Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve

User Guide

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OFS Liquidity Risk Regulatory Calculations for US Federal Reserve User Guide

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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

Table of Contents

1 Preface

This chapter provides a brief description of the scope, the audience, the references, the organization of the user guide, and conventions incorporated into the user guide.

Topics:

1.1 Scope of the Guide

The objective of this user guide is to provide comprehensive information about the regulatory calculations supported in the Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve, Release 8.1.0.0.0. This document is intended to help you understand the methodologies involved in computing the Liquidity Coverage Ratio (LCR), Modified LCR, Regulation YY, and Forward Date Liquidity Risk Calculations and other regulatory metrics and computations.

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

1.2 Intended Audience

Welcome to release 8.1.0.0.0 of the Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve (OFS LRRCUSFR). This manual is intended for the following audience:

- Business User: This user reviews the functional requirements and information sources, like reports.
- Strategist: 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 helps clean, validate, and import 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**

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

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
- OFSAAI FAQ Document

1.5 Abbreviations

The following table lists the abbreviations used in this document.

Table 1: Abbreviations

Abbreviation	Description
LRS	Liquidity Risk Solution
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

Abbreviation	Description
DICLRM	Deposit Insurance Calculations for Liquidity Risk Management
OFS	Oracle Financial Services
LCR	Liquidity Coverage Ratio
NSFR	Net Stable Funding Ratio
LMR	Liquidity Maintenance Ratio
CFR	Core Funding Ratio

1.6 What is New in this Release

The Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve 8.1.0.1.0 is an enhancement of the existing Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve Release 8.1.0.0.0 and includes the following new feature.

- Back-dated run execution for Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) reports is introduced.

1.6.1 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

Various parameters in Liquidity Risk Management help in analyzing the liquidity status of the bank. Liquidity ratios are one such parameter prescribed by the Basel III Guidelines. Oracle Financial Services Liquidity Risk Regulatory Calculations for US Federal Reserve (LRRCUSFR) application supports the following:

Topics:

2.1 Liquidity Coverage Ratio

The Liquidity Coverage Ratio (LCR) addresses the short-term liquidity needs of a bank or financial institution during a stressful situation. It estimates whether the stock of high-quality liquid assets is sufficient to cover the net cash outflows under stress situations over a specified future period, in general, lasting 30 calendar days (or LCR horizon). LCR is calculated at the legal entity level, on a standalone and consolidated basis. Additionally, this section includes the following:

- Modified Liquidity Coverage Ratio Calculation
- FR2052a and FR2052b Related Calculations
- Regulation YY Liquidity Risk Calculation

See the Liquidity Coverage Ratio Calculation section for details.

2.2 Deposit Insurance Calculations as per FDIC 370

Most countries have implemented deposit insurance schemes to safeguard the interest of the depositors in the event of bankruptcy of the depository institution. With the introduction of regulations such as Basel III, the insured portion of a deposit is required to be identified and treated appropriately for liquidity risk purposes. Recent regulations, such as FDIC 370, mandate banks to identify and report the insurance coverage at an account level for various ownership rights and capacities to ensure that the insurer pays out the amount due to depositors on time. See the Deposit Insurance Calculations as per FDIC 370 section for details.

2.3 Forward Date Liquidity Risk Calculation

Forward Date Liquidity Risk calculation 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. See the Forward Date Liquidity Risk Calculation section for details.

2.4 Net Stable Funding Ratio Calculation

The Net Stable Funding Ratio (NSFR) is one of the two minimum standards developed to promote funding and liquidity management in financial institutions. NSFR assesses the bank's liquidity risks over a longer time horizon. 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. See the Net Stable Funding Ratio Calculation section for details.

3 Liquidity Coverage Ratio Calculation

US Federal Reserve issued a notice of final rule, Liquidity Coverage Ratio: Liquidity Risk Measurement, Standards, and Monitoring, in November 2013 covering the requirements for the computation of Liquidity Coverage Ratio for US covered companies. These guidelines are similar to those issued by Bank for International Settlements (BIS), with some deviations based on the conditions under which the US banks operate. US Federal Reserve has prescribed two approaches for computing the Liquidity Coverage Ratio, each of which applies to banks of different sizes.

OFS Liquidity Coverage Ratio compl**ies** with **the** WW, Final Rule, and Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014.

- **Liquidity Coverage Ratio**

  The Liquidity Coverage Ratio applies to larger banks and requires the stock of Hiqh Quality Liquid Assets (HQLA) to be sufficient to cover the add-on approach over a liquidity horizon of 30 days. The regulator provides specific guidelines including assets into the stock of HQLA and provides the relevant haircuts. The computation of the denominator is based on an add-on approach using inflow and outflow rates specified by the regulator.

- **Modified Liquidity Coverage Ratio**

  A new approach, the modified LCR calculation, is prescribed by US Federal Reserve for smaller banks, which requires the stock of HQLA to be sufficient to cover net cash outflows over a liquidity horizon of 30 days. These banks are required to compute a less stringent LCR, due to their relatively small size and lower complexity. The inflow and outflow rates for such banks are 70% of those prescribed under the LCR approach.

OFS LRCUSFR supports both these approaches for computing Liquidity Coverage Ratio as prescribed by the US Federal Reserve in its final rule; Regulation WW, Liquidity Coverage Ratio: Liquidity Risk Measurement, Standards, and Monitoring.

Topics:

3.1 Inputs

The LRRCUSFR application requires the following inputs for LCR calculation:

- Liquidity haircut, inflow percentage, and outflow percentage of the respective business assumption are preconfigured. However, you can change them, if required.
- Liquidity Horizon is specified as the Runtime parameter.

3.2 Process Flow

This section explains the process of calculating the Liquidity Coverage Ratio (LCR).

Topics:

The application supports an out-of-the-box Run for computing LCR as per the final Rule issued by the US Federal Reserve. This Run includes the regulatory scenario with associated HQLA haircuts, inflow and outflow rates preconfigured in the form of business assumptions.

3.2.1 Identifying Asset Levels

Assets classified as *available-for-sale* or *held-to-maturity* are included in the stock of HQLA if they fulfill the following HQLA criteria:

- Are unencumbered.
- Meet the operational HQLA requirements.
- Are not client pool securities that are held in segregated accounts or cash received from a repurchase agreement on client pool securities held in a segregated account.
- If consolidated, then the portion of assets required to cover the consolidated subsidiary's net cash outflow and an excess amount of assets having unrestricted transferability.
- An asset received under a re-hypothecation right where the owner has a right to withdraw the asset anytime during the liquidity horizon without remuneration.
- Assets which are held not to cover operational costs.

NOTE *Available-for-Sale Security* is a security that is purchased with the intent of selling it before its maturity or selling it within a short period if the security does not have a known maturity.

Held-to-Maturity Securities are securities that a bank intends to hold until maturity.

All assets, whether owned by the bank or received from counterparties as collateral, are classified as follows:

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

Level 1, 2A, and 2B assets are considered high-quality liquid assets and are included as part of the stock of HQLA provided they meet the HQLA eligibility criteria set out by the US Federal Reserve. Assets are classified as HQLA based on the qualifying criteria set by the US Federal Reserve. The following steps are involved in identifying the asset level:

Topics:

- Identification of Assets as Liquid and Readily Marketable
- Treatment of Assets Issued by Financial Sector Entities

3.2.1.1 Identifying Assets as Liquid and Readily Marketable

The application identifies liquid and readily marketable assets that meet the following criteria:

- It is traded in an active secondary market with more than two committed market makers.
- It has a large number of committed non-market maker participants on both the buying and selling sides of transactions.
- It has timely and observable market prices.
- It has high trading volumes.

An asset that is not liquid and readily marketable is not considered a high quality liquid asset.

3.2.1.2 Treatment of Assets Issued by Financial Sector Entities

Any asset whose issuer is either a financial sector entity or a consolidated subsidiary of a financial sector entity is classified as a non-HQLA asset and excluded from the stock of high-quality liquid assets. These attributes are captured at the standard party level.

1. **Identification and Treatment of Level 1 Assets**

   The following criteria qualifies assets to be classified as Level 1 assets.

