repayment of the liability.

These inflows and outflows are categorized based on the Cash Flow Type in the Account Cash Flows Staging table. An inflow is identified by the Cash Flow Type 'I'. However, if the Cash Flow Type is 'O', then it is classified as an Outflow.

12.1.4   Principal and Interest Cash Flows

Further, these inflows and outflows are categorized as either Principal or Interest cash flows based on the Financial Element Code in the Account Cash Flows Staging table. If the Financial Element Code is 'I', then it is identified as an Interest Cash Flow. However, the Financial Element Code is 'P', then it is classified as a Principal Cash Flow.

12.1.4.1   Approximation of Interest Cash Flows

OFS LRM considers both principal and interest cash flows based on user selection. Calculation of the impact of each business assumption on interest cash flows is supported in two ways:

- Business assumption values are applied to both principal and interest cash flows.

- Assumption values are applied to principal cash flows only and interest is approximated.

If you select the Include Interest Cash flow parameter in the Run Definition window as Yes, both principal and interest cash flows are taken considered for calculations. If you select the Approximate Interest parameter as Yes, then the business assumption is applied only to the principal cash flows, and the interest cash flows are approximated based on changes to the principal. If you select the Include Interest Cash flow parameter is selected as Yes and Approximate Interest parameter is selected as No, the business assumption values are applied to both principal and interest cash flows. However, this application depends on the manner in which the business assumption is defined as follows:

- If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Principal, then the assumption is applied only to the principal cash flows.

- If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Interest, then assumption impacts only Interest cash flows.

- If you have selected Cash Flow Type as a dimension in the business assumption and the dimension member as Principal and Interest, then the assumption is applied to both principal and interest cash flows.

- If you have not selected Cash Flow Type as a dimension in the business assumption, then the assumption is applied to both principal and interest cash flows.

If the Include Interest Cash Flow parameter is selected as No, only principal cash flows are considered and interest cash flows are ignored.

The procedure for approximating interest is as follows:

1. Obtain the principal and interest cash flows under contractual terms.

2. Bucket the contractual cash flows based on the user-specified time buckets while distinguishing between interest and principal cash flows in each time bucket.

3. Calculate the outstanding balance in each bucket under contractual terms. The outstanding balance in the first time bucket will be the EOP balance. The formula for calculating the outstanding balance for each subsequent bucket is as follows:

$$O/S\ Balance_{Bucket\ n,Contractual} = O/S\ Balance_{Bucket\ n-1,Contractual} - Principal\ CF_{Bucket\ n-1,Contractual}$$

Where,

O/S Balance: Outstanding Balance

CF: Cash Flows

4. Apply the business assumption to estimate principal cash flows. For balance-based assumptions, this applies to the EOP balance. In case of cash flow-based assumptions, this applies to the principal cash flows in a given bucket.

5. Calculate the outstanding balance in each bucket under business-as-usual or stress terms. The outstanding balance in the first time bucket will be the EOP balance. The formula for calculating the outstanding balance for each subsequent bucket is as follows:

$$O/S\ Balance_{Bucket\ n,\ Assumption} = O/S\ Balance_{Bucket\ n-1,\ Assumption} - Revised\ Principal\ CF_{Bucket\ n-1,\ Assumption}$$

6. Calculate the impact on interest cash flows in each bucket under business-as-usual or stress terms as per the following formulas:

$$Interest\ CF_{Bucket\ n,Assumption} = \left(\frac{O/S\ Balance_{Bucket\ n,Assumption} \times Interest\ CF_{Bucket\ n,Contractual}}{O/S\ Balance_{Bucket\ n,Contractual}} \right)$$

$$Change\ in\ Interest\ CF_{Bucket\ n,Assumption} = Interest\ CF_{Bucket\ n,\ Assumption} - Interest\ CF_{Bucket\ n,\ Contractual}$$

Illustration 1: Impact on Interest Cash Flows under Run-off Assumption

Table 102 Example giving the UI Specification for Run-off Assumption

Run-off	From Bucket	To Bucket	Assignment Method	Assumption Unit	Assumption Value	Based On	Product
	1-3 Months	1-7 Days	Selected	Percentage	10	Cash Flow	Loan

In the following Illustration both Principal and Interest are downloads.

Table 103 Example showing Impact on Interest Cash Flows under Run-off Assumption

Measure	Contractual Cash Flows				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Principal	150	250	330	700	610
Outstanding Balance (Refer Point 3)	2000	1850 (2000-150)	1600 (1850-250)	1270 (1600-330)	570 (1270-700)
Interest	20	40	45	80	70

Measure	Business Assumption				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Assumption impacted Principal	Nil	(+) 61	Nil	Nil	(-) 61 (610*10%)
Revised Principal CF (post business assumption)	150 (150 + Nil)	311 (250 + 61)	330 (330+Nil)	700 (700 + Nil)	549 {610 + (-)61}
Outstanding Balance (Refer Point 5)	2000	1850 (2000 – 150)	1539 (1850 – 311)	1209 (1539-330)	509 (1209-700)
Interest (Refer Point 6)	20	40	43.28 (45/1600*1539)	76.16 (80/1270*1209)	62.5 (70/570*509)

Illustration 2: Impact on Interest Cash Flows under Growth Assumption

Table 104 Example giving the UI Specification for Growth Assumption

Run-off	From Bucket	To Bucket	Assignment Method	Assumption Unit	Assumption Value	Based On	Product
	1-7 Days	Overnight	-	-	0	EOP Balance	Loan
		16-30 Days	Equal	Percentage	20		

In the following Illustration, both Principal and Interest are downloads.

Table 105 Download Data

Contractual Cash Flows	
EOP Balance	2000

Table 106 Example showing Impact on Interest Cash Flows under Growth Assumption

Measure	Contractual Cash Flows				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Principal	150	250	330	700	610
Outstanding Balance (Refer Point 3)	2000	1850 (2000-150)	1600 (1850-250)	1270 (1600-330)	570 (1270-700)
Interest	20	40	45	80	70

Measure	Business Assumption				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Assumption impacted Principal	Nil	-400	200	200	Nil
Revised Principal CF (post business assumption)	150 (150 + Nil)	-150 {250 + (-) 400}	530 (330+200)	900 (700 + 200)	610 (610 + Nil)
Outstanding Balance	2000	1850 (2000-150)	2000 {1850- (-150)}	1470 (2000-530)	570 (1470-900)
Total Interest	20	40	56.25 (45/1600*2000)	92.59 (80/1270*1470)	70
Change in Interest	Nil	Nil	11.25 (56.25-45)	12.59 (92.59-80)	Nil

Illustration 3: Impact on Interest Cash Flows under Growth Assumption (Cash Flow based)

Table 107 Example giving the UI Specification for Growth Assumption (Cash Flow Based)

Run-off	From Bucket	To Bucket	Assignment Method	Assumption Unit	Assumption Value	Based On	Product
	1-7 Days	Overnight	-	-	0	Cash Flow	Loan
		16-30 Days	Equal	Percentage	20		

In the following Illustration, both Principal and Interest are downloads.

Table 108 Example showing Impact on Interest Cash Flows under Growth Assumption (Cash Flow Based)

Measure	Contractual Cash Flows				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Principal	150	250	330	700	610
Outstanding Balance (Refer Point 3)	2000	1850 (2000-150)	1600 (1850-250)	1270 (1600-330)	570 (1270-700)
Interest	20	40	45	80	70

Measure	Business Assumption				
	Overnight	1-7 Days	8-15 Days	16-30 Days	1-3 Months
Assumption impacted Principal	Nil	(-) 50 (250*20%)	25	25	Nil
Revised Principal CF (post business assumption)	150 (150 + Nil)	200 {250 + (-) 50}	355 (330+25)	725 (700 + 25)	610 (610 + Nil)
Outstanding Balance	2000	1850 (2000-150)	1650 (1850-200)	1295 (1650-355)	570 (1295-725)
Total Interest	20	40	46.41 (45/1600*1650)	81.57 (80/1270*1295)	70
Change in Interest	Nil	Nil	1.41 (46.41-45)	1.57 (81.57-80)	Nil

The application supports the inclusion or exclusion of interest cash flows based on the Run parameters selected by the user. This is also impacted by the inclusion or exclusion of cash flow type as a dimension in the business assumption. The next section details multiple scenarios with different combinations of parameters and their impact on interest cash flows.

Scenario 1: When Interest cash flows are approximated:

1. Do not include Cash Flow Type as a dimension in the business assumption (Principal + Interest will be considered).

2. In the **Run Definition** window:

    a. Select **Yes** in **Include Interest Cash Flow**

    b. Select **Yes** in **Approximate Interest**

In this scenario, only Principal cash flows will be impacted. Interest cash flows will be approximated based on the change to the principal.

Scenario 2: When interest cash flows are calculated without approximating interest:

1. Do not include Cash Flow Type as a dimension in the business assumption (Principal + Interest will be considered).

2. In the **Run Definition** window:

    a. Select **Yes** in **Include Interest Cash Flow**

    b. Select **No** in **Approximate Interest**

In this scenario, both Principal and Interest cash flows will be impacted.

Scenario 3: When interest cash flows are not considered for computation:

1. Do not include Cash Flow Type as a dimension in the business assumption (Principal + Interest will be considered).

2. In the **Run Definition** window, select **No** in **Include Interest Cash Flow**.

In this scenario, there is no impact on Interest cash flows as they are not considered for computation and reporting.

Scenario 4: When interest cash flows are approximated:

1. Include Cash Flow Type as a dimension and select Principal in the business assumption.

2. In the **Run Definition** window:

    a. Select **Yes** in **Include Interest Cash Flow**

    b. Select **Yes** in **Approximate Interest**

In this scenario, only the Principal will be impacted. Interest cash flows will be approximated based on the change to the principal.

Scenario 5: When the Principal is selected as a dimension:

1. Include Cash Flow Type as a dimension and select Principal in the business assumption.

2. In the **Run Definition** window:

    a. Select **Yes** in **Include Interest Cash Flow**

    b. Select **No** in **Approximate Interest**

In this scenario, the Principal will be impacted because only the Principal is selected as a dimension. There will be no change in the interest cash flow amounts.

12.2   Cash Flow Aggregation

The application buckets the cash flows at the granularity of the level 0 buckets specified as part of the selected time bucket. Once bucketed, the account cash flows are aggregated at the granularity of the combination of user-specified and mandatory dimensions selected as part of the Application Preferences window. Refer to the Mandatory Dimension Configuration section for more information. Cash flows are aggregated as part of the contractual Run, based on the dimensional attributes of each account. Further, business assumptions are applied to the aggregated cash flows and not at the individual cash flow level.

12.3   Currency Conversion

Cash flows, account balances, and other input data are captured and stored in terms of the natural currency of the account. The application converts cash flows and balances from its natural currency to the local or reporting currency based on the prevailing spot rates or forward rates, as specified by you. Local currency is provided for each legal entity as a download while the reporting currency is selected at the time of Run execution.

The features of currency conversion in the LRM Application are as follows:

- Option to select forward exchange rate or spot rate for currency conversion.

- The forward exchange rate is interpolated to the cash flow date using linear or log linear interpolation method, as specified by you.

- If a direct quote between currencies is not available then an indirect quote is used. For currency pairs that do not have a quotation against each other, either direct or indirect, the cross-exchange rate is calculated using the direct quotes available against US Dollar (USD) for each currency, as USD is considered as the base currency in each quote. The base currency can be configured in the SETUP MASTER table.

13   Liquidity Gaps and Cumulative Gaps

This section provides information about the following:

- Liquidity Gaps
- Cumulative Gaps

13.1   Liquidity Gaps

Liquidity gap is the mismatch in a bank's inflows and outflows from various assets and liabilities, due to the difference in the behavior exhibited by the customers. This gap can be positive or negative, depending on whether the bank has more inflows than outflows and vice versa. The liquidity gap can change over the course of each day based on the deposits and withdrawals made and other behavior of the bank as well as its customers.

Liquidity gap is calculated as follows at each user-specified time bucket:

$$Liquidity\ Gap = Cash\ Inflows - Cash\ Outflows$$

Oracle Financial Services Liquidity Risk Management computes the liquidity gap under contractual terms, business-as-usual conditions, and stress scenarios. The liquidity gap status under contractual terms is computed based on the cash flows received from an ALM system. Business-as-usual and stress business assumptions are applied to contractual cash flows to obtain gaps under BAU and stress scenarios. The process of creating a business assumption is detailed in Defining a New Business Assumption section. The process of creating contractual and business-as-usual Runs is detailed in Defining a Contractual Run and Defining a Business-as-Usual Run sections respectively and stress Runs in Defining a Stress Run section.

13.2   Cumulative Gaps

Cumulative Gap is the net gap from today up to a given time horizon or time bucket in the future. It is calculated as the sum of liquidity gaps from the first time bucket up to each future time bucket. The cumulative gap can be positive or negative, depending on whether cumulative inflows are greater than the cumulative outflows and vice versa.

The cumulative gap is computed as follows:

$$Cumulative\ Gap_T = \sum_{T=1}^{n} Liquidity\ Gap_T$$

Where,

T: Each time bucket

N: Total number of time buckets

The cumulative gap is computed under contractual terms, business-as-usual conditions and stress scenarios.

In the following example, Numerical Example (in $).

Time Bucket	1-14 Days	15-28 Days	29 Days – 3 Months	3-6 Months
Inflows	500	300	1000	2000
Outflows	200	500	1250	1500
Liquidity Gap	300 [=500-200]	-200 [=300-500]	-250 [=1000-1250]	500 [=2000-1500]
Cumulative Gap	300	100 [=300+(-200)]	-150 [=100+(-250)]	350 [=-150+500]

In the preceding example, the cumulative gap at the end of 6 months works out to $350 whereas the liquidity gap in the 3-6 months' time bucket is $ 500.

NOTE	This calculation occurs at the reporting layer.

14 Bank for International Settlements Basel III Liquidity Ratio Calculation

Various parameters in Liquidity Risk Management help in analyzing the liquidity status of the bank. Liquidity ratios are one such parameter prescribed in the Basel III Guidelines. There are two types of ratios which are calculated by the application as follows:

- Liquidity Coverage Ratio: Liquidity coverage ratio addresses the short-term liquidity needs of an 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). Liquidity coverage ratio is calculated at the legal entity level, on a standalone and consolidated basis.

- Net Stable Funding Ratio: This addresses the medium and long-term liquidity needs of a bank during a stress situation. It specifies the minimum amount of stable funding required to be maintained to promote stable long term funding.

Topics:

- Liquidity Coverage Ratio Calculation

- Net Stable Funding Ratio Calculation

14.1 Processing Granularity for Secured Transactions

For Secured Accounts involving collateral placed or collateral received, there is an option to compute balances and cash flows in two granularities:

- Account-level

- Account-collateral level

This option enables the treatment of partially secured accounts and granular processing of an account with multiple collaterals. By default, secured funding computations happen at the account level for partially secured accounts. This can be changed to the Account-collateral level by updating the value of the setup master table entry for SEC_TRANS_TREATMENT_PURPOSE_VAL to YES.

Account-level

By default, all computations are done at the Account Level. This means that if there are multiple collaterals securing an account, the collateral level information will be aggregated and processed at an account level.

Account-collateral level

Collateral level measures, such as the ones at the HQLA Asset level, encumbrance period and so on, are computed at the collateral-account level. This means that if there are multiple collaterals securing an account, the collateral level information is processed at the same account-collateral level without aggregating any data.

14.2 Liquidity Coverage Ratio Calculation

LCR is the first standard that assesses the short term liquidity challenges of a bank. The two standards - LCR and NSFR, 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.

Topics:

- Inputs
- Liquidity Ratio Calculation Process Flow
- Pre-configured Regulatory LCR Scenario

14.2.1 Inputs

Inputs required for Liquidity Coverage Ratio calculated by the LRM Application are as follows:

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

14.2.2 Liquidity Ratio Calculation Process Flow

This section aims to explain the procedure of calculating the Liquidity Coverage Ratio (LCR).

Topics:

- Identifying Asset Levels
- Identifying Eligible HQLA
- Calculating Stock of High Quality Liquid Asset (SHQLA)
- Determining the Maturity of Cash Flows
- Identifying Deposit Stability
- Classifying Operational Account
- Calculating Contractually Required Collateral
- Calculating Excess Collateral
- Calculating Downgrade Impact Amount
- Calculating Net Derivative Cash Inflows and Outflows
- Calculating Twenty Four Month Look-back Amount
- Calculating Operational Amount

- Calculating HQLA Transferability Restriction

- Calculating Net Cash Outflows

- Consolidation

- Alternative Liquidity Approaches

- Calculating Liquidity Coverage Ratio

- Significant Currency Liquidity Coverage Ratio Calculation

- Computing Funding Concentrations

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

14.2.2.1 Identifying Asset Levels

All assets, whether owned by the bank or received from counterparties as collateral, that meet the high quality liquid asset criteria specified by BIS, are classified as follows:

- Level 1 Assets

- Level 2A Assets

- Level 2B RMBS Assets

- Level 2B Non-RMBS Assets

Level 1 assets can be included in the stock of HQLA 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 an Other Asset.

Topics:

- Identifying and Treating Level 1 Assets

- Identifying and Treating Level 2A Assets

- Identifying and Treating Level 2B RMBS Assets

- Identifying and Treating Level 2B Non-RMBS Assets

14.2.2.1.1 Identifying and Treating Level 1 Assets

Level 1 assets are the assets which qualify to be fully included as part of the stock of high quality liquid assets computing LCR:

1. Cash which includes coins and bank notes. The value included in the stock of HQLA is the cash balance.

2. Central bank reserves (including required reserves), to the extent that the central bank policies allow them to be drawn down in times of stress. These include the following:

    a. Banks' overnight deposits with the central bank.

    b. Term deposits with the central bank that satisfy the following conditions:

    — They are explicitly and contractually repayable on notice from the depositing bank.

— They constitute a loan against which the bank can borrow on a term basis or on an overnight but automatically renewable basis (only where the bank has an existing deposit with the relevant central bank).

Central bank reserves include the balance held by a bank at the central bank directly or through a correspondent bank less any minimum reserve requirement. The value of eligible term deposits that is included is the amount net of any withdrawal penalty.

3. Marketable securities which satisfy the following conditions:

    ▪ Issuer type or Guarantor Type is one of the following:

        — Sovereign

        — Central Bank

        — Public Sector Entity

        — Multi-lateral Development Bank

        — The Bank For International Settlements (BIS)

        — The International Monetary Fund

        — The European Central Bank and European Commission

    ▪ They are assigned a 0% risk-weight under the standardized Approach of Basel II.

    ▪ Not an obligation of a financial institution or any of its affiliated entities.

4. Debt securities issued in domestic currencies in the country in which the liquidity risk is being taken or in the bank's home country where the issuer type is sovereign or central bank and the risk weight assigned to the sovereign is greater than 0%.

5. Debt securities issued in foreign currencies are eligible up to the amount of the bank's stressed net cash outflows in that specific foreign currency stemming from the bank's operations in the jurisdiction where the bank's liquidity risk is being taken, where the issuer type is domestic sovereign or central bank and the risk weight assigned to the sovereign is greater than 0%.

14.2.2.1.2   Identifying and Treating 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

        — Central Bank

        — Public Sector Entity

        — Multi-lateral Development Bank

    ▪ They are assigned a 20% risk-weight under the standardized Approach of Basel II.

    ▪ 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.

    ▪ Not an obligation of a financial institution or any of its affiliated entities.

2. Corporate debt securities (including commercial paper) and covered bonds which satisfy the following conditions:

- Issuer type is not a financial institution or its affiliated entities.

- Issuer type is not the bank itself for which the computations are being carried out or any of its affiliated entities (in case of covered bonds).

- Either has:

— A long-term credit rating by a recognized External Credit Assessment Institution (ECAI) equal to or greater than AA- or,

— If long-term rating is not available, then a short-term credit rating by a recognized ECAI which is equal to or greater than AA- or,

— If it does not have assessment by a recognized ECAI, the probability of default as per the internal rating corresponding to a rating which is equal to or greater than AA-.

- 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.

14.2.2.1.3   Identifying and Treating Level 2B RMBS Assets

The application identifies the Residential Mortgage Backed Securities (RMBS) which satisfy the conditions listed below as HQLA Level 2B RMBS assets:

- Issuer type is not the bank itself for which the computations are being carried out or any of its affiliated entities.

- Issuer type of the underlying assets is not the bank itself for which the computations are being carried out or any of its affiliated entities.

- Either has:

- A long-term credit rating by a recognized External Credit Assessment Institution (ECAI) equal to or greater than AA or,

- If long-term rating is not available, then a short-term credit rating by a recognized ECAI which is equal to or greater than AA.

- 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 which is specified by the bank.

- The underlying asset pool consists of residential mortgages only and does not contain any structured products.

- The underlying mortgages are full recourse loans and have a maximum Loan-To-Value ratio (LTV) of 80% on average at issuance.

- The securitizations are subject to risk retention regulations which require issuers to retain an interest in the assets they securitize.

14.2.2.1.4   Identifying and Treating Level 2B Non-RMBS Assets

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

1. Corporate debt securities (including commercial paper) which satisfy the following conditions:

- Issuer type is not a financial institution or its affiliated entities.

- Either has:

  — A long-term credit rating by a recognized External Credit Assessment Institution (ECAI) between A+ and BBB- or,

  — If long-term rating is not available, then a short-term credit rating by a recognized ECAI which is between A+ and BBB- or,

  — If it does not have assessment by a recognized ECAI, the probability of default as per the internal rating corresponding to a rating which is between A+ and BBB-.

- 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 which is specified by the bank.

2. Common equities which satisfy the following conditions:

- Issuer type is not a financial institution or its affiliated entities.

- Are exchange traded and centrally cleared.

- Are a constituent of the major stock index in the legal entity's home jurisdiction or where the liquidity risk is taken, as decided by the supervisor in the jurisdiction where the index is located.

- Are denominated in the domestic currency of the legal entity's home jurisdiction or in the currency of the jurisdiction where the liquidity risk is taken.

- 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 which is specified by the bank.

> **NOTE** The value of eligible securities included in the HQLA is the market value less hedge termination cost, if any.

14.2.2.2   Identifying 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:

1. 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.

2. 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, that is the lowest quality collateral is marked as used first.

3. HQLA Under the Control of the Liquidity Management Function

    To be considered eligible HQLA the asset are under the control of the management function of the bank that manages liquidity. The application captures this information for each asset as a flag.

4. 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.

5. Transferability Restriction during Consolidation

    Surplus HQLA held by a subsidiary can be included in the stock of the parent company only if it is freely available to the parent during times of stress. The assets that have transfer restrictions are identified through a flag. The application only includes the restricted assets to the extent required to cover the subsidiary's own net cash outflows while including the unrestricted assets fully into the consolidated stock of HQLA.

6. Exclusion of Certain Re-hypothecated Assets

    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.

7. 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.

14.2.2.3 Calculating Stock of High Quality Liquid Asset

SHQLA is calculated at the legal entity and currency granularity. This is performed by the rule **LRM - BIS SHQLA Computation**.

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:

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

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, meaning not placed

as collateral; as well 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.

Topics:

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

14.2.2.3.1   Calculating Stock of Liquid Assets

The steps for calculating the stock of HQLA are as follows:

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 is eligible HQLA, less the amount of the minimum 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 RMBS Assets

    The stock of level 2B RMBS liquid asset amount equals 75 percent of the market value of all level 2B RMBS liquid assets held by the bank as of the calculation date that is eligible HQLA, less hedge termination costs (if any).

4. Calculation of Stock of Level 2B Non-RMBS Assets

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

14.2.2.3.2   Identifying 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, 2B RMBS or 2B non-RMBS asset
- Meets HQLA Operational Requirements on Unwind

14.2.2.3.3 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 to be unwound that is, the original position is to be reversed and the cash or stock of HQLA is adjusted accordingly. This is done to avoid the 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, such as additions to or deductions from the stock of HQLA.

14.2.2.3.4 Calculating Adjusted Stock of HQLA

1. Adjusted Stock of Level 1 Assets

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

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

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 a secured funding transaction, secured lending transaction, asset exchanges, or collateralized derivatives transaction.

2. Adjusted Stock of Level 2A Assets

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

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

NOTE	Adjustments relate to eligible level 2A assets posted or received as collateral or underlying assets as part of a secured funding transaction, secured lending transaction, asset exchanges, or collateralized derivatives transaction.

3. Adjusted Stock of Level 2B RMBS Assets

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

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

NOTE	Adjustments relate to eligible level 2B RMBS assets posted or received as collateral or underlying assets as part of a secured funding transaction, secured lending transaction, asset exchanges, or collateralized derivatives transaction.

4. Adjusted Stock of Level 2B Non-RMBS Assets

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

$$Adjusted\ Stock\ of\ Level\ 2B\ Non - RMBS\ Assets$$
$$= Post - Haircut\ Stock\ of\ Level\ 2B\ Non - RMBS\ Assets$$
$$+ Post\ Haircut\ Adjustments\ to\ Stock\ of\ Level\ 2B\ Non - RMBS\ Assets$$

NOTE	Adjustments relate to eligible level 2B Non-RMBS assets posted or received as collateral or underlying assets as part of a secured funding transaction, secured lending transaction, asset exchanges, or collateralized derivatives transaction.

14.2.2.3.5 Calculating 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 considering the impact of unwinding transactions maturing within the LCR horizon. Adjustment to stock of HQLA due to cap on Level 2B assets is calculated as follows:

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

2. Adjustment Due to Cap on Level 2 Assets

Level 2 assets can only constitute up to 40% of the stock of HQLA after considering the impact of unwinding transactions maturing within the LCR horizon. Adjustment to Stock of HQLA due to cap on Level 2 assets is calculated as follows:

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

14.2.2.4   Determining the Maturity of Cash Flows

For the purposes of calculating the Liquidity Coverage Ratio, the application identified the maturity of certain transactions as follows:

1. For liabilities having embedded optionality, such as callable features, that reduces the maturity of the account, the application considers the earliest date, such as the first call date, as the revised maturity date.

2. For assets having embedded optionality that reduces the maturity of the account, where the collateral received is not re-hypothecated, the application considers the earliest date, such as. the first call date, plus notice period as the revised maturity date.

3. For derivatives having embedded optionality that reduces the maturity of the account, where the collateral received is not re-hypothecated, the application considers the earliest date, such as the first call date, as the revised maturity date.

4. For assets or derivatives, where the collateral received has been re-hypothecated for a period greater than the maturity of the asset itself, the application considers the maturity date of the liability, against which the collateral received is re-hypothecated, as the revised maturity of the asset.

5. For assets or derivatives having embedded optionality that reduces the maturity of the account, where the collateral received has been re-hypothecated for a period greater than the first call date plus notice period but less than the original maturity of the asset itself, the application considers the maturity date of the liability, against which the collateral received is re-hypothecated, as the revised maturity of the asset.

6. For derivatives having embedded optionality that reduces the maturity of the account, where the collateral received has been re-hypothecated for a period greater than the first call date but less than the original maturity of the asset itself, the application considers the maturity date of the liability, against which the collateral received is re-hypothecated, as the revised maturity of the asset.

7. For assets having embedded optionality that reduces the maturity of the account, where the collateral received has been re-hypothecated for a period less than the first call date plus notice period, the application considers the first call date plus notice period as the revised maturity of the asset.

8. For derivatives having embedded optionality that reduces the maturity of the account, where the collateral received has been re-hypothecated for a period less than the first call date plus notice period, the application considers the first call date as the revised maturity of the asset.

9. For assets and derivatives which do not have embedded optionality that reduces the maturity of the account, where the collateral received has been re-hypothecated for a period less than the maturity of the asset itself, the application considers the original maturity date of the asset, as the revised maturity of the asset.

10. For assets and derivatives which do not have embedded optionality that reduces the maturity of the account, where the collateral received has not been re-hypothecated, the application considers the original maturity date of the asset, as the revised maturity of the asset.

NOTE	The revised maturity is computed by the application as per regulatory expectation and is used for the calculation of LCR.

14.2.2.5   Identifying Deposit Stability

The first step in identifying deposit stability is to allocate the deposit insurance limit at an account level. Deposit insurance limit is typically available at a legal entity-customer combination and sometimes at a legal entity-customer-ownership category combination. The application requires users to provide the following parameters to allocate insurance at an account level:

1. Ownership Category

   OFS LRM assumes the insurance limit for each customer per ownership category level as a download. Ownership categories include single accounts, joint accounts, trusts, etc. Some jurisdictions provide for a separate limit to a customer based on the ownership category of accounts. 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. Customer Type

   This is a list of customer types who are eligible to be covered under the respective jurisdiction's deposit insurance scheme. The insurance limit is assigned to each customer whose customer type matches one of the types that are covered by the deposit insurance.

3. 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 on a priority basis or proportionately to only those accounts of a customer whose product types matches those that are covered by the deposit insurance.

4. 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 means that the insured amount is allocated first to the 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	If product type prioritization is not specified, the default allocation will be proportionate to the EOP balance of each account irrespective of the product type.

5. 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.

6. Insurance Limit

This is the deposit balance of a given customer that is covered under the deposit insurance scheme. Customers having accounts in multiple legal entities get a separate deposit insurance limit per legal entity.

Once the insurance parameters are provided, the application allocates the insurance limit to all eligible accounts for a particular customer under a given ownership category in the proportion of the EOP balance of the eligible accounts. An illustration of the deposit allocation is provided in the following example.

A customer has 10 insurance eligible accounts, the total value of which amounts to € 150000. The insurance limit for the customer is € 100000. The ratio of insurance limit to balance is 1:1.5 which means that 66.67% of the deposit value is covered by insurance. This is allocated to each account in the same proportion as illustrated:

Table 109: Deposit Allocation

Account Number	EOP Balance	Insured Amount	Uninsured Amount
1	5000	3333	1667
2	20000	13333	6667
3	7000	4667	2333
4	12000	8000	4000
5	106000	70667	35333

For joint accounts, the EOP balance is either allocated equally to all account holders or allocated to the primary account holder only based on user selection. This amount is then used to determine the total balance eligible for insurance allocation.

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 fully 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:

a. It is held in a transactional account by the depositor.

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

For BIS, if a deposit is partially covered by insurance and meets the other criteria, the insured portion of such deposits is considered stable while the uninsured portion is considered less stable.

Stable deposits receive a 5% run-off rate unless they meet additional deposit criteria.

2. **Highly Stable Deposits**

All stable deposits identified as per the criteria specified in point 1 above are classified as meeting additional insurance criteria if the insurance scheme under which they are covered satisfies the following conditions:

a. It is based on a system of prefunding via the periodic collection of levies on banks with insured deposits.

b. Has adequate means of ensuring ready access to additional funding in the event of a large call on its reserves, for example, an explicit and legally binding guarantee from the government, or a standing authority to borrow from the government.

c. Access to insured deposits is available to depositors in a short period of time once the deposit insurance scheme is triggered.

Such deposits receive a 3% run-off rate.

3. **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:

   ▪ Insured balance of deposits meeting stable deposits criteria but denominated in ineligible foreign currencies.

   ▪ Uninsured balance of deposits meeting stable deposits criteria.

   ▪ Insured balance of deposits which are not transactional accounts and the customer has no established relationship with the bank.

   ▪ Deposit balance where the insurance coverage status is Uninsured.

   Such deposits receive a 10% run-off rate.

4. **High Run-off Category Deposits**

   Three additional stability criteria are supported for uninsured deposit balances. This is optional for a bank.