   Level 1 assets are fully included as part of the stock of high-quality liquid assets provided, they meet the HQLA eligibility criteria. The application identifies the following as HQLA Level 1 assets:

a. **Federal Reserve Bank Balances**: Balances held by the Federal Reserve banks include reserve balance requirements, excess balances, and term deposits. Only excess balances and certain term deposits are included in the stock of Level 1 assets. To be included in the stock, term deposits should be held according to the terms and conditions that:

   — explicitly and contractually permit such term deposits to be withdrawn upon demand before the expiration of the term

   Or that,

   — permit such term deposits to be pledged as collateral for the term or automatically-renewing overnight advances from a Federal Reserve Bank.

   - Reserve balance requirements are excluded from the stock as they must be maintained with the Federal Reserve Bank at all times.
   - Federal Reserve Bank balances include the central bank reserves held at a US Federal Reserve Bank directly by the bank or through a correspondent bank less any reserve balance requirement.
   - Additionally, central bank term deposits held by a bank directly or through a correspondent bank are included provided they fulfill the following criteria:

   — It is withdrawn on-demand before maturity

   — Or

   — It is pledged as collateral for the term or automatically-renewing overnight advances from a Federal Reserve Bank.

   - The value of eligible term deposits that are included in the amount net of any withdrawal penalty.

b. **Foreign Withdrawable Reserves**: Reserves held in foreign central banks that have no transferability restrictions are included. Any reserves held by the bank in a foreign central bank that do not have restrictions on use and are freely withdrawable and denominated in the local currency of that foreign country, are included as Level 1 assets. The reserves include term deposits held at the central bank.

c. **United States Government Securities**: Securities issued by, or unconditionally guaranteed by the U.S Department of the Treasury for the timely payment of principal and interest are included. Additionally, securities issued by any other US government agency and explicitly guaranteed by the full faith and credit of the U.S. government, provided that they are liquid and readily-marketable.

d. **Certain Sovereign and Multilateral Organization Securities**: Securities issued or guaranteed by a sovereign entity, a central bank, the Bank for International Settlements, the International Monetary Fund, the European Central Bank and European Community, or a multilateral development bank are included in the securities if they fulfill the following conditions:

   — Are assigned a 0% risk weight.

   — Are liquid and readily marketable.

   — Issued by an entity whose obligations have a proven record as a reliable source of liquidity in the repurchase or sales markets during stressed market conditions.

- Are not an obligation of a financial entity or its consolidated subsidiary.

e. Certain Foreign Sovereign Debt Securities: Debt securities issued by a foreign sovereign entity with a non 0% risk weight if they fulfill the following conditions:

- Are liquid and readily marketable.
- Are issued in the local currency of the foreign sovereign.

The legal entity holds the securities to cover its cash outflows in that jurisdiction.

2. Identification and Treatment of Level 2A Assets

The application identifies HQLA Level 2A Assets in the following manner:

a. U.S. GSE Securities: A security issued or guaranteed by a U.S. government-sponsored enterprise as to the timely payment of principal and interest, that is investment grade under 12 CFR part 1 as of the calculation date, provided the claim is senior to preferred stock.

b. Securities issued by or guaranteed by a US government-sponsored entity (GSE) as they have been assigned a 20% risk weight.

c. Securities issued by or guaranteed by a sovereign or multi-lateral development bank that are:

- Not included in Level 1 assets.
- Assigned a risk weight between 0% and 20%.
- Price has not decreased, or haircut increased by greater than 10% during a 30-calendar day period of significant stress.
- Not an obligation of a financial entity or its consolidated subsidiary.

> **NOTE** The rule excludes covered bonds and securities issued by other Public Sector Enterprises (PSE's) to be included in the stock even if they are assigned a 20% risk weight.

3. Identification and Treatment of Level 2B Assets

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

a. Publicly traded corporate debt securities that meet the following criteria:

- Considered investment-grade per the definition provided in 12 CFR part 1.
- Issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 20% over a 30-day stress period.
- Not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.

b. Publicly traded common equities that meet the following criteria:

- Included in Russell 100 Index or an index that the bank's supervisor in a foreign jurisdiction recognizes for inclusion in Level 2B assets if the share is held in that jurisdiction.
- Issued in US Dollars or in the currency of the jurisdiction in which the bank operates and holds the common equity share to cover net cash outflows in that jurisdiction.
- Issued by an entity whose publicly traded common equity shares have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 40% over a 30-day stress period.
- Not issued by a financial sector entity and not issued by a consolidated subsidiary of a financial sector entity.
- If held by a depository institution, is not acquired in satisfaction of a debt previously contracted (DPC).
- If held by a consolidated subsidiary of the bank, it includes the publicly traded common equity share in its Level 2B liquid assets only if the share is held to cover net cash outflows of its consolidated subsidiary in which the publicly traded common equity share is held.

c. U.S. general obligation municipal securities that meet the following criteria:

i. Is issued by, or guaranteed as to the timely payment of principal and interest by, a public sector entity.

ii. It is liquid and readily marketable.

iii. Considered investment-grade per the definition provided in 12 CFR part 1.

iv. Is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 20% over a 30-day stress period.

v. It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.

NOTE A public sector entity is defined as any state, local authority, or other governmental subdivision below the U.S. sovereign entity level.

The maximum value of such securities issued by a single public sector entity than can be included in the stock of HQLA is the fair value up to two times the average daily trading volume during the previous four quarters of all general obligation securities issued by that public sector entity.

The U.S. Municipal Securities can be included as Level 2B Asset only to the extent of 5% of the total stock of HQLA.

3.2.2 Identifying Eligible HQLA

The application identifies whether a bank's asset or a mitigant received under re-hypothecation rights meets all the operational requirements and generally applicable criteria. If both conditions are met, then such an HQLA is marked as eligible HQLA and is included in the stock of HQLA.

Topics:

3.2.2.1 Operational Requirements

The application checks for the following operational criteria:

a. Operational Capability to Monetize HQLA

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

b. HQLA Under the Control of the Liquidity Management Function

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

c. Termination of Transaction Hedging HQLA

If an 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 fair value of the asset and the difference is included in the stock of HQLA.

d. Policies and Procedures to Determine Eligible HQLA Composition

The banks that have established policies and procedures determine the composition of their eligible HQLA periodically. This is a qualitative criterion which banks have to ensure compliance with.

3.2.2.2 Generally Applicable Criteria for Eligible HQLA

The application checks for the following criteria:

a. 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.

b. Segregated Client Pool Securities

A segregated client pool security held by the bank or the cash received as part of a repo transaction where the underlying is a client pool security are not considered eligible HQLA and therefore excluded from the stock.

c. Maintenance of Eligible HQLA in the United States

A bank is generally expected to maintain an amount and type of eligible HQLA in the United States that is sufficient to meet its total net cash outflow amount in the United States.

d. 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 without an obligation to pay more than the minimum remuneration at any time within 30 calendar days. This exclusion also applies to any asset generated from another asset obtained under such a re-hypothecation right.

e. Exclusion of Assets Designated to Cover Operational Costs

Bank's assets such as deposits held at other depository institutions to meet its operational costs such as wages, facility maintenance, and so on are excluded from HQLA as such assets are not available to cover the liquidity needs that arise during stress situations. The application assesses the operational deposit criteria for such assets and excludes them from the stock of HQLA.

3.2.3 Calculating Stock of HQLA

All unencumbered assets classified as Level 1, Level 2A, or Level 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:

$$Stock\ of\ HQLA = \{Post - Haircut\ Stock\ of\ (Level\ 1\ Assets + Level\ 2A\ Assets + Level\ 2B\ Assets)\} - Maximum\ \{Unadjusted\ Excess\ HQLA; Adjusted\ Excess\ HQLA\}$$

> **NOTE** All calculations are based on the market value of assets.

Topics:

- Calculating Liquid Asset Amount
- Calculating Unadjusted Excess HQLA
- Identifying Eligible HQLA on Unwind:
- Unwinding of Transactions Involving Eligible HQLA
- Calculating Adjusted Liquid Asset Amount

3.2.3.1 Calculating Liquid Asset Amount

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

1. Level 1 liquid asset amount

   The Level 1 liquid asset amount equals the fair value of all Level 1 liquid assets held by the bank as of the eligible calculation date HQLA, less the amount of the reserve balance requirement less hedge termination costs (if any), less withdrawal penalty on time deposits (if any).

2. Level 2A liquid asset amount

   The Level 2A liquid asset amount equals 85 percent of the fair 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. Level 2B liquid asset amount

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

4. Level 2B PSE security liquid asset amount

   The Level 2B liquid asset amount equals 50 percent of the fair value of all Level 2B PSE securities, to the extent of 2 times the average daily trading volumes of all US general obligation municipal bonds issued by each issuer, held by the bank as of the calculation date that is eligible HQLA, less hedge termination costs (if any).