   ▪ High Run-off Deposits Category 1

   ▪ High Run-off Deposits Category 2

   ▪ High Run-off Deposits Category 3

   This classification is dependent on the aggregated funding received from each customer. Follow these steps:

   a. Identify all accounts of a given customer which are liabilities of the bank

   b. Calculate the aggregated funding from a customer as follows:

   $$Aggregated\ Funding_{Customer} = \sum_{i=1}^{n} Uninsured\ Balance_{Account, Customer}$$

   Where, I = Accounts of a given customer which are liabilities of the bank

   c. Assign the uninsured balance to one of the high Run-off categories as follows:

   — If aggregated funding from a customer is less than or equal to EUR 500,000, the uninsured amount from each relevant account is assigned to High Run-off Deposits Category 1

— If aggregated funding from a customer is greater than EUR 500,000 < EUR 1,000,000, the uninsured amount from each relevant account is classified as High Run-off Deposits Category 2

— If aggregated funding from a customer is greater than or equal to EUR 1,000,000, the uninsured amount from each relevant account is classified as High Run-off Deposits Category 3

Customer	Account	Insured Balance (Account)	Uninsured Balance (Account)
Customer 1	Account 1	450000	550000
Customer 2	Account 2	1000000	200000
Customer 2	Account 3	800000	300000

Deposits	Uninsured Amount
High Run-off Deposits Category 1	500,000 (200000 + 300000)
High Run-off Deposits Category 2	550,000

NOTE	The High Run-off category is defined at the Customer level. The Uninsured balance of each account falling under a customer will be directly moved to High-Run off category 1, 2, 3.

14.2.2.6 Classifying Operational Account

Operational deposits are those deposits placed by customers with a bank 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 arise out of clearing, custody, or cash management relationship with the bank.

3. They do not arise out of correspondent banking services or in the context of prime brokerage services.

4. The termination of such agreements requires a minimum notice period of 30 days.

5. If the agreement can be terminated within 30 days, the customer must pay significant switching or termination costs to the bank.

14.2.2.7 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 must 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, Excess Collateral Due or Excess Collateral Receivable.

Topics:

- [For Derivatives](#)

- [For Other Assets and Liabilities:](#)

14.2.2.7.1   For Derivatives

This section details the calculation of contractually due collateral and contractually receivable collateral for derivatives.

Calculation of Contractually Due Collateral

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

1. If Secured Indicator is No, then the contractually due collateral is 0.

2. If Secured Indicator is Yes and CSA Type is One way, then the contractually due collateral is 0.

3. If Secured Indicator is Yes, CSA Type is Two way and Gross Exposure is greater than or equal to 0, then the contractually due collateral is 0.

4. If Secured Indicator is Yes, CSA Type is Two way and Gross Exposure is less than 0, the application computes the contractually due collateral as follows:

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

Where,

Threshold is the 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.

Calculation of Contractually Receivable Collateral

The application computes the value of the 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:

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

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 to report.

14.2.2.7.2 For Other Assets and Liabilities

This section details the calculation of contractually due collateral and contractually receivable collateral for other assets and liabilities.

Calculation of Contractually Due Collateral

The application calculates contractually due collateral for other assets and liabilities as follows, if one of the following conditions are met.

1. If Balance Sheet Category is Asset, then the contractually due collateral is 0.

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

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

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

Calculation of Contractually Receivable Collateral

The application calculates contractually receivable collateral for other assets and liabilities as follows, if one of the following conditions are met.

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

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

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

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

14.2.2.8 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

Topics:

- For Derivatives

- For Other Assets and Liabilities

14.2.2.8.1 For Derivatives

This section details the calculation of excess collateral due and excess collateral receivable for derivatives.

Calculation of Excess Collateral Due

The application computes the value of the collateral that a derivative counterparty has posted to the bank, over the contractually required collateral, and therefore can be withdrawn by the counterparty, as follows:

1. If Secured Indicator is No, then the excess collateral due is 0.

2. If Secured Indicator is Y and Gross Exposure are less than or equal to 0, the application computes the excess collateral due as follows:

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

   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.

3. If Secured Indicator is Y and Gross Exposure are greater than 0, the application computes the excess collateral due as follows:

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

   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 the collateral that the bank has posted to its derivative counterparty, over the contractually required collateral, and therefore can be withdrawn by the bank, as follows:

1. If Secured Indicator is No, then the excess collateral receivable is 0.

2. If Secured Indicator is Y and Gross Exposure are greater than or equal to 0, the application computes the excess collateral receivable as follows:

$$Excess\ Collateral\ Receivable = Min[Adjusted\ Collateral\ Posted, Non - segregated\ Collateral\ Posted]$$

   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 is Y and Gross Exposure are less than 0, the application computes the excess collateral receivable as follows:

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

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 to report.

14.2.2.8.2 For Other Assets and Liabilities

The application calculates the excess collateral due for other assets and liabilities as follows, if one of the following conditions are met.

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

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

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

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

Calculation of Excess Collateral Receivable

The application calculates the excess collateral receivable for other assets and liabilities as follows, if one of the following conditions are met.

1. If Balance Sheet Category is Asset, then the contractually due collateral is 0.

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

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

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

14.2.2.9 Calculation of Downgrade Impact Amount

This section details the calculation of downgrade impact amount for derivatives and for other liabilities.

Topics:

- Calculation of Downgrade Impact Amount for Derivatives
- Calculation of Downgrade Impact Amount for Other Liabilities

14.2.2.9.1 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:

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

14.2.2.9.2 Calculation of Downgrade Impact Amount for Other Liabilities

For 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:

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

> **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.

14.2.2.10 Calculation of Net Derivative Cash Inflows and Outflows

This section details the cash flow netting calculations at the derivative contract level and netting agreement level.

Topics:

- Cash Flow Netting at Derivative Contract Level
- Cash Flow Netting at Netting Agreement Level

14.2.2.10.1 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:

   $$Net\ Cash\ Flow = Cash\ Outflow - Cash\ Inflow$$

   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.

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

14.2.2.10.2 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. For 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. For 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.

14.2.2.11 Calculation of Twenty-Four Month Look-back Amount

The application computes the 24-month look-back amount, to define outflows due to increased liquidity needs related to market valuation changes on derivatives as follows:

- 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:

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

  $$Net\ MTM\ Collateral\ Change = MTM\ Colateral\ Outflows - MTM\ Collateral\ Inflows$$

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

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

  Where,

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

  n: Each 30-day historical time window.

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

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

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

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

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

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

$$24 - Month\ Lookback\ Amount = Max(Largest\ 30 - day\ Absolute\ Net\ Collateral\ Flow_n)$$

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 the 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.

Table 110: Illustration: 24-month look-back calculations

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
	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

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 - 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
	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

LIQUIDITY COVERAGE RATIO CALCULATION

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 - 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
	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

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 - 23	66	87	-21	61	61
	As of Date - 24	33	71	-38	23	23
	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
	As of Date - 11	9	32	-23	-35	35

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	-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
	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

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 - 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
	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

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 - 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
	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

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	-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
	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) is computed as follows:

Table 111: Illustration continued: 24-month look-back calculations

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	
As of Date - 4 to As of Date - 33	140	

14.2.2.12 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. The application 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.

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

NOTE 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 a 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:

$$Non - operational\ Balance = Current\ EOP\ Balance - Operational\ Balance$$

7. The operational insured balance is calculated as follows:

$$Operational\ Insured\ Balance = Min\ (Operational\ Balance, Insured\ Balance)$$

The insured and uninsured balances are calculated as part of a separate process, namely, 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:

$$Operational\ Uninsured\ Balance = Operational\ Balance - Insured\ Operational\ Balance$$

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

$$\begin{aligned} Non &- operational\ Insured\ Balance \\ &= Min\ [Non - operational\ Balance, (Insured\ Balance - Insured\ Operational\ Balance)] \end{aligned}$$

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

$$Non - operational\ Uninsured\ Balance = Non - operational\ Balance - Insured\ Non - operational\ Balance$$

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 in the following table.

Table 112: Computation of Operational Deposit

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:

Table 113: Computation of Rolling Average and Cumulative Average

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

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	
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:

Table 114: Computation of Operational and Non-operational Balances

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
- Negative historical balances are replaced by zero for the purposes of this computation.

- For operational accounts that have an account start date is less than or equal to historical days including the As of Date, missing balances are replaced by previously available balance.

- For operational accounts that have an account start date is less than historical days including the As of Date:

  a. Missing balances between the account start date and As of Date are replaced by previously available balance.

  b. The rolling average is calculated only for the period from the account start date to the As of Date.

- The option to provide the operational balance as a download is supported by the application.

14.2.2.13 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 LRMM, 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, such as 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 (level 2B RMBS and Level 2B non-RMBS) is computed for the subsidiary on a consolidated basis. OFS LRM 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 asset. 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 until the consolidation entity itself.

NOTE	1. In case of BIS, step 5 is split into 2 steps, first for level 2B RMBS assets and then for on-RMBS assets.
	2. The allocation of restricted assets is done in the descending order of asset quality in order to maximize the stock of HQLA.
	3. This calculation is part of the LCR consolidation process. To get a complete view of the process, see Consolidation section.

14.2.2.14 Calculation of Net Cash Outflows

The process of computing the net cash outflows is as follows:

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 the section named Regulation Addressed through Business Assumptions are predefined 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, etc.

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 the section named Regulation Addressed through Business Assumptions are predefined 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 is 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:

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

14.2.2.15 Consolidation

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

1. Identification and Treatment of Unconsolidated Subsidiary

   The application assesses whether a subsidiary is a consolidated subsidiary or not by checking the regulatory entity indicator against each legal entity. The application consolidates the cash inflows and outflows of a subsidiary and computes the consolidated LCR, only if the subsidiary is a regulatory consolidated subsidiary. 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 regulatory consolidated flag 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.

2. 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. Two methods of consolidating HQLA are followed, which are detailed as follows:

a. For 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.

— 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.

b. For 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 means 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 71 Organization Structure
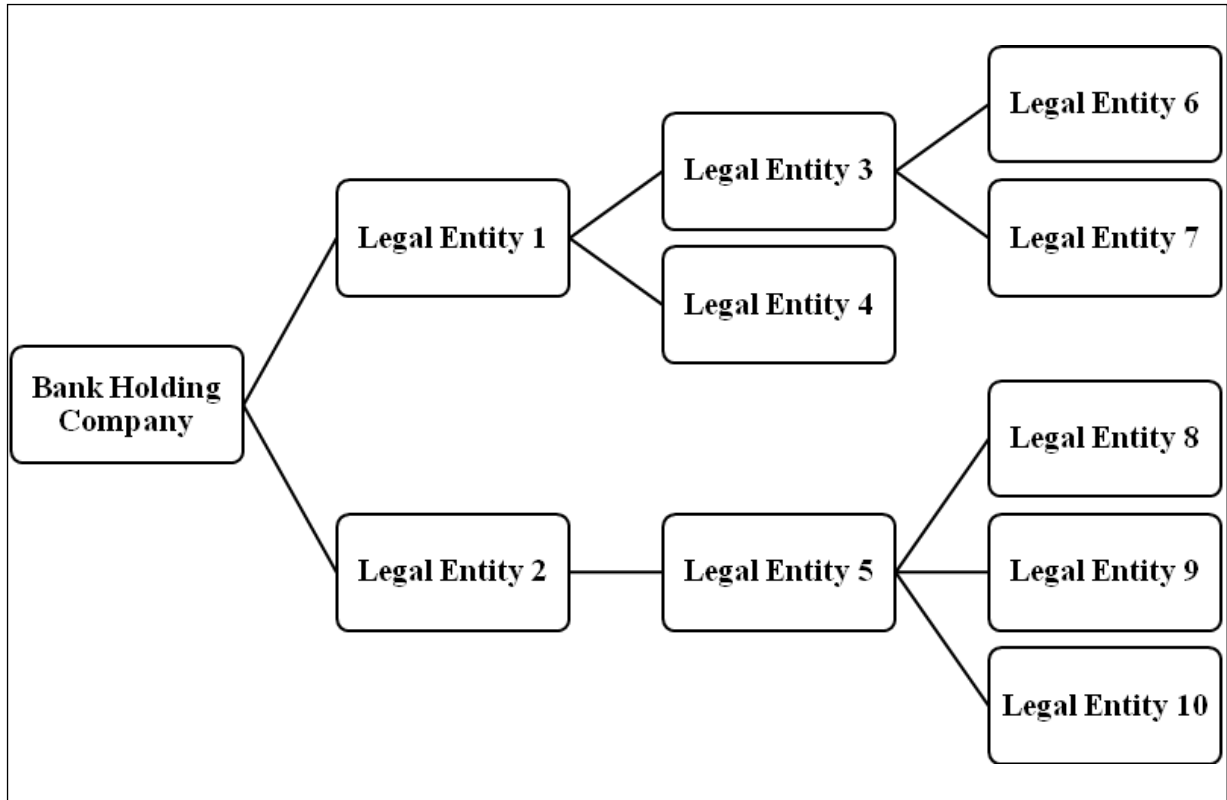
In this case, at the first level of consolidation, calculation of net cash outflows and HQLA is done on a solo basis for legal entities 6, 7, 8, 9, and 10 as they do not have any subsidiaries. In the case of regulated entities, or material entities, intercompany transactions are not eliminated; whereas in the 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, which is the bank holding company in this example.

14.2.2.16 Alternative Liquidity Approaches

Some jurisdictions may have insufficient supply of Level 1 assets or Level 1 and Level 2 assets. In such a case, banks may not be able to purchase adequate HQLA in order to cover their net cash outflows. In case of such shortfall in HQLA, alternative liquidity approaches may be applied for the given jurisdiction to meet the minimum level of LCR. These alternative treatments include:

- Option 1 – Contractual committed liquidity facilities from the relevant central bank with a fee

- Option 2 – Foreign currency HQLA to cover domestic currency liquidity needs

- Option 3 – Additional use of Level 2 assets with a higher haircut

An assessment is conducted by each jurisdiction to determine if each of the alternative liquidity approaches may be adopted by banks within that jurisdiction. Additionally, the maximum usage of the options is specified by regulators for each jurisdiction. This can be specified individually, at the level of each alternative approach, or collectively for all approaches.

In the current liquidity risk application, this is captured at the Legal Entity level.

Table 115: Level 1 HQLA Limit

Legal Entity	Level 1 Asset (Required HQLA)	Alternative approaches
LE 1	25%	75%
LE 2	40%	60%

The Level 1(HQLA) limit is specified for each legal entity and they have to adhere to it. Alternative liquidity approaches can only be used when they meet the Level 1 (HQLA) requirement.

1. **Option 1 – Contractual committed liquidity facilities from the relevant central bank with a fee**

   Option 1 increases the Stock of HQLA. For currencies in which sufficient HQLA is not available, the bank can add the amount to Stock of HQLA from Product Type Contractual Committed Liquidity Facilities from the Central Bank. This computation happens in LRM LCR Option1 Computation Process.

   Data is first inserted in the table with Option Type as Option 1 and then a set of Rules are executed which updates the Option 1 Amount, the Stock of HQLA, and then recalculates the Liquidity Coverage Ratio post Options 1.

   Banks should adhere to the following criteria to able to adopt option 1. They should have a drawdown facility that is, should be receiving lines of credit by the central bank on committed liquidity facilities. This should fulfill the following conditions:

   - Should not be regular central bank standing arrangements that is, these are contractual arrangements between the central bank and commercial bank.

   - These contractual arrangements mature outside the 30 day LCR Horizon.

   - These arrangements are irrevocable before maturity and involve no ex-post credit decision by the central bank.

- These facilities are charged for a fee irrespective of the amount drawn down, if any, and the fee is set so that banks which claim the facility line to meet the LCR. Banks that do not, have similar financial incentives to reduce their exposure to liquidity risk.

> **NOTE** The type of collateral that is acceptable for securing these facilities is indicated by the respective central bank.

2. **Option 2 – Foreign currency HQLA to cover domestic currency liquidity needs**

Option 2 increases the Stock of HQLA. For currencies in which sufficient HQLA is not available, the bank can add the amount to the Stock of HQLA from foreign currency. The Stock of HQLA from foreign currencies can only be added if there is extra Stock of HQLA available in foreign currency. This computation happens in LRM LCR Option2 Computation Process.

Data is first inserted in the table with Option Type as Option 2 and then a set of Rules are executed which brings in the extra Stock of HQLA from foreign Currency and adds it to the Stock of HQLA of the currency where the funds are insufficient. Once the Option amount and New Stock of HQLA is updated then Liquidity Coverage Ratio is recalculated.

This option allows HQLA in foreign currencies to be used to cover the net cash outflows in domestic currency. These currencies are classified as Major currencies and Other Currencies.

To account for the foreign exchange risk, banks are expected to apply a minimum haircut of 8% on the major currencies and higher on other currencies.

Other Currencies haircut is considered at a minimum of 10%.

Haircuts are specified against each currency pair. Example: Haircut for USD and GBP 8%, Haircut for GBP and AUD 10%, and so on. These haircuts apply only to that portion of the foreign currency HQLA that is in excess of a threshold specified by each regulator.

For every Legal Entity there would be a threshold for applying haircuts which is calculated by the following formula:

$$\frac{Max\ Amt\ of\ Total\ Net\ Cash\ Outflows\ in\ Domestic\ Ccy\ to\ be\ covered\ by\ Foreign\ Ccy\ HQLA}{Amt\ of\ Total\ Net\ Cash\ Outflows\ in\ the\ Domestic\ Ccy}$$

Where,

Domestic Ccy = Currency in which the HQLA is insufficient to cover net cash outflows

This threshold cannot exceed 25% for a given Legal Entity. The sequence of the currencies is specified by the concerned bank.

> **NOTE** While applying this threshold, the first foreign currency is considered and then the threshold is applied.

3. **Option 3 – Additional use of Level 2 assets with a higher haircut**

Option 3 increases the Stock of HQLA for currencies in which sufficient HQLA is not available, banks can take the additional amount from Asset 2 if available. This computation happens in LRM LCR Option3 Computation process.

Data is first inserted in the table with Option Type as Option 3 and then a set of Rules are executed which updates the Option 3 Amount, Stock of HQLA, and then recalculates the Liquidity Coverage Ratio post Options 3.

This option applies when Level 1 assets are insufficient to cover the liquidity needs of a bank in domestic currency, but there are sufficient level 2A assets. The level 2A assets used as part of this option must have a quality similar to that of Level 1 assets. To achieve this there are additional criteria imposed such as:

- Such Assets must have a minimum credit rating of AA or AA+ and,

- Additional level 2A assets used will be subject to a minimum of 20% haircut which is 5% more than that applied to the level 2A assets falling within the 40% cap.

NOTE	• Level 2B assets are not considered for this purpose.
	• 15% Cap on level 2B assets remains unchanged regardless of additional level 2A assets used as part of this option.
	• The Haircut can be different across jurisdictions and also across banks within a single jurisdiction depending on the level of usage.

Example to calculate option 3 amount: the following information is available.

Table 116: Example to calculate Option 3 HQLA Amount

Legal Entity	Account	Level 2A Flag	Level2A Assets Used	Level2A Assets Unused	Credit Rating	Qualified Option 3 Asset	Haircut
LE1	ACCT1	Y	200000	500000	AA+	Y	25%
LE1	ACCT1	Y	0	250000	B	N	

Only ACCT1 fulfills the additional criteria:

- A credit rating of AA+ , we consider the amount which is unused and apply a higher haircut, in this case, 25%.

- So the option 3 amount will be calculated as Level 2A assets Unused *(1-haircut) that is, 500000*(1-.25) = 375000.

NOTE	Different processes have been created in the Run for all three Options. You can specify the sequence in which these options are to be executed. The sequence of execution is available as part of the Run.

14.2.2.17 Calculation of Liquidity Coverage Ratio

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

$$Liquidity\ Coverage\ Ratio = \frac{Stock\ of\ High\ Quality\ Liquid\ Asset}{Net\ Cash\ Outflow}$$

14.2.2.18 Significant Currency Liquidity Coverage Ratio Calculation

The liquidity coverage ratio is also calculated for each legal entity at the level of each significant currency 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:

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

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.

14.2.2.19 Computation of Funding Concentrations

Wholesale funding from significant sources is calculated to monitor the liquidity risk arising from the withdrawal of such funds. Funding concentration is calculated based on the following dimensions:

- Concentration by Significant Counterparties
- Concentration by Significant Products
- Concentration by Significant Currencies

The ratio of each of the cash flow in the aggregate table is first calculated with respect to the concentration at the legal entity level. Any counterparty or product is termed as significant if the sum of its concentration is greater than 1%. A currency is termed as a significant currency if the sum of its concentration is greater than 5% of the currency.

All the Concentration specified below are calculated at the following time horizons:

- The period is < 1 Month
- The period is between 1 to 3 Months
- The period is between 3 to 6 Months
- The period is between 6 to 12 Months
- Period is > 12 Months

Topics:

- Funding Concentration by Significant Counterparties
- Funding Concentration by Significant Products
- Funding Concentration by Significant Currencies

14.2.2.19.1 Funding Concentration by Significant Counterparties

Funding Concentration by significant Counterparties is to be calculated at Legal Entity or Entities and Counterparty Level.

For Solo Execution for each of the Legal Entities selected and for each of the stated time horizons, Significant Counterparties are calculated; whereas for Consolidated Execution, Significant Counterparties are calculated at the Parent Level Legal Entity and for each of the stated time horizons.

A Counterparty is stated as Significant if Sum of the Cash flows of that counterparty for a given Legal Entity is greater than or equal to 1% of the Sum of the Cash flows of the given Legal Entity.

Cash flows of all accounts are not considered, for this purpose Cash flows of Accounts that have the Product Type as Liabilities are the only accounts that are considered.

Funding concentration for significant counterparties is calculated as follows:

$$Concentration_{Significant\ Counterparty} = \frac{Funding\ Liabilities_{Significant\ Counterparty}}{Total\ Liabilities\ of\ Legal\ Entity}$$

14.2.2.19.2 Funding Concentration by Significant Products

Funding Concentration by significant Products is calculated at Legal Entity or Entities and Product Level.

For Solo Execution for each of the Legal Entities selected and for each of the stated time horizons, Significant Products are calculated; whereas for Consolidated Execution, Significant Products are calculated at the Parent Level Legal Entity and for each of the stated time horizons.

A Product is stated as Significant if Sum of the Cash flows of that Product for a given Legal Entity is greater than or equal to 1% of the Sum of the Cash flows of the given Legal Entity.

Cash flows of all accounts are not considered, Accounts which have the Product Type as Liabilities are the only accounts which are considered. Funding concentration is calculated for the significant product as follows:

$$Concentration_{Significant\ Product} = \frac{Funding\ Liabilities_{Significant\ Product}}{Total\ Liabilities\ of\ Legal\ Entity}$$

14.2.2.19.3 Funding Concentration by Significant Currencies

Funding Concentration by significant Currencies is calculated at Legal Entity or Entities and Currency Level.

For Solo Execution for each of the Legal Entities selected and for each of the stated time horizons, Significant Currencies are calculated; whereas for Consolidated Execution, Significant Currencies are calculated at the Parent Level Legal Entity and for each of the stated time horizons.

A Currency is stated as Significant if Sum of the Cash flows of that Currency for a given Legal Entity is greater than or equal to 5% of the Sum of the Cash flows of the given Legal Entity.

Cash Flows of all accounts are not considered, Accounts that have the Product Type as Liabilities are the only accounts which are considered. Funding concentration is calculated for the significant product as follows:

$$Concentration_{Significant\ Currency} = \frac{Funding\ Liabilities_{Significant\ Currency}}{Total\ Liabilities\ of\ Legal\ Entity}$$

14.2.3   Pre-configured Regulatory LCR Scenario

OFS LRMM supports pre-configured calculations, scenarios, and reporting templates to ensure full compliance with BIS Basel III guidelines.

This section explains the rules which support regulatory inflow, outflow rates, and haircuts as per BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tool Reference.

NOTE	This section gives only the contextual information about all the rules. For more detailed information, see the OFS LRMM application (UI).
	For detailed Processes and Tasks, see the Run Chart.

Topics:

- Regulation Addressed through Rules
- Regulation Addressed through Business Assumptions

14.2.3.1   Regulation Addressed through Rules

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

The list of preconfigured rules and the corresponding reference to the regulatory requirement that it addresses is provided in the following table.

Table 117: Preconfigured LCR Business Rules

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
1	LRM - BIS Classification Of Small Business Customers To Retail	This rule identifies whether a small business customer is treated as a retail customer for the purposes of liquidity ratio calculations as per BIS. By default small business customer are treated as wholesale customers.	The classification of a small business customer as eligible for retail treatment or not as per BIS is configured as part of this rule.	Paragraphs 90 to 91
2	LRM - BIS - 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 non-zero risk weight sovereigns or central banks, as level 1 assets.	Paragraphs 50 (d) to 50 (e)

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
3	LRM - BIS - 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 non-zero risk weight sovereigns or central banks, as level 1 assets.	Paragraphs 50 (d) to 50 (e)
4	LRM - Excess And Contractually Due Collateral And Mitigant And Downgrade Trigger Amount Update	This rule computes and updates the values of contractually due collateral, excess collateral due, contractually receivable collateral, and excess collateral receivable and downgrade impact amount in the FSI_NETTING_AGREEMENT table.	The computation of collateral value that is contractually required to be posted to the counterparty and the excess collateral that can be recalled by the counterparty is configured as part of this rule.	Paragraphs 120 to 121
5	BIS_Ins_Unins_Amt_Calc	This DT calculates the insured, un-insured amount, and Established relationship indicator at Account Customer Level in the FSI_LRM_ACCT_CUST_DETAILS table.	The allocation of the insurance limit and the computation of insured and uninsured amounts at an account level are configured as part of this data transformation.	Paragraph 75

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
6	LRM - BIS - Classification Of Operational Deposits And Non-Operational Balance Computation	This rule classifies an account as operational deposit or not based on the criteria specified by BIS. It also updates the insured and uninsured operational balances and the non-operational balance for the accounts classified as operational in the FSI_LRM_INSTRUMENT table.	The classification of an account as operational or non-operational as per BIS guidelines is configured as part of this rule.	Paragraphs 94 to 95, 99 to 103
7	LRM - Withdrawable portion without penalty for Insured And Operational And Non-operational Amount	This rule calculates the portion of insured, uninsured, operational, and non-operational balances that can be withdrawn without incurring any penalty in the FSI_LRM_INSTRUMENT table. This rule also updates the operational account flag as 'N' for all the accounts which are classified as non-operational deposits.	The computation of the portion of an insured, uninsured, operational and non-operational deposit that can be withdrawn without incurring any penalty is configured as part of this rule.	Paragraphs 82 to 83
8	LRM - Basel III Deposit Stability - Stable Amount Calculation	This rule calculates the stable amount as per BIS guidelines.	The computation of the stable portion of a deposit is configured as part of this rule.	Paragraph 75
9	LRM - Basel III Deposit Stability - Less Stable Amount Calculation	This rule calculates the less stable amount as per BIS guidelines.	The computation of the less stable portion of a deposit is configured as part of this rule.	Paragraphs 75, 79

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
10	LRM - High Stability Insured Indicator Assignment	This rule classifies an account as highly stable if it meets additional insurance criteria and updates the highly stable amount for such accounts in the FSI_LRM_INSTRUMENT table. This rule also updates the stable amount for accounts classified as highly stable as 0, to avoid double counting of stable amount.	The identification of whether a stable deposit account meets the additional insurance criteria and the computation of the highly stable portion of the deposit is configured as part of this rule.	Paragraphs 75 to 76
11	LRM - High Stability Insured Indicator Assignment for Operational Deposits	This rule classifies an account as highly stable if it meets additional insurance criteria for Operational Deposits and updates the highly stable amount for such accounts in the FSI_LRM_INSTRUMENT table. This rule also updates the stable amount for accounts classified as highly stable as 0, to avoid double counting of stable amount.	The identification of whether a stable operational deposit account meets the additional insurance criteria and the computation of the highly stable portion of the operational deposit is configured as part of this rule.	Paragraph 104
12	LRM - Withdrawable portion without penalty for Stable, Less Stable and Highly Stable Amount	This rule calculates the portion of the stable, less stable, and highly stable amounts that can be withdrawn without incurring a penalty in the FSI_LRM_INSTRUMENT table.	The computation of the portion of the stable, less stable and highly stable amounts that can be withdrawn without incurring any penalty is configured as part of this rule.	Paragraphs 82 to 83

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
13	LRM - HQLA Reclassification - Level 1 - Cash and Central Bank Reserves	This rule reclassifies cash, banknotes, and central bank reserves, 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 BIS in BCBS 238.	The classification of cash and central bank reserves as HQLA level 1 assets is configured as part of this rule.	Paragraphs 50 (a) to 50 (b)
14	LRM - HQLA Reclassification - Level 1 - Marketable Securities - Issuer	This rule reclassifies marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, and multilateral development banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, and multilateral development banks as HQLA level 1 assets is configured as part of this rule.	Paragraph 50 (c)
15	LRM - HQLA Reclassification - Level 1 - Marketable Securities - Guarantor	This rule reclassifies marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, and multilateral development banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks as HQLA level 1 assets is configured as part of this rule.	Paragraph 50 (c)

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
16	LRM - HQLA Reclassification - Level 1 - Debt Securities - Domestic Currency	This rule reclassifies securities issued by non-zero risk weight sovereigns and central banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in the domestic currency by non-zero risk weight sovereigns and central banks as HQLA level 1 assets is configured as part of this rule.	Paragraph 50 (d)
17	LRM - HQLA Reclassification - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies securities issued by non-zero risk weight domestic sovereigns and central banks in foreign currency as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in foreign currencies by non-zero risk weight domestic sovereigns and central banks as HQLA level 1 assets is configured as part of this rule.	Paragraph 50 (e)
18	LRM - HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies marketable securities assigned a 20% risk weight and guaranteed by sovereigns, central banks, PSEs, or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of 20% risk weight marketable securities guaranteed by sovereigns, central banks, PSEs, or multilateral development banks as HQLA Level 2A assets is configured as part of this rule.	Paragraph 52 (a)
19	LRM - HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies marketable securities assigned a 20% risk weight and issued by sovereigns, central banks, PSEs, or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of 20% risk weight marketable securities issued by sovereigns, central banks, PSEs or multilateral development banks as HQLA level 2A assets is configured as part of this rule.	Paragraph 52 (a)

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
20	LRM - HQLA Reclassification - Level 2A - Non-Financial Corporate Bonds	This rule reclassifies debt securities other than covered bonds issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of corporate bonds, excluding covered bonds, as HQLA Level 2A assets are configured as part of this rule.	Paragraph 52 (b)
21	LRM - HQLA Reclassification - Level 2A - Covered Bonds	This rule reclassifies covered bonds issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of covered bonds as HQLA Level 2A assets is configured as part of this rule.	Paragraph 52 (b)
22	LRM - HQLA Reclassification - Level 2B RMBS	This rule reclassifies residential mortgage backed securities as HQLA Level 2B RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of residential mortgage backed securities as HQLA level 2B RMBS assets is configured as part of this rule.	Paragraph 54 (a)
23	LRM - HQLA Reclassification - Level 2B Non-RMBS - Non-Financial Corporate Bonds	This rule reclassifies debt securities issued by non-financial corporates as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of debt securities, including commercial papers, issued by non-financial corporates as HQLA level 2B non-RMBS assets is configured as part of this rule.	Paragraph 54 (b)
24	LRM - HQLA Reclassification - Level 2B Non-RMBS - Non-Financial Common Equities	This rule reclassifies common equities issued by non-financial entities as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of common equities issued by non-financial entities as HQLA level 2B non-RMBS assets is configured as part of this rule.	Paragraph 54 (c)

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
25	LRM - 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 BIS in BCBS 238.	The classification of cash and central bank reserves 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.	Paragraphs 50 (a) to 50 (b), 31, 39 to 40
26	LRM - Mitigant HQLA Reclassification - Level 1 - Marketable Securities - Issuer	This rule reclassifies mitigants which are marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks 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.	Paragraphs 50 (c), 31, 39 to 40

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
27	LRM - Mitigant HQLA Reclassification - Level 1 - Marketable Securities - Guarantor	This rule reclassifies mitigants which are marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, and multilateral development banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, and multilateral development banks 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.	Paragraphs 50 (c), 31, 39 to 40
28	LRM - Mitigant HQLA Reclassification - Level 1 - Debt Securities - Domestic Currency	This rule reclassifies mitigants which are securities issued by non-zero risk weight sovereigns and central banks as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in the domestic currency by non-zero risk weight sovereigns and central banks 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.	Paragraphs 50 (d), 31, 39 to 40

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
29	LRM - Mitigant HQLA Reclassification - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies mitigants which are securities issued by non-zero risk weight domestic sovereigns and central banks in foreign currency as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in foreign currencies by non-zero risk weight domestic sovereigns and central banks 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.	Paragraphs 50 (e), 31, 39 to 40
30	LRM - Mitigant HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies mitigants which are marketable securities assigned a 20% risk weight and guaranteed by sovereigns, central banks, PSEs, or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of 20% risk weight marketable securities guaranteed by sovereigns, central banks, 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.	Paragraphs 52 (a), 31, 39 to 40

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
31	LRM - Mitigant HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies mitigants which are marketable securities assigned a 20% risk weight and issued by sovereigns, central banks, PSEs or multilateral development banks as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of 20% risk weight marketable securities issued by sovereigns, central banks, 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.	Paragraphs 52 (a), 31, 39 to 40
32	LRM - Mitigant HQLA Reclassification - Level 2A - Non-Financial Corporate Bonds	This rule reclassifies mitigants which are debt securities other than covered bonds issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of corporate bonds, excluding covered bonds, as HQLA level 2A assets are 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.	Paragraphs 52 (b), 31, 39 to 40
33	LRM - Mitigant HQLA Reclassification - Level 2A - Covered Bonds	This rule reclassifies mitigants which are covered bonds issued by non-financial corporates as HQLA Level 2A assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of 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.	Paragraphs 52 (b), 31, 39 to 40

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
34	LRM - Mitigant HQLA Reclassification - Level 2B RMBS	This rule reclassifies mitigants which are residential mortgage backed securities as HQLA Level 2B RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of residential mortgage backed securities as HQLA level 2B RMBS 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.	Paragraphs 54 (a), 31, 39 to 40
35	LRM - Mitigant HQLA Reclassification - Level 2B Non-RMBS - Non-Financial Corporate Bonds	This rule reclassifies mitigants which are debt securities issued by non-financial corporates as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of debt securities, including commercial papers, issued by non-financial corporates as HQLA level 2B non-RMBS 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.	Paragraphs 54 (b), 31, 39 to 40

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
36	LRM - Mitigant HQLA Reclassification - Level 2B Non-RMBS - Non-Financial Common Equities	This rule reclassifies mitigants which are common equities issued by non-financial entities as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of common equities issued by non-financial entities as HQLA level 2B non-RMBS 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.	Paragraphs 54 (c), 31, 39 to 40
37	LRM - BIS Substitutable HQLA Reclassification - Level 1 - Cash	This rule reclassifies cash and banknotes that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of cash that can potentially be substituted for existing collateral, as HQLA level 1 assets is configured as part of this rule.	Paragraphs 50 (a), 122
38	LRM - BIS Substitutable HQLA Reclassification - Level 1 - Marketable Securities - Issuer	This rule reclassifies marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank and European Community, or multilateral development banks that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities issued by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks, that can potentially be substituted for existing collateral, as HQLA level 1 assets is configured as part of this rule.	Paragraphs 50 (c), 122

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
39	LRM - BIS Substitutable HQLA Reclassification - Level 1 - Marketable Securities - Guarantor	This rule reclassifies the marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of zero risk weight marketable securities guaranteed by sovereigns, central banks, PSEs, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community and multilateral development banks, that can potentially be substituted for existing collateral, as HQLA level 1 assets is configured as part of this rule.	Paragraphs 50 (c), 122
40	LRM - BIS Substitutable HQLA Reclassification - Level 1 - Debt Securities - Domestic Currency	This rule reclassifies securities issued by non-zero risk weight sovereigns and central banks that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in the domestic currency by non-zero risk weight sovereigns and central banks that can potentially be substituted for existing collateral, as HQLA level 1 asset is configured as part of this rule.	Paragraphs 50 (d), 122
41	LRM - BIS Substitutable HQLA Reclassification - Level 1 - Debt Securities - Foreign Currency	This rule reclassifies issued by domestic non-zero risk weight securities sovereigns and central banks in foreign currency that can be contractually substituted for existing collateral received, as HQLA Level 1 assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of securities issued in foreign currencies by non-zero risk weight domestic sovereigns and central banks that can potentially be substituted for existing collateral, as HQLA level 1 asset is configured as part of this rule.	Paragraphs 50 (e), 122

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
42	LRM - BIS Substitutable HQLA Reclassification - Level 2A - Market Asset-Guarantor	This rule reclassifies marketable securities assigned a 20% risk weight and guaranteed by sovereigns, central banks, 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 BIS in BCBS 238.	The classification of 20% risk weight marketable securities guaranteed by sovereigns, central banks, PSEs, or multilateral development banks, that can potentially be substituted for existing collateral, as HQLA level 2A assets is configured as part of this rule.	Paragraphs 52 (a), 122
43	LRM - BIS Substitutable HQLA Reclassification - Level 2A - Market Asset-Issuer	This rule reclassifies marketable securities assigned a 20% risk weight and issued by sovereigns, central banks, 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 BIS in BCBS 238.	The classification of 20% risk weight marketable securities issued by sovereigns, central banks, PSEs, or multilateral development banks, that can potentially be substituted for existing collateral, as HQLA level 2A assets is configured as part of this rule.	Paragraphs 52 (a), 122
44	LRM - BIS 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 BIS in BCBS 238.	The classification of corporate bonds, excluding covered bonds, that can potentially be substituted for existing collateral, as HQLA level 2A assets is configured as part of this rule.	Paragraphs 52 (b), 122

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
45	LRM - BIS Substitutable HQLA Reclassification - Level 2A - Covered Bonds	This rule reclassifies 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 BIS in BCBS 238.	The classification of covered bonds that can potentially be substituted for existing collateral, as HQLA level 2A assets is configured as part of this rule.	Paragraphs 52 (b), 122
46	LRM - BIS Substitutable HQLA Reclassification - Level 2B RMBS	This rule reclassifies residential mortgage backed securities that can be contractually substituted for existing collateral received, as HQLA Level 2B RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of residential mortgage backed securities that can potentially be substituted for existing collateral, as HQLA level 2B RMBS assets is configured as part of this rule.	Paragraphs 54 (a), 122
47	LRM - BIS Substitutable HQLA Reclassification - Level 2B Non-RMBS Non-Financial Corporate Bonds	This rule reclassifies debt securities issued by non-financial corporates that can be contractually substituted for existing collateral received, as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of debt securities, including commercial papers, issued by non-financial corporates that can potentially be substituted for existing collateral, as HQLA level 2B non-RMBS assets is configured as part of this rule.	Paragraphs 54 (b), 122
48	LRM - BIS Substitutable HQLA Reclassification - Level 2B Non-RMBS Non-Financial Common Equities	This rule reclassifies common equities issued by non-financial entities that can be contractually substituted for existing collateral received, as HQLA Level 2B Non-RMBS assets in accordance with the criteria specified by BIS in BCBS 238.	The classification of common equities issued by non-financial entities that can potentially be substituted for existing collateral, as HQLA level 2B non-RMBS assets is configured as part of this rule.	Paragraphs 54 (c), 122

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
49	LRM - 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 set forth by the regulator, 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 BIS for its inclusion in the stock of HQLA is configured as part of this rule.	Paragraphs 28 to 42
50	LRM - BIS - Re-hypothecated Mitigants - Meets HQLA Operational Requirements Flag Update	This rule identifies whether a re-hypothecated mitigant meets the operational requirements set forth by the regulator, except for being unencumbered. It updates the Meets HQLA Operational Requirements on Unwind Flag for such mitigants.	The identification of whether collateral received from a counterparty that is further placed as collateral meets the operational requirements set forth by BIS on unwind is configured as part of this rule.	Paragraphs 28 to 42

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
51	LRM - BIS - Instruments - Eligible High Quality Liquid Assets Flag Update	This computation rule updates the HQLA Eligibility Flag for 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 and therefore are to be unwound.	The identification of whether a bank's asset is classified as an HQLA that meets all the operational criteria and is therefore eligible to be included in the stock of HQLA is configured as part of this rule.	Paragraph 28
52	LRM - BIS - Mitigants - Meets HQLA Operational Requirements Flag Update	This rule identifies whether a mitigant meets the operational requirements set forth by the regulator 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 collateral received from counterparty meets the operational requirements set forth by BIS is configured as part of this rule.	Paragraphs 28 to 42
53	LRM - BIS - 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 and therefore can be included in the stock of HQLA.	The identification of whether collateral received from counterparty is classified as an HQLA that meets all the operational criteria and is, therefore, eligible to be included in the stock of HQLA is configured as part of this rule.	Paragraph 28

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
54	LRM - BIS - 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 identification transaction with a hedge associated with them and deduction of the outflow that would arise on the early termination of the hedge is configured as part of this rule.	Paragraph 34
55	LRM - BIS Level 1 Stock Adjustment - Secured Funding Transaction-Addition	This rule reclassifies all secured funding transactions that mature within the LCR horizon and therefore are required to be unwound, where the collateral posted is a level 1 asset to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA, due to such an unwind, as addition of the collateral posted.	The identification of secured funding 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.	Annex 1
56	LRM - BIS Level 1 Stock Adjustment - Secured Funding Transaction-Deduction	This rule reclassifies all the secured funding transactions that mature within the LCR horizon and therefore are required to be unwound, where the collateral posted is an HQLA, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as deduction of the amount received.	The identification of secured funding 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.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
57	LRM - BIS Level 1 Stock Adjustment - Secured Lending Transaction-Addition	This rule reclassifies all the secured lending transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is an HQLA, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the amount paid.	The identification of secured lending 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.	Annex 1
58	LRM - BIS Level 1 Stock Adjustment - Secured Lending Transaction-Deduction	This rule reclassifies all the secured lending transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is a level 1 asset, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as deduction of the collateral received.	The identification of secured lending 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.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
59	LRM - BIS Level 1 Stock Adjustment - Asset Exchange Deduction	This rule reclassifies all the asset exchange transactions that matures within the LCR horizon and therefore is required to be unwound, where the mitigant received is a level 1 asset and the collateral posted is an HQLA, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as deduction of the collateral received.	The identification of 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.	Annex 1
60	LRM - BIS Level 1 Stock Adjustment - Asset Exchange Addition	This rule reclassifies all the asset exchange transactions that matures within the LCR horizon and therefore is required to be unwound, where the mitigant received is an HQLA and the collateral posted is a level 1 asset, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted.	The identification of 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.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
61	LRM - BIS Level 2A Stock Adjustment - Secured Funding Transaction	This rule reclassifies all secured funding transactions that mature within the LCR horizon and therefore are required to be unwound, where the collateral posted is a level 2A asset, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA, due to such an unwind, as the addition of the collateral posted.	The identification of secured funding 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.	Annex 1
62	LRM - BIS Level 2A Stock Adjustment - Secured Lending Transaction	This rule reclassifies all the secured lending transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is a level 2A asset, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received.	The identification of secured lending 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.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
63	LRM - Level 2A Stock Adjustment - Asset Exchange Deduction	This rule reclassifies all the asset exchange transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is a level 2A asset and the collateral posted is an HQLA, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as deduction of the collateral received.	The identification of 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.	Annex 1
64	LRM - Level 2A Stock Adjustment - Asset Exchange Addition	This rule reclassifies all the asset exchange transactions that matures within the LCR horizon and therefore is required to be unwound, where the mitigant received is an HQLA and the collateral posted is a level 2A asset, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as addition of the collateral posted.	The identification of 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.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
65	LRM - BIS Level 2B RMBS, Non RMBS Stock Adjustment - Secured Funding Transaction	This rule reclassifies all secured funding transactions that mature within the LCR horizon and therefore are required to be unwound, where the collateral posted is a level 2B asset, either RMBS or non-RMBS, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA, due to such an unwind, as the addition of the collateral posted.	The identification of secured funding transactions required to be unwound and the amount to be added to the stock of level 2B RMBS and non-RMBS assets due to such an unwind is configured as part of this rule.	Annex 1
66	LRM - BIS Level 2B RMBS, Non-RMBS Stock Adjustment - Secured Lending Transaction	This rule reclassifies all the secured lending transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is a level 2B asset, either RMBS or non-RMBS, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received.	The identification of secured lending transactions required to be unwound and the amount to be deducted from the stock of level 2B RMBS and non-RMBS assets due to such an unwind is configured as part of this rule.	Annex 1

Serial No.	Rule Name	Rule Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
67	BIS Level 2B RMBS, Non RMBS Stock Adjustment - Asset Exchange Deduction	This rule reclassifies all the asset exchange transactions that mature within the LCR horizon and therefore are required to be unwound, where the mitigant received is a level 2B asset, either RMBS or non-RMBS, and the collateral posted is an HQLA, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as deduction of the collateral received.	The identification of asset exchange transactions required to be unwound and the amount to be deducted from the stock of level 2B RMBS and non-RMBS assets due to such an unwind is configured as part of this rule.	Annex 1
68	LRM - BIS Level 2B RMBS, Non RMBS Stock Adjustment - Asset Exchange Addition	This rule reclassifies all the asset exchange transactions that matures within the LCR horizon and therefore is required to be unwound, where the mitigant received is an HQLA and the collateral posted is a level 2B asset, either RMBS or non-RMBS, to the appropriate adjustment rule. It updates the type of adjustment to the stock of HQLA due to such an unwind as addition of the collateral posted.	The identification of asset exchange transactions required to be unwound and the amount to be added to the stock of level 2B RMBS and non-RMBS assets due to such an unwind is configured as part of this rule.	Annex 1

14.2.3.2   Regulation Addressed through Business Assumptions

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

Table 118: Preconfigured LCR Business Assumptions

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
1	HQLA Haircuts	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, 25% on level 2B RMBS assets and 50% on level 2B non-RMBS assets.	Paragraphs 49, 52, 54
2	Highly Stable Retail Deposit and SME UWF Runoff	Run-offs on the highly stable portion of deposits from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail.	The Run-off rates on the highly stable portion of deposits from retail customers and SMEs who are treated like retail customers for the purpose of LCR are pre-defined as part of this assumption. This assumption applies a 3% run-off on the stable portion of retail deposits that meet additional criteria for deposit insurance schemes and either mature or result in early withdrawal, without incurring significant penalty, within the LCR horizon.	Paragraphs 75 to 78, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
3	Penalty Free Highly Stable Retail and SME UWF Runoff	Run-offs on the portion of highly stable term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as demand deposits.	The run-off rates on the portion of highly stable term deposits, that are treated as demand deposits, from retail customers and SMEs who are treated like retail customers for the purpose of LCR are pre-defined as part of this assumption. This assumption applies a 3% run-off on the portion of stable retail deposits maturing beyond the LCR horizon that meet additional criteria for deposit insurance schemes and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 75 to 78, 82 to 83, 85 to 92
4	Stable Retail Deposit and Unsecured SME Funding Runoff	Run-offs on the stable portion of deposits from retail customers and unsecured wholesale funding from SMEs treated as retail.	The run-off rates on the stable portion of deposits from retail customers and SMEs who are treated like retail customers for the purpose of LCR are pre-defined as part of this assumption. This assumption applies a 5% run-off on the stable portion of retail deposits that do not meet additional criteria for deposit insurance schemes and either mature or result in early withdrawal, without incurring a significant penalty, within the LCR horizon.	Paragraphs 75 to 77, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
5	Penalty Free Stable Retail and SME UWF Runoff	Run-offs on the portion of stable term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as demand deposits.	The run-off rates on the portion of stable term deposits, that are treated as demand deposits, from retail customers and SMEs who are treated like retail customers for the purpose of LCR are pre-defined as part of this assumption. This assumption applies a 5% run-off on the portion of stable retail deposits maturing beyond the LCR horizon that do not meet additional criteria for deposit insurance schemes and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 75 to 77, 82 to 83, 85 to 92
6	Less Stable Retail Deposit and Unsecured SME Funding Runoff	Run-offs on the less stable portion of deposits from retail customers and unsecured wholesale funding from SMEs treated as retail.	The run-off rates on the less stable portion of deposits from retail customers and SMEs who are treated like retail customers for the purpose 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 early withdrawal, without incurring a significant penalty, within the LCR horizon.	Paragraphs 79 to 81, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
7	Penalty Free Less Stable Retail and SME UWF Runoff	Run-offs on the portion of less stable term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as a demand deposits.	The run-off rates on the portion of less stable term deposits, that are treated as demand 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 10% run-off on the portion of retail deposits maturing beyond the LCR horizon that do not meet the deposit stability criteria and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 79 to 80, 82 to 83, 85 to 92
8	High Run-off Category 1 Retail Deposit and SME UWF Runoff	Run-offs on the portion of deposits from retail customers and unsecured wholesale funding from SMEs treated as retail that are eligible for category 1 high run-offs.	The run-off rates on the deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits that qualify for category 1 higher run-offs, and either mature or result in an early withdrawal, without incurring significant penalty, within the LCR horizon.	Paragraphs 74, 79 to 81, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
9	Penalty Free HR Category 1 Retail Deposit and SME UWF Runoff	Run-offs on the portion of term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as a demand deposits and are eligible for category 1 high run-offs.	The run-off rates on the term deposits, that are treated as demand deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits maturing beyond the LCR horizon that qualify for category 1 higher run-offs and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 74, 79 to 80, 82 to 83, 85 to 92
10	High Run-off Category 2 Retail Deposit and SME UWF Runoff	Run-offs on the portion of deposits from retail customers and unsecured wholesale funding from SMEs treated as retail that are eligible for category 2 high run-offs.	The run-off rates on the deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits that qualify for category 2 higher run-offs, and either mature or result in an early withdrawal, without incurring significant penalty, within the LCR horizon.	Paragraphs 74, 79 to 81, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
11	Penalty Free HR Category 2 Retail Deposit and SME UWF Runoff	Run-offs on the portion of term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as a demand deposits and are eligible for category 2 high run-offs.	The run-off rates on the term deposits, that are treated as demand deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits maturing beyond the LCR horizon that qualify for category 2 higher run-offs and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 74, 79 to 80, 82 to 83, 85 to 92
12	High Run-off Category 3 Retail Deposit and SME UWF Runoff	Run-offs on the portion of deposits from retail customers and unsecured wholesale funding from SMEs treated as retail that are eligible for category 3 high run-offs.	The run-off rates on the deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits that qualify for category 3 higher run-offs, and either mature or result in an early withdrawal, without incurring significant penalty, within the LCR horizon.	Paragraphs 74, 79 to 81, 85 to 92

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
13	Penalty Free HR Category 3 Retail Deposit and SME UWF Runoff	Run-offs on the portion of term deposits, from retail customers and unsecured wholesale funding (UWF) from SMEs treated as retail, that are treated as a demand deposits and are eligible for category 3 high run-offs.	The run-off rates on the term deposits, that are treated as demand deposits, from retail customers and SMEs who are treated like retail customers for the purposes of LCR, that qualify for higher run-offs are pre-defined as part of this assumption. This assumption applies a 10% run-off on the less stable portion of retail deposits maturing beyond the LCR horizon that qualify for category 3 higher run-offs and can either be withdrawn without incurring a penalty or are allowed to be withdrawn despite a clause that says the depositor has no legal right to withdraw.	Paragraphs 74, 79 to 80, 82 to 83, 85 to 92
14	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.	Paragraphs 75 to 78, 93 to 104

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
15	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.	Paragraphs 93 to 104
16	Run-off on Deposits in Institutional Network of Co-op Banks	Run-off on deposits placed with the central institution or specialized central service providers of an institutional network of co-operative banks due to statutory minimum deposit requirements or in the context of common task sharing and legal, statutory or contractual arrangements.	The run-off rates on deposits placed by a member institution with the central institution or specialized central service providers of an institutional network of co-operative banks are pre-defined as part of this assumption. This assumption applies a 75% rollover i.e. a 25% run-off on deposits in institutional networks of cooperative banks, which are non-operational in nature, placed due to statutory minimum deposit requirements or in the context of common task sharing and legal, statutory or contractual arrangements.	Paragraphs 105 to 106

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
17	Run-off on UnSec Non-Op Funds from SMEs - Acct coll level	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 for the purposes of LCR, are pre-defined as part of this assumption. This assumption applies a 80% rollover i.e. 20% run-off on cash flows from non-operational funding accounts that are fully covered by deposit insurance and a 60% rollover i.e. 40% run-off on those non-operational funding accounts that are not fully covered by deposit insurance.	Paragraphs 107 to 108
18	NFC, Sov, CB, MDB, PSE Non-op UWF Run-off - Acct coll level	Run-off on the unsecured wholesale funding (UWF), provided by non-financial corporate (NFC), sovereigns (Sov), central banks (CB), 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 days.	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 an 80% rollover i.e. 20% run-off on cash flows from non-operational funding accounts that are fully covered by deposit insurance and a 60% rollover i.e. 40% run-off on those non-operational funding accounts that are not fully covered by deposit insurance.	Paragraphs 107 to 108

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
19	UWF Run-off on Non-operational Balance from SMEs	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, are pre-defined as part of this assumption. This assumption applies a 20% run-off on the non-operational portion of operational deposits that are fully covered by deposit insurance and a 40% run-off on the non-operational portion of operational deposits that are not fully covered by deposit insurance.	Paragraph 96, 107 to 108
20	NFC, Sov, CB, MDB, PSE UWF Run-off on Non-op Balance	Run-off on the non-operational portion of unsecured wholesale funding provided by non-financial corporate (NFC), sovereigns (Sov), central banks (CB), 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 corporates, sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies a 20% run-off on non-operational portion of operational deposits that are fully covered by deposit insurance and a 40% run-off on the non-operational portion of operational deposits that are not fully covered by deposit insurance.	Paragraphs 96, 107 to 108

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
21	Other LE Unsec Wholesale Funding Run-off - Acct coll level	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 corporate, sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies a 0% rollover, that is, 100% run-off on cash flows from non-operational funding accounts.	Paragraphs 105 to 106, 109
22	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.	Paragraphs 96, 109
23	Issued Debt Security Outflow	Outflows on debt securities issued by the bank itself.	The run-off rates on the debt securities issued by the bank itself are pre-defined as part of this assumption. This assumption applies a 90% rollover i.e. 10% run-off on issued securities that are sold exclusively in the retail market and held in retail accounts, and 0% rollover, that is, 100% run-off on all other issued securities.	Paragraphs 89 to 91, 110

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
24	Secured Funding Run-Off - Acct coll level	Run-off on secured funding, excluding collateral swaps, received from sovereigns, central banks and multilateral development banks.	The run-off rates on the secured funding, excluding collateral swaps, received from sovereigns, central banks, multilateral development banks and PSEs, are pre-defined as part of this assumption. This assumption applies the regulatory run-offs applicable to each counterparty type in the form of rollover rates, that is, 1 – run-off rates.	Paragraphs 112 to 115
25	Run-off on Sec Funding From PSEs - Acct coll level	Run-off on secured funding, excluding collateral swaps, received from PSEs.	The run-off rates on the secured funding, excluding collateral swaps, received from PSEs, are pre-defined as part of this assumption. This assumption applies the regulatory run-offs applicable to PSEs in the form of rollover rates, that is, 1 – run-off rates.	Paragraphs 112 to 115
26	Run-off on Sec Funding From Others - Acct coll level	Run-off on secured funding, excluding collateral swaps, received from counterparties other than sovereigns, central banks, multilateral development banks and PSEs.	The run-off rates on the secured funding, excluding collateral swaps, received from counterparties other than sovereigns, central banks, multilateral development banks and PSEs, where the transaction is backed by level 2B non-RMBS or other assets, are pre-defined as part of this assumption. This assumption applies the regulatory run-offs applicable to other counterparties, based on the asset quality of the placed collateral, in the form of rollover rates, that is, 1 – run-off rates.	Paragraphs 112 to 115

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
27	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.	Paragraphs 112 to 115
28	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.	Paragraph 118
29	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 rehypothecation 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.	Paragraph 118

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
30	Increased Liquidity Needs Due to Change in Collateral 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.	Paragraph 119
31	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.	Paragraph 120
32	Increased Liquidity Needs from Contractually Due Collateral	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.	Paragraph 121

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
33	Increased Liquidity Needs Due to Substitutable Collateral	Increased liquidity needs arising from contracts that allow a counterparty to substitute lower quality collateral for the current higher quality collateral.	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 potentially substituted by the counterparty and the collateral that substitutes it.	Paragraph 122
34	Increased Liquidity Needs Due to Market Valuation Changes	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.	Paragraph 123
35	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.	Paragraph 124

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
36	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.	Paragraph 125
37	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.	Paragraph 125
38	Loss of Funding from Financing Facility – Liquidity Draws	Loss of funding on asset-backed commercial paper, conduits, securities investment vehicles and other such financing facilities due to drawdown of liquidity facilities provided by the bank.	The outflow rate on the undrawn amount available to be drawn down on the liquidity facility extended to the structured financing facility is pre-defined as part of this assumption. This assumption applies a 100% outflow as a drawdown rate on the liquidity facilities extended as support for structured financing purposes.	Paragraph 125

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
39	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 PSEs.	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 counterparty type, for the aforementioned counterparties.	Paragraphs 126 to 131 (c)
40	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.	Paragraphs 131 (d) to 131 (f)
41	Draws on Committed Facilities Extended to Other Entities	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.	Paragraph 131 (g)

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
42	Other Contractual Obligations to Financial Institutions	Outflows related to other contractual obligations to extend funds within 30 days to financial institutions.	The outflow rate on other contractual obligations to extend funds to financial institutions, not covered in the previous assumptions, is pre-defined as part of this business assumption. This assumption applies a 100% outflow rate on such contractual obligations.	Paragraph 132
43	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.	Paragraph 133
44	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.	Paragraph 138
45	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 allowed to be updated to reflect the rates specified by national regulators.	Paragraph 140

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
46	Non-contractual Obligation Outflows	Outflows from non-contractual obligations related to joint ventures, minority investments, debt buy-back requests, structured products, managed funds and any other similar obligations	The outflow rate on the non-contractual obligations related to joint ventures, minority investments, debt buy-back requests, structured products, managed funds and any other similar obligations is pre-defined as part of this assumption. This assumption applies a 0% outflow rate on the non-contractual obligations. The outflow rate is allowed to be updated to reflect the rates specified by national regulators.	Paragraph 140
47	Contractual Interest Payment Outflows	Outflows related to contractual payments of interest.	The outflow rate on the interest payments contractually due within the LCR horizon is pre-defined as part of this assumption. This assumption applies a 100% outflow on interest in the form of a 0% rollover rate.	Paragraph 141
48	Contractual Dividend Payment Outflows	Outflows related to contractual payments of dividends.	The outflow rate on the dividends payable within the LCR horizon is pre-defined as part of this assumption. This assumption applies a 100% outflow on dividends payable.	Paragraph 141
49	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.	Paragraphs 113, 115, 140, 141, 147

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
50	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. A 0% inflow rate is applied to assets used for covering short positions.	Paragraphs 145 to 146
51	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 the difference between the liquidity haircuts applicable to the placed and received collateral. A 0% inflow rate is applied when the underlying asset received is used for covering short positions.	Paragraphs 145 to 146
52	Drawdowns on Committed Funding Facilities	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.	Paragraph 149

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
53	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 purpose of LCR, is pre-defined as part of this assumption. This assumption applies a 50% rollover, that is, 50% inflow on performing retail loans.	Paragraphs 150 to 151, 153
54	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.	Paragraphs 150 to 151, 154

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
55	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.	Paragraphs 150 to 151, 154
56	Revolving, Non-Maturity and Non-Performing Inflow Exclusion	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.	Paragraphs 151 to 152
57	Open Maturity Loan Minimum Payment Inflows	Inflows due to minimum payments received within the LCR horizon on open maturity loans	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, is pre-defined as part of this assumption. This assumption applies a 100% inflow on such minimum payments.	Paragraph 152

Serial No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	BCBS 238, Basel III: The Liquidity Coverage Ratio and Liquidity Risk Monitoring Tools Reference
58	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.	Paragraphs 156 to 157
59	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 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.	Paragraph 155
60	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.	Paragraphs 142, 160

NOTE	The LRM application does not have assumptions configured for Derivatives Cash Inflows (Paragraphs 158 to 159) and Derivatives Cash Outflows (Paragraphs 116 to 117) as this has a 100 % rate specified by the regulator. LRM calculates the netted derivative cash flows occurring within the LCR horizon and includes them in the calculations. For the purpose of stress testing, if you require a less than 100 % rate on the inflows and outflows of such transactions, then configure a separate business assumption for this.

14.3 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.

Topics:

- Overview
- Process Flow
- Preconfigured BIS Regulatory NSFR Scenarios

14.3.1 Overview

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%.

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

14.3.2 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 OFS LRMM 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 predefined business assumptions for ASF and RSF as defined in the NSFR guidelines are prepackaged in the application. For the complete list of preseeded ASF and RSF assumptions, see the Regulation Addressed through Business Assumptions section.

Topics:

- Maturity bands
- Available Amount of Stable Funding Computation
- Required Amount of Stable Funding Computation
- Off Balance Sheet Items
- Derivatives
- Net Stable Funding Ratio Computation

14.3.2.1 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 BIS NSFR band is pre-defined as per regulatory guidelines and has the following values:

- 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 these bands depending on the maturity date. It must be noted that to categorize any product into open maturity, the LRM - Classification of Products as Open Maturity Rule should be edited and the product must be included in the Rule.

14.3.2.2 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 the Available Amount of Stable Funding is as follows:

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

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

An example of the application of the 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:

Table 119: Illustration – Application of ASF Factor

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 this combination, then after the assumption is applied the resulting amounts with application of ASF factors is as follows:

Assumption Category	<Time Bucket 1> Selection
Cash Flow Movement	From Bucket Selection
Incremental Cash Flows	Primary Bucket Selection
Encumbrance	From Bucket Selection
Value Change	Not Applicable

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

NOTE	OFS LRMM 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 LRMM application picks up the respective standard accounting head balances and applies the respective ASF factors.

If OFS Basel is not installed, then the following items must be provided as a download in the 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

14.3.2.3 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 similarly as that of the ASF. The formula which is used for calculating the Required Amount of Stable Funding is as follows:

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

$$where\ n = Number\ of\ asset\ accounts$$

$$where\ m = Number\ of\ off\ balance\ sheet\ accounts$$

14.3.2.4 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.

14.3.2.5 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 as follows:

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.

14.3.2.6 Net Stable Funding Ratio Computation

The Net Stable Funding Ratio is calculated as follows:

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

14.3.3   Preconfigured BIS Regulatory NSFR Scenarios

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

This section explains the business assumptions which support NSFR as per Basel Committee on Banking Supervision Basel III: the net stable funding ratio, October 2014.

> **NOTE**   This section gives only contextual information about business assumptions. For more detailed information refer to the OFS LRMM application (UI).