3.2.3.2 Calculating Unadjusted Excess HQLA

The unadjusted excess HQLA is calculated based on the following formula:

$$\begin{aligned} &\textit{Unadjusted Excess HQLA} \\ &\quad = \textit{Level 2 Cap Excess Amount} + \textit{Level 2B Cap Excess Amount} \\ &\quad + \textit{Level 2B PSE Security Cap Excess Amount} \end{aligned}$$

The formula for computing the cap excess amounts is as follows:

1. Calculation of Level 2 Cap Excess Amount

$$\begin{aligned} &\textit{Unadjusted Excess HQLA} \\ &\quad = \textit{Level 2 Cap Excess Amount} + \textit{Level 2B Cap Excess Amount} \\ &\quad + \textit{Level 2B PSE Security Cap Excess Amount} \end{aligned}$$

2. Calculation of Level 2B Cap Excess Amount

$$\begin{aligned} &\textit{Level 2 B Cap Excess Amount} \\ &\quad = \textit{Max}[(\textit{Level 2B Liquid Asset Amount} - \textit{Level 2 Cap Excess Amount} \\ &\quad - \{0.1765 \\ &\quad \times (\textit{Level 1 Liquid Asset Amount} + \textit{Level 2A Liquid Asset Amount})\}), 0] \end{aligned}$$

3. Calculation of Level 2B PSE Security Cap Excess Amount

$$\begin{aligned}&Level\ 2B\ PSE\ Security\ Cap\ Excess\ Amount\\&= Max[\langle Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount\\&- Level\ 2\ Cap\ Excess\ Amount - Level\ 2B\ Cap\ Excess\ Amount\\&- \{0.0526\\&\times (Level\ 1\ Liquid\ Asset\ Amount + Level\ 2A\ Liquid\ Asset\ Amount\\&+ Level\ 2B\ Liquid\ Asset\ Amount\\&- Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount)\}\rangle, 0]\end{aligned}$$

3.2.3.3 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 unwinding if it fulfills all of the following criteria:

- Asset Level is a Level 1, 2A or 2B asset
- Meets HQLA Operational Requirements
- Meets Generally Applicable HQLA Criteria on Unwind

3.2.3.4 Unwinding 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 has adjusted accordingly. This is done to avoid including any asset in the stock that should be returned to its owner before the end of the LCR horizon.

3.2.3.5 Calculating Adjusted Liquid Asset Amount

The formula for this calculation is as follows:

1. Adjusted Level 1 liquid asset amount

   The formula for calculating the adjusted Level 1 liquid asset amount is as follows:

$$\begin{aligned}&Adjusted\ Level\ 1\ Liquid\ Asset\ Amount\\&= Post\ Haircut\ Level\ 1\ Liquid\ Asset\ Amount\\&+ Post\ Haircut\ Adjustments\ to\ Level\ 1\ Liquid\ Asset\ Amount\end{aligned}$$

> **NOTE** Adjustments relate to the cash received or paid and the eligible Level 1 asset 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 Level 2A liquid asset amount

   The formula for calculating the adjusted Level 2A liquid asset amount is as follows:

$$\begin{aligned} &Adjusted\ Level\ 2A\ Liquid\ Asset\ Amount \\ &= Post - Haircut\ Level\ 2A\ Liquid\ Asset\ Amount \\ &+ Post\ Haircut\ Adjustments\ to\ Level\ 2A\ Liquid\ Asset\ Amount \end{aligned}$$

> **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 Level 2B liquid asset amount

   The formula for calculating the adjusted Level 2B liquid asset amount is as follows:

$$\begin{aligned} &Adjusted\ Level\ 2B\ Liquid\ Asset\ Amount \\ &= Post - Haircut\ Level\ 2B\ Liquid\ Asset\ Amount \\ &+ Post\ Haircut\ Adjustments\ to\ Level\ 2B\ Liquid\ Asset\ Amount \end{aligned}$$

> **NOTE** Adjustments relate to eligible Level 2B 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 Level 2B PSE security liquid asset amount

   The formula for calculating the adjusted Level 2B PSE security liquid asset amount is as follows:

$$Adjusted\ Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount = Post\text{-}Haircut\ Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount + Post\ Haircut\ Adjustments\ to\ Level\ 2B\ Liquid\ Asset\ Amount.$$

> **NOTE** Adjustments relate to eligible Level 2B PSE securities posted or received as collateral or underlying assets as part of a secured funding transaction, secured lending transaction, asset exchanges, or collateralized derivatives transaction.

5. Calculation of Adjusted Excess HQLA

   The adjusted excess HQLA is calculated based on the following formula:

$$\begin{aligned} &Adjusted\ Excess\ HQLA \\ &= Adjusted\ Level\ 2\ Cap\ Excess\ Amount + Adjusted\ Level\ 2B\ Cap\ Excess\ Amount \\ &+ Adjusted\ Level\ 2B\ PSE\ Security\ Cap\ Excess\ Amount \end{aligned}$$

   The formula for computing the adjusted cap excess amounts is as follows:

   a. Calculation of Adjusted Level 2 Cap Excess Amount

$$\begin{aligned}&Adjusted\ Level\ 2\ Cap\ Excess\ Amount\\&= Max[\{Adjusted\ Level\ 2A\ Liquid\ Asset\ Amount\\&+ Adjusted\ Level\ 2B\ Liquid\ Asset\ Amount - (0.6667\\&\times Adjusted\ Level\ 1\ Liquid\ Asset\ Amount)\}, 0]\end{aligned}$$

b. Calculation of Adjusted Level 2B Cap Excess Amount

$$\begin{aligned}&Adjusted\ Level\ 2\ B\ Cap\ Excess\ Amount\\&= Max[\langle Adjusted\ Level\ 2B\ Liquid\ Asset\ Amount\\&- Adjusted\ Level\ 2\ Cap\ Excess\ Amount\\&- \{0.1765\\&\times (Adjusted\ Level\ 1\ Liquid\ Asset\ Amount\\&+ Adjusted\ Level\ 2A\ Liquid\ Asset\ Amount)\}\rangle, 0]\end{aligned}$$

c. Calculation of Adjusted Level 2B PSE Security Cap Excess Amount

$$\begin{aligned}&Adjusted\ Level\ 2B\ PSE\ Security\ Cap\ Excess\ Amount\\&= Max[\langle Adjusted\ Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount\\&- Adjusted\ Level\ 2\ Cap\ Excess\ Amount\\&- Adjusted\ Level\ 2B\ Cap\ Excess\ Amount\\&- \{0.0526\\&\times (Adjusted\ Level\ 1\ Liquid\ Asset\ Amount\\&+ Adjusted\ Level\ 2A\ Liquid\ Asset\ Amount\\&+ Adjusted\ Level\ 2B\ Liquid\ Asset\ Amount\\&- Adjusted\ Level\ 2B\ PSE\ Security\ Liquid\ Asset\ Amount)\}\rangle, 0]\end{aligned}$$

3.2.4 Determining the Maturity of Cash Flows

To calculate the Liquidity Coverage Ratio and the components thereof, a bank assumes an asset or transaction's maturity is based on the following assumptions:

1. If an instrument or transaction is subject to outflow, then the earliest possible contractual maturity date or the earliest possible date the transaction occurs is considered. The application checks if the counterparty has an option to reduce maturity. The following options must be considered which results either in reducing or extending the maturity date:
   - **a.** If an investor or funds provider has an option that reduces the maturity, then the application considers the earliest date as the maturity date. If the option is exercised, then it means that the maturity date is equal to the earliest date or latest date.
   - **b.** If an investor or funds provider has an option that extends the maturity, then the application assumes that the investor or funds provider does not exercise the option to extend the maturity. This means that the maturity date equals to the original maturity date if the option is not exercised.
   - **c.** If a covered company holds an option to reduce the maturity of the transaction, the application assumes that the option is exercised. If the option is exercised, then it means that the maturity date is equal to the earliest date or latest date.

d. If a covered company holds an option to extend the maturity of the transaction, the application assumes that the option is not exercised by the covered company and calculates the maturity of the transaction. This means the existing maturity date continues.

The application considers the following exceptions to the rule in Step (d):

- If a long term callable bond which is issued by a covered company has an original maturity greater than one year and the call option held by the covered company does not go into effect until at least six months after the issuance, the original maturity of the bond is considered for purposes of the LCR.