14.3.3.1   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:

Topics:

- Available Stable Funding Factor
- Required Stable Funding Factor
- Derivatives

14.3.3.1.1 Available Stable Funding Factor

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

Table 120: Preconfigured ASF Assumptions BIS NSFR

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
Capital Instruments-Tier 1 , Tier 2 and Others				
1	ASF- Capital items DTL and minority interest	[BIS]: Gross tier 1, additional tier 1, tier 2 capital, Deferred tax liabilities and minority interest.	This assumption specifies Tier 1 and Tier 2 capital, before the application of capital deductions and excluding the proportion of Tier 2 instruments with residual maturity of less than one year. Capital instruments not included above are those with an effective residual maturity of one year or more.	Paragraphs 21(a) and (b).
Stable and Less Stable Deposits - ASF Factor				
2	ASF- Stable retail deposits with maturity less than 1yr	[BIS]: ASF- Stable and highly stable deposits as defined in the LCR from retail customers with a remaining maturity of less than 1 year.	This assumption specifies "Stable" (as defined in the LCR) demand and/or term deposits from retail and small business customers.	Paragraph 22.
3	ASF- Less stable retail deposits with maturity more than 1yr	[BIS]: ASF- Stable and highly stable deposits as defined in the LCR from retail customers with a remaining maturity of more than 1 yr and cash flow maturity of less than 1 year.	This assumption specifies "Stable" (as defined in the LCR) demand and/or term deposits from retail and small business customers.	Paragraph 22.

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	ASF- Less stable retail deposits with maturity less than 1yr	[BIS]: ASF- Less stable deposits as defined in the LCR from retail customers with a remaining maturity of less than 1 year.	This assumption specifies "Less Stable" (as defined in the LCR) demand and/or term deposits from retail and small business customers.	Paragraph 23.
5	ASF- Less stable retail deposits- Cash flow basis	[BIS]: ASF- Less stable deposits as defined in the LCR from retail customers with a remaining maturity of more than 1 yr and cash flow maturity of less than 1 year.	This assumption specifies "Less Stable" (as defined in the LCR) demand and/or term deposits from retail and small business customers.	Paragraph 23.
Unsecured Funding from Non-Financial Corporates - ASF Factor				
6	ASF-UOD from non fin corporates with maturity less than 1 yr	[BIS] Unsecured operational deposits (UOD) from non-financial corporates with deposit maturity less than 1 year.	The ASF factor to be applied on unsecured funding from non-financial corporates of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (a) and (b).
7	ASF- UOD from non fin corp with maturity more than 1 yr	[BIS] Unsecured operational deposits (UOD) from non-financial corporate with deposit maturity more than 1 year and cash flow maturity less than 1 year.	This assumption specifies unsecured funding from non-financial corporates of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (a) and (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
8	ASF-UnOD from nonfin corporates with maturity less than 1 yr	[BIS] Unsecured non-operational deposits (UnOD) from non-financial corporate with deposit maturity less than 1 year. This includes a) entire portion of non-operational deposits. b) non-operational part of operational deposits.	This assumption specifies unsecured funding from non-financial corporates of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (a) and (b).
9	ASF- UnOD from non fin corp with maturity more than 1 yr	[BIS] Unsecured non-operational funding (UnOD) from non-financial corporates with deposit maturity more than 1 year and cash flow maturity less than 1 year.	This assumption specifies unsecured funding from non-financial corporate of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (a) and (b).
10	ASF-UnOth from nonfin corporate with maturity less than 1 yr	[BIS] Unsecured funds that are not deposits (UnOth) from non-financial corporate with account maturity less than 1 year.	This assumption specifies unsecured funding from non-financial corporate of which are not deposits.	Paragraphs 24 (a) and (b). (QIS template reference)
11	ASF- UnOth funds from corporates with maturity more than 1yr	[BIS] Unsecured funds which are not deposits (UnOth) from corporate (financial and non-financial) with account maturity more than 1 year, but cash flow maturity less than 1 year.	This assumption specifies unsecured funding from non-financial corporates of which are not deposits.	Paragraphs 24 (a) and (b). (QIS template reference)
Unsecured Funding from Central Banks - ASF Factor				
12	ASF-UOD from central bank with maturity less than 1 yr	[BIS] Unsecured operational deposit funding from central bank with a deposit maturity of less than 1 year.	This assumption specifies the unsecured funding from central banks of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (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
13	ASF- UOD from CB PSE MDB Sov with mat more than 1 yr	BIS] Unsecured operational deposit funding from central bank (CB), Public sector enterprises (PSE), National development bank (NDB), Multilateral development bank (MDB) and sovereigns with a deposit maturity of more than 1 year, and cash flow maturity of less than 1 year.	This assumption specifies unsecured funding from central banks of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
14	ASF- UnOD from central bank with maturity less than 1 year	[BIS] Unsecured non-operational deposit funding from central banks with a deposit maturity of less than 1 year.	This assumption specifies unsecured funding from central banks of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
15	ASF- UnOD from CB NDB PSE MDB Sov with mat more than 1yr	BIS] Unsecured non-operational deposit funding from central bank (CB), Public sector enterprises (PSE), National development bank (NDB), Multilateral development bank (MDB) and sovereigns with a deposit maturity of more than 1 year, and cash flow maturity of less than 1 year.	This assumption specifies unsecured funding from central banks of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
16	ASF-UOth funds from central bank with maturity less than 1yr	[BIS] Unsecured other funds (non deposits) from central banks with an account maturity of less than 1 year.	This assumption specifies unsecured funding from central banks of which are not deposits.	Paragraphs 24 (d) and 25 (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
17	ASF- UnOth from CB PSE MDB NDB Sov with mat more than 1yr	BIS] Unsecured other funding (non deposits) from central bank (CB), Public sector enterprises (PSE), National development bank (NDB), Multilateral development bank (MDB) and sovereigns with a deposit maturity of more than 1 year, and cash flow maturity of less than 1 year.	This assumption specifies unsecured funding from central banks of which are not deposits.	Paragraphs 24 (d) and 25 (a).
Unsecured Funding from Sovereigns/PSEs/MDBs/NDBs - ASF Factor				
18	ASF- UOD from PSE NDB MDB with maturity less than a year	[BIS] Unsecured operational deposit (UOD) funding from sovereigns, Public sector entities (PSE), Multilateral development banks (MDB), and National development banks (NDB) with maturity less than 1 year.	This assumption specifies the unsecured funding from sovereigns/PSEs/MDBs/NDBs of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (b) and (c).
19	ASF- UnOD from PSE NDB MDB with maturity less than a year	[BIS] Unsecured non-operational (UnOD) deposit funding from sovereigns, Public sector entities (PSE), Multilateral development banks (MDB), and National development banks (NDB) with maturity less than 1 year.	This assumption specifies unsecured funding from sovereigns/PSEs/MDBs/NDBs of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (b) and (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
20	ASF- UnOth from PSE NDB MDB with maturity less than a year	[BIS] Unsecured other funding (UnOth) from sovereigns, Public sector entities (PSE), Multilateral development banks (MDB), and National development banks (NDB) with maturity less than 1 year.	This assumption specifies unsecured funding from sovereigns/PSEs/MDBs/NDBs of which is non-deposit unsecured funding.	Paragraphs 24 (b) and (c).
Unsecured Funding from Other Legal Entities (including financial institutions)				
21	ASF- UOD funds from financ insti with maturity less than 1yr	[BIS] Unsecured operational deposit funding from financial corporates with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
22	ASF- UOD funds from other LE with maturity less than 1yr	[BIS]: Unsecured operational deposit funding (UOD) from all other legal entities (LE) with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
23	ASF- UOD funds from finan insti with maturity more than 1yr	[BIS] Unsecured operational deposit funding from financial corporates with a remaining account maturity of more than 1 year, but cash flows maturing less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (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
24	ASF- UnOD funds from other LE with maturity more than 1yr	[BIS]: Unsecured operational deposit funding (UOD) from all other legal entities (LE) with a remaining maturity more than 1 year, but cash flows maturing in less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is an operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
25	ASF- UnOD funds from financ inst with maturity less than 1yr	[BIS] Unsecured non-operational deposit funding from financial corporates with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
26	ASF-UnOD funds from other LE with maturity less than 1yr	[BIS]: Unsecured non-operational deposit funding (UnOD) from all other legal entities (LE) with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
27	ASF- UnOD from finan insti with maturity more than 1 yr	[BIS] Unsecured non-operational deposit funding from financial corporates with a remaining account maturity of more than 1 year, but cash flows maturing less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (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
28	ASF- UnOD funds from other LE with maturity greater than a year	[BIS]: Unsecured non-operational deposit funding (UnOD) from all other legal entities (LE) with a remaining maturity more than 1 year, but cash flows maturing in less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is a non-operational deposit (as defined in the LCR).	Paragraphs 24 (d) and 25 (a).
29	ASF-UnOth funds from finan inst with maturity less than 1yr	[BIS] Unsecured other funding from financial corporates with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is non-deposit unsecured funding.	Paragraphs 24 (d) and 25 (a).
30	ASF-Unoth funds from other LE with maturity less than 1yr	[BIS] Unsecured other funding (UnOth) from other legal entities (LE) with a remaining maturity of less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is non-deposit unsecured funding.	Paragraphs 24 (d) and 25 (a).
31	ASF- UnOth funds from other LE with maturity more than 1yr	[BIS]: Unsecured other funding (UnOth) from all other legal entities (LE) with a remaining maturity more than 1 year, but cash flows maturing in less than 1 year.	This assumption specifies unsecured funding from other legal entities (including financial corporates and financial institutions) of which is non-deposit unsecured funding.	Paragraphs 24 (d) and 25 (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
Deposits from Members of the same Cooperative Network of Banks- ASF Factor				
32	ASF-Deposits in network of coop bank with mat less than 1yr	[BIS] Deposits from members of the same cooperative network of banks subject to national discretion with a remaining maturity of less than 1 year.	This assumption specifies the deposits from members of the same cooperative network of banks subject to national discretion as defined in FN 10.	Paragraphs 24 (d) and footnote (10).
33	ASF-Deposits from co op banks with mat more than 1 yr	[BIS] Deposits from members of the same cooperative network of banks subject to national discretion with a remaining maturity of more than 1 year.	This assumption specifies the deposits from members of the same cooperative network of banks subject to national discretion as defined in FN 10.	Paragraphs 24 (d) and footnote (10).
Secured Borrowings and Liabilities				
34	ASF- Sec deposits from sov, PSE and other parties	Secured deposits from sovereigns, Public sector enterprises (PSE), National development banks (NDB), Multilateral development banks (MDB), central banks and other parties with a residual maturity of less than a year.	This assumption specifies the secured deposits from PSE, MDB, NDB, sovereigns, central banks, and other parties.	Paragraphs 21 (c), 24, 25 (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
35	ASF- Sec borr from sov, PSE and other parties	Other Secured liabilities from Retail, Small business enterprises(SME), sovereigns, Public sector enterprises (PSE), National development banks (NDB), Multilateral development banks (MDB), central banks and other parties with a residual maturity of less than a year.	This assumption specifies the other secured liabilities from PSE, MDB, NDB, sovereigns, SME, Retail and other counterparties.	Paragraphs 21 (c), 24, 25 (a).
36	ASF- Sec borr and dep from corp with maturity less than a yr	Secured deposits and other liabilities from financial and non-financial corporates with maturity less than a year.	This assumption specifies the secured borrowings and liabilities (including secured term deposits) - financial and non-financial corporate.	Paragraphs 21 (c), 24, 25 (a).
37	ASF- Sec dep and funds mat more than a year; CF within 1yr	Secured funds from central bank, PSE, sov, NDB, MDB, financial and non-financial corporates and other parties where residual maturity is greater than a year and CF falling within a year.	This assumption specifies the secured borrowings and liabilities from Sovereigns, PSE, MDB, NDB, central bank, financial and non-financial corporates and others.	Paragraphs 21 (c), 24, 25 (a).
38	ASF- Sec deposits from wholesale SME	Secured deposits from Small and medium enterprises (SME) which are treated as wholesale.	This assumption specifies the secured deposits from SME treated as wholesale.	Paragraphs 21 (c), 24, 25 (a).
39	ASF- Sec funds from corp mat more than 1yr, CF within 1yr	Secured deposits and other liabilities from financial and non-financial corporates with residual maturity more than a year, and cash flows falling within one year.	This assumption specifies the secured borrowings and liabilities (including secured term deposits) - financial and non-financial corporate.	Paragraphs 21 (c), 24, 25 (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
Other Liability and Equity Categories - ASF Factor				
40	ASF- Trade date payables	[BIS]: 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.	This assumption specifies trade date payables.	Paragraph 25 (d).
41	ASF- Liabilities with open maturity	[BIS]: Secured deposits and all other borrowings and which do not have a stated maturity.	This assumption specifies liabilities without a stated maturity.	Paragraph 25 (b).
42	ASF-Borrowings and Liabilities with maturities beyond 1yr	[BIS]: Borrowings and liabilities with residual maturities and cash flows falling beyond 1 year.	This assumption specifies the total amount of secured and unsecured borrowings and liabilities (including term deposits) with effective residual maturities of one year or more (Catch all for cash flows beyond 1 year).	Paragraph 21 (c).

14.3.3.1.2 Required Stable Funding Factor

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

Table 121: Preconfigured RSF Assumptions BIS NSFR

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
Cash and Central Bank Reserves				
1	RSF- Coins and banknotes	[BIS]: Coins, banknotes, cash and restricted cash held by the bank.	This assumption specifies Banknotes and Coin.	Paragraph 36 (a).
2	RSF- Central bank reserves	[BIS]: All central bank reserves, including, required reserves and excess reserves.	This assumption specifies Central bank Reserves.	Paragraph 36 (b).
Loans to Central Banks				
3	RSF- Unencumbered claims on central banks	[BIS]: Unencumbered loans and other claims on central banks.	This assumption specifies claims on central banks with residual maturities less than 6 months. This assumption specifies Loans to central banks and financial institutions with a residual maturity between 6 months to 1 year.	Paragraphs 31, 36 (c), 40 (c), 43 (a), 43 (c).
4	RSF- Encumbered claims on central banks	[BIS]: Encumbered loans and other claims on central banks.	This assumption specifies Claims on central banks with residual maturities less than 6 months. This assumption specifies Loans to central banks and financial institutions with a residual maturity between 6 months to 1 year.	Paragraphs 31, 36 (c), 40 (c), 43 (a), 43 (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
Deposits Placed Within a Cooperative Network				
5	RSF- Deposits placed within same co operative network	[BIS]: Deposits between banks within the same cooperative network, placed as required by law or in the context of common task sharing and legal, statutory, or contractual arrangements.	This assumption specifies the deposits between banks within the same cooperative network can be excluded from liabilities receiving a 0% ASF , provided [mentioned] conditions, so long as the bank that has received the monies and the bank that has deposited, participate in the same institutional network's mutual protection scheme against illiquidity and insolvency of its members. Such deposits can be assigned an ASF up to the RSF factor assigned by regulation for the same deposits to the depositing bank, not to exceed 85%.	Paragraphs FN (10), 43 (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
6	RSF- Unencumbered other deposits from co operative banks	[BIS]: Unencumbered other deposits from cooperative banks.	This assumption specifies the deposits between banks within the same cooperative network can be excluded from liabilities receiving a 0% ASF , provided [mentioned] conditions, so long as the bank that has received the monies and the bank that has deposited, participate in the same institutional network's mutual protection scheme against illiquidity and insolvency of its members. Such deposits can be assigned an ASF up to the RSF factor assigned by regulation for the same deposits to the depositing bank, not to exceed 85%.	Paragraphs FN (10), 43 (c).
7	RSF- Encumbered other deposits from co operative banks	[BIS]: Encumbered other deposits from Cooperative banks.	This assumption specifies the deposits between banks within the same cooperative network can be excluded from liabilities receiving a 0% ASF, provided [mentioned] conditions, so long as the bank that has received the monies and the bank that has deposited, participate in the same institutional network's mutual protection scheme against illiquidity and insolvency of its members. Such deposits can be assigned an ASF up to the RSF factor assigned by regulation for the same deposits to the depositing bank, not to exceed 85%.	Paragraphs FN (10), 43 (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
Loans to Financial Institutions				
8	RSF- Unenc loans to fin insti secured by level 1 asset	[BIS]: Unencumbered loans to financial institutions where the loan is secured against Level 1 assets as defined in the LCR.	This assumption specifies unencumbered loans to financial institutions with residual maturities of less than 6 months, where the loan is secured against level 1 asset and where the bank has the ability to freely rehypothecate the received collateral for the life of the loan.	Paragraphs 31, 38, 40 (c), 43 (a), 43 (c).
9.	RSF-Encum loans to fin insti secured by level 1 asset	[BIS]: Encumbered loans to financial institutions where the loan is secured against Level 1 assets as defined in the LCR.	This assumption specifies unencumbered loans to financial institutions with residual maturities of less than 6 months, where the loan is secured against level 1 asset and where the bank has the ability to freely re hypothecate the received collateral for the life of the loan.	Paragraphs 31, 38, 40 (c), 43 (a), 43 (c).
10.	RSF - Unenc loans to fin insti secured by other level assets	[BIS]: Unencumbered loans to financial institutions where the loan is secured against assets belonging to levels other than level 1, as defined in the LCR.	This assumption specifies all other secured loans to financial institutions.	Paragraphs 31, 39 (b), 40 (c), 43 (a), 43 (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
11.	RSF- Enc loans to fin insti secured by other level assets	[BIS]: Encumbered loans to financial institutions where the loan is secured against assets belonging to levels other than level 1, as defined in the LCR.	This assumption specifies all other secured loans to financial institutions.	Paragraphs 31, 39 (b), 40 (c), 43 (a), 43 (c).
12.	RSF- Unenc unsec loans to financial institutions	[BIS]: Unencumbered unsecured loans to financial institutions.	This assumption specifies all unsecured loans to financial institutions.	Paragraphs 31, 39 (b), 40 (c), 43 (a), 43 (c).
13.	RSF- Enc unsec loans to financial institutions	[BIS]: Encumbered unsecured loans to financial institutions.	This assumption specifies all unsecured loans to financial institutions.	Paragraphs 31, 39 (b), 40 (c), 43 (a), 43 (c).
Loans to other parties				
14.	RSF- Unenc loans to others, mat less than 1yr	[BIS]: Unencumbered loans with residual maturity less than a year to other counterparties i.e. Non-financial corporate, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	This assumption specifies loans to non-financial corporate, retail and small business customers, sovereigns and PSE with a residual maturity of less than 1 year.	Paragraphs 31, 40 (e), 41, 43 (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
15.	RSF- Enc loans to others, mat less than 1yr	[BIS]: Encumbered loans with residual maturity less than a year to other counterparties i.e. Non-financial corporate, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	This assumption specifies loans to non-financial corporate, retail and small business customers, sovereigns and PSE with a residual maturity of less than 1 year.	Paragraphs 31, 40 (e), 41, 43 (a).
16	RSF- Unenc loans to others, mat more than 1 yr	[BIS]: Unencumbered loans with residual maturity more than a year to other counterparty's i.e. Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	This assumption specifies other unencumbered loans not included in the above categories, with a residual maturity of 1 year or more that would qualify for a 35% or lower weight under the Basel 2 approach. Other unencumbered performing loans that do not qualify for the 35% or lower risk weight under Basel 2 and have residual maturities of 1 year or more excluding loans to banks and financial institutions.	Paragraphs 41 (b), 42 (b), 43 (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
17	RSF - Enc Loans to others, mat more than 1yr	[BIS]: Encumbered loans with residual maturity more than a year to other counterparty's i.e. Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises and sovereigns.	This assumption specifies other unencumbered loans not included in the above categories, with a residual maturity of 1 year or more that would qualify for a 35% or lower weight under the Basel 2 approach. Other unencumbered performing loans that do not qualify for the 35% or lower risk weight under Basel 2 and have residual maturities of 1 year or more excluding loans to banks and financial institutions.	Paragraphs 41 (b), 42 (b), 43 (a).
Non-HQLA Assets				
18.	RSF- Unenc non HQLA assets	[BIS]:Unencumbered securities, with maturity less than 1 year, which do not qualify as High quality liquid assets under the LCR Rule.	This assumption specifies all other non-HQLA not included in the above categories that have a residual maturity of less than 1 year. Unencumbered securities with a remaining maturity of one year or more and exchange traded equities that are not in default and do not qualify for HQLA.	Paragraphs 31, 42 (c), 43 (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
19	RSF- Unenc non HQLA securities mat greater than 1yr	[BIS]:Unencumbered securities, with maturity greater than 1 year which do not qualify as HQLA under the LCR Rule.	This assumption specifies all other non-HQLA not included in the above categories that have a residual maturity of less than 1 year. Unencumbered securities with a remaining maturity of one year or more and exchange traded equities that are not in default and do not qualify for HQLA.	Paragraphs 31, 42 (c), 43 (a).
20	RSF- Enc non HQLA assets	[BIS]:Encumbered portion of securities, with maturity less than 1 year which do not qualify as High quality liquid assets under the LCR Rule.	This assumption specifies all other non-HQLA not included in the above categories that have a residual maturity of less than 1 year. Unencumbered securities with a remaining maturity of one year or more and exchange traded equities that are not in default and do not qualify for HQLA.	Paragraphs 31, 42 (c), 43 (a).
21	RSF- Enc non HQLA assets mat greater than 1yr	[BIS]:Encumbered portion of securities, with maturity greater than 1 year which do not qualify as HQLA under the LCR Rule.	This assumption specifies all other non-HQLA not included in the above categories that have a residual maturity of less than 1 year. Unencumbered securities with a remaining maturity of one year or more and exchange traded equities that are not in default and do not qualify for HQLA.	Paragraphs 31, 42 (c), 43 (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
HQLA Eligible Assets				
22	RSF- Unencumbered level 1 assets	[BIS]: Unencumbered assets which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.	This assumption specifies unencumbered level 1 assets excluding assets receiving a 0% RSF as in para 36.	Paragraphs 37, 40 (b).
23	RSF- Unencumbered Level 2 assets	[BIS]: Unencumbered assets which qualify for inclusion in Level 2A and 2B of High quality liquid assets as defined in the LCR.	This assumption specifies unencumbered Level 2A assets and unencumbered level 2B assets.	Paragraphs 39 (a), 40 (b), 40 (a).
24	RSF- Encumbered level 1 assets	[BIS]: Encumbered portion of assets which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.	This assumption specifies encumbered Level 1 assets excluding assets receiving a 0% RSF.	Paragraphs 31, 37, 40 (b), 43 (a).
25	RSF- Encumbered level 2 assets	[BIS]: Encumbered portion of assets which qualify for inclusion in Level 2A and 2B of High quality liquid assets as defined in the LCR.	This assumption specifies encumbered level 2A and 2B NRMBS assets.	Paragraphs 31, 39 (a), 40 (b), 40 (a), 43 (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
Deposits Held at Financial Institutions for Operational Purposes				
26	RSF-Unencumbered Operational balances with other banks	[BIS]: Operational portion of Unencumbered deposits held at other financial institutions, for operational purpose and are subject to the 50% ASF treatment.	This assumption specifies unencumbered Deposits held at other financial institutions for operational purposes that are subject to the 50% ASF treatment.	Paragraph 40 (d).
27	RSF- Unencumbered non operational balances with other banks	[BIS]: Non-operational portion of Unencumbered deposits held at other financial institutions, for operational purpose and are subject to the 50% ASF treatment.	This assumption specifies non-operational deposits held at financial institutions.	Paragraph 40 (d).
28	RSF- Encumbered op and non op balances with other banks	[BIS]: Encumbered deposits held at other financial institutions, for operational purpose and are subject to the 50% ASF treatment.	This assumption specifies encumbered Operational deposits at financial institutions.	Paragraphs 31, 40 (d), 43 (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
Residential Mortgages				
29	RSF- Unencumbered residential mortgage loans	[BIS]: 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.	This assumption specifies unencumbered residential mortgages with a residual maturity of 1 year or more that would qualify for a 35% or lesser risk weight as per Basel 2. All other non-HQLA not included in above categories that have a residual maturity of less than 1 year, including loans to nonfinancial corporate clients, loans to retail customers, and small business customers and loans to sovereigns and PSEs.	Paragraphs 41 (a) and 40 (e).
30	RSF- Encumbered residential mortgage loans	[BIS]: 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 2 standardized approach for credit risk.	This assumption specifies unencumbered residential mortgages with a residual maturity of 1 year or more that would qualify for a 35% or lesser risk weight as per Basel 2. All other non-HQLA not included in above categories that have a residual maturity of less than 1 year, including loans to nonfinancial corporate clients, loans to retail customers, and small business customers and loans to sovereigns and PSEs.	Paragraphs 41 (a) and 40 (e).

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
Commodities				
31	RSF- Unencumbered commodities	[BIS]: Unencumbered physically traded commodities, including gold.	This assumption specifies physically traded commodities including gold.	Paragraphs 31, 42 (d), 43 (a).
32	RSF- encumbered commodities	[BIS]: Encumbered physically traded commodities including gold.	This assumption specifies physically traded commodities including gold.	Paragraphs 31, 42 (d), 43 (a).
Trade Date Receivables				
33	RSF- Trade date receivables	[BIS]: 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.	This assumption specifies trade date receivables	Paragraph 36 (d).
Off Balance Sheet				
34	RSF OBS- Credit and liquidity facilities to client	[BIS]: Off balance sheet exposures- Irrevocable, revocable and conditionally revocable credit and liquidity facilities offered to any clients by the bank.	This assumption specifies irrevocable and conditionally revocable facilities to clients.	Paragraph 47.

14.3.3.1.3   Derivatives

This section enlists all the preseeded assumptions for NSFR Derivatives.

Table 122: Preconfigured Derivatives Assumptions BIS NSFR

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	RSF- Derivative liabilities	[BIS]: RSF Treatment of derivative liabilities.	This assumption specifies 20% of derivative liabilities (negative replacement cost amounts) as calculated according to para 19 (before deducting variation margin posted).	Paragraph 43 (d).
2	RSF- Derivative liabilities with netting agreement	[BIS]: RSF Treatment of derivative liabilities with netting agreement.	20% of derivative liabilities (negative replacement cost amounts) as calculated according to para 19 (before deducting variation margin posted).	Paragraph 44 (d).
3	ASF- Derivative liabilities	[BIS]: Calculation of derivative liabilities as per NSFR standard, by deducting variation margin posted from market value.	Calculation of NSFR derivative liabilities.	Paragraphs 19 and 20.
4	ASF- Derivative liabilities with netting agreement	[BIS]: ASF Treatment of derivative liabilities with netting agreement	Calculation of NSFR derivative liabilities.	Paragraphs 20 and 20.

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
5	RSF-Derivative assets	[BIS]: Calculation of derivative assets as per NSFR standard, by deducting variation margin received in the form of cash from market value.	Calculation of NSFR derivative assets.	Paragraphs 34 and 35.
6	RSF-Derivative assets with netting agreement	[BIS]: RSF Treatment of derivative assets with netting agreement.	Calculation of NSFR derivative assets.	Paragraphs 35 and 35.
7	RSF- Margin for derivatives	[BIS]: Cash, securities and other assets posted as initial margin for derivative contracts.	Cash, securities and other assets posted as initial margin for derivative contracts.	Paragraph 42 (a).

15   Intraday Liquidity Management

Intraday Monitoring metrics as prescribed by The BIS and Reserve Bank of India are computed by the LRS application through a Run at the end of each day. Dashboard Reports and Regulatory Reports are displayed as a part of computations based on this Run.

Intraday monitoring metrics are calculated for each selected date based on actual data of Payments made and received as part of the Contractual Run. The application supports the following metrics as a part of Intraday Run:

1. Metrics Applicable for All Reporting banks

   a. Daily Maximum Intraday Liquidity Usage

   b. Available Intraday Liquidity at the Start of the Business Day

   c. Total Payments

   d. Time-specific Obligations

2. Metrics Applicable for Banks providing Correspondent banking Services

   a. Value of Payments Made on Behalf of Correspondent Banking Customers

   b. Intraday Credit Lines Extended to Customers

3. Metrics Applicable to Banks which are direct participants of a Large Value Payment System

   a. Intraday Throughput

Topics:

- Intraday Metrics Calculation
- Real Time Monitoring

15.1   Intraday Metrics Calculation

This section includes the steps for Intraday Metrics calculation.

Topics:

- Consolidated Payment System Run
- Daily Maximum Intraday Liquidity Usage
- Available Intraday Liquidity at the Start of the Business Day
- Total Payments
- Time-specific Obligations
- Value of Payments Made on Behalf of Correspondent Banking Customers
- Intraday Credit Lines Extended to Customers
- Intraday Throughput

15.1.1 Consolidated Payment System Run

If multiple payment systems are interconnected by liquidity bridges or if there is any provision to move intraday liquidity freely between payments systems, then transactions of such payment systems can be combined and reported against a single system. The application provides an option to the user to report intraday metrics in either standalone form (each payment system separately) or consolidated form (consolidate all systems wherein intraday liquidity moves freely).

Payment system consolidation is independent of legal entity consolidation which is already a feature in the application. For the Run purpose 'Intraday metrics calculation', 'Consolidation type' and 'consolidation level' labels are renamed as 'Legal entity consolidation type' and 'legal entity consolidation level' For payment system consolidation, there is an additional option in the Run Management window, 'Payment system consolidation type' to select either standalone Payment system or Consolidated Payment System. Consolidation of payment systems is explained through the example as follows.

For example, A legal entity has 4 payment systems (1 to 4) out of which system 2 is linked to system 1, system 1 is designated as the primary payment system, and system 3 and 4 are not linked to any system.

If a user chooses standalone, all 4 payment systems will be reported separately under their own names and own time zones.

If a user chooses consolidated, then reporting would be done for system 1, 3, and 4 in their respective time zones, wherein system 2's transactions are subsumed under system 1.

While providing mapping, user is required to designate a primary payment system to which other payment systems may be linked. For consolidated payment system reporting, reporting would be done only for primary payment systems- in the time zone of the primary system.

For each payment system, the time stamp taken is with respect to that particular payment system. While doing the mapping between the payment systems, the time standard of that particular payment system is considered.

15.1.2 Daily Maximum Intraday Liquidity Usage

This metric computes the maximum liquidity that a bank needs at any point during the day. This is calculated by cumulating the actual liquidity gaps in each time instance and identifying the largest positive and negative cumulative values during the day. The largest positive value represents the maximum inflow and the largest negative value represents the maximum outflow.

This metric uses the time buckets feature and is always computed at a level zero bucket level.

The following steps are involved in calculating this metric:

1. The application obtains the actual time-stamped intraday payments data and arranges in chronological order.

2. The inflows and outflows at each time bucket are aggregated separately.

3. The net cash flow at each instant as the difference between the payments received and payments sent are calculated.

4. The cumulative net usage at each time instant is calculated.

5. The largest positive net cumulative position is identified as the daily maximum cumulative positive net position and the largest negative net cumulative position as the daily maximum cumulative negative net position.

The following is an example for this metric:

For instance, if a bank has to settle the following 8 payments Intraday.

Table 123: Example - Daily Maximum Intraday Liquidity Usage

Sl. No.	Payments	Details
1	19	
2	223	Paid on behalf of a customer bank to which it has extended a secured line of credit of $500
3	99	To be settled by 11:00
4	108	To settle obligations in an auxiliary net retail payment system
5	10	
6	45	To be settled by 14:00
7	379	
8	11	

The intraday transactions that occurred in the payment and settlement system are as follows.

Table 124: Intraday Transactions Occurred In The Payment And Settlement System

Cash Flow Timing	Inflows	Outflows
9:00	223	
9:30		19
10:00	95	
10:15		223
10:45		99
11:00		108
12:00	400	
12:35	22	
14:00		10
14:05	5	
14:20		45
15:00		379
15:30	102	
17:00		11

The daily maximum Intraday liquidity usage is calculated as follows.

Table 125: Calculation of Daily Maximum Liquidity Usage

Time Bucket	Inflows	Outflows	Net Position	Cumulative Position
9:00	223	0	223	223
9:30	0	19	-19	204
10:00	95	0	95	299
10:15	0	223	-223	76
10:45	0	99	-99	-23
11:00	0	108	-108	-131
12:00	400	0	400	269
12:35	22	0	22	291
14:00	0	10	-10	281
14:05	5	0	5	286
14:20	0	45	-45	241
15:00	0	379	-379	-138
15:30	102	0	102	-36
17:00	0	11	-11	-47

Here,

- Largest Positive Net Cumulative Position: $299
- Largest Negative Net Cumulative Position: $138

This metric is reported for each LVPS and for each currency.