Or,

- If the covered company holds an option permitting it to repurchase any of its obligation from a sovereign entity, a U.S. government-sponsored enterprise, or a public sector entity, then the original maturity of the obligation is considered for calculation of LCR.

e. If the covered company has an option that extends the maturity of an obligation it has issued, then the application does not exercise this option to extend the maturity. This means the extended maturity date is considered for computing LCR.

f. If an option is subject to a contractually defined notice period, then the application determines the earliest possible contractual maturity date regardless of the notice period. This means that the application considers the earliest date as the maturity date.

2. If an instrument or transaction is subject to inflows, then the application considers the latest possible contractual maturity date or the latest possible date the transaction occurs. The following options are considered, which results in increasing the maturity date:

a. If the borrower has an option which results in extending the maturity, then application assumes that the borrower exercises the option and consider to extend the maturity date to the latest possible date. This means that the maturity date is equal to the earliest date or latest date.

b. If the borrower has an option that reduces the maturity, then the application assumes that the borrower will not exercise the option to reduce the maturity. This means that the existing maturity date is continued.

c. If the covered company has an option that reduces the maturity, then the application assumes that it will not exercise the option to reduce the maturity. This means that the existing maturity date is continued.

d. If the covered company has an option that extends the maturity of an instrument or transaction, the application assumes that it will exercise the option to extend the maturity to the latest possible date. If the option is exercised, then it means that the maturity date is equal to the earliest date or latest date.

e. If any option is subject to a contractually defined notice period, then the application considers it while calculating maturity for Inflows.

3. The maturity date of secured lending transactions or inflow-generating asset exchanges is the later of the contractual maturity date of the secured lending transaction or inflow-generating asset exchange and the maturity date of the secured funding transaction or outflow-generating asset exchange for which the received collateral was used.

4. The maturity date for a transaction with financial sector entities and which is not an operational deposit is considered by the application to be the first calendar day after the calculation date for LCR.
5. Maturity for transactions related to broker-dealer segregated account inflow amount is considered by the application to be based on calculation performed by the broker-dealer for the release of assets to its customers. If a broker-dealer performs this calculation daily, then the inflow is considered by the application to be on the first day of the 30 calendar-day periods if a broker-dealer performs the calculation every week, then the inflow is considered on the date of the next regularly scheduled calculation.

> **NOTE** The revised maturity is considered for the computation of LCR. The maturity computation for cash flows is calculated as part of the LRM application. However, an assumption is defined to move the cash flows of financial sector entities, which are not an operational deposit, for LCR calculation.

3.2.5 Deposit Stability Identification

A stable deposit is a deposit whose entire outstanding balance is fully covered by deposit insurance provided by Federal Deposit Insurance Corporation (FDIC) of the USA and which satisfies one of the following conditions:

a. It is held in a transactional account by the depositor

Or

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

The FDIC covers all deposit accounts, including checking and savings accounts, money market deposit accounts, and certificates of deposit. The standard insurance amount is $250,000 per depositor, per insured bank, for an ownership category. The application expects the limit to be provided at a customer-ownership category combination. This limit is allocated to the insurance eligible accounts based on a waterfall approach such that it maximizes insurance coverage from the perspective of deposit stability identification. Once the insurance limit is allocated, deposit stability is identified based on insurance coverage and other conditions. Only the fully covered accounts meeting the other stability criteria are considered stable deposits.

> **NOTE**
> - Deposit Insurance Calculations are done following FDIC Part 370 guidelines. See the Deposit Insurance Calculations as per FDIC 370 section for details.
> - An insurance eligible account means an account that is covered by the deposit insurance scheme.
> - In the context of the US Federal Reserve on LCR, fully covered means that the entire outstanding balance of the deposit account must be covered by insurance.

3.2.5.1 Allocating Maximum Insured Amount

The insurance limit captured at each customer-ownership category combination is allocated to multiple accounts in the decreasing order of the outstanding amount (including interest) of the accounts, provided it fully covers the outstanding amount of the account. The insurance coverage status is updated for each deposit account as follows:

- Fully Insured: Insured Amount = Outstanding Amount
- Partially Insured: Insured Amount greater than 0 and less than Outstanding amount
- Uninsured: Insured Amount = 0

3.2.6 Classifying Operational Account

Operational deposit means unsecured wholesale funding or a collateralized deposit that is necessary for the covered company to provide operational services as an independent third-party intermediary, agent, or administrator to the wholesale customer or counterparty providing the unsecured wholesale funding or collateralized deposit.

The deposits are classified as an operational deposit if designated as an operational deposit by the covered company and the deposit is used or either cash management, custody management, or clearing management and not used of prime brokerage or correspondent banking. The customer must hold the deposit at the covered company for the primary purpose of obtaining the operational services provided by the covered company. The related operational services must be performed according to a legally binding written agreement, and meet the following criteria:

a. The termination of the agreement must be subject to a minimum 30 calendar-day notice period.

or

b. As a result of the termination of the agreement or transfer of services to a third-party provider, the customer providing the deposit would incur significant contractual termination costs or switching costs (switching costs include significant technology, administrative, and legal service costs incurred in connection with the transfer of the operational services to a third-party provider).

3.2.7 Calculating 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 soon and results in 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:

- Calculating Contractually Due Collateral
- Calculating Contractually Receivable Collateral

3.2.7.1 Calculating Contractually Due Collateral

The application computes the value of the collateral that a bank is required to post contractually to its derivative counterparty, if one of the following conditions are met.

1. If the Secured Indicator is No, then the contractually due collateral is 0.
2. If the Secured Indicator is Yes and the CSA Type is One way, then the contractually due collateral is 0.
3. If the Secured Indicator is Yes, the CSA Type is Two way and Gross Exposure is greater than or equal to 0, then the contractually due collateral is 0.
4. If the Secured Indicator is Yes, the CSA Type is Two way and Gross Exposure is less than 0, the application computes the contractually due collateral as follows:

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

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 preconfigured business assumptions for LCR calculations.

3.2.7.2 Calculating Contractually Receivable Collateral

The application computes the value of the collateral that a derivative counterparty is required contractually to post to the bank, if one of the following conditions are met.

1. If the Secured Indicator is No, then the contractually receivable collateral is 0.
2. If the Secured Indicator is Yes and the Gross Exposure is less than or equal to 0, then the contractually receivable collateral is 0.
3. If the Secured Indicator is Yes and the Gross Exposure is greater than 0, then the application computes the contractually receivable collateral as follows:

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

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 generate reports.

3.2.8 Calculating Excess Collateral

Excess collateral is the value of collateral posted or received that is more than 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 over its exposure and results in 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 or Excess Collateral Receivable.

Topics:

- Calculating Excess Collateral Due

- Calculating Excess Collateral Receivable

3.2.8.1 Calculating 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 the Secured Indicator is No, then the excess collateral due is 0.
2. If the Secured Indicator is Y and the 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 the Secured Indicator is Y and the 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 preconfigured business assumptions for LCR calculations.

3.2.8.2 Calculating 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 the Secured Indicator is No, then the excess collateral receivable is 0.
2. If the Secured Indicator is Y and the 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 the Secured Indicator is Y and the 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 a report.

3.2.9 Calculating Downgrade Impact Amount

This section details the calculation of downgrade impact amount for derivatives and for other liabilities.

Topics:

- Calculating Downgrade Impact Amount for Derivatives
- Calculating Downgrade Impact Amount for Other Liabilities

3.2.9.1 Calculating Downgrade Impact Amount for Derivatives

The application calculates the downgrade impact amount for derivatives if one of the following conditions are met.

1. If a downgrade trigger does not exist for the derivatives contract or netting agreement, the downgrade impact amount is 0.
2. If the Net Exposure is greater than 0, the downgrade impact amount is 0.
3. If the Net Exposure is less than or equal to 0, the downgrade impact amount is calculated as follows:

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

3.2.9.2 Calculating Downgrade Impact Amount for Other Liabilities

The application calculates the downgrade impact amount for other liabilities, including annuities, that have an associated downgrade, derivatives, if one of the following conditions are met.

1. If a downgrade trigger does not exist for the liability account, the downgrade impact amount is 0.
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 rating downgrade has an outflow corresponding to a pre-specified percentage of the downgrade impact amount. For example, 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 rating downgrade and the outflow percentage as specified by the regulator are part of the preconfigured business assumptions for LCR calculations.