15.1.3 Available Intraday Liquidity at the Start of the Business Day

This metric computes and reports intraday funding that is available to banks at the start of a business day to meet its intraday liquidity needs throughout the day. All the balances and market values for all products under this category are taken at the start of each day. This metric is calculated at a Legal Entity (solo/consolidated) - Currency granularity.

The following steps are involved in calculating this metric:

1. Identification of intraday eligible sources for each product; as defined by the user.

2. Addition of Intraday Eligible sources across all products to arrive at the final value.

OFS LRMM Application computes the following as a part of this metric:

1. Intraday liquidity available at the start of each business day.

2. The average value of (1) above within a Reporting period.

3. First, Second and Third minimum values of (1) above during the Reporting period.

a. Each report provides the constituent elements of the liquidity sources available to the bank. The constituent elements as a part of this metric are as follows:

b. Central Bank reserves

c. Collateral pledged at Central bank

d. Collateral pledged at Ancillary systems

e. Collateral pledged at the Correspondent bank

f. Unencumbered liquid assets on the balance sheet

g. Total credit lines from the Correspondent bank

   i. Of which secured

   ii. Of which committed

h. Other Total credit lines available

   i. Of which secured

   ii. Of which committed

i. Balance with the correspondent bank

j. Balances with other banks

k. Other

15.1.4 Total Payments

This metric calculates the total payment to be made which is the summation of intraday payments sent (outflows) and received (inflows).

The following is an example for this metric:

For instance, a bank has the following intraday transactions that occurred in the payment and settlement system.

Table 126: Example of Total Payments

Cash Flow Timing	Inflows	Outflows
9:00	223	
9:30		19
10:00	95	
10:15		223
10:45		99
11:00		108
12:00	400	
12:35	22	
14:00		10

Cash Flow Timing	Inflows	Outflows
14:05	5	
14:20		45
15:00		379
15:30	102	
17:00		11

Here,

- Total Payments Sent = $894 (i.e. $19+$430+$10+$424+$11)
- Total Payments Received = $847 (i.e. $223+$95+$400+$22+$5+$102)

15.1.5   Time-specific Obligations

This metric calculates the time-specific and critical obligations like payments that result in financial penalty, reputational damage or loss of future business if not serviced in time. Time-specific obligations are payments that must be made at or by a particular time.

The following is an example for this metric:

For instance, Bank A has to settle the following 8 payments Intraday.

Table 127: Example of Time-specific Obligations

Sl. No.	Payments	Details	Time-specific Obligation Flag
1	19		No
2	223	Paid on behalf of a customer bank to which it has extended a secured line of credit of $500	No
3	99	To be settled by 11:00	Yes
4	108	To settle obligations in an auxiliary net retail payment system	Yes
5	10		No
6	45	To be settled by 14:00	Yes
7	379		No
8	11		No

The intraday transactions that occurred in the payment and settlement system are as follows:

Table 128: Intraday Transactions Occurred In The Payment And Settlement System

Sl. No.	Cash Flow Timing	Payments Sent	Time-specific Obligation Flag	Success Flag
1	9:30	19	No	NA
2	10:15	223	No	NA
3	10:45	99	Yes	Yes
4	11:00	108	Yes	Yes
5	14:00	10	No	NA
6	14:20	45	Yes	No
7	15:00	379	No	NA
8	17:00	11	No	NA

The following metrics are calculated on an actual time basis.

Table 129: Metrics Calculated on an Actual Time Basis

Sl. No,	Reporting Requirement	Output as per Illustration
1	Total Number of Time-Specific and Other Obligations	The total number is 3 obligations (SN 3, 4 and 6)
2	Total Value of Time-Specific and Other Obligations	This value is $252 (i.e. $99 + $108 + $45)
3	Total Number of Time-Specific and Other Obligations Settled	The total number is 2 obligations (SN 3 and 4)
4	Total Value of Time-Specific and Other Obligations Settled	This value is $207 (i.e. $99 + $108)
5	Total Number of Failed Time-Specific and Other Obligations	1 obligation was not settled on time (SN 6)
6	Total Value of Failed Time-Specific and Other Obligations	The value of the obligation not settled on time is $45 (SN 6)
7	15:00	379
8	17:00	11

NOTE	For partial payment of time-specific obligations, the partially paid obligation is considered as a failed transaction for the purpose of reporting the metric Total Number of Failed Time-Specific and Other Obligations. The paid up portion is reported as part of the metric Total Value of Time-Specific and Other Obligations Settled. The unpaid portion is reported as part of the metric Total Value of Failed Time-Specific and Other Obligations.

15.1.6   Value of Payments Made on Behalf of Correspondent Banking Customers

This metric calculates the total value of payments made on behalf of correspondent banking customers. It applies only to those banks which provide correspondent banking services. This metric helps a bank to understand the proportion of a correspondent bank's payment flows that arise from its provision of correspondent banking services. These flows have a significant impact on the correspondent bank's own intraday liquidity management. Internalized payments are also a part of this calculation. Internalized payments refer to the payments made across accounts.

OFS LRMM application calculates the total value of payments made on behalf of correspondent banking customers on each day. The split up of these total payments - customer-wise is available for the Top N customers, on the basis of total payments made; where N is a user input. The Application also reports the three largest daily total values and the daily average total value of these payments within a reporting period.

This metric is calculated at a Legal Entity - Currency granularity.

15.1.7   Intraday Credit Lines Extended to Customers

This metric is applicable for those banks which provide correspondent banking services and extend intraday credit lines to its customers. Intraday credit lines are those in which drawdown and repayment occurs during the same day.

Intraday Credit Lines have two features, Secured and Committed. The secured lines are those which are extended by the correspondent bank to its customer upon placement of any collateral against the same. The committed lines are irrevocable.

OFS LRMM application enables you to monitor the scale of a correspondent bank's provision of intraday credit to its customers. This metric is calculated at a Legal Entity- Currency granularity.

The following are reported as a part of this metric:

- The total value of credit lines extended:
  — Of which total secured
  — Of which total committed
- The total value of credit lines used:
  — Of which total secured
  — Of which total committed

- Peak Usage values

- Peak Usage is calculated by the application as follows:

  — At the most granular Time bucket level (level 0), the net usage,or Total drawdown – Total Repayment is calculated. At the end of the day, the most negative value of this net usage is reported as Peak Usage.

15.1.8 Intraday Throughput

This metric calculates the percentage of payments that are settled at each time bucket during the day. It is calculated only in the case of banks that are Direct Participants in a payment system.

The application calculates the throughput for both payments made and payments received at every 15 minutes and 30 minutes for throughput reports.

The following steps are involved in calculating this metric:

1. The application calculates the cumulative cash outflows and inflows at each one hour time band.

2. The cumulative outflows and inflows in each band are divided by the total cash outflow /inflow respectively during the day.

The following is an example for this metric:

A bank has the following intraday transactions that occurred in the payment and settlement system.

Table 130: Example – Intraday Throughput

Cash Flow Timing	Payments Received	Payments Made
9:00	223	
9:30		19
10:00	95	
10:15		223
10:45		99
11:00		108
12:00	400	
12:35	22	
14:00		10
14:05	5	
14:20		45
15:00		379
15:30	102	
17:00		11

As per the illustration, Intraday throughput is as follows: (this example features that throughput be calculated only for Payments Sent; however, the application calculates throughput for both payments sent and payments received).

Table 131: Example continued – Intraday Throughput

Time Bucket	Cash Outflows	Cumulative Cash Outflows (b)	Intraday Throughput (b / a)
8-9 Hours	0	0	0.00%
9-10 Hours	19	19	2.13%
10-11 Hours	430	449	50.22%
11-12 Hours	0	449	50.22%
12-13 Hours	0	449	50.22%
13-14 Hours	10	459	51.34%
14-15 Hours	424	883	98.77%
15-16 Hours	0	883	98.77%
16-17 Hours	11	894	100.00%
Total (a)	894		

15.2   Real Time Monitoring

Real time monitoring of intraday positions helps a bank to track its payments by displaying reports with data fetched directly from the source systems. Intraday sources, payments, net usage at each point in time, time-specific obligations and their settlement progress; are few of the key features offered under this section. Real time reports can be refreshed at any time during the day, to view latest positions. Refresh capabilities come in two modes:

- Auto: All reports are refreshed at a pre-set configurable time interval.

- Manual: Each individual report can be refreshed by clicking Refresh.

These modes can be utilized at the same time. For example, if you have set an auto interval of 5 minutes, all reports get refreshed at a 5 minute interval. If between auto-refreshes, you wish to see the latest data on a particular report, the manual refresh button can be used.

The Real Time reports are handled through reporting. For information on Real Time reports, see OFS Liquidity Risk Measurement and Management Release V8.1.0.0.0 Analytics User Guide.

16   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.

The application supports the calculation of liquidity risk metrics for forwarding dates. It helps financial institutions to perform the following for one or multiple user-specified forward dates:

1. 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.

2. 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.

3. Forecast cash flows based on forwarding 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.

4. 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, the Constant Balance forecasting technique for balance forecasting may be used with either Contractual Profile or Current profile techniques for cash flow forecasting.

5. 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.

6. 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 on multiple techniques. Currently, forward date LCR is computed only as per US Federal Reserve Liquidity Coverage Ratio guidelines that is when the Run Purpose is selected as U.S Fed Liquidity Ratio Calculation.

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

    The application provides the ability to analyze and compare the liquidity metrics including forwarding balances, LCR, and so on between the As of Date that is the current date and any future date for which the forward date liquidity risk calculations have been executed.

8. Compare liquidity risk metrics across future dates:

    The application provides the ability to analyze and compare the liquidity metrics including forwarding balances, LCR, and so on 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.

16.1 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 preconfigured calculations, scenarios, and reporting dashboards. The application supports the following functions related to forward liquidity risk calculation:

Topics:

- Granularity of forward records
- Computing forward dates
- Computing forward time buckets
- Computing forward balances
- Adjusting forward balance sheets
- Forward Balance and Cash Flow Allocation
- Calculating forward cash flows
- Calculating forward liquidity coverage ratio
- Preconfigured Forecasting Rules

16.1.1 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 forwarding calculations at a higher level of granularity. The granularity of forwarding balance and cash flow calculations, that is the download dimensions, supported by the application for all assets and liabilities other than derivatives is as follows:

1. Product
2. Currency
3. Legal Entity
4. Controlled by Treasury Flag
5. Transferability Restriction

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

1. Legal Entity
2. Currency
3. 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.

16.1.2 Computing Forward Dates

The application allows users to define forward dates in two ways: specification of fixed intervals and calendar selection of forwarding 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:

$$First\ Forward\ Date = As\ of\ Date + First\ Forward\ Date\ Interval$$

Where,

As of Date   :   FIC MIS Date

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

2. The subsequent forward dates are calculated as follows:

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

Where,

F + x   : Each forward date after 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 until the application achieves the number of forwarding dates specified by you. This includes the first forward date that is, (Number of forwarding Dates – 1) times.

The forward date calculation process is illustrated in the following table:

Table 132: Example 1: Forward Date Calculation

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
	February 28, 2015 + 1 month = March 31, 2015

Third Forward Date	Second Forward Date + Forward Date Frequency

Table 133: Example 2: Forward Date Calculation

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

16.1.3   Computing 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 the case of forwarding 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 the time bucket start and end dates for the current date and each forward date is illustrated in the following table:

Table 134: Time Bucket Start and End Date Calculation

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
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

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
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									

16.1.4   Computing 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 forwarding calculations is detailed as part of the Granularity of Forward Records section.

The application supports a preconfigured 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 as follows:

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 that is As of Date selected in the Run Management window

EOP Minimum Threshold: Floor for the account balance that is 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 an EOP minimum threshold is specified, the contractual cash flows are run-off only till the minimum threshold is reached. Any contractual cash flows which result in the forward balance dropping below the minimum threshold will not be a run-off. Once the minimum threshold is reached, it is maintained as the constant balance for all subsequent forward dates for that Run and dimensional combination.
	2.	For example, the forward balance as of 31st December is 5200, the 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 that is (minimum of 5000, 5200-500).
	3.	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 of 03/01/2015. All values are in terms of US Dollars.

Table 135: Contractual Run-off Method

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	

Product	Spot Balance	EOP Minimum Threshold
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:

Table 136: Example: Contractual Cash Flow Position as of the Spot Date for each Product

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
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	
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 before 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

Table 137: Forward Balances Under Different Scenarios

Forward Date	Scenario	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

1. 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 that is 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:

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

      ii. When holidays are excluded:

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

   > **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. If 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 and inputs required for this method are illustrated in the following table. All values are in terms of US Dollars.

Table 138: Illustration - Equally Changing Balance Method

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:

- Scenario I: When holidays are Excluded, Forecasting Period less than Forecasting Horizon and EOP Balance is Reducing
- Scenario II: When holidays are Included, Forecasting Period less than Forecasting Horizon and EOP Balance is Reducing
- Scenario III: When holidays are Excluded, Forecasting Period greater than Forecasting Horizon and EOP Balance is Reducing
- Scenario IV: When holidays are Excluded, Forecasting Period greater than Forecasting Horizon and EOP Balance is Increasing

Table 139: Illustration - Calculation of Forward Balances Scenarios

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

FORWARD DATE LIQUIDITY RISK CALCULATION

OVERVIEW OF FORWARD DATE LIQUIDITY RISK CALCULATION

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
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

2. 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:

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

Where,

Yt: Missing forward balance

Yt-1: Known balance on forward date immediately preceding the missing forward date

Yt+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:

Table 140: Illustration - Interpolation when Frequency of Forward Dates is a Week and Holidays

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	
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:

Table 141 : Illustration - Interpolation when Frequency of Forward Dates Week and Holidays Excluded

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	6	
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 before 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,

Yt: Missing observation that is value of the forward balance to be forecasted at time 't'

Yt-1: Known value of observation at time 't-1'

Yt-2: Known value of observation at time 't-2'

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

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

Table 142: Illustration - Extrapolation when Frequency of Forward Dates Week is a month and Holidays Included

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
31-Dec-14		01-Dec-14	31-Dec-14	335	816

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

Table 143: Illustration - Extrapolation when Frequency of Forward Dates Week is a month and Holidays excluded

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

Input		Calculation			
Forward Date	Forward Balance Download Value	Period Start	Period End	Cumulative Business Days	Missing Forward Balance
31-Dec-14		01-Dec-14	31-Dec-14	239	844

NOTE

1. If there is only one 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. The first forward balance is mandatory.

3. If the last forward date and corresponding balance provided as a download occur 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 that is those assets which are controlled by the treasury.

3. 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:

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

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**
>
> **5.** If no balance change is specified for the time period between the previous forward date to next forward date, then the balance calculated as of the previous forward date is assumed to continue "as-is".
>
> **6.** 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:

Table 144: Example - Input: Balance Change Download

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
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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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
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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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
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:

Table 145: Example - Output: Balance Change Download

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

4. 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:

Table 146: Example: Constant Balance Method

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

The forward balance, for the constant balance method, is calculated as follows:

Table 147: Example: Forward Balance Calculation Constant Balance Method

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

5. Cash Flow Download Method:

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

16.1.5 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 to the Run Definition Parameters section of the OFS Liquidity Risk Measurement and Management User Guide 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 before computing forward cash flows as part of the contractual Run.

16.1.5.1 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. For example, the spot balance sheet position and the current profile is as follows:

Table 148: Example 1 - Current Profile Based Increase

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%

Assets Side	Asset Balance	Current Profile – Assets	Liabilities Side	Liability Balance	Current Profile – Liabilities	Liability Balance Excluding Equity	Revised Current Profile – Liabilities
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 lower side is adjusted and made equal to the other side for the balance sheet to be balanced. The difference in the assets side is allocated based on the current asset profile as follows:

Table 149: Example 2 - Current Profile Based Increase

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.

16.1.5.2 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:

Table 150: Example - Current Profile Based Decrease

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
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.

16.1.5.3 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 (that is 350 + 200).

16.1.5.4 Manual Adjustments

The manual adjustments method allows users to specify the percentages by which assets and/or liabilities are to be increased or decreased to adjust the balance sheet. The application provides a preconfigured 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 the selection of the adjustment of the balance sheet position can be specified based on the 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.

Table 151: Illustration Manual Adjustment - Asset Adjustment Only

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 the asset position or liability position is changed depending on the condition.

Table 152: Illustration Manual Adjustment - Asset or Liability Adjustment

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.

Table 153: Illustration Manual Adjustment - Liability Adjustment Only

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.

Table 154: Illustration Manual Adjustment - Asset and Liability Adjustment

Condition	Asset	Adjustment Percentage
Assets > Liabilities	Asset 2	-55%

Condition	Asset	Adjustment Percentage
	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 that is Assets less than Liabilities. The difference in 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

16.1.6 Forward Balance and Cash Flow Allocation

This section includes information about forward balance and cash flow allocation.

Topics:

- Forward Balance Allocation
- Forward Cash Flow Allocation

16.1.6.1 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 (see the Granularity of Forward Records section for the granularity of forward records) as the information is generally not available at a very granular level for dates in the future. However, for 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 the FSI LRM Instrument table that is 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 is the following:

Table 155: Example: Forward Balance Allocation

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

Table 156: Computation of the Current Profile and Allocation of Balance to the Granular Combinations

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 is based on the Fair Value and not the EOP Balance. For all other products, the balance allocation is done based on EOP Balance.

16.1.6.2   Forward Cash Flow Allocation

For the Cash Flow Download method, the cash flows are obtained at a less granular level that is at the level specified in the Granularity of Forward Records section. 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 Aggregate Cash Flow table that is 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 the Fact Aggregate Cash Flow table.

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

Table 157: Example - Forward Cash Flow Allocation

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:

Table 158: Example continued - Forward Cash Flow Allocation

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:

Table 159: Example Continued - Forward Cash Flow Allocation

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'

16.1.7 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 preconfigured 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 the following sections:

Topics:

- [Contractual Profile](#)
- [Current Profile](#)
- [Current and Default Profile](#)

- Cash Flow Download

- Incremental Run-off Assumption

- New Business Assumption

- Drawdown Assumption

16.1.7.1 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 before 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. |

16.1.7.2   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:

$$Current\ Profile_x = \frac{Cash\ Flow_x}{EOP\ Balance} \times 100$$

Where,

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

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

$$Forward\ Cash\ Flow_x = Forward\ Balance_f \times Current\ Profile_x$$

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:

Table 160: Example: Current Profile Computation

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
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

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)
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 based on calendar days or business days.

16.1.7.3 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 the 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

six forward dates which are at weekly intervals starting 1st March 2016, the cash flow methodology applicable for each forward date is determined as follows:

Table 161: Determination of the Cash Flow Methodology

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.

16.1.7.4   Cash Flow Download

The forward cash flows as of each forward date are taken as a download at the dimensional combination specified in the Granularity of Forward Records section. 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. The cash flow download method is applicable only when the balance forecasting method selected is either 'Balance Download' or 'Balance Change Download'.

16.1.7.5   Incremental Run-off Assumption

This method involves leveraging the existing incremental run-off business assumption to apply a user-specified run-off pattern on the forward balances to generate forward cash flows based on a 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 subcategory as 'Run-off'.

You can select one or multiple incremental cash flow business assumptions as part of the forward date contractual Run definition UI. For forward cash flow calculations, the only allowed 'Based On' measure is **EOP balance** that is 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. See the Run-Off section in the OFS Liquidity Risk Measurement and Management User Guide for more details on defining the incremental run-off business assumption.

16.1.7.6   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 example, the cash flow computation method may be selected as a 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 subcategory as **New Business**.

You can select one or multiple new business assumptions as part of the forward date contractual Run definition UI. For forward cash flow calculations, the only allowed 'Based On' measure is EOP balance that is 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. See the New Business section in the OFS Liquidity Risk Measurement and Management User Guide for details on defining the new business assumption

16.1.7.7   Drawdown Assumption

This method involves leveraging the existing drawdown business assumption to specify an 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 subcategory as Drawdown.

The user is allowed to select one or multiple drawdown assumptions as part of the forward date contractual Run definition UI. For forward cash flow calculations, the only allowable 'Based On' measure is Undrawn Amount that is only those assumptions which are based on the 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 the Drawdown section of the OFS Liquidity Risk Measurement and Management User Guide for more details on defining the drawdown assumption.

16.1.8   Calculating 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) like 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, see the OFS Liquidity Risk Regulatory Calculations for US Federal Reserve User Guide.

The application also allows users to apply stress scenarios over and above the baseline regulatory scenario to assess the impact of the 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 the Run Type section of the OFS Liquidity Risk Measurement and Management User Guide for more details on stress testing.

16.1.9   Preconfigured Forecasting Rules

The following rules have been preconfigured for forecasting.

Topics:

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

16.1.9.1   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

These 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 the "Current and Default Profile" method to any of the dimensions (product, currency, and legal entity).

For Cash Flow Calculation, the following methods are available in the application. To view the methods in the Run Definition window, navigate to the **Liquidity Risk Management**, select **Manage LRM Rules**, select **Rule** then select **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 to map the "Current and Default Profile" method to any of the dimensions (product, currency, and legal entity).

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

Figure 72: Cash Flow Calculation

16.1.9.2   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, the following methods are available in the application. To view the methods in the Run Definition window, navigate to the **Liquidity Risk Management**, select **Manage LRM Rules**, select **Rule** then select **Run Definition** window.

- Contractual Run-Off

- Equally Changing Balance

- Balance Download

- Balance Change Download

- Constant Balance

- Cash Flow Download Method

Figure 73: Balance Calculation

16.1.9.3   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 input as per the requirement.

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

Figure 74: Manual Adjustment Rule
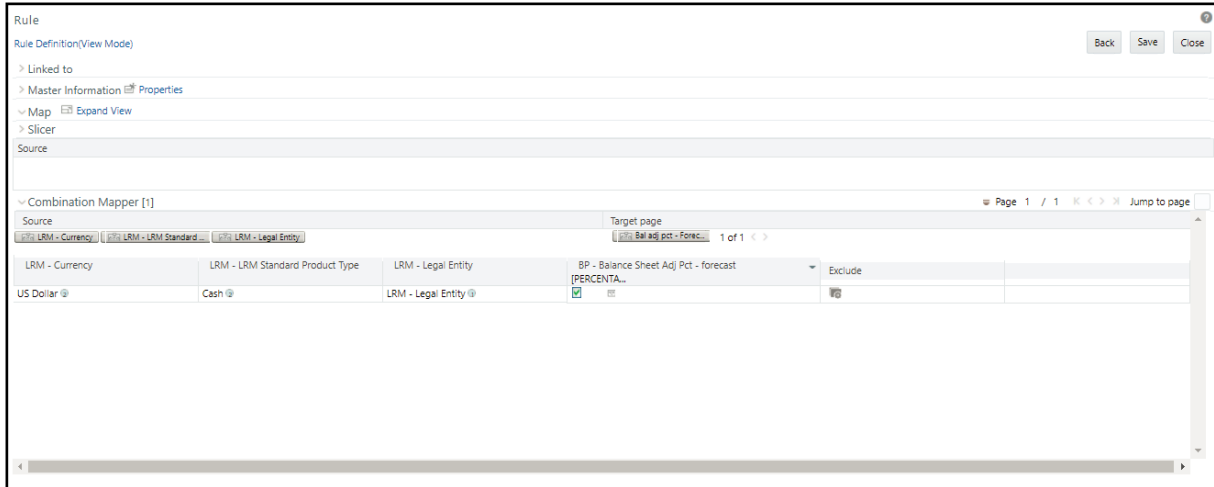
You can also create new rules as per the procedure to replace the existing pre-configure forecasting rules. However, these rules must be mapped in the setup master table. The new rules are seeded in FSI_LRM_FWD_METHOD_RULES. Once it is available in the set up the master table then, it will be available in the Method selection dropdowns in Run Management window for selection.

Table 162: Pre configured Forecasting Rules

Rule	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

16.1.10 Pre-configured Regulatory Scenario

OFS LRMM supports pre-configured calculations, scenarios, and reporting templates to ensure full compliance with BIS Basel III guidelines.

> **NOTE** This section gives only the contextual information about all the rules. For more detailed information refer OFS LRMM application (UI).
>
> For detailed Processes and Tasks, refer to the Run Chart.

16.1.10.1 Regulation Addressed through Rules

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

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

Table 163: Regulation Addressed through Rules

Sl No.	Rule Name	Rule Description
1	LRM - BIS LCR Adjustments Amount Calculation - Forecast	This rule computes the net adjustment to the stock of high quality liquid assets due to unwinding of transactions i.e. the difference between the total addition to the all the high quality liquid assets and the total deduction from all the high quality liquid assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table at the legal entity and the currency level. This may be a positive or negative amount.
2	LRM - BIS LCR Adjustments Amount Calculation at Entity Level - Forecast	This rule computes the net adjustment to the stock of high quality liquid assets due to unwinding of transactions i.e. the difference between the total addition to the all the high quality liquid assets and the total deduction from all the high quality liquid assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table at the legal entity. This may be a positive or negative amount.
3	LRM - BIS LCR Adjustments Amount Calculation in Natural Currency - Forecast	This rule computes the net adjustment to the stock of high quality liquid assets due to unwinding of transactions i.e. the difference between the total addition to the all the high quality liquid assets and the total deduction from all the high quality liquid assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table at the Natural Currency level. This may be a positive or negative amount.
4	LRM - LCR Level 2B Adjustments Amount Calculation - Forecast	This rule computes the net adjustment to the stock of level 2B assets due to unwinding of transactions i.e. the difference between the total addition to the stock of level 2B assets and the total deduction from the stock of level 2B assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table. This may be a positive or negative amount.
5	LRM - L6CR Level 1 Adjusted Asset Amount Calculation - Forecast	This rule computes the post adjustment stock of Level 1 assets, as the sum of the stock of level 1 assets and the level 1 asset adjustment amount, and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
6	LRM - LCR Level 2A Adjusted Asset Amount Calculation - Forecast	This rule computes the post adjustment stock of Level 2A assets, as the sum of the stock of level 2A assets and the level 2A asset adjustment amount, and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
7	LRM - LCR Level 2B RMBS Adjusted Asset Amount Calculation - Forecast	This rule computes the post adjustment stock of Level 2B RMBS assets, as the sum of the stock of level 2B RMBS assets and the level 2B RMBS asset adjustment amount, and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.

Sl No.	Rule Name	Rule Description
8	LRM - LCR Level 2B Non-RMBS Adjusted Asset Amount Calculation - Forecast	This rule computes the post adjustment stock of Level 2B Non-RMBS assets, as the sum of the stock of level 2B Non-RMBS assets and the level 2B Non-RMBS asset adjustment amount, and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
9	LRM - LCR Level 2B Adjusted Asset Amount Calculation - Forecast	This rule computes the post adjustment stock of Level 2B assets, as the sum of the stock of level 2B assets and the level 2B asset adjustment amount, and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
10	LRM - LCR Level 2B Asset Cap Amount Calculation - Forecast	This rule computes the adjustment to the stock of HQLA due to the cap on Level 2B assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
11	LRM - LCR Level 2 Asset Cap Amount Calculation - Forecast	This rule computes the adjustment to the stock of HQLA due to the cap on Level 2 assets and updates this information in the FCT_FCAST_LRM_LE_SUMMARY table.
12	LRM - Stock Adjustment Rule - Level 1 - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 1 assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
13	LRM - Stock Adjustment Rule - Level 2A - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2A assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
14	LRM - Stock Adjustment Rule - Level 2B RMBS - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2B RMBS assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
15	LRM - Stock Adjustment Rule - Level 2B Non RMBS - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2B non-RMBS assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
16	LRM - Stock Adjustment Rule - Level 1 - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 1 assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
17	LRM - Stock Adjustment Rule - Level 2A - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2A assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.
18	LRM - Stock Adjustment Rule - Level 2B RMBS - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2B RMBS assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.

SI No.	Rule Name	Rule Description
19	LRM - Stock Adjustment Rule - Level 2B Non RMBS - Forecast	This rule computes the addition amount or the deduction amount against the accounts classified as level 2B non-RMBS assets and marked as eligible to be unwound. The rule updates this adjustment information in the FSI_FCAST_ALLOCATED_BALANCES table.

17   User Roles and Access

The basic roles defined in the OFS LRM application are as follows:

- LRM Analyst: This user is responsible for defining and maintaining the user interface input parameters and definitions required by the application. This user is also allowed to execute the Runs defined within the application.

  LRM Analyst can define time buckets, business assumptions, and Runs with the following access privileges: Add, View, Edit, Copy, Delete, Send for Approval, Make Active, Retire, Approval Summary, and execute the Runs created in the application. This user is not allowed to approve definitions. A business assumption or a Run is sent for approval by this user to the LRM approver.

- LRM Approver: This user is responsible for verifying and approving the tasks assigned to and completed by the LRM Analyst. Additionally, this user can execute the Runs created in the application. For instance, this user can approve, and execute a definition.

  LRM Approver can approve business assumptions and Runs defined by the LRM analyst with the following access privileges: View, Approve, Reject, Retire, Approval Summary, and execute the Runs created in the application.

- LRM System Administrator: This user is responsible for ensuring that all inputs required for the liquidity risk calculations have been specified in a functionally appropriate manner, in line with the bank's liquidity risk objectives. LRM System Administrator is responsible for preparing the metadata required for LRM, including access to the Application Preferences window. This user is allowed to approve all tasks across functional areas of the Liquidity Risk Management application.

  LRM System Administrator can perform the following functions: View, Delete, Send For Approval, Approve, Reject, and Approval Summary. This user is not allowed to perform the following functions: Add, Edit, Copy, Make Active, Retire, and execute the Runs created in the application.

The user roles defined in Deposit Insurance Calculation are as follows:

- DIC Analyst (DICANALYST): This user is responsible for defining and maintaining the user interface input parameters and definitions required by the application. This user is also allowed to execute the Runs defined within the application.

  DIC Analyst can define Runs with the following access privileges: Add, View, Edit, Copy, Delete, Send for Approval, Make Active, Retire, Approval Summary, and execute the Runs created in the application. This user is not allowed to approve definitions. A Run is sent for approval by this user to the DIC approver.

- DIC Approver (DICAPROVER): This user is responsible for verifying and approving the tasks assigned to and completed by the DIC Analyst. Additionally, this user can execute the Runs created in the application. For instance, this user can approve and execute a definition.

  DIC Approver can approve Runs defined by the DIC analyst with the following access privileges: View, Approve, Reject, Retire, Approval Summary, and execute the Runs created in the application.

NOTE	• See the Approval Work Flow section for more information.
	• You are allowed to create a user and assign all the above three roles. This user is a Super User.
	• For information on how to map a user to a user group see the Mapping the User to User Group section in the OFS Liquidity Risk Solution 8.1.0.0.0 Installation Guide.

18   Approval Work Flow

OFS LRS supports approval workflows based on user roles. A one-step maker-checker approval is supported for business assumption definition and Run definition to ensure that computations are carried out using the right input data.

A definition goes through multiple stages, each with a different status, before it can be used for computation. For instance, when a new business assumption is defined and saved, it will be in Draft status. When the definition is edited and sent for authorization, the status of the definition changes to Pending Approval and so on. Each stage requires action from the relevant user based on the role assigned to her. Similarly, a Run definition goes through the same stages of approval.

18.1   Understanding Approval Work Flow

Each definition goes through multiple stages and has a status associated with it in each stage and the following table explains the status at each stage.