3.2.10 Calculating Net Derivative Cash Inflows and Outflows

This section details the cash flow netting calculations at the derivative contract level and netting agreement level.

Topics:

3.2.10.1 Cash Flow Netting at Derivative Contract Level

Cash flows from each derivative contract are netted as follows:

1. When cash inflows and outflows are denominated in the same currency and occur at the same time bucket, they are netted as follows:
   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. When cash inflows and outflows are denominated in different currencies but settle within the same day, they are netted as follows:
   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. When cash inflows and outflows are denominated in different currencies and do not settle within the same day, they are netted as follows:

a. The cash outflows from each derivative contract without an associated netting agreement are summed up and treated as net derivative cash outflows.

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

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

3.2.10.2 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, they are netted across multiple contracts under the same netting agreement as follows:
   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, they are netted across multiple contracts under the same netting agreement as follows:
   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.

3.2.11 Calculating 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:

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

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

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

  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:

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

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

$$\textit{Largest 30 - day Absolute Net Collateral Flow} = \textit{Max}(\textit{Absolute Net MTM Collateral Change}_i)$$

> **NOTE** Steps (a) to (d) are repeated for each rolling 30-day historical time window.

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

$$\textit{24 - Month Lookback Amount} = \textit{Max}(\textit{Largest 30 - day Absolute Net Collateral Flow}_n)$$

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. For example, the first 30-day block is As of Date to As of Date - 29; the 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 every 24 months.

The 24-month look-back calculations are illustrated in the following table considering a 34-day historical time window rather than 24-months. This results in five rolling 30-day windows.

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

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

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	172	172
	As of Date - 29	35	31	4	176	176
As of Date - 1 to As of Date - 30	As of Date - 1	65	9	56	56	56
	As of Date - 2	74	83	-9	47	47
	As of Date - 3	71	97	-26	21	21
	As of Date - 4	84	89	-5	16	16
	As of Date - 5	8	57	-49	-33	33
	As of Date - 6	40	59	-19	-52	52
	As of Date - 7	42	87	-45	-97	97
	As of Date - 8	100	6	94	-3	3
	As of Date - 9	41	30	11	8	8
	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

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 - 18	94	37	57	161	161
	As of Date - 19	3	18	-15	146	146
	As of Date - 20	13	27	-14	132	132
	As of Date - 21	24	56	-32	100	100
	As of Date - 22	57	75	-18	82	82
	As of Date - 23	66	87	-21	61	61
	As of Date - 24	33	71	-38	23	23
	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

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 - 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
	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

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

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 - 17	61	22	39	57	57
	As of Date - 18	94	37	57	114	114
	As of Date - 19	3	18	-15	99	99
	As of Date - 20	13	27	-14	85	85
	As of Date - 21	24	56	-32	53	53
	As of Date - 22	57	75	-18	35	35
	As of Date - 23	66	87	-21	14	14
	As of Date - 24	33	71	-38	-24	24
	As of Date - 25	29	30	-1	-25	25
	As of Date - 26	64	25	39	14	14
	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

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 - 7	42	87	-45	-118	118
	As of Date - 8	100	6	94	-24	24
	As of Date - 9	41	30	11	-13	13
	As of Date - 10	45	9	36	23	23
	As of Date - 11	9	32	-23	0	0
	As of Date - 12	59	67	-8	-8	8
	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

Rolling 30-Day Period	Day	Mark-To-Market Collateral Outflows Due To Derivative Transaction Valuation Changes (a)	Mark-To-Market Collateral Inflows Due To Derivative Transaction Valuation Changes (b)	Net Mark-To-Market Collateral Change (c = a – b)	Cumulative Net Mark-To-Market Collateral Change (d = Cumulative c)	Absolute Net Mark-To-Market Collateral Change [e = Abs (d)]
	As of Date - 26	64	25	39	40	40
	As of Date - 27	54	39	15	55	55
	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:

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	

3.2.12 Calculating Operational Amount

The regulator prescribed lower outflow rate for operational deposits should be applied only to the 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 following steps are involved in computing the operational balance:

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 , for example As of Date – 89 days. To identify historical observations, the f_reporting_flag must 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, 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 , for example 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:

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

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 in the following table, 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 as follows.

Table 2: Example: Operational Deposit Computation Process

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

11. The rolling averages and cumulative average are computed as follows:

Table 3: Example: Rolling Averages and Cumulative Average Computation Process

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

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

Table 4: Example: Operational and Non-operational Balances Computation Process

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 this computation.
- For operational accounts that have an account start date greater 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 less than the historical days including the “As of Date”, the following occurs:
  - **a.** Missing balances between the account start date and “As of Date” are replaced by the previously available balance.
  - **b.** The rolling average is calculated only for the period from the account start date to the “As of Date”
- The methodology to compute operational balance is optional. This can be turned On or Off using the SETUP_MASTER table, where component code = HIST_OPERATIONAL_BAL_CALC_UPD. The option to provide the operational balance as a download is supported by the application.

3.2.13 Calculating 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 for the group-wide consolidated LCR calculations and hence must be treated appropriately. In the LCR consolidation process, LRRCUSFR 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, per the regulatory requirements. The treatment of transferability restriction during consolidation is as follows:

1. The net cash outflows are computed for a subsidiary, on a consolidated basis. The consolidation entity is the subsidiary itself in this case. If the subsidiary is a leaf level entity, then the net cash outflow is calculated on a standalone basis.
2. The restricted and unrestricted stock of Level 1, Level 2A and Level 2B is computed for the subsidiary on a consolidated basis. The application captures the HQLA transferability restriction at an account level through the flag F_TRANSFERABILITY_RESTRICTION.
3. The application checks whether the stock of restricted Level 1 assets is greater than the 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 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 is greater than the 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 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 is greater than the 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 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. The allocation of restricted assets is done in the descending order of asset quality to maximize the stock of HQLA.
2. This calculation is part of the LCR consolidation process. For a complete view of the process, see the Consolidation section.

3.2.14 Calculating Cash Inflows and Outflows

Net cash outflow is derived from cash inflow and cash outflow.

NOTE

- This section details the cash inflows and outflows that are included as part of the regulatory LCR computation as per US Federal Reserve requirements. The associated regulatory inflow and outflow rates to determine the cash flows are included in the denominator.
- The inflow and outflow rates are specified as part of the business assumption definition UI. You can define and maintain multiple business assumptions with different rates and can apply them to compute the LCR and other liquidity metrics under various scenarios.

3.2.14.1 Cash Flow Exclusions

This section includes information about cash flow exclusions.

Topics:

3.2.14.1.1 Cash Inflow Computation

The following steps describe the cash flow computation.

1. Cash Inflow Exclusions

   The US Federal Reserve explicitly excludes the following cash flows from the denominator of LCR/modified LCR:

   a. The deposits held by the bank, at other banks, for its operational purposes, that is, the bank's operational deposits.

   b. Amounts that the bank would receive from derivative transactions due to forward sale of mortgage loans or any derivatives that are mortgage commitments or pipeline.

   c. Undrawn amount of funding credit and liquidity lines received by the bank.

   d. The fair value of any asset included in the bank's stock of HQLA as well as any inflows received from or concerning such assets. For example, inflows received from HQLA assets maturing within 30 days.

   e. Any cash flows from a non-performing asset or any asset that is expected to be non-performing within the LCR horizon.

   f. Cash flows from any account that does not have a contractual maturity or from an account whose maturity date is beyond the liquidity horizon.

g. Any inflows or outflows from intragroup transactions are excluded. These include transactions between the following:

- The legal entity at the level of which consolidation is being carried out that is, consolidation level and its subsidiaries.
- Any two subsidiaries in the immediate organization structure of the consolidation level entity.

2. Net Derivative Cash Inflow

Net derivative cash flows refer to the cash inflows and outflows obtained from derivative contracts and their underlying collateral. These cash inflows include all payments that the bank is expected to receive from its counterparty as well as any collateral that is due to be received from the counterparty within the LCR horizon. If an ISDA master netting agreement is in place, then the payments and collateral due to the counterparty during the LCR horizon are off-set against the cash inflows. If the net exposure value is positive, it is considered a derivatives cash outflow and included in the outflow part of the denominator.

Such inflows and outflows are offset against each other at a netting agreement level provided the payment netting indicator is Yes.

The process of computing the derivative cash inflows and outflows is provided as follows:

a. The application checks if the payment netting indicator is Yes for a given netting agreement. If Yes, sum all cash outflows (negative cash flows) and inflows (positive cash flows) denominated in a particular currency, occurring on each date from the instruments which are part of a particular netting agreement and the underlying collateral.

- If the sum of cash flows is negative, then it is considered net derivative cash outflows.
- If the sum of cash flows is positive, then it is considered net derivative cash inflows.

b. The application checks if the payment netting indicator is No for a given netting agreement. If No, then

- Sum all cash outflows denominated in a particular currency, occurring on each date from the instruments which are part of a particular netting agreement and the underlying collateral. This is considered net derivative cash outflow.
- Sum all cash inflows denominated in a particular currency, occurring on each date from the instruments which are part of a particular netting agreement and the underlying collateral. This is considered net derivative cash inflow.
- The net derivative cash outflow at a legal entity level equals the sum of all derivative cash outflows computed in step 1(a) and 2(a).
- The net derivative cash outflow at a legal entity level equals the sum of all derivative cash outflows computed in step 1(b) and 2(b).

3. Retail Cash Inflow Amount

The cash inflows from retail customers or counterparties include contractually payable amounts multiplied by the regulator-specified inflow rate.

4. Unsecured Wholesale Cash Inflow Amount

Unsecured wholesale cash inflows include amounts contractually due from wholesale customers or counterparties, regulated and non-regulated financial companies, investment

companies, non-regulated funds, pension funds, investment advisers, or identified companies, or from a consolidated subsidiary of any of the foregoing, or central banks.

5. Securities Cash Inflow Amount

   The contractual payments due to the bank from non-HQLA securities that it owns are included as part of cash inflows.

6. Secured Lending and Asset Exchange Cash Flows

   Inflows from secured lending transactions maturing within the LCR horizon are based on the collateral securing such transactions. The inflow rates increase in inverse proportion to the quality of the collateral and are related to the liquidity haircuts specified for such assets.

   Inflows from asset exchanges are determined based on the difference between the quality of the assets received and posted. If the assets to be posted by the bank to the counterparty at the maturity of the transaction are of lower quality than the assets that will be received from the counterparty, such asset exchanges result in cash inflows to the bank.

   The inflow and outflow rates are specified as part of the business assumptions UI.

7. Segregated Account Inflow Amount

   A Covered Company's broker-dealer segregated account inflow amount is the fair value of all assets released from broker-dealer segregated accounts maintained per statutory or regulatory requirements for the protection of customer trading assets, provided that the calculation of the broker-dealer segregated account inflow amount, for any transaction affecting the calculation of the segregated balance (as required by applicable law), is consistent with the following:

   - In calculating the broker-dealer segregated account inflow amount, the covered company must calculate the fair value of the required balance of the customer reserve account as of 30 calendar days from the calculation date by assuming that customer cash and collateral positions is changed consistent with the outflow and inflow calculations.
   - If the fair value of the required balance of the customer reserve account as of 30 calendar days from the calculation date, as calculated consistent with the outflow and inflow calculations, is less than the fair value of the required balance as of the calculation date, the difference is the segregated account inflow amount.
   - If the fair value of the required balance of the customer reserve account as of 30 calendar days from the calculation date, as calculated consistent with the outflow and inflow.

8. Other Cash Inflow Amounts

   A Covered Company's inflow amount as of the calculation date includes zero percent of other cash inflow amounts which are other than the inflows included in the following: Excluded Amount for Intragroup Transactions

   The inflow amounts mentioned do not include amounts arising out of transactions between the following:

   - The Bank and a consolidated subsidiary of the bank; or
   - A consolidated subsidiary of the bank and another consolidated subsidiary of the bank.

   All intragroup transactions mentioned above are eliminated to compute the Inflow Amount.

3.2.14.1.2 Calculating Cash Outflow

The cash outflow calculation process is explained as follows:

1. **Retail Funding Outflow**

   The retail funding outflow amount includes outflows concerning deposits and other unsecured funding from retail customers, regardless of the maturity of the transaction. These exclude brokered deposits. Retail funding is further classified as stable and less stable based on the regulatory guidelines and receives run-off rates based on this classification. See the Deposit Stability Identification section for details.

- Classifying small business customers as retail customers

  A business customer is treated as a retail customer if the following conditions are met:

  - The banks manage its transactions with the business customer, including deposits, unsecured funding, and credit facility and liquidity facility transactions, in the same way, it manages its transactions with individuals;
  - Transactions with the business customer have liquidity risk characteristics that are similar to comparable transactions with individuals; and
  - The total aggregate funding raised from the business customer is less than $1.5 million.

- Classifying Trust customers as retail customers

  The agencies have concluded that certain trusts pose liquidity risks substantially similar to those posed by individuals, and the agencies are modifying the final rule to clarify that living or testamentary trusts can be treated as retail customers or counterparties if the following conditions are met:

  - Is solely for the benefit of natural persons;
  - Does not have a corporate trustee; and
  - Terminates within 21 years and 10 months after the death of grantors or beneficiaries of the trust living on the effective date of the trustor within 25 years, if applicable under state law (in states that have a rule against perpetuities).

- Classifying established relationship

  The retail deposits that are entirely covered by deposit insurance and:

  - Is held by the depositor in a transactional account; or
  - The depositor that holds the account has another established relationship with the bank such as another deposit account, a loan, bill payment services, or any similar service or product provided to the depositor that the bank demonstrates to the satisfaction of the agency would make deposit withdrawal highly unlikely during a liquidity stress event.

2. **Structured Transaction Outflow**

   The outflow amount from structured transaction either issued or sponsored by the bank is calculated as the maximum of one of the following values:

   - 100% of the structured transactions, issued by the bank, that mature during the LCR horizon and all commitments made by the bank to purchase assets during the LCR horizon.

Or

- The maximum contractual amount that the bank may be required to provide to its sponsored entity that issues the structured instrument, through a liquidity facility, a return or repurchase of assets from that entity or other funding agreement.

3. **Derivative Cash Outflow**

Net derivative cash outflows include all payments that the bank has to make to its counterparty as well as any collateral that is due to be paid by the bank within the LCR horizon. If an ISDA master netting agreement is in place, then the payments and collateral to be received from the counterparty during the LCR horizon are off-set against the cash outflows. If the net exposure value is negative, it is considered a derivatives cash inflow and included in the inflow part of the denominator.

> **NOTE** Any cash flows from forwarding sales of mortgages and mortgage commitments are excluded from derivative cash flows as they are assigned a different outflow rate.

4. **Mortgage Commitments or Pipelines**

A mortgage commitment is a written agreement that the bank is willing to provide a mortgage loan to the buyer to complete the purchase formalities. This is not an actual loan but only a commitment to provide the loan. Once the buyer has purchased a property per the terms of commitment and availed the loan, it gets converted to a mortgage.

As per US Federal Reserve, outflow is captured for retail mortgage commitments.

5. **Commitment Outflow Amount**

The commitment outflow amount includes the undrawn portion of committed credit and liquidity facilities provided by various counterparties. The application deducts the value of any Level 1 or Level 2A asset which is securing the facility from the portion of the undrawn amount of that facility that is drawn down within the LCR horizon, provided the underlying asset is not included in the stock of HQLA. The outflow amount is determined by multiplying the adjusted undrawn amount with the outflow rates specified by the user. These rates vary based on the facility type and customer type.