Table 164: Approval Status and Description

Status	Description
Draft	When a new definition is created and saved for the first time it is in Draft status. While in draft status, the user is allowed to make any necessary edits without a change in the version number.
Pending Approval	When a definition is sent for approval but is not yet approved by the approver the status changes to Pending Approval. This does not result in a change in the version number.
Open	When a definition is rejected by the approver, it changes to Open status and is required to be updated or rectified. This does not result in a change in the version number. After the necessary updates are made, it goes through the approval process again. You are allowed to delete a version in Open status.
Approved	When a definition has been approved by the LRM approver its status changes to Approved. An approved version of the definition whose Active status is Y, is picked up for execution. This does not result in a change in the version number.
In Review	When a definition is edited post-approval, but is not yet sent for the next round of approval, the status displayed is In Review. This edit will result in the creation of a new version of that definition with a new version number. This version of the definition is not picked up for execution until it is approved.
Retired	When a definition is retired, meaning no longer required for further computations, its status changes to Retired. This action does not result in a change in the version number of the definition. A retired definition no longer appears for selection in the Run Management window while defining new Runs. However, it can still be executed as part of an existing Run definition. A retired definition is not deleted as it was used previously and will be retained for audit purposes.

The following steps explain the approval workflow process and the tasks that a user can perform during each stage:

1. To create a new definition, click **Add** in the **Business Assumptions Summary** window. On the creation of a new definition, it is in Draft status. The following icons are enabled while a definition is in Draft status:

   - View

   - Edit

   - Copy

   - Delete

   - Send for Approval

   - Approval Summary

   The following actions are permissible when a definition is in Draft status:

   - You can view the definition by clicking **View** in the summary window. You cannot edit the values in View mode.

   - You can edit the definition by clicking **Edit** in the summary window and make the required changes. This does not result in a new version.

   - You can copy the definition and save it with a new name by clicking **Copy** in the summary window. The new definition will have the same attributes as the existing definition and will be created as version 0. This definition will be in Draft status and the necessary edits can be made.

   - You can delete any definition which is in Draft status by selecting the definition from the summary window and clicking **Delete**.

   - Once the definition is finalized, you can initiate the approval process by opening the definition in edit mode and clicking **Send for Approval** in the definition window. This changes the status of the definition to Pending Approval.

   - You can view the approval workflow for the definition in the Approval Summary window by clicking **Approval Summary**. This window provides details of each change in the approval status.

2. After the definition is finalized, it is sent for approval and its status changes to Pending Approval. The following icons are enabled in the Pending Approval status:

   - View

   - Copy

   - Approve

   - Reject

   - Approval Summary

   The following actions are permissible when a definition is in Pending Approval status:

   - You can view the definition by clicking **View** in the summary window. You cannot edit the values in View mode.

   - You can copy the definition and save it with a new name by clicking **Copy** in the summary window. The new definition will have the same attributes as the existing definition and will

be created as version 0. This definition will be in Draft status and the necessary edits can be made.

- You can approve the definition, if you have the appropriate access rights, by clicking **Approve**. You are allowed to add comments. The status changes to Approved when you have completed the approval process.

- You can reject the definition, if you have the appropriate access rights, by clicking **Reject**. You are allowed to add comments. Rejecting a definition changes the status to In Review.

- You can view the approval workflow for the definition in the Approval Summary window, by clicking **Approval Summary**. This window provides details of each change in the approval status. This window provides details of each change in the approval status.

> **NOTE** The **Approve** or **Reject** buttons are present only for users who are mapped to the LRM Approver role.

3. If a definition is rejected by the LRM approver, its status changes to **Open**. The following icons are enabled in the Open status:

- View

- Edit

- Copy

- Send for Approval

- Approval Summary

The following actions are permissible when a definition is in Open status:

- You can view the definition by clicking the **View** icon in the summary window. You cannot edit the values in View mode.

- You can edit the definition by clicking the **Edit** icon in the summary window and make the required changes. Once the edits are saved, the status still remains in Open status.

- You can copy the definition and save it with a new name by clicking the **Copy** icon in the summary window. The new definition will have the same attributes as the existing definition and will be created as version 0. This definition will be in Draft status and the necessary edits can be made.

- After modifying the definition, you can send it again for approval by clicking **Send for Approval.** This changes the status of the definition to Pending Approval.

- You can view the approval workflow for the definition in the Approval Summary window by clicking the **Approval Summary** icon. This window provides details of each change in the approval status.

4. Once the definition is reviewed and approved, the status changes to Approved. The following icons are enabled in the Approved status:

- View

- Edit

- Copy

- Make Active

- Retire

- Approval Summary.

The following actions are permissible when a definition is in Approved status:

- You can view the definition by clicking **View** in the summary window. You cannot edit the values in View mode.

- You can edit the definition by clicking **Edit** in the summary window and make the required changes. The definition is still in In Review status.

- You can copy the definition and save it with a new name by clicking **Copy** in the summary window. The new definition will have the same attributes as the existing definition and will be created as version 0. This definition will be in Draft status and the necessary edits can be made.

- If the definition is an older version that is not currently used for computations, you can make it active to be picked by for executions by clicking **Make Active** in the summary window.

- You can retire a definition when it is no longer applicable or required for calculations, by clicking **Retire** in the summary window.

- You can view the approval workflow for the definition in the Approval Summary window, by clicking **Approval Summary**. This window provides details of each change in the approval status.

5. When an approved definition is edited, a new version of the definition is created with the status In Review. The following icons are enabled in the **In Review** status:

- View

- Edit

- Copy

- Send for Approval

- Approval Summary.

The following actions are permissible when a definition is in In Review status:

- You can view the definition by clicking **View** in the summary window. You cannot edit the values in View mode.

- You can edit the definition by clicking **Edit** in the summary window and make the required changes. The definition is still in In Review status.

- You can copy the definition and save it with a new name by clicking **Copy** in the summary window. The new definition will have the same attributes as the existing definition and will be created as version 0. This definition will be in Draft status and the necessary edits can be made.

- You can send a definition for approval by clicking **Send for Approval** in the definition window. This changes the status of the definition to Pending Approval.

▪ You can view the approval workflow for the definition in the Approval Summary window by clicking **Approval Summary**. This window provides details of each change in the approval status.

> | **NOTE** | • Only a business assumption definition, once approved, can be edited. A new version of the definition is created. |
> | :--- | :--- |
> | | • A Run, once approved, is not allowed to be edited. Hence, no versioning of Runs is supported. |

6. You can retire an approved definition, if it is no longer valid, by clicking **Retire**. The icons which are enabled in the Retire status are as follows:

▪ View

▪ Delete

▪ Copy

▪ Approval Summary.

The following actions are permissible when a definition is in Retired status:

▪ You can view the definition by clicking **View** in the summary window. You cannot edit the values in View mode.

▪ You are allowed to delete the retired definition by clicking **Delete**. A retired business assumption is allowed to be deleted only if it is not used in any Run.

▪ You can view the approval workflow for the definition in the Approval Summary window, by clicking **Approval Summary**. This window provides details of each change in the approval status.

The following table provides a snapshot of the UI functions that are enabled for each status:

Figure 75:UI Functions Enabled for Each Status

UI Functions	Status					
	Draft	Pending Approval	Approved	Open	In Review	Retired
Add	✓	x	x	x	x	x
View	✓	✓	✓	✓	✓	✓
Edit	✓	x	✓	✓	✓	x
Copy	✓	✓	✓	✓	✓	✓
Delete	✓	x	x	x	✓	✓
Send For Approval	✓	x	x	✓	✓	x
Approve	x	✓	x	x	x	x
Reject	x	✓	x	x	x	x
Make Active	x	x	✓	x	x	x
Retire	x	x	✓	x	x	x
Approval Summary	✓	✓	✓	✓	✓	✓
Run Execution Parameters	x	x	✓	x	x	x
Run Execution Summary	x	x	✓	x	x	✓

* Deletion is allowed only if the business assumption definition is not used in any Run

The approval workflow and the logical change in each status is depicted as part of the following process flow:

Figure 76 Approval Workflow
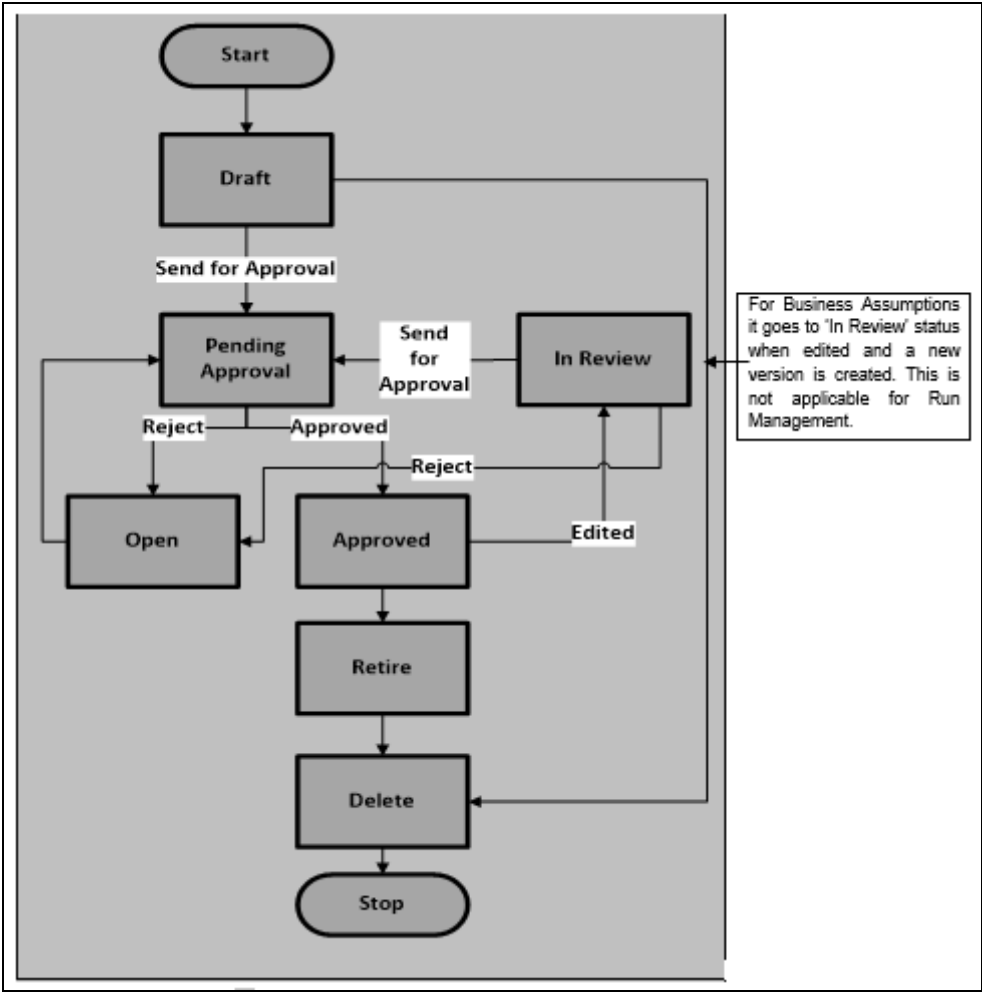
19 Annexure A: Functional Details

This section includes the functional details regarding LRS.

Topics:

- LRS Data Flow and Dimensions
- LRS Reports

19.1 LRS Data Flow and Dimensions

This section provides details on the movement of data from the staging area or tables to the processing area or tables. The application supports multiple pre-configured table-to-table (T2T) definitions and Data Transformations (DT) for moving data from the staging tables to the processing tables.

This section details the movement of the cash flow data.

1. When OFS ALM is installed, the following occurs:

   The data related to the cash flows generated by the ALM cash flow engine is present in the FSI O Process Cash Flow table. To use these cash flows in the LRM system, these cash flows are moved to the Fact Process Cash Flow table as part of the ALM – LRM Integration batch execution.

   Data moves from the Fact Process Cash Flow table to Fact Account Cash Flow table. The cash flows in the Fact Process Cash Flow table are bucketed, which is aggregated at an account- time bucket combination, as they are moved to the Fact Account Cash Flow table. This is done as part of the following T2Ts:

   - LRM Time Bucket Process Account Cash Flow Population

   - LRM Open Maturity Time Bucket Process Account Cash Flow Population

NOTE	Cash Flows are stored at the granularity of account and time bucket in the Fact Account Cash Flow table whereas they are stored at the granularity of account and cash flow date in the Fact Process Cash Flow table.

2. When OFS ALM is not installed:

   Data on cash flows is expected as an input in the Stage Account Cash Flows table which also contains cash flow dates for all the accounts. The cash flows in the Stage Account Cash Flows table are moved to Fact Account Cash Flow table. The cash flows are time bucketed, that is aggregated at an account- time bucket combination, as they move from Stage Account Cash Flows table to Fact Account Cash Flow table.

3. Cash flows from the Fact Account Cash Flow table move into Fact Aggregate Cash Flow table based on user-selected aggregation dimensions and the mandatory dimensions. The aggregation dimensions supported by the application are as follows:

Table 165 List of Dimensions

Serial No.	Name	Description
1	Basel Risk Weight	This dimension stores the Basel Risk Weight.
2	Brokered Deposit Type	This dimension stores the broker deposit type. A broker is an individual or party (brokerage firm) that arranges transactions between a buyer and a seller for a commission when the deal is executed. There are several kinds of brokers, each of whom deals in specific types of transactions. Each broker provides different levels or type of service. List of Values for this table is Reciprocal, Sweep and Other.
3	Brokered Transaction Flag	This dimension indicates if there is a broker involved in the account acquisition. Financial institutions may use the services of a broker in acquiring high value accounts.
4	Business Unit	This dimension stores the data representing a particular Line of Business.
5	Cash Comingling Flag	This dimension stores whether the cash flows are comingled of an SPV with its parent Legal entity or not. SPV is a special purpose vehicle that is structured for structured instruments such as Credit derivatives, Mortgage backed securities and so on.
6	Collateral Covering Short Position Flag	This dimension stores the asset level that indicates if collateral of the account is used for covering the short position.
7	Control By Treasury	This dimension indicates if asset is controlled by treasury or not. The stock should be under the control of the function charged with managing the liquidity of the bank (for example, the treasurer), meaning that the function has the continuous authority, and legal and operational capability, to monetize any asset in the stock. See Para 33 of Basel III The Liquidity Coverage Ratio and liquidity risk monitoring tools - January 2013 - BCBS238, for more details.
8	Covering Banks Own Short Position	This dimension stores the indicator for whether the underlying asset is utilized for covering short positions of bank. If the flag is yes then it is covering the banks short position.
9	Credit Line Purpose	This dimension stores the unique identifier for the credit purpose.
10	Customer Child Flag	This dimension indicates if customer is a legal entity which is a descendent to the legal entity of account in the bank's organizational structure.

Serial No.	Name	Description
11	Customer Financial Entity Flag	This dimension stores the flag that indicates if customer type is a financial entity or not.
12	Domestic Customer Indicator	This dimension indicates if customer is a domestic customer.
13	Downgrade Trigger	This dimension stores whether an account has downgrade trigger associated to it. If Y, then yes, and if N, then no.
14	Effective Deposit Insurance Scheme Flag	This dimension stores if insurance qualifies as effective insurance as per supervisory criteria. An effective deposit insurance scheme refers to a scheme (1) that has the ability to make prompt payouts, (2) for which the coverage is clearly defined and (3) of which public awareness is high.
15	Effective Residual Maturity Bands	This dimension stores the effective maturity band surrogate key.
16	Escrow Account Flag	This dimension stores the flag which states if the account is an escrow account or not. An escrow account can be used in the sale of a house. For example, if there are conditions to the sale, such as the passing of an inspection, the buyer and seller may agree to use escrow. In this case, the buyer of the property deposits the payment amount for the house in an escrow account held by a third party. This assures the seller -in the process of allowing the house to be inspected - that the buyer is capable of making payment. After all of the conditions to the sale are satisfied, the escrow transfers the payment to the seller, and title is transferred to the buyer.
17	Established Relationship Account Flag	This dimension indicates whether the customer is holding more than one non-transactional account with the bank.
18	Exposure of One to Four Family	This dimension indicates if the exposure is in the form of one- to four family residential construction loans if the residences have been pre-sold under firm contracts to purchasers who have obtained firm commitments for permanent qualifying mortgages and have made substantial earnest money deposits, and the loans meet the other underwriting characteristics established by the agencies in the general risk-based capital rules.
19	Facility Type	This dimension stores the purpose of facility line available for liquidity, credit, both or other.

Serial No.	Name	Description
20	Forward Starting Flag	This dimension stores the flag indicating if the account is going to start in the future date or not. For example this flag will be Y for forward starting repos, forward starting options, and so on.
21	Fully Covered Insurance Flag	This dimension stores the flag which states if the account is fully covered under an insurance scheme.
22	Guarantor Us Flag	This dimension stores the flag to identify if the guarantor of the account is US or no. This is specifically required for US Federal Reserve classification.
23	Highly Stable Flag	This dimension stores the high stability indicator of an account.
24	Home Jurisdiction Flag	This dimension states if liquidity risk is taken in the home jurisdiction.
25	Hqla Collateral Substitution	This dimension stores the flag, whether received collateral for this account is High Quality Liquid Asset (HQLA) and if it can be substituted for non-HQLA assets without the banks consent.
26	Hqla Collateral Substitution Asset Level	This dimension stores the asset level, whether received collateral for this account is HQLA, and it can be substituted for non-HQLA assets without the banks consent.
27	Institutional Network Flag	This dimension indicates if the banks are members of institutional networks of cooperative banks. Institutional networks of cooperative banks are legally autonomous banks with specific functions. This is required for the application of run-off as specified in BCBS238.
28	Insurance Coverage Type	This dimension stores the unique surrogate key for insurance scheme coverage type.
29	Intra Bank Identifier	This dimension stores the intra bank identifier. Indicator is Y if customer of an account is within the organization structure of legal entity.
30	Issuer Us Flag	This dimension stores the flag to identify if issuer of the account is US or no. This is specifically required for US Federal Reserve classification.
31	LRM - Affiliated Brokered Sweep Deposit Flag	This dimension is used to identify if the brokered sweep deposit is deposited in accordance with a contract between the retail customer or counterparty and the bank, a controlled subsidiary of the bank, or a company that is a controlled subsidiary of the same top-tier company of which the bank is a controlled subsidiary.

Serial No.	Name	Description
32	LRM - Customer Affiliated to Legal Entity Flag	This dimension indicates if a customer is an affiliate of a legal entity of account.
33	LRM - Customer Consolidated Subsidiary of Financial Sector Entity Flag	This dimension indicates whether customer is a consolidated subsidiary of a financial sector entity. A consolidated subsidiary means an entity that is owned by the parent company and whose financial statements are included in the consolidated financial state.
34	LRM - Customer Depository Institution Flag	This dimension stores whether the customer is a depository institution.
35	LRM - Customer Financial Entity Or Consolidated Subsidiary Of Financial Entity	This dimension stores whether the customer of an account is Financial Entity Or Consolidated Subsidiary of Financial Entity Flag.
36	LRM - Customer is Sovereign or MDB or US GSE with 20 Percent Risk Weight	This dimension stores whether the customer is Sovereign or MDB or US GSE.
37	LRM - Deposit Institution Or Consolidated Subsidiary Of Depository Institution	This dimension stores whether the customer of an account is a depository institution, or Consolidated Subsidiary Of Depository Institution Flag.
38	LRM - HQLA Collateral Substitution Asset Level by Entity	This dimension stores the substitutable collateral asset level surrogate key by the reporting entity.
39	LRM - HQLA Eligibility Flag	This dimension stores the flag whether the asset is HQLA Eligible or not.
40	LRM - Issuer Subsidiary Flag	This dimension is used to identify if the issuing entity is consolidated with the covered company or not.
41	LRM - Mitigant Rehypothecation Maturity Greater than Original Maturity Flag	This dimension indicates, if the underlying (received) rehypothecation maturity greater than asset exchange original maturity date and asset exchange maturity date is within liquidity horizon.
42	LRM - Non Maturity Account Flag	This dimension indicates whether the account product is non maturing or not.
43	LRM - Non-Operational Deposit and Non-Brokered Deposit of a Wholesale Customer	This dimension stores the Non-Operational Deposit and Non-Brokered Deposit of a wholesale Customer.
44	LRM - Sold Exclusively In Retail Market Flag	This dimension stores the flag that indicates if the account is sold exclusively in the retail market.
45	LRM - Third Party Placed Account Flag	This dimension stores non brokered retail Third-Party Deposits.
46	LRM - Underlying Mitigant Hqla Eligibility Flag	This dimension stores whether the underlying received collateral is an hqla eligibility flag.

Serial No.	Name	Description
47	LRM - Underlying Mitigant Segregated Flag	This dimension indicates whether the underlying client pool asset or underlying asset received from counterparty is segregated, that is kept aside from the other assets including the bank's own assets.
48	Large Customer Flag	This dimension identifies whether the customer is a large customer.
49	Netting Agreement	This dimension stores indicator to identify if there is a netting agreement associated with the record.
50	Non Performing Asset	This dimension states if the account is fully performing. The loan has not defaulted in the past and thereby the bank has no reason to expect a default within the 30-day time horizon.
51	Operational Deposit Flag	This dimension indicates if the nature of the account is operational. An account where a clearing, custody or cash management relationship exists between the bank and its customer is classified as an operational account.
52	Option Embedded Flag	This dimension indicates if the security has an embedded option within it. Embedded option refers to a provision in a security that is an inseparable part of the instrument. An embedded option is a special condition attached to a security, and in particular, a bond that gives the holder or the issuer the right to perform a specified action at some point in the future. An embedded option is a part of another security, and as such does not trade by itself. Nevertheless, it can affect the value of the security of which it is a component. A security is not limited to one embedded option, as there may be several embedded options in one security.
53	Option in or out of the Money Indicator	This dimension stores the identifier for whether or not the option is in the money (I), out the money (O) or at the money (A). These are terms associated with derivative options.
54	Primary Market Issuer Flag	This dimension indicates if the covered company is the primary market maker for issued securities.
55	Rehypothycated Flag	This dimension indicates the rehypothecation status of asset.
56	Residual Maturity	This dimension indicates the residual maturity.
57	Residual Maturity Less than Liquidity Horizontal Flag	This dimension indicates whether residual maturity period is less than liquidity horizon.
58	Residual Maturity Time Bucket Skey	This dimension stores the residual maturity time bucket surrogate key.

Serial No.	Name	Description
59	Revocability Status	This dimension stores the revocable status surrogate key. The values can be, Conditionally Revocable or Unconditionally Revocable.
60	Secured Status	This dimension identifies the secured or unsecured borrowings Y=secured, N=unsecured.
61	Segregated Collateral Flag	This dimension indicates if the collateral received is from a pool of assets or posted individually for a specific purpose.
62	Sell Flag	This dimension is a sell/buy indicator for products such as euro, dollar and fed funds.
63	Standard Customer Type	This dimension stores the standard customer type.
64	Structured Flag	This dimension indicates if the issued product is structured.
65	Trade Finance-Related Obligations	This dimension indicates if trade related obligations are associated with the account. Trade finance instruments consist of trade-related obligations directly underpinned by the movement of goods or the provision of services, such as: (1) documentary trade letters of credit, documentary and clean collection, import bills, and export bills (2) guarantees directly related to trade finance obligations, such as shipping guarantees. Value is Y if instrument is having trade related obligations and N if such trade obligations are not associated with the instrument.
66	Transactional Account Flag	A transactional account is a deposit account held at a bank or other financial institution, for the purpose of securely and quickly providing frequent access to funds on demand, through a variety of different channels. Transactional accounts are meant neither for the purpose of earning interest nor for the purpose of savings, but for convenience of the business or personal client.
67	Transferability Restriction	This dimension stores the transferability restriction. Sometimes, due to regulatory rules or other market conditions, excess liquidity available in a given legal entity is "trapped". It is not available for use at the parent entity or the consolidated legal entity.
68	US HQLA Asset Level	This dimension stores the US asset level.
69	Underlying Asset Level	This dimension stores the underlying asset's asset level.

Serial No.	Name	Description
70	Underlying Asset To Cover Bank's Own Short Position	This dimension stores the flag indicating if account underlying is used for covering the bank short position of different transaction.
71	Underlying Collateral Received Asset Level	This dimension stores the Collateral Received asset level.
72	Wholesale Retail Category	This dimension stores the wholesale and retail code.
73	BIS HQLA Asset Level	This dimension stores the Asset Level Surrogate key.
74	LRM - Early Withdrawal Flag	This dimension indicates whether customer can withdraw before the maturity of the deposit.
75	LRM - Significant Early Withdrawal Penalty Flag	This dimension stores the Flag that indicates if the Withdrawal penalty is significant.
76	LRM - Withdraw Notice Period Greater Than Liquidity Horizon	This dimension stores the Flag that indicates if Withdrawal Notice period is greater than the Liquidity Horizon (selected by user at run time).
77	LRM - Self Investment	This dimension stores the flag that indicates if the account is a self-investment account or not.
78	LRM - Placed at Central Institution or Service Provider	This dimension identifies whether the deposit is placed by a member of an institutional network of cooperative banks with the central institution, or specialized central service providers that are placed (a) due to statutory minimum deposit requirements, which are registered at regulators, or (b) in the context of common task sharing and legal, statutory or contractual arrangements so long as both, the bank that has received the money and the bank that has deposited participate in the same institutional network's mutual protection scheme against illiquidity and insolvency of its members. This is as per BCBS238 para 105 to 106.
79	LRM - Counterparty Risk Weight	This dimension captures the risk weight of the counterparty to, or the customer of a particular transaction with the bank. For LCR computation as per BCBS238, this attribute is used to define appropriate run-off rates to secure funding transactions with counterparties or customers based on their risk weight.
80	Underlying collateral covering Customer Short Position	This dimension stores the indicator stating if the underlying asset is utilized for covering short positions of the customer. If the flag is yes, then it is covering the customer short position.

Serial No.	Name	Description
81	Underlying collateral covering Bank Short Position	This dimension stores the indicator stating if underlying asset is utilized for covering short positions of the bank. If the flag is yes, then it is covering the bank's short position.
82	Underlying Asset Level Received	This dimension stores the underlying asset category key corresponding to QIS for securities received in swap transaction.
83	Mitigant Rehypothecation Rights Flag	This dimension indicates whether the bank has re-hypothecation rights on a mitigant. This indicates an asset received as a collateral. Yes indicates rehypothecation rights are present on the mitigant received.
84	Collateral Substitution Asset Level	This dimension stores the Asset Level Surrogate key.
85	Correspondent Banking Flag	This dimension indicates whether correspondent banking relationship is present dimension the bank and the counterparty.
86	Customer Regulated Financial Entity Indicator	This dimension captures whether the counterparty is a financial entity which is regulated by the regulator in the jurisdiction. A value of Y indicates that the counterparty is regulated financial entity. In the context of BIS BCBS 238, this flag is used to identify whether a customer is subject to prudential regulation or not.
87	Committed Facility Flag	This flag indicates if the facility is committed or not. In committed facilities, the borrowing companies must meet specific requirements set forth by the lending institution in order to receive the stated funds. If the value is Y, the facility is committed. If the value is N, the facility is not committed.
88	Downgrade Trigger Activated Flag	This dimension indicates if the downgrade trigger for account is active or not.
89	Cash Flow Type	This dimension contains the surrogate key for each cash flow type identifier.
90	LRM - Instrument Position Indicator	This dimension indicates whether this position is short or long. List of values: S stands for Short Position, and L stands for Long Position.
91	LRM - Covering Position Type	This dimension stores the source for the delivery into the sale for covering short positions. As per BCBS 238 requirements, the list of values are: CUB - Covered by unsecured borrowing CSB - Covered by secured borrowing COS - Covered by Other Sources UNCOV - Uncovered This column is applicable for short positions.

Serial No.	Name	Description
92	LRM - Held By Client	This dimension indicates that a client pool asset or asset received from counterparty is segregated, kept aside from the other assets including the bank's own assets. Segregated client pool securities are not freely available to meet all the liquidity needs of the bank and are set aside to be utilized for some specific purpose. Such segregated assets are not considered eligible HQLA as they do not meet the generally applicable criteria for HQLA. Only an HQLA that meets operational and generally applicable criteria is considered eligible to be included in the stock of HQLA. Client pool securities that are not segregated are allowed to be included as part of HQLA. See US Final Rule Page 113.
93	Account Defaulted Flag	This dimension indicates whether the account has defaulted. If the value is updated as Y= the account has defaulted & if the value is updated as N= the account has not defaulted. This is an account that is under prolonged delinquent state.
94	LRM - BIS - NSFR Cashflow Interval	This dimension refers to the residual maturity band of the cash flows in NSFR calculation.
95	LRM - Buy Sell Dimension	This dimension indicates if the investment is a Buy or Sell. Buy indicates a Long position in the instrument/security. Sell indicates a Short position in the instrument/security.
96	LRM - Encumbrance Status Flag	This dimension indicates if an instrument is encumbered, either by pledging, securitization or collateralization. List of values that can be updated are N=Not encumbered, Y-Fully encumbered.
97	LRM - NSFR Encumbered Band	This dimension refers to the Encumbrance band to which the financial instrument falls in NSFR calculation.
98	LRM - NSFR Residual Maturity Band	This dimension refers to the residual maturity band to which the financial instrument falls in NSFR calculation.
99	Margin Type	This dimension indicates the type of margin kept by the counterparty with reporting bank against the default fund. The list of values will include IM for initial margin, VM for variation margin and DF for default fund contribution.
100	LRM - Major Component Index Flag	This dimension stores if the instrument is part of a major index or not. Indices are composed of securities that are well reputed, the increase and decrease of price of these securities which are weighted decides the movement of the index itself.

Serial No.	Name	Description
101	LRM - Deposit Primary Purpose	This dimension stores the primary purpose of deposit surrogate key.
102	LRM - Settled Transaction Flag	This dimension stores the indicator stating if the transaction is settled or not.
103	LRM - Clearing Relationship	This dimension stores if the account is associated with clearing relationship. Clearing denotes all activities, from the time a commitment is made for a transaction until it is settled. Clearing of payments is necessary to turn the promise of payment (for example, in the form of a cheque or electronic payment request) into actual movement of money from one bank to another. Such accounts are considered as operational account.
104	LRM - Cash Management Relationship	This dimension stores if the account is associated with cash management relationship. Cash management refers to a broad area of finance involving the collection, handling, and usage of cash. Such accounts are considered as operational accounts.
105	LRM - Custody Relationship	This dimension stores if the account is associated with a custody relationship. Custodian is a specialized financial institution responsible for safeguarding a firm's or individual's financial assets and is not necessarily engaged in traditional commercial or consumer/retail banking such as mortgage or personal lending. Such accounts are considered as operational account.
106	LRM - Correspondent Account Type	This dimension stores the type of correspondent account type. The values can be Nostro, Vostro, Cash Advances to other banks.
107	LRM - Cancelled Deposit Agreed Payout within 30 days	This dimension stores whether the deposit has been cancelled and its payout has been agreed to be paid within 30 days to another institution. The list of values are Y or N, where a value of Y indicates payment has been agreed to be paid to other institution within 30 days for cancelled deposit.
108	LRM - Level 1 Underlying Sub Asset Level	This dimension stores the Sub Asset Level Surrogate key of the Underlying posted.
109	LRM - Level 1 Underlying Sub Asset Level Received	This dimension stores the Sub Asset Level Surrogate key of the Underlying received.
110	LRM - Meets Group Lower Outflow Criteria Flag	This dimension stores the lower outflow criteria for credit facility and liquidity facility. The list of values are Y or N, where a value of Y indicates that the institution meets lower outflow criteria and hence lower runoff rates can be applied for outflows from credit facility and liquidity facility.