6. **Collateral Outflow**

- Changes in financial condition: Derivatives and other transactions may include certain clauses that result in collateral outflows due to changes in the financial condition of an institution due to a downgrade. The application supports the ability to capture downgrade triggers for derivatives and other transactions. It also supports the ability to activate these triggers through the Rating Downgrade assumption. See Chapter 6 Business Assumptions in the Oracle Financial Services Liquidity Risk Measurement and Management User Guide for details on this assumption. The collateral outflow due to change in financial condition is supported through calculation and outflow of downgrade impact amount.

a. Downgrade Impact Amount for Derivatives

The downgrade impact amount for derivatives is calculated at the netting agreement level as follows:

i. The application checks if a downgrade trigger exists for a particular derivative transaction. If there is no downgrade trigger, the downgrade impact amount is 0.

ii. If a downgrade trigger exists, the application checks for the signage of the net exposure. If the net exposure is positive, that is greater than 0, the downgrade impact amount is 0.

iii. If a downgrade trigger exists and the net exposure is negative, the downgrade impact amount is calculated as follows:

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

NOTE The ratings downgrade business assumption is defined at the netting agreement level for all accounts that have a netting agreement ID associated with them. The outflow of downgrade impact amount depends on the downgrade specified. For example, if a 3-notch downgrade is specified, then the downgrade impact amount outflows 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 outflows only for those accounts that have a trigger of 1-notch and 2-notches. See Chapter 6 Business Assumptions in the Oracle Financial Services Liquidity Risk Measurement and Management User Guide, for details on the ratings downgrade business assumption.

b. Downgrade Impact Amount for Securitizations

The downgrade impact amount for securitizations is calculated as follows:

i. The application checks the commingling indicator value. If the commingling indicator is 'No', the downgrade impact amount is 0.

ii. If the commingling indicator is 'Yes', the application checks if the downgrade trigger exists for such a securitization. If there is no downgrade trigger, the downgrade impact amount is 0.

iii. If a downgrade trigger exists the application compares the start date of the collections from the underlying assets with the As of Date. If the collection start date greater than As of Date, the downgrade impact amount is 0.

iv. If the collection start date is less than or equal to the As of Date, the downgrade impact amount is calculated as follows:

$$Downgrade\ Impact\ Amount = \sum_{c}^{f} Collections\ from\ underlying\ assets$$

Where,

c: Collection start date is less than or equal to the As of Date

f: As of Date

> **NOTE** The ratings downgrade business assumption is defined for securitizations for the outflow of downgrade impact amount.

c. Downgrade Impact Amount for Other Liabilities

For other liabilities, including annuities, that have a downgrade trigger associated with them, the downgrade impact amount is calculated as follows:

i. The application checks if a downgrade trigger exists for liabilities other than derivatives and securitizations. If there is no downgrade trigger, the downgrade impact amount is 0. Otherwise,

ii. If a downgrade trigger exists, the application checks if the product is derivative or securitization. If it is not a derivative or securitization, the downgrade impact amount is calculated as follows:

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

> **NOTE** The ratings downgrade business assumption is defined for other liabilities for the outflow of downgrade impact amount.

7. Potential Valuation Changes

Collateral outflows may result due to the fall in the fair value of non-Level 1 assets securing a transaction. The application provides the ability to specify outflow rates on the fair value of collateral posted.

8. Excess Collateral

Any unsegregated collateral over the amount contractually required to be provided by the counterparty to the bank is assumed to be withdrawn during stress conditions. The application calculates the value of excess collateral and provides the ability to specify outflows on such excess collateral.

The procedure of calculating excess collateral posted by the counterparty is as follows:

- The application checks for signage of net exposure. If net exposure is negative, that is less than 0, then the excess collateral is 0. Otherwise,
- If net exposure is positive, the excess collateral is calculated as follows:

$$Excess\ Collateral = Max[0, (Threshold - Net\ Exposure)]$$

NOTE

- Excess collateral mentioned above is computed only for derivatives and not for any other assets.
- The business assumption of the outflow of excess collateral is defined at the netting agreement level for all accounts that have a netting agreement ID associated with them.

9. For non-derivative transactions, applications compute excess collateral as follows:

$$Excess\ Collateral = Max(0, (Collateral\ Received - EOP\ Balance))$$

10. **Contractually Required Collateral**

Any collateral that is contractually due from the bank to the counterparty, but has not yet been posted, is assumed to be demanded by the counterparty during times of stress. The application calculates the value of contractually due collateral and provides the ability to specify outflows on such collateral.

The procedure of calculating the collateral that a bank is required to post contractually is as follows, if one of the following conditions are met.

- The application checks for the CSA type of transaction. If the CSA Type is One way then the contractually due collateral is 0.
- If the CSA Type is Two way, it checks for signage of net exposure. If net exposure is positive which is greater than 0, then the contractually due collateral is 0.
- If the net exposure is negative, the contractually due collateral is calculated as follows:

$$Contractually\ Due\ Collateral = Max[0, \{Abs(Net\ Exposure) - Threshold\}]$$

Where,

Threshold: Minimum exposure amount required to call for additional collateral.

NOTE

- Contractually due collateral is computed only for derivatives and not for any other liabilities.
- The business assumption of the outflow of required collateral is defined at the netting agreement level for all accounts that have a netting agreement ID associated with them.

- For non-derivative transactions, the application computes the contractually collateral as:

$$Contractually\ Due\ Collateral = Max\ (0, EOP\ Balance - Collateral\ Placed)$$

11. Outflow Related to Collateral Substitution

In a stress scenario, any collateral that is substituted by collateral, is assumed to be substituted by the lowest quality of collateral allowed under the substitution clause of the contract. The application provides the ability to capture the substitution details identifies the asset level of each substitutable collateral based on the attributes of the substitutable collateral and determines the lowest quality of substitutable collateral permissible under the terms of the contract. The outflow rates due to collateral substitution are captures through the business assumptions UI.

12. Derivative Collateral Change

The absolute value of the largest LCR horizon cumulative net mark-to-market collateral outflow or inflow resulting from derivative transactions realized during the preceding 24 months.

13. Brokered Deposit Outflow

As per US Federal Reserve, brokered deposits are assigned higher Run-offs. A brokered deposit is a deposit that a bank obtains whether directly or indirectly from or through the mediation or assistance of a deposit broker or brokerage house. For example, a bank may offer a large denomination deposit to a brokerage house which then sells in smaller chunks to its ultimate customers.

Brokered deposits are further sub-divided into the following categories:

- Reciprocal Brokered Deposits
- Brokered Sweep Deposit
- Other Brokered Deposits

Each of these brokered deposit categories are assigned a different Run-off rate.

14. Debt Security Outflow

The application defines the debt security outflow amount from retail customers through business assumptions. Separate outflow rates are assigned based on the securities issued are structured or not.

15. Unsecured Wholesale Funding Outflow Amount

Any unsecured funding from wholesale customers, including operational deposits that mature within the LCR horizon is identified by the application. The application identifies the operational deposits as those arising from clearing, custody, and cash management relationship based on the regulatory guidelines. Separate outflow rates are assigned to such funding based on regulatory or user-specified parameters.

16. Secured Funding and Asset Exchange Outflow Amount

Outflows from secured funding transactions maturing within the LCR horizon are based on the collateral securing such transactions. The outflow rates increase in inverse proportion to the quality of the collateral and are related to the liquidity haircuts specified for such assets.

Outflows from asset exchanges are determined based on the difference between the quality of the assets received and posted. If the assets to be posted by the bank to the counterparty at the maturity of the transaction are of higher quality than the assets that will be received from the counterparty, such asset exchanges result in cash outflows to the bank.

The inflow and outflow rates are specified as part of the business assumptions UI.

17. Central Bank Borrowings

If a bank has borrowed from a foreign central bank, then such borrowings will get an outflow rate equal to the rate specified by that jurisdiction under its minimum liquidity standard. In the absence of a specific outflow rate from the foreign jurisdiction, the outflow rate is equal to the rates specified for secured funding transactions under the US Federal Reserve's regulation, Liquidity Coverage Ratio: Liquidity Risk Measurement, Standards, and Monitoring.

The application provides banks the ability to specify multiple outflow rates for borrowings from each foreign central bank.

3.2.15 Calculating Net Cash Outflows (NCOF)

Under the US Liquidity Coverage Ratio requirements, a peak cumulative net cash outflow day is identified, and an add-on is computed and added to the previous Net cash outflow computation. The agencies elected to employ peak day approach to take into account potential maturity mismatches between a covered company's outflows and inflows during the 30 calendar-day period; that is, the risk that a covered company could have a substantial amount of contractual inflows that occur late in a 30 calendar-day period while also having substantial outflows that occur early in the same period. Such mismatches have the potential to threaten the liquidity position of the organization during a time of stress and would not be apparent under the Basel III Revised Liquidity Framework denominator calculation.