Serial No.	Name	Description
111	LRM - Underlying Standard Product Type	This dimension stores the underlying standard product type surrogate key.
112	LRM - Meets Group Higher Inflow Criteria Flag	This dimension stores the higher inflow criteria for credit facility and liquidity facility. The list of values are Y or N, where a value of Y indicates that the institution meets higher outflow criteria and hence higher runoff rates can be applied for inflows from credit facility and liquidity facility.
113	LRM - Promotional Lending Purpose Flag	This flag indicates whether a party or issuer is a promotional lender. A promotional lender is any credit institution whose purpose is to advance the public policy objectives of the Union or of the central or regional government or local authority in a Member State predominantly through the provision of promotional loans on a non-competitive, not for profit basis. The list of values are Y and N.For Example1 in BOT, it captures the soft loan program of Bank of Thailand. Example 2 it is also used in the context of EBA DA, where at least 90% of the loans that the party grants must be directly or indirectly guaranteed by the central or regional government or local authority.
114	LRM - Qualifying Term Funding Flag	This dimension stores if the insurance scheme has adequate means of ensuring ready access to additional funding in the event of a large call on its reserves. This column is required for identifying the highly stability criteria of accounts as per regulator (BCBS 238). If the indicator is Yes it qualifies as one of the criteria for stability.
115	LRM - Customer Domicile Flag	This dimension indicates whether the customer is domiciled in the country of regulation under which calculations are being done, the legal entity's home country or in a country where the legal entity has a foreign branch. A value Y indicates that the customer is domiciled in the country of regulation as defined above. A value N indicates that the customer is not domiciled in the country of regulation as defined above. This attribute would be derived using application specific rules. In the case of BOT guidelines, the country of regulation will be Thailand.
116	LRM - Intra Bank Flag	This dimension stores the intra bank identifier. The indicator will be Y if the customer of an account is within the org structure of the legal entity.

Serial No.	Name	Description
117	LRM-Issued For Public Offering	This dimension captures whether securiti.es of a company are issued to the public wherein all the guidelines of securities regulator are followed. The list of values are Y and N. A value of Y indicates that the securities are publicly offered. A value of N indicates that the securities are not publicly offered.
118	LRM - Significant Withdrawal Penalty on Principal Flag	This dimension indicates if there is a significant penalty on early withdrawals which impacts the principal. This column is required to determine whether the account will be withdrawn within the LCR horizon as per BOT guidelines. If the penalty significantly impacts the principal, it will not be withdrawn prior to maturity. The list of values are Y and N. A value of Y indicates that there would be a significant penalty impacting the principal for early withdrawals. A value of N indicates that there would not be a significant penalty impacting the principal for early withdrawals.
119	LRM - Mutual Fund Scheme Type	This dimension stores the unique key identifying the mutual fund scheme type.
120	LRM - Mutual Fund Type	This dimension stores the unique key identifying the mutual fund type.
121	LRM - Customer Domicile Flag	This dimension captures whether the settlement days is within liquidity horizon or not.
122	LRM - Settlement Days Less Liq Hz	This dimension captures whether the issuer is a financial entity or not.
123	LRM - Issuer Financial Entity	This dimension captures whether the issuer is a consolidated subsidiary of financial entity or not.
124	LRM - Issuer Consolidated Subsidiary of Financial Entity Flag	This attribute captures whether the instrument is publicly traded or not.
125	LRM - Exchange Traded Flag	This dimension is to identify whether the legal entity has Liquidity Risk in account's country. If the account's country is equal to one of the Legal Entity's country in Legal entity organization structure then this will be considered as liquidity risk has been taken in account's country and this flag will be Y otherwise it will be N.
126	LRM - Country Liquidity Risk Flag	This dimension captures whether the settlement days is within liquidity horizon or not.
127	LRM - Basel Credit Rating	This dimension captures the Basel credit rating.
128	LRM - Issuer Domestic To Account Flag	This dimension stores flag to indicate if the issuer's currency is equal to the account's currency.

Serial No.	Name	Description
129	LRM-Settlement Type	This dimension stores the settlement mechanisms used for secured and foreign exchange products.
130	LRM - Listed on a Recognized Stock Exchange	This dimension stores to identify if the instrument is listed on a recognized exchange.
131	LRM - Liquefiable Asset Flag	This dimension indicates if an asset is Liquefiable or not. If an asset is liquefiable then it is Y, otherwise it is N.
132	LRM - LMR Qualifying Liability	This dimension indicates if a liability is a qualifying liability or not. If it is qualifying the it is marked as Y else N.
133	LRM - LMR Category Skey	This dimension stores the Category surrogate key.
134	LRM - Marketability Indicator	This dimension stores the flag that indicates if the security is marketable or not. Marketable securities are very liquid securities that can be converted into cash quickly at a reasonable price
135	LRM - Fund	This dimension stores the unique identifier of the fund.
136	LRM - Fully Invested in Liquid Assets	This dimension indicates if the fund amount is fully invested in Liquid Assets.
137	LRM - Central Counterparty Clearing Flag	This dimension stores the central counterparty clearing flag and indicates whether the party is a qualified central counterparty for clearing trades or not.
138	LRM - SIB Type Indicator	This dimension stores the Systemically Important Institution Banking type and it is set to yes if the party is either a Globally Systemically Important Bank, Domestic Systemically Important Bank or Other Systemically Important Institutions.
139	LRM - Zero Percent RSF Factor Flag	This dimension stores the Zero Percent RSF Factor Flag and indicates whether the value for the country receiving the RSF factor is equal to zero or not.

4. As part of the contractual Run execution, data flows from Fact Aggregate Cash Flow table to the reporting tables and the liquidity gap report based on the contractual cash flows is generated from reporting tables. Contractual Run execution assesses the current liquidity status of the organization purely under contractual terms, without the application of any business assumption.

In a BAU or stress Run execution, the data which was loaded into Fact Aggregate Cash Flow table as part of the underlying contractual Run is re-inserted in the same table against a new execution skey and currency conversion module is re-executed as reporting currency of the contractual Run and the BAU or stress Runs may be different. User-defined BAU or stress business assumptions are executed on the aggregated cash flows in Fact Aggregate Cash Flow table. Once the assumptions are applied, the cash flow in the reporting currency rules for

assumptions are adjusted. Currency conversion is re-executed to convert the adjusted cash flows from reporting currency to local and natural currency.

5. Once cash flows are adjusted in the Fact Aggregate Cash Flow table based on the business assumptions applied, data is moved into the reporting tables and Gap reports of Adjusted Cash flow can be generated from these reporting tables.

Based on the purpose selected in the Run Definition window for the BAU Run, the following is true:

- When Liquidity Ratio Calculation is selected, LCR is calculated.

- When FR 2052a and FR 2052b is selected, the reporting line reclassification occurs and the reporting measures are aggregated across the reporting lines and moved to the reporting table (Fact Liquidity Reporting table).

19.1.1   Understanding Application Flow

Liquidity Risk is managed by the application through the following functionalities as represented in the following diagram:

Figure 77 LRS Workflow
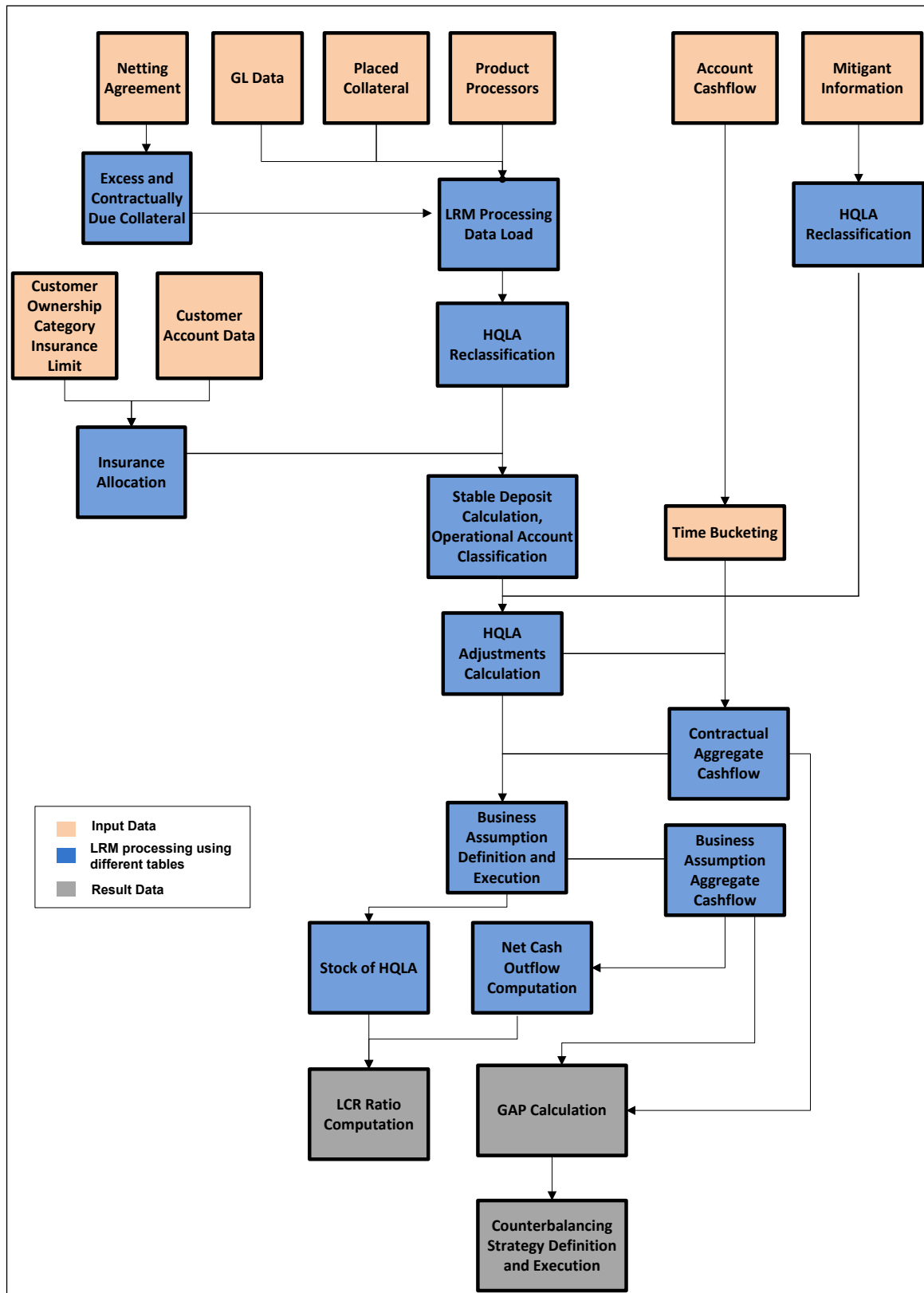
19.2   LRS Reports

For detailed information on the LRS reports, see the [OFS Liquidity Risk Measurement and Management Release V8.1.0.0.0 Analytics User Guide](#).

20   Annexure B: Technical Details

This section includes the following topics:

- OFS ALM – OFS LRM Cash Flow Integration
- Create/Execute LRM Batch from Command Line
- Updating Port Changes in OFS LRM
- Setup Master Table Configuration
- Business Assumption Data Maintenance
- Run Management Data Maintenance
- Executing Intraday Post Load Batch and Intraday Real Time Run
- Migrating LRM Objects
- Performance Improvement Guidelines
- Generating Download Specifications
- Adding a Custom Run Purpose
- Audit Logging

20.1   OFS ALM – OFS LRM Cash Flow Integration

This section is applicable only if a bank has both OFS Asset Liability Management and OFS Liquidity Risk Management installed and if the cash flows generated by OFS ALM are to be considered for calculation within OFS LRM. The following steps are required to be performed to consider the cash flows generated by OFS ALM for LRM computations:

1. Open the **Application Preferences** window in the **Oracle Financial Services Analytical Applications Infrastructure** window. Choose **Risk Applications** > **Liquidity Risk Management** > **Application Preferences** on the Left-Hand Side (LHS) menu.

2. Select one or multiple cash flow generation processes from the **Contractual Cash Flow Process Selection** section. This selection enables OFS LRM to use the contractual cash flows generated by OFS ALM for further computations. See the Contractual Cash Flow Selection section for more information.

> **NOTE**   For LRM cash flow, every product has a unique scenario that is, for the same product scenarios are not repeated.

See the ALM LRM Integration page in the OFS Liquidity Risk Management V8.1.0.0.0 Run Chart for details on the batches to be executed to populate the cash flows from ALM output tables.

3. Once these batches are executed, verify whether the data for the selected process IDs is appearing in the Fact Process Cash Flow table.

4. LRM provides out-of-the-box time bucket definitions which are seeded in the DIM_RESULT_BUCKET table. Before defining any ALM time bucket, ensure to increase the

sequence SEQ_DIM_RESULT_BUCKET.nextval value to the max+1 value of the N_RESULT_BUCKET_SKEY of DIM_RESULT_BUCKET.

20.2   Create/Execute LRM Batch from Command Line

To generate the execution IDs, the following steps can be followed by passing all requisite parameters at command line. Follow these steps, to create or execute LRM batch from command line:

1. Navigate to the `$FIC_APP_HOME/icc/bin directory` and open the `lrmExecParams.properties` file.

2. Provide all the required parameters. All Parameters are mandatory, except for the Contractual Run Execution ID which is required only for BAU/Stress Run.

    a. RUNID:

      — For Contractual Run and BAU Run, the `N_RUN_OBJECT_ID` (`FSI_LRM_RUN_PARAM.N_RUN_OBJECT_ID`) of the run definition you are trying to execute.

        Example: If the name of the Run definition created is TEST2131, execute the following query to get the `n_run_object_id`.

        `SELECT T.N_RUN_OBJECT_ID FROM FSI_LRM_RUN_PARAM T WHERE T.V_RUN_NAME LIKE 'TEST2131';`

      — For Stress Run, the ID of the Stress Run created (`ST_STRESS_MASTER.V_STRESS_ID`)

    b. RUNTYPE: The type code of the Run to be executed is as follows:

      — 10: Contractual Run;   11: BAU Run;   12: Stress Run

    c. INFODOM: Enter the name of the INFODOM which is in use.

    d. FICMISDATE: Enter the FIC MIS date to be used for execution.

    e. RUNEXECDESC: Enter the description for the execution.

    f. CONTRAEXECID: For BAU/Stress Run, enter the ID of the Contractual Run execution to be used. The following query can be used to find the various Contractual Run Execution IDs:

> **NOTE**   Choose any value of ITEM_ID column as an input for CONTRAEXECID from the result of the query.

```
SELECT DISTINCT R.N_RUN_SKEY,
        R.V_RUN_EXECUTION_ID ITEM_ID,
        R.V_RUN_EXECUTION_ID || '~' || R.N_VERSION_NUMBER ITEM_NAME,
        TO_CHAR(P.FIC_MIS_DATE, 'MM/DD/YYYY') FIC_MIS_DATE,
        BVW.V_BATCH_STATUS STATUS,
        COALESCE(TO_CHAR(P.N_CONTRACTUAL_RUN_EXE_ID), '')
CONTRACTUAL_RUN_EXE_ID,
        P.V_REPORTING_CURRENCY_CODE,
        DECODE(P.V_REPORTING_CURRENCY_CODE,
            C.V_ISO_CURRENCY_CD,
            C.V_CURRENCY_NAME,
            C.V_ISO_CURRENCY_CD) REPORTING_CURRENCY,
        V_EXCHANGE_RATE_SOURCE,
        COALESCE(TO_CHAR(P.N_CONFIDENCE_INTERVAL), '') N_CONFIDENCE_INTERVAL,
        COALESCE(TO_CHAR(P.N_LIQUIDITY_HORIZON), '') N_LIQUIDITY_HORIZON,
        R.D_RECORD_START_DATE EXEC_DATE
 FROM FCT_LRM_RUN_PARAM P, DIM_CURRENCY C, DIM_RUN R, BATCH_RUN_VIEW BVW
 WHERE P.N_RUN_OBJECT_ID = (SELECT P.N_CONTRACTUAL_RUN_CODE
     FROM FSI_LRM_RUN_PARAM P
     WHERE P.N_RUN_OBJECT_ID = <<BAU RUN OBJECT ID>> )
  AND P.N_RUN_SKEY = R.N_RUN_SKEY
  AND P.V_REPORTING_CURRENCY_CODE = C.V_ISO_CURRENCY_CD
  and UPPER(BVW.V_BATCH_ID) LIKE UPPER('%' || R.V_RUN_EXECUTION_ID || '%')
  AND UPPER(BVW.V_BATCH_STATUS) = UPPER('C')
  AND TO_CHAR(R.FIC_MIS_DATE, 'MM/DD/YYYY') =
     TO_CHAR(TO_DATE(<<FIC_MIS_DATE in mm/dd/yyyy format>>, 'MM/DD/YYYY'), 'MM/DD/YYYY')
 ORDER BY EXEC_DATE
```

g. **REPCURRENCY**: Enter the code of the reporting currency to be used. The currency code can be found using the following query:

```
SELECT V_ISO_CURRENCY_CD, V_CURRENCY_NAME FROM DIM_CURRENCY ORDER BY
UPPER(V_CURRENCY_NAME)
```

h. **EXCHGRATESRC**: Enter the code of the exchange rate source to be used. The code can be found using the following query:

```
SELECT LOOKUP_CD, LOOKUP_DESCRIPTION FROM FSI_LRM_LOOKUP_TL T WHERE
T.CATEGORY_ID = 19
```

i. **LCRHORIZON**: Enter the LCR Horizon (in days) to be used. The default provided is 30.

j. **USER**: Enter the OFSAA application user name.

k. **EXECUTE**: Enter Y/N. Here, Y= Execute Run and N=Create Batch Only.

3. Run the `lrmBatch.sh` file to create or execute a batch. Provide the input parameter as EXECUTE=Y to execute the batch.

4. Ensure that the `wsdl` URL is replaced with correct values in the `LRMWSservices.properties` file under the `$FIC_APP_HOME/icc/lib`
`LRM_WSDL_LOCATION=$PROTOCOL$://$WEBSERVERHOST$:$WEBSERVERPORT$/$CONTEXT`
`$/lrmService?wsdl` directory.

20.3   Updating Port Changes in OFS LRM

If you refer to the OFS AAI document on how to configure infrastructure ports and execute it, the changes reflect only in the OFS AAI configuration files but not OFS LRM files.

It is recommended to change the LRM_WSDL_LOCATION port number manually in the `$FIC_APP_HOME/icc/lib/LRMWSservices.properties file` with the new servlet port. Note that this change is required only when the servlet port is changed, otherwise it is not required to update the file.

20.4   Setup Master Table Configuration

The setup master table must be configured for calculating LCR Option 2. The setup master table configuration is as follows.

Table 166: Setup Master Table Configuration

Column Name	Component Description	Example Component Value	Comment
LCR_OPT2_MAX_THRESHOLD_EXEMPT_HAIRCUT_PCT	Maximum threshold percent which is exempt from haircut for LCR option 2	25	The maximum threshold haircut percentage which needs to be exempted must be entered and this should be a whole value and not a percentage.
LRM4G_HOL_CODE	US 4G Holiday Code	1	The holiday code which needs to be used for "US FR2052a Run" and "US FR2052a Run" Runs.
LRM_STD_CCY_CD	Standard Currency used in currency conversion	USD	If reporting currency is not selected, then the default value provided here is used.
OPTION3_HAIRCUT	Additional Haircut required for option 3 LCR	0.1	This setup parameter is used for BIS run. This is the haircut percent for option type 3 specified in decimals. (10% will be given as 0.1).
DIM_PRODUCT_BALANCE_SHEET_CATEGORY_ASSET	Place Holder for Asset	ASSET	This parameter is to identify the ASSET products in the balance sheet. This should be same as the balance category of assets which is given as download in STG_PRODUCT_MASTER. These values will be used in DTs to identify ASSET products.

Column Name	Component Description	Example Component Value	Comment
DIM_PRODUCT_BALANCE_SHEET_CATEGORY_LIABILITY	Place Holder for LIABILITY.	LIABILITY	This parameter is to identify the LIABILITY products in the balance sheet. This should be same as the balance category of liabilities which is given as download in STG_PRODUCT_MASTER. These values will be used in DTs to identify LIABILITY products.
DIM_PRODUCT_BALANCE_SHEET_CATEGORY_OFF_BAL_SHEET	Place Holder for OFF BALANCE SHEET.	OFF BALANCE SHEET	This parameter is to identify the OFF BALANCE SHEET products in the balance sheet. This should be same as the balance category of off-balance sheet items which is given as download in STG_PRODUCT_MASTER. These values will be used in DTs to identify OFF BALANCE SHEET products.
DT_ALLOC_HINT_MATERIALIZE	Appends /*+ materialize */ hint in the SELECT statement of the Allocation Engine Merge Query.	N	This is an optional performance enhancement parameter. If this parameter is set to 'Y' then the /*+ materialize */ hint will be added to the backend query.
DT_ALLOC_HINT_USE_HASH	In Allocation Engine Merge Query , whether to use /*+ USE_HASH */ to merge in FCT_AGG_CASH_FLOWS table.	Y	This is an optional performance enhancement parameter. If this parameter is set to Y, then the /*+ USE_HASH */ hint will be added to the backend merge query.
DT_FSI_EXCHANGE_RATE_HIST	The entry decides which lookup exchange rates table to be used in Aggregate Cash Flows Population. Y = FSI_EXCHANGE_RATES and N = FCT_FCST_EXCHANGE_RATES	Y	A setup entry which will decide if the spot exchange rates or forecast exchange rate must be used. If the parameter is set to Y spot exchange rate will be used (from FSI_EXCHANGE_RATES) else the forecasted exchange rate will be used (from FCT_FCST_EXCHANGE_RATES).

Column Name	Component Description	Example Component Value	Comment
DT_PARALLEL_DOP	Degree of parallelism to be used in DML and Queries statements in data transformations.	8	This is a performance enhancement parameter given as an option to the user. The number specifies the degree of parallelism to be set for the session when the backend query is executing. This parameter will be considered only if DT_PARALLEL_ENABLE parameter is set to Y.
DT_PARALLEL_ENABLE	Enables parallel sessions for DML and Queries statements in data transformations.	Y	This is a performance enhancement parameter given as an option to the user. If the parameter is set to Y parallel execution will be enabled for the backend query. This parameter along with DT_PARALLEL_DOP will decide the parallelism.
LRM4G2A_TIME_BKT_SYS_ID	Time Bucket Definition sys ID for US 4G 2A.	-1234567	For 4G 2A reporting, the time bucket selected must be specified here. The time bucket sys ID must be given here. -1234567 is the out of the box time bucket sys ID. If you choose to customize it with a new time bucket, the corresponding time bucket sys ID mustbe specified here.
LRM4G2B_TIME_BKT_SYS_ID	Time Bucket Definition sys ID for US 4G 2B.	-1234568	For 4G 2B reporting, the time bucket selected must be specified here. The time bucket sys ID must be given here. -1234568 is the out of the box time bucket sys ID. If you choose to customize it with a new time bucket, the corresponding time bucket sys ID must be specified here.
LRM_24_MONTH_LOOKBACK _HIST	Contains a boolean value to specify if it is a historical load. 1 specifies historical. Default 0.	1	This parameter is used while computing 24-month look back for maximum 30-day net cash flows. If the parameter is set to 1 then 24 months population (historical) will be done. If the parameter is 0 then only the maximum cash flow for the last 30 days will be populated to FSI_MTM_COLL_VAL_CHANGE.

Column Name	Component Description	Example Component Value	Comment
LRM_PROD_LIST_FOR_ESTABLISHED_REL	This entry specifies the list of products to be considered for established relationship identification. The standard product type code (Level 1 Code) should be given comma separated like LOANS, DEP, ANNUITY.	LOANS, DEP	This parameter specifies the list of products to be considered for established relationship identification. The standard product type code (Level 1 Code) should be given comma separated like LOANS, DEP, ANNUITY.
OPTION3_HAIRCUT	Additional Haircut required for option 3 LCR.	0.1	This setup parameter is used for BIS run. This is the haircut percent for option type 3 specified in decimals. (10% will be given as 0.1).
LRM_CASHFLOW_PROCESS_SCEN_SKEY	Surrogate Key for the Process Scenario (N_PROC_SCEN_SKEY) of table FCT_PROCESS_CASHFLOW.	-1	If user wants to use OFS ALM cash flows for LRM processing then user has to enter the scenario skey of ALM cash flows which needs to be considered for LRM processing. LRM will filter the records based on scenario filter and process on these records.
STRUCTURED_OUTFLOW_COMP	Credit Line purpose to be consider for computing Structured Outflow Amount Computation.	SPONS	This parameter takes the V_STANDARD_PRODUCT_TYPE_CODE to identify the products which are considered as Credit Line Purpose for computing the Structured Outflow Amount.
FR2052A_REPORTERS_DESCRIPTION	This signifies the total consolidated assets and on-balance sheet exposures of the reporting firm.	1	The values for this column name must be based on the U.S. firms asset size and 1, 2, 3 signifies the following respectively. U.S. firms with ≥ $700 billion in assets or ≥ $10 trillion in assets under custody; FBOs identified as LISCC firms. U.S. firms with ≥ $250 billion in assets or ≥ $10 billion in foreign exposure; FBOs with ≥ $250 billion in U.S. assets U.S. firms with < $250 billion in assets and < $10 billion in foreign exposure; FBOs with < $250 billion in U.S. assets.

Column Name	Component Description	Example Component Value	Comment
FR2052A_REPORTING_SI10	U.S. firms with less than $700 billion in total consolidated assets and less than $10 trillion in assets under custody and FBOs with less than $250 billion in U.S. assets have the option of not reporting this product.	Y	To report S.I.10, this flag must be Y, otherwise set it as N.
FR2052A_REPORTING_SI12	U.S. firms with less than $700 billion in total consolidated assets and less than $10 trillion in assets under custody and FBOs with less than $250 billion in U.S. assets have the option of not reporting this product.	Y	To report Supplemental S.I.12, this flag must be Y, otherwise set it as N.
FR2052A_REPORTING_SI14	U.S. firms with less than $700 billion in total consolidated assets and less than $10 trillion in assets under custody and FBOs with less than $250 billion in U.S. assets have the option of not reporting this product.	Y	To report Supplemental S.I.14, this flag must be Y, otherwise set it as N.
FR2052A_REPORTING_SI7_SI8	If the total amount reported is related to distinct disputes over the previous year for products S.I.7 and S.I.8 is less than $500 million, the reporting firm need not report this product.	Y	To report Supplemental S.I.7, S.I.8, this flag must be Y, otherwise set it as N.

Column Name	Component Description	Example Component Value	Comment
BIS_REP_CRY	BIS_REP_CRY.	EUR	This parameter captures the regulatory limit for the total aggregated funding raised from small business customers who are to be treated similar to the retail customers while identifying deposit stability and applying run-off rates within LCR computations. Any SME customer providing an aggregate funding up to the limit specified as part of this attribute is accorded the same treatment as a retail customer for the purposes of LCR computation. Any SME customer providing an aggregate funding greater than this limit is treated as a wholesale customer. The seeded value for this is 1 million as per BCBS 238.
BIS_SMALL_BUIS_LIMIT	BIS Small Business EOP Balance Limit.	1000000	This parameter captures the currency code in which the regulatory limit for the total aggregated funding raised from small business customers who are to be treated similar to the retail customers, that is, BIS_SMALL_BUIS_LIMIT is captured. The seeded value for this is EUR as per BCBS 238.
SIGNIFICANT_CURRENCY_LIABILITY	Currency Significance Percentage.	0.05	This attribute indicates the definition of a significant currency in terms of the percentage of the aggregate liabilities denominated in that currency over the total liabilities of the bank. A currency is considered "significant" if the aggregate liabilities denominated in that currency amount to 5% or more of the bank's total liabilities. The default value provided for this field is 0.05 (5%) as per the regulatory definition.

Column Name	Component Description	Example Component Value	Comment
CASHFLOW_NSFR_BANDS	Hierarchy for NSFR Cash Flow Interval.	HLRMNS02	The entry for cash flow interval dimension into the setup master table consists of the Hierarchy code related to the bands pertaining to NSFR. The hierarchy code HLRMNS02 contains the NSFR cash flow interval bands.
BIS_GAAP_CODE	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for BIS jurisdiction.	INGAAP	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for the purpose of regulatory computations as per the BIS jurisdiction. DIM_GAAP is the corresponding dimension table. However, DEFAULT_GAAP entry from the setup_master table continues to be considered for DIM_ACCOUNT population.
LRM_APP_PREF_BASEL_RUN_ID	Basel Regulatory Run Id Selected in Application Preference.	-1	The component value stores the executed basel run skey which is used during the population of Standard Accounting head information for NSFR computation.
EBA_GAAP_CODE	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for EBA jurisdiction.	UKGAAP	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for the purpose of regulatory computations as per the EBA jurisdiction. DIM_GAAP is the corresponding dimension table. However, DEFAULT_GAAP entry from the setup_master table continues to be considered for DIM_ACCOUNT population.

Column Name	Component Description	Example Component Value	Comment
RBI_GAAP_CODE	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for RBI jurisdiction.	INGAAP	This entry captures the GAAP code to be considered while moving data from STG tables to processing table for the purpose of regulatory computations as per the RBI jurisdiction. DIM_GAAP is the corresponding dimension table. However, DEFAULT_GAAP entry from the setup_master table continues to be considered for DIM_ACCOUNT population.
CALC_USED_PORTION_PLCD_COLL_USING_MKT_VALUE	This entry captures the run purposes where used portion of placed collaterals is calculated using market values. Any new run purpose should be added, separated by comma.	3,7,16,18	This entry captures the list of Run purposes where the used portion of placed collaterals is calculated using market values. The default values for these are the Run Purpose codes corresponding to the Run Purposes Basel III Liquidity Ratios Calculation, and RBI Basel III Liquidity Ratio Calculation, EBA Delegated Act Liquidity Ratio Calculation, and BOT Liquidity Ratio Calculation. If this calculation is to be done for any new run purpose, its Run Purpose code should be added to this list, separated by commas.
CALC_SLR_PLCD_COLL	This entry captures the run purposes where the SLR amount from placed collaterals is calculated. Any new run purpose should be added, separated by comma.	7	This entry captures the Run purposes where the SLR eligible placed collaterals are to be identified and the SLR eligible amount is calculated. Currently the default value is 7, which corresponds to the RBI Run Purpose. If any other Run Purpose needs this calculation, its Run Purpose Code should be added, separated by comma.

Column Name	Component Description	Example Component Value	Comment
HIST_OPERATIONAL_BAL_CALC_UPD	Operational Balance value calculation through the historical balance approach.	Y	This entry captures the approach for identifying operational portion of accounts classified as operational deposits. A value of Y indicates that the operational balance is calculated by the application using the historical balance approach where the historical time window to be considered is specified as part of the setup_master parameter DAYS_HIST_OPER_BAL_CALC_UPD . A value of N indicates that such operational balance is available as a download.
DAYS_HIST_OPER_BAL_CALC_UPD	Number of Days considered for calculating Operational Balance value through the historical balance approach.	90	This entry captures the historical time window to be considered while calculating the operational portion of accounts classified as operational deposits based on the historical balance approach. This value is captured in terms of days.
LRM_RBI_SME_AGG_FUNDING_AMT	Funding Limit.	50000000	This entry captures specifies the aggregate funding threshold for identifying the counterparties as SME's based on limit specified by the regulator. The amount mentioned here is considered in INR.
SIGNIFICANT_COUNTERPARTY_LIAB	Significant Counterparty - Percentage of Total Liability.	0.01	This entry captures the minimum threshold, as a percentage of the total liability amount, for a counterparty to be considered significant. The default value is 0.01 which implies that if the total liabilities from a given counterparty are in excess of 1% of the total liabilities of the legal entity, the counterparty is considered significant.
CALC_ESLR_COLL	This entry captures the run purposes where the market value for the ESLR staging types with net CBLO collaterals are calculated. Any new run purpose should be added, separated by comma.	7	This entry captures the run purposes where the market value for the ESLR staging types with net CBLO collaterals are calculated. Any new run purpose should be added, separated by comma.

Column Name	Component Description	Example Component Value	Comment
DAYS_HIST_OPER_BAL_CALC_UPD	Number of Days considered for calculating Operational Balance value through the historical balance approach.	90	Number of Days considered for calculating Operational Balance value through the historical balance approach.
EBA_AGG_DEPOSIT_THRESHOLD	This attribute captures the deposit threshold for treating the deposits from an SME equivalent to retail deposits as per EBA guidelines. As per the EBA Delegated Act, liabilities from an SME would be treated similar to retail deposits where the aggregate deposits by such SME or company on a group basis do not exceed EUR 1 million.	1000000	This attribute captures the deposit threshold for treating the deposits from an SME equivalent to retail deposits as per the EBA guidelines in terms of Euros. This relates to the threshold for aggregate deposits from a given customer, beyond which an SME would not be treated similar to retail deposits. For instance, if the value is specified as 1000000, any SME whose aggregate deposits do not exceed EUR 1000000 is treated similar to a retail customer.
EBA_CUST_EMPLOYEES_LIMIT	This attribute captures the employee threshold for considering a particular party as an SME as per EBA guidelines. The EBA SME definition states that an enterprise must employ fewer than 250 employees to be classified as a small and medium-sized enterprise (SME).	250	This attribute captures the employee threshold for considering a particular party as an SME as per EBA guidelines. This relates to the EBA SME definition which provides the employee threshold for an enterprise beyond which an enterprise is not eligible to be classified as an SME. For instance, if the value is provided as 250, then the application will consider only enterprises that employs less than 250 employees as an SME.
EBA_HQLA_ISSUE_SIZE_THRESHOLD_1	This attribute captures the first issue size threshold for classifying a covered bond or debt security as an HQLA in terms of Euros. For a non-Euro denominated security, the application will convert the issue size to Euros prior to comparing it with this value.	500000000	This attribute captures the first issue size threshold for classifying a covered bond or debt security as an HQLA in terms of Euros. For a non-Euro denominated security, the application will convert the issue size to Euros prior to comparing it with this value.

Column Name	Component Description	Example Component Value	Comment
EBA_HQLA_ISSUE_SIZE_THRESHOLD_2	This attribute captures the second issue size threshold for classifying a covered bond or debt security as an HQLA in terms of Euros. For a non-Euro denominated security, the application will convert the issue size to Euros prior to comparing it with this value.	250000000	This attribute captures the second issue size threshold for classifying a covered bond or debt security as an HQLA in terms of Euros. For a non-Euro denominated security, the application will convert the issue size to Euros prior to comparing it with this value.
EBA_TOTAL_CUSTOMER_ANNUAL_SALES	This attribute captures the annual turnover threshold for considering a particular party as an SME as per EBA guidelines. The EBA SME definition states that an enterprise should have an annual turnover not exceeding EUR 50 million to be classified as a small and medium-sized enterprise (SME).	50000000	This attribute captures the annual turnover threshold for considering a particular party as an SME as per EBA guidelines in terms of Euros. This relates to the EBA SME definition which provides the threshold for the annual turnover beyond which an enterprise is not eligible to be classified as an SME. For instance, if the value is provided as 50000000, then the application will consider only enterprises whose annual turnover is up to this value as an SME.
EBA_TOTAL_CUSTOMER_ASSETS	This attribute captures the annual balance sheet threshold for considering a particular party as an SME as per EBA guidelines. The EBA SME definition states that that an enterprise should have an annual balance sheet total not exceeding EUR 43 million to be classified as a small and medium-sized enterprise (SME).	43000000	This attribute captures the annual balance sheet threshold for considering a particular party as an SME as per EBA guidelines in terms of Euros. This relates to the EBA SME definition which provides the threshold for the annual balance sheet total beyond which an enterprise is not eligible to be classified as an SME For instance, if the value is provided as 43000000, then the application will consider only enterprises whose annual balance sheet total is up to this value as an SME.

Column Name	Component Description	Example Component Value	Comment
FALLCR_PERCENT	SLR Securities Allowable under FALLCR in Percentage.	15	This attribute captures the SLR eligible securities allowed to be included in the stock of HQLA under the Alternative Liquidity Approach allowed by RBI, the Facility to Avail Liquidity for Liquidity Coverage Ratio (FALLCR), as a percentage of the Net Demand and Term Liabilities (NDTL).
HIST_OPERATIONAL_BAL_CALC_UPD	Operational Balance value calculation through the historical balance approach.	Y	The attribute identifies whether users want to compute the operational portion of the deposits classified as operational as per the regulatory criteria using the historical balance approach or provide it as a download. A value Y indicates that the operational balance is to be computed by the application.
MSF_PERCENT	SLR Securities Allowable under Marginal Standing Facility in Percentage.	2	This attribute captures the SLR eligible securities allowed to be included in the stock of HQLA under the Marginal Standing Facility, as a percentage of the Net Demand and Term Liabilities (NDTL).
NSFR_ENABLED	This enables NSFR option in Run Management screen for mentioned purposes.	3, 7, 18	This attribute enables the NSFR option in the Run Definition window for the Run Purpose Codes provided.
RBICASHFLOW_NSFR_BANDS	Hierarchy for RBI NSFR Cash Flow Interval.	HLRMNS08	This hierarchy is setup parameterized as part of the requirement of the development of the UI screen for configurations of NSFR assumptions. This is because hierarchy is with respect to the cash flows intervals which is normally time bucket definitions for the other assumptions. This hierarchy contains the cash flow maturity bands as per RBI requirement.

Column Name	Component Description	Example Component Value	Comment
ADDI_DER_LIA_RSF	This attribute captures the percentage factor for the additional portion of derivative liabilities to be included as part of RSF assumption.	20	This attribute captures the percentage factor for the additional portion of derivative liabilities to be included as part of RSF assumption.
SEC_TRANS_TREATMENT_PURPOSE_VAL	Secured Transactions Treatment Purpose Value.	-1: Off 3: On	The secured transactions treatment purpose feature can be turned 'ON' to update the secured and unsecured calculations at account-collateral level.
LRM_BOT_SME_AGG_FUNDING_AMT	BOT Funding Limit.	50000000	This entry captures specifies the aggregate funding threshold for identifying the counterparties as SME's based on limit specified by the regulator. The amount mentioned here is considered in THB.
LRM_REPLINE_TABLE	The entry for LRM_REPLINE_TABLE is added in the setup_master table. The dimensions defined in the table FSI_LRM_REP_LINE_ATTR_DETAILS are displayed in the user interface along with the nodes of each hierarchy.	FSI_LRM_REP_LINE_ATTR_DETAILS	
BACK_DATED_RUN_PURPOSE	This entry captures the run purposes where the back dated functionality is available.	16, 7, 4, 13, 8, 9, 19	This entry captures the run purpose for which backdated is required. Currently it is available for the values: • 16 corresponds to the EBA Run Purpose. • 7, 8, 9 corresponds to the RBI Run Purpose. • 4, 13 correspond to the US FED Run Purpose. • 19 corresponds to the Deposit Insurance Calculations - US Fed Run Purpose.

Column Name	Component Description	Example Component Value	Comment
NEW_MSF_PERCENT	SLR Securities Allowable under Marginal Standing Facility in Percentage with effect from March 27 2020 and applicable up to June 30 2020	3	This attribute captures the SLR eligible securities allowed to be included in the stock of HQLA under the Marginal Standing Facility, as a percentage of the Net Demand and Term Liabilities (NDTL). It is effective from March 27 2020 and applicable up to June 30, 2020.

20.5 Business Assumption Data Maintenance

The steps for business assumption data maintenance are as follows:

1. Adding Existing Dimension to the Assumption

   The steps to add an existing dimension (which is already part of LRM Data Model) in the assumption are as follows:

   a. Cash Flow Attribute

      If it is a Cash Flow Attribute then, follow these steps:

      i. The cash flow attribute must be present in Fact Account Cash flow table and Fact Aggregate Cash flow table with same column name.

      ii. The cash flow attribute must be part of the primary key in the Fact Aggregate Cash flow table.

      iii. Add an entry to the FSI LRM tabular column metadata table. The mandatory columns have to be filled in FSI LRM tabular column metadata table as shown in the following table:

      Table 167: Mandatory Columns and Example Values

Column Name	Example Value
V_TABLE_NAME	Should be "FCT_AGG_CASH_FLOWS"
V_COLUMN_NAME	Column_Name
V_DATA_TYPE	Data type of the column
F_CONSTRAINT_TYPE_FLAG	Should be "P".

   b. Account Attribute

      You must add an entry in FSI LRM Business Dimensions table and enter the values which are in the following table:

Table 168: Example Values for Columns in the FSI LRM Business Dimension Table

Column Name	Column Description	Example Value
n_business_dimension_number	This attribute stores the Running sequence for the list of business dimensions used. Business dimensions are a set of hierarchies to which liquidity business assumption can be specified.	56
v_dimm_agg_cashflow_col_name	This attribute stores the physical name of the column in the Fact aggregate cash flow table which represents corresponding business dimensions.	F_COLLATERAL_COVER_SHORT_POS
v_dimm_acct_summary_col_name	This attribute stores the physical name of column in FSI LRM Instrument summary table which represents corresponding business dimension.	F_COLLATERAL_COVER_SHORT_POS
v_dimension_table_pk_name	This attribute stores the physical name of the Primary key column for the dimension table of business dimension used.	V_FLAG_CODE
v_dimension_table_name	This attribute stores the physical name of the dimension table for business dimensions used.	DIM_BOOLEAN_FLAGS
v_dimension_hierarchy_code	This attribute stores the hierarchy code of the business dimensions used.	HLRM230
v_dimension_alias_table_name	This attribute stores the metadata alias name of dimensions table for business dimensions used in LRM application. Aliases names are created for dimensions like underlying asset level on dimensions asset level or for all flag dimensions on dimension Boolean flag. If the business hierarchy is not created on alias table then this attribute should be empty.	DIM_COLLATERAL_COVER_SHORT_POS
v_business_dimension_name	This attribute stores the name of business dimensions used.	Collateral Covering Short Position Flag
v_business_dimension_desc	This attribute stores the description for business dimensions used.	Collateral Covering Short Position Flag
v_business_dimension_code	This attribute stores the unique code for business dimensions used.	B037
f_selection_flag	This attribute indicates if corresponding business dimension is selected by user for performing analysis.	Y
f_pk_numeric_flag	This attribute indicates if the primary key column of the physical table of the dimension table is numeric.	N

2. Adding a New Dimension

The steps to add a new dimension (which is not present in LRM Data Model) in the assumptions are as follows:

- New dimensions can be added by including the new dimensions table or creating an alias over the existing dimension table.

- Create a hierarchy on the dimension table or alias.

a. Cash Flow Attribute

If it is a cash flow attribute, add a column to the following tables:

— Stage Account Cash flow

— Fact Process Cash flow

— Fact Account Cash flow

— Fact Aggregate Cash flows

b. Ensure that the cash flow attribute in the Fact Account Cash Flow table and Fact Aggregate Cash Flow table has the same name.

c. Include as part of the primary key in the Fact Aggregate Cash flow table.

d. Add an entry to the FSI LRM tabular column metadata. The mandatory columns to be filled in FSI LRM tabular column metadata are listed in the following table.

Table 169: Mandatory Columns to be Filled in the FSI LRM Tabular Column Metadata Table

Column Name	Example Value
V_TABLE_NAME	Should be "FCT_AGG_CASH_FLOWS"
V_COLUMN_NAME	Column_Name
V_DATA_TYPE	Data type of the column
F_CONSTRAINT_TYPE_FLAG	Should be "P".

e. Account Attribute

If it is an account attribute, then add a column to the following tables:

— FSI LRM Instrument

— Fact Aggregate Cash Flow

— FSI LRM Composite Key DIMS

— Fact Business Assumption Audit Trail

This changes the appropriate T2Ts which displays the data from one table to another table.

You must add an entry in FSI LRM Business Dimension and enter the values which are specified in the following table.

Table 170: Example Values to be entered in the FSI LRM Business Dimension table

Column Name	Column Description	Example Value
n_business_dimension_number	This attribute stores the Running sequence for the list of business dimensions used. Business dimensions are a set of hierarchies to which liquidity business assumptions can be specified.	56
v_dimm_agg_cashflow_col_name	This attribute stores the physical name of the column in the Fact aggregate cash flow table which represents corresponding business dimensions.	F_COLLATERAL_COVER_SHORT_POS
v_dimm_acct_summary_col_name	This attribute stores the physical name of the column in the FSI LRM Instrument summary table which represents corresponding business dimension.	F_COLLATERAL_COVER_SHORT_POS
v_dimension_table_pk_name	This attribute stores the physical name of Primary key column for the dimension table of business dimension used.	V_FLAG_CODE
v_dimension_table_name	This attribute stores the physical name of the dimension table for business dimensions used.	DIM_BOOLEAN_FLAGS
v_dimension_hierarchy_code	This attribute stores the hierarchy code of business dimensions used.	HLRM230
v_dimension_alias_table_name	This attribute stores the metadata alias name of dimensions table for business dimensions used. Aliases names are created for dimensions like underlying asset level on dimensions asset level or for all flag dimensions on dimension Boolean flag. If the business hierarchy is not created on an alias table then this attribute should be empty.	DIM_COLLATERAL_COVER_SHORT_POS
v_business_dimension_name	This attribute stores the name of business dimensions used.	Collateral Covering Short Position Flag
v_business_dimension_desc	This attribute stores the description for business dimensions used.	Collateral Covering Short Position Flag
v_business_dimension_code	This attribute stores the unique code for business dimensions used.	B037
f_selection_flag	This attribute indicates if the corresponding business dimension is selected by user for performing analysis.	Y

Column Name	Column Description	Example Value
f_pk_numeric_flag	This attribute indicates if the primary key column of the physical table of the dimension table is numeric.	N

3. Adding tasks to the Assumptions

The following steps add a task to the assumptions registered through LRM Business Assumption window:

You must add an entry in the FSI LRM Assumption Tasks table and enter the values which are specified in the following table.

Table 171: Example Values for the FSI LRM Assumption Tasks Table

Column Name	Column Description	Example Value
v_task_placement	This attribute stores the identifier if the task is to be stitched pre-offsetting (offsetting refers to Allocation Engine) or post offsetting (offsetting refers to Allocation Engine) List of values are PRE-OFFSETTING, POST-OFFSETTING.	POST-ASSUMPTION
v_task_identifier	This column stores the unique identifier for the task to be included for the assumption.	LRMRULE0477
v_assumption_sub_category_name	This attribute stores liquidity business assumption sub-category name. Liquidity business assumption category and sub-category are types of assumptions which are supported and provided out of box.	72
v_assumption_category_name	This attribute stores liquidity business assumption category name. Liquidity business assumption category and sub-category are types of assumptions which are supported and provided out of box.	84
n_task_sequence	This attribute stores the sequence in which task is supposed to appear in the Assumption process.	2
v_task_type	This column stores the type of the task to be included for the assumption. Possible values can be DT, Rule.	TYPE3
v_task_name	This column stores the name of the task to be included for the assumption.	LRM - Assumption Application Change Balance Update

20.6   Run Management Data Maintenance

The steps for run management data maintenance are as follows:

1. Adding a process for pre/post assumption processing

   In LRM Run management, select the purpose for defining a Run from the Run Definition window. Select the required purpose from the following:

   - Basel III Liquidity Ratios Calculation

   - FR 2052 a Report Generation

   - FR 2052 b Report Generation

   - Long Term Gap Calculation

   - U.S Fed Liquidity Ratio Calculation

   Once the purpose is selected and the required parameters are selected, a Run is created.

   If it is Contractual Run, the Run stitches the processes. The processes are taken from the FSI LRM Process Purpose Map table. This process map table contains all the processes which are required for a Run definition in LRM. When the Run type is Contractual, all the processes with Run type as contractual and process placement as PRE-ASSUMPTION in FSI LRM Process Purpose Map are stitched as part of Contractual Run.

   If it is BAU Run, in addition to the processes which come from the process map table, the processes related to the business assumptions selected are automatically stitched into BAU Run.

   For Contractual Run, all the processes in FSI LRM Process Purpose Map must have process placement as PRE-ASSUMPTION only. In BAU, they are both PRE/POST-ASSUMPTION processes.

   If you must add an entry in FSI LRM Process Purpose Map table, enter the values which are specified in the following table.

Table 172: Example Values for the FSI LRM Process Purpose Map table

Column Name	Column Description of the Entry	Example Value
v_Run_type	This attribute holds the code for the Run type. The list of values for this column is from FSI_LRM_LOOKUP_TL.LOOKUP_CD with category_id as 1. (filter FSI_LRM_LOOKUP_TL.category_id = 1)	10
v_Run_purpose	This attribute stores the purpose of the Run. The list of values for this column is from FSI_LRM_LOOKUP_TL.LOOKUP_CD with category_id as 10. (filter FSI_LRM_LOOKUP_TL.category_id = 10).	2
v_process_placement	This attribute stores the identifier if the process is to be stitched pre assumption or post assumption List of values are "PRE-ASSUMPTION","POST-ASSUMPTION"	PRE-ASSUMPTION
n_process_sequence	This attribute stores the sequence in which the process should appear in the Run.	1

Column Name	Column Description of the Entry	Example Value
v_Run_type_desc	This attribute holds the description for values Contractual, BAU, Stress.	Contractual
v_Run_purpose_desc	This attribute stores the description of purpose of the Run. It holds the values are Long Term Gap Calculation, Basel III Liquidity Ratios Calculation, U.S. Fed Liquidity Ratio Calculation, FR 2052a Report Generation, FR 2052b Report Generation.	Long Term Gap Calculation
v_rrf_process_object_id	This attribute stores the unique ID of RRF process which will be part of Run for corresponding purpose and Run type. Execution will include this process in the Run.	LRM_PROCESS_001
v_rrf_process_description	This attribute stores the description of RRF process which will be part of Run for corresponding purpose and Run type. Execution will include this process in the Run.	LRM - Party and Product Type Reclassification
v_folder_name	This column stores the folder name for which process is defined.	LRMSEG

20.7 Executing Intraday Post Load Batch and Intraday Real Time Run

This section details the steps to execute Intraday Post Load Batch and Intraday Real Time Run from Command Line.

1. Environment Prerequisites for External Scheduler Utility

   The following are the Environment Prerequisites for External Scheduler Utility:

   i. JAVA_HOME (Required) points at JAVA bin installation directory.

   ii. ES_HOME (Required) points to the ES Home folder (`$FIC_HOME/utility/ES`).

   iii. Go to the ES Utility directory in `$FIC_HOME/utility/ES/conf`.

   — Update <Infodom>.ini file and specify the values.

   — MISDATE= Enter the MIS Date in format mm-dd-yyyy (example: MISDATE=01-31-2010)

   iv. USERNAME= Log into OFSAAI (example: USERNAME=BASELUSER)

   This must be updated daily once for the MISDATE.

   > **NOTE** <infodom> in the name of the file <infodom>.ini must be replaced with the infodom name.

   a. **Intraday – Real Time – Incremental Load Processing**

   Prerequisite

The following are the prerequisites for Intraday – Real Time – Incremental Load Processing:

i.   The Load Run ID must be generated and the corresponding entry is present in the table REV_LOAD_RUN_MASTER.

      The Load Run ID population occurs in sequence for every successive staging load. The application recognizes the maximum value of Load Run ID as corresponding to the latest data.

ii.   The stage tables must be loaded with the load Run ID.

iii.   For Incremental Snapshot Load: For <INFODOM>_INTRADAY_POST_LOAD batch, the parameter passed to Task1 is 'I' (By default 'I' is present).

The following steps must be followed to execute the Intraday Post Load batch and Intraday –Real Time - Incremental Run:

i.   Go to the `$FIC_HOME/ficapp/icc/bin` directory.

ii.   Execute `IntradayIncrementalLoadBatch.sh` (the execute permission must be provided if needed).

      This triggers the Intraday Post Load batch and Intraday –Real Time - Incremental Run.

      To automate the incremental load process during the day, this task is appended as the last task while triggering stage table population.

iii.   You can view the ES batch logs for individual batch run in the following location:

      `$ES_HOME/log/ESIC_<batchrunid>.log`

iv.   You can view the task level logs in the following location:

      `$FIC_HOME /ficdb/log`

      `/ftpshare/OFSTRINFO/logs`

v.   All the latest records for the MIS_DATE are moved to reporting.

b.   **Intraday – Real Time – Complete Snapshot Load Processing**

Prerequisite

i.   The Load Run ID must be generated and the corresponding entry is present in the REV_LOAD_RUN_MASTER table.

ii.   The Load Run ID population occurs in sequence for every successive staging load. The application recognizes the maximum value of Load Run ID as corresponding to the latest data.

iii.   The stage tables must be loaded with that load Run ID.

iv.   For Complete Snapshot Load: <INFODOM>_INTRADAY_POST_LOAD batch, it must edited through OFSAAI and the parameter 'S' is passed to Task1. (By default, 'I' is present).

The following steps must be followed to execute the Intraday Post Load batch and Intraday –Real Time - Snapshot Run:

i.   Go to the `$FIC_HOME/ficapp/icc/bin` directory.

     ii. Execute IntradaySnapshotLoadBatch.sh (Give execute permission if needed).

     This triggers the Intraday Post Load batch and Intraday –Real Time - Snapshot Run.

     To automate the incremental load process during the day, this task is appended as the last task while triggering stage table population.

     iii. You can view the ES batch logs for individual batch run in the following location:

```
$ES_HOME/log/ESIC_<batchrunid>.log
```

     iv. You can view the task level logs in the following location:

```
$FIC_HOME /ficdb/log

/ftpshare/OFSTRINFO/logs
```

     v. All the records corresponding to the latest load Run ID registered in the table REV_LOAD_RUN_MASTER for the MIS_DATE is moved to reporting.

20.8 Migrating LRM Objects

This section explains LRM specific configurations. The migration process from one set up to another is as follows:

> **NOTE**
>
> For Object Migration, see the [OFS Advanced Analytics Infrastructure User Guide](#) which explains the generic configuration.

1. Holiday Calendar

   a. Excel import/export functionality is available. You must use this functionality for migration.

   See the Excel Import/Export section for information on holiday calendar Excel export/import feature.

2. Time Bucket

   Time bucket migration definitions used either in Business Assumption or in Run definition are migrated automatically.

3. Business Assumption

   a. Assumptions can be migrated using OFSAAI Command-line Utility to Migrate Objects. To understand the migration process, see the Command-line Utility to Migrate Objects section of the OFSAAI 8.1.0.0.0 User Manual.

   b. To export/import LRM Assumption objects, the following object codes and object types must be provided:

```
OBJECT Code= "Assumption Name" ~ "Version of the assumption"

Type="902"
```

   For example, to export an assumption:

```
<OBJECTS>

<OBJECT Code="US Unmodified Assumption~1 " Type="902" />
```

```
</OBJECTS>
```

> **NOTE**
> - Once an assumption object is imported, dependent objects like Time bucket definition (if any) are automatically migrated.
> - If only assumption name is provided without version number, then the latest version of the given assumption will be migrated.

4. Run Definition:

   a. Run Definitions can be migrated using OFSAAI Command-line Utility to Migrate Objects. To understand the migration process, see the Command-line Utility to Migrate Objects section of the OFSAAI 7.3.5.0.0 User Manual.

   b. To export/import LRM Run objects, the following object codes and object types must be provided.

   ```
   OBJECT Code= "Run Name"

   Type="901"
   ```

   For example, to export an assumption:

   ```
   <OBJECTS>

   <OBJECT Code="US Final Run" Type="901" />

   </OBJECTS>
   ```

> **NOTE** Once a Run definition is imported, dependent objects like Time bucket definition, assumptions definitions (in case of BAU or Stress Run) are automatically migrated.

20.9 Performance Improvement Guidelines

See the OFS LRS Performance Tuning Guide for details.

20.10 Generating Download Specifications

Data Model for OFS Liquidity Risk Management is available on customer request as an erwin file.

Download specifications can be extracted from this model. See the *Data Model Document Generation: Creating Data Dictionary for OFSAA/OFSDF and Download Specifications for OFSAA Staging from ERwin* whitepaper for more details.

20.10.1 Additional Information

The additional information are as follows:

- GAAP code is a primary key in staging to support multi-GAAP implementations. The staging product processors to fsi_lrm_instrument T2T's filter for 'USGAAP'.

- Load Run ID is part of the primary key in staging with default set to zero.

- The reserved codes for out-of-box assumptions and runs are as follows:

  - The codes for the seeded assumptions are generated starting from a sequence of 9999995000.

  - The codes for the process/rules/measures/dataset/BP (Metadata) starts from the sequence of 9000.

20.10.2 HQLA Operational Requirements

To determine if all operational requirements for eligible HQLA as given in the RBI circular are met, it is expected that the bank must provide the same through f_hqla_eligibility_flag as Y. Apart from this, there are place holders in the staging for some operational conditions. For example: Controlled by Treasury, operational capabilities to monetize flag and so on have been used in rules to check and update the meets_operational_conditions_for_hqla condition.

20.11   Adding a Custom Run Purpose

To add a new custom run purpose, follow these steps to add an entry in the Lookup and Process Purpose Map tables:

1. Add an entry in the FSI_LRM_LOOKUP_TL table.

2. Execute the following SQL query in the atomic schema by replacing the placeholders PURPOSE_ID and PURPOSE_DESCRIPTION.

   ```
   insert into FSI_LRM_LOOKUP_TL (LOOKUP_CD, LANG_CODE, CATEGORY_ID,
   LOOKUP_DESCRIPTION) values ('##PURPOSE_ID##', 'en_US', '10',
   '##PURPOSE_DESCRIPTION##')  /
   ```

   Where,

   PURPOSE_ID value is any value greater than 50.

   PURPOSE_DESCRIPTION is a description of the new purpose.

3. Add an entry in the FSI_LRM_PROCESS_PURPOSE_MAP table.

4. Add the task entries for the ##PURPOSE_ID## added in step 1, in the Process Purpose map table for both Contractual and BAU Runs. This gives the pre and post Tasks in the Run.

5. To enable the NSFR option for any of the custom run purposes, enter the respective Run purpose code as comma separated values against the component code NSFR_ENABLED in the SETUP_MASTER table. This code enables the NSFR option in the Run Management screen for the mentioned purposes.

   ```
   select * from setup_master where v_component_code like 'NSFR_ENABLED'
   ```

6. In the fsi_lrm_process_purpose_map table, update the F_FCAST_ENABLED column with the appropriate values, for all the runs. The available values are 1 or 2, where:

   - 1 is Yes, which indicates that forecasting is enabled.

▪ 2 is No, which indicates that forecasting is not enabled.

20.12 Audit Logging

OFS LRM supports audit logging for application specific objects. For details, see the Creating Audit Trail Report section in the OFS AAI User Guide.

For Log4J customizations, see the Logging section in the OFS AAI Administration Guide.

21 Appendix C: Data Transformations/Functions used in LRMM

This section provides information about the Data Transformations (DTs) or functions used in the LRM 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 the FSI_LRM_TIME_BUCKET_DETAILS table 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 the DIM_FCST_RATES_SCENARIO tables. It performs the following:

  a. Reads the current Run information from the FCT_LRM_RUN_PARAM and DIM_RUN tables.

  b. Populates the Contractual/Business as usual Run name, Run type, Run description into the DIM_FCST_RATES_SCENARIO table from DIM_RUN.

  c. Updates the process key for current Run in the FCT_AGG_BASE_CCY_LR_GAP table storing liquidity risk gap measures in base currency.

  d. Updates the process key for current Run in the 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 the FCT_AGG_CASH_FLOWS table using exchange rate conversion.

  f. Updates both inflow and outflow local currency amount columns in the FCT_ACCOUNT_CASH_FLOWS table using exchange rate conversion.

  g. Updates both local and natural currency amount columns in the FCT_LRM_LE_SUMMARY table 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 the 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 the STG_ACCOUNT_MITIGANT_MAP table. From the STG_ACCOUNT_ MITIGANT_MAP table, data moves to the FCT_ACCOUNT_MITIGANT_MAP table.

The function identifies the account mitigant mapping from FCT_ACCOUNT_MITIGANT_MAP table and updates the attributes of the mitigant against the loan account in the FSI_LRM_INSTRUMENT table. For example, if the market value of the mitigant is $500, then the function updates the FSI_LRM_INSTRUMENT.N_UNDERLYING_RECV_LEG_MKT_RCY column 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 the STG_REPO_CONTRACTS table and moved to the FSI_LRM_INSTRUMENT table. The collateral placed against the repo contract is captured in the STG_PLACED_COLLATERAL table. The relationship between placed collateral and the REPO contract is captured in the STG_ACCT_PLACED_COLL_MAP table and is moved to the FCT_ACCT_PLACED_COLL_MAP table.

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

Similarly, the function updates the following attributes of the underlying asset (Mitigant/Placed Collateral) in the 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 the 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 the 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 the FSI_LRM_INSTRUMENT table against the placed collateral records, that is, FLI.N_PERCENT_ENCUMBERED.

22 Appendix D: User Configuration and Settings

This section includes information about the user configurations and settings.

Topics:

- [Standard Reclassifications](#)
- [Mitigant Sub Type Classifications](#)

22.1 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 OFS LRMM respectively.

Topics:

- [Standard Product Type Reclassification](#)
- [Standard Party Type Reclassification](#)

22.1.1 Standard Product Type Reclassification

Banks should to map their specific product types to the Standard Product Types as part of the rule LRM - 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.

22.1.2 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.

22.2 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.

23 Glossary

The following table includes a glossary of terms used in this document.

Table 173: Glossary

Item	Description
AASF	Available Amount of Stable Funding
BAU	Business as Usual
BCBS	Basel Committee for Banking Supervision
BCBS 188	Basel III: International framework for liquidity risk measurement, standards and monitoring
HQLA	High Quality Liquid Asset
ILAS	Individual Liquidity Adequacy Standards
LCR	Liquidity Coverage Ratio
Level 1 Assets	Level 1 Assets as per Basel III Guidelines are as follows: Cash Central bank reserves to the extent that can be drawn down during times of stress. Marketable securities which satisfy the following conditions: Issuer type or Guarantor Type is one of the following: - Sovereign - Central Bank - Non-Central Government Public Sector Entity - Multi-lateral Development Bank - The Bank For International Settlements - The International Monetary Fund - The European Commission - They are assigned a 0% risk-weight under the standardized Approach of Basel II - Issuer type is not a bank or other financial services entityDebt securities issued in the local currency of the legal entity in which the liquidity risk is being undertaken or the bank's country of domicile where the issuer type is sovereign or central bank and the risk weight assigned to the sovereign is greater than 0%Debt securities issued in foreign currencies, to the extent that matches currency needs of bank's operations in that jurisdiction, where the issuer type is domestic sovereign or central bank and the risk weight assigned to the sovereign is greater than 0%

Item	Description
Level 2 Assets	Level 2 Assets as per Basel III Guidelines are as follows: Marketable securities which satisfy the following conditions: • Issuer type or Guarantor Type is one of the following: • Sovereign • Central Bank • Non-Central Government Public Sector Entity • Multi-lateral Development Banks • They are assigned a 20% risk-weight under the standardized Approach of Basel II • 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 • Corporate Bonds and Covered Bonds which satisfy the following conditions • Issuer type is a non-financial institution • Issuer type is not the bank itself for which the computations are being carried out or any of its affiliated entities (in case of covered bonds) • Credit rating by a recognized external credit assessment institution is equal to or greater than AA- or if it does not have an external rating, the probability of default as per the internal rating corresponds to a rating which is equal to or greater than AA- • 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
NSFR	Net Stable Funding Ratio
OFSAAI	Oracle Financial Services Analytical Applications Infrastructure
RASF	Required Amount of Stable Funding
Revised Time Buckets	Revised time bucket is the bucket into which the cash flows are to be moved from the original time bucket
Unencumbered Assets	Unencumbered Assets are assets which can easily sold or mortgaged as these assets are free from debt with no legal defects in its title

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