Cumulative cash inflows have been capped at 75 percent of aggregate cash outflows in the calculation of total net cash outflows. This limit would have prevented a covered company from relying exclusively on cash inflows, which may not materialize in a period of stress, to cover its liquidity needs and ensure that covered companies maintain a minimum HQLA amount to meet unexpected liquidity demands during the 30 calendar-day period

The formula for computing the Total Net Cash Outflows is as follows:

$$\textit{Total Net Cash Outflows} = \textit{Aggregated Outflows} - \textit{MIN}\ (.75 * \textit{Aggregated Outflows},\ \textit{Aggregated Inflows}) + \textit{Add-On}$$

Where,

- Aggregated Outflows is the sum of:
  - Cash Outflows from Open Maturity Products and
  - Cash outflows occurring over 30 days.
- Aggregated Inflows is the sum of:
  - Cash Inflows from Open Maturity Products and
  - Cash Inflows occurring over 30 days
- Add –On is calculated as:
  - The greater of:
    - 0; and
    - The largest net cumulative maturity outflow amount as calculated for any of the 30 calendar days following the calculation date; minus
  - The greater of:

- 0; and
- The net day 30 cumulative maturity outflow amount as calculated.

Topics:

- Calculating Net Cumulative Peak Day amount using Add-on Approach
- Calculating Inflow Cap
- A numerical example for Net Cash Outflow Calculation – LCR

3.2.15.1 Calculating Net Cumulative Peak Day Amount Using the Add-on Approach

The proposed net cumulative add – on approach is calculated in the two-step process as follows:

1. Cash outflows and inflows over the 30 calendar-day periods are aggregated and netted against one another, with the aggregated inflows capped at 75 percent of the aggregated outflows.
2. Calculation of add-on, which requires a covered company to identify the largest single-day maturity mismatch within the 30 calendar day periods by calculating the daily difference in cumulative outflows and inflows that have set maturity dates, as specified by section 31 of the final rule, within the 30 calendar day periods. The day with the largest difference reflects the net cumulative peak day. The covered company must calculate the difference between that peak day amount and the net cumulative outflow amount on the last day of the 30 calendar-day periods for those same outflow and inflow categories that have maturity dates within the 30 calendar-day periods. This difference equals the add-on. The amounts calculated in Steps 1 and 2 are added together to determine the total net cash outflow.

NOTE

- In calculating the add-on, both the net cumulative peak day amount and the net cumulative outflow amount on the last day of the 30 calendar-day periods cannot be less than zero.
- The categories of inflows and outflows included in the add-on calculation comprise those categories that are the most likely to expose covered companies to maturity mismatches within the 30 calendar day periods, such as repurchase agreements and reverse repurchase agreements with financial sector entities, whereas outflows such as non-maturity retail deposits are not a part of the add-on calculation.
- Transactions that have no maturity date are not included in the calculation of the maturity mismatch add-on.

3.2.15.2 Calculating Inflow Cap

A covered company's total cash inflow amount is capped at 75 percent of its total cash outflows. This is to ensure that covered companies hold a minimum HQLA amount equal to at least 25 percent of total cash outflows.

However, certain foreign currency exchange derivative cash flows are to be treated on a net basis and have therefore effectively been removed from the gross inflow cap calculation. The inflow leg of a foreign currency exchange derivative transaction in effect is not subject to the 75 percent inflow cap as long as it settles on the same date as the corresponding outflow payment of that derivative transaction.

> **NOTE** The inflow cap does not apply to the calculation of the maturity mismatch add-on.

3.2.15.3 A Numerical Example for Net Cash Outflow Calculation – LCR

As per the US Federal Reserve, the peak cumulative net cash outflow approach is used for calculation of the denominator of the Liquidity Coverage Ratio. This applies to all large banks that are required to calculate the LCR on an unmodified basis. The liquidity horizon prescribed by the US Federal Reserve for the calculation of the LCR is 30 calendar days.

The following table illustrates this approach to Liquidity Coverage Ratio calculation. For computational convenience, we have taken the liquidity horizon as 10 days instead of 30 days.

Table 5: Peak Cumulative Net Cash Outflow Calculation - LCR

Day	Non-Maturing Outflows	Outflows with Maturity Date as specified in section 31	Cumulative Outflows with Maturity Date as specified in section 31	Non-Maturing Inflows	Inflows with Maturity Date as specified in section 31	Cumulative Inflows with Maturity Date as specified in section 31	Net Cumulative Maturity Outflows
Day 1		100	100		90	90	10
Day 2		20	120		5	95	25
Day 3		10	130		5	100	30
Day 4		15	145		20	120	25
Day 5		20	165		15	135	30
Day 6		0	165		0	135	30
Day 7		0	165		0	135	30
Day 8		10	175		8	143	32
Day 9		15	190		7	150	40
Day 10		25	215		20	170	45
Day 11		35	250		5	175	75
Day 12		10	260		15	190	70
Day 13		0	260		0	190	70
Day 14		0	260		0	190	70
Day 15		5	265		5	195	70
Day 16		15	280		5	200	80
Day 17		5	285		5	205	80
Day 18		10	295		5	210	85
Day 19		15	310		20	230	80
Day 20		0	310		0	230	80

Day	Non-Maturing Outflows	Outflows with Maturity Date as specified in section 31	Cumulative Outflows with Maturity Date as specified in section 31	Non-Maturing Inflows	Inflows with Maturity Date as specified in section 31	Cumulative Inflows with Maturity Date as specified in section 31	Net Cumulative Maturity Outflows
Day 21		0	310		0	230	80
Day 22		20	330		45	275	55
Day 23		20	350		40	315	35
Day 24		5	355		20	335	20
Day 25		40	395		5	340	55
Day 26		8	403		125	465	-62
Day 27		0	403		0	465	-62
Day 28		0	403		0	465	-62
Day 29		5	408		10	475	-67
Day 30		2	410		5	480	-70
Total	300	410		100	480		

- Total Aggregated Cash Outflows = 710
- Total Aggregated Cash Inflows = 580
- Total Net Cash Outflows = 262.5

NOTE

The Non-maturity outflows and inflows will directly be taken in the calculation. It will not be considered on Day 1.

In this illustration, the cumulative net cash outflow occurs on Day 8. Therefore, the net cash outflow on Day 8, that is, 232, is taken as the denominator value in the LCR calculation.

3.2.16 Consolidating Using the LCR Approach

The approach to consolidation using the LCR approach followed by the application is 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 example, 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 this case, legal entity 4 is treated as a third party for 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. **Updating the Asset Restriction Flag for Certain Assets**

   The regulations state that if a Level 2B asset eligible common equity is held by a consolidated subsidiary of a depository institution, the depository institution can include such equity in its Level 2B liquid assets only to the extent of the net cash outflows of that consolidated subsidiary. The application checks if a legal entity, included in the consolidated Run, is a consolidated subsidiary of a depository institution that is the depository institution flag of its parent is Yes, then common equities of such entities are restricted during consolidation. The application updates the asset restriction flag of Level 2B common equities of such legal entities as restricted before starting the consolidation process.

3. **Identifying and Consolidating by Subsidiary Type**

   The process of consolidating HQLA as per US Federal Reserve differs slightly based on the type of subsidiary. Three methods of consolidating HQLA are followed, based on the type of subsidiary:

   a. US Consolidated Subsidiaries Subject to LCR Requirements: For a US-based legal entity that is a consolidated subsidiary of a covered company, consolidation is done as follows:

   i. The application identifies whether the subsidiary is a US consolidated subsidiary.

   ii. If condition (i) is fulfilled, it identifies whether the US consolidated subsidiary is subject to LCR requirement that is, whether the subsidiary in question is a regulated entity.

   iii. If condition (ii) is fulfilled, then it calculates the net cash outflow based on the US Federal Reserve LCR approach that is, based on the add-on approach calculation, eliminating inter-company transactions at the level of the consolidated subsidiary.

   iv. 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.

v. It consolidates the entire amount of post-haircut unrestricted HQLA held at the consolidated subsidiary as part of the covered company's HQLA.

vi. It consolidates all cash inflows and outflows which are part of the net cash flow calculation.

b. For US Consolidated Subsidiaries Not Subject to LCR Requirements

i. The application identifies whether the subsidiary is a US consolidated subsidiary.

ii. If condition (a) is fulfilled, it identifies whether the US consolidated subsidiary is subject to minimum LCR requirement that is, whether the subsidiary in question is a regulated entity.

iii. 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 based on the modified LCR approach that is, based on cumulative net cash flows on the 30th day.

iv. 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.

v. It consolidates all cash inflows and outflows which are part of the net cash flow calculation.

c. For Non-US Consolidated Subsidiaries

i. The application identifies whether the subsidiary is a US consolidated subsidiary.

ii. If condition (a) is not fulfilled, it eliminates all inter-company transactions till the level of the immediate parent of the foreign subsidiary and then calculates the net cash outflow based on the modified LCR approach that is, based on cumulative net cash flows on the 30th day.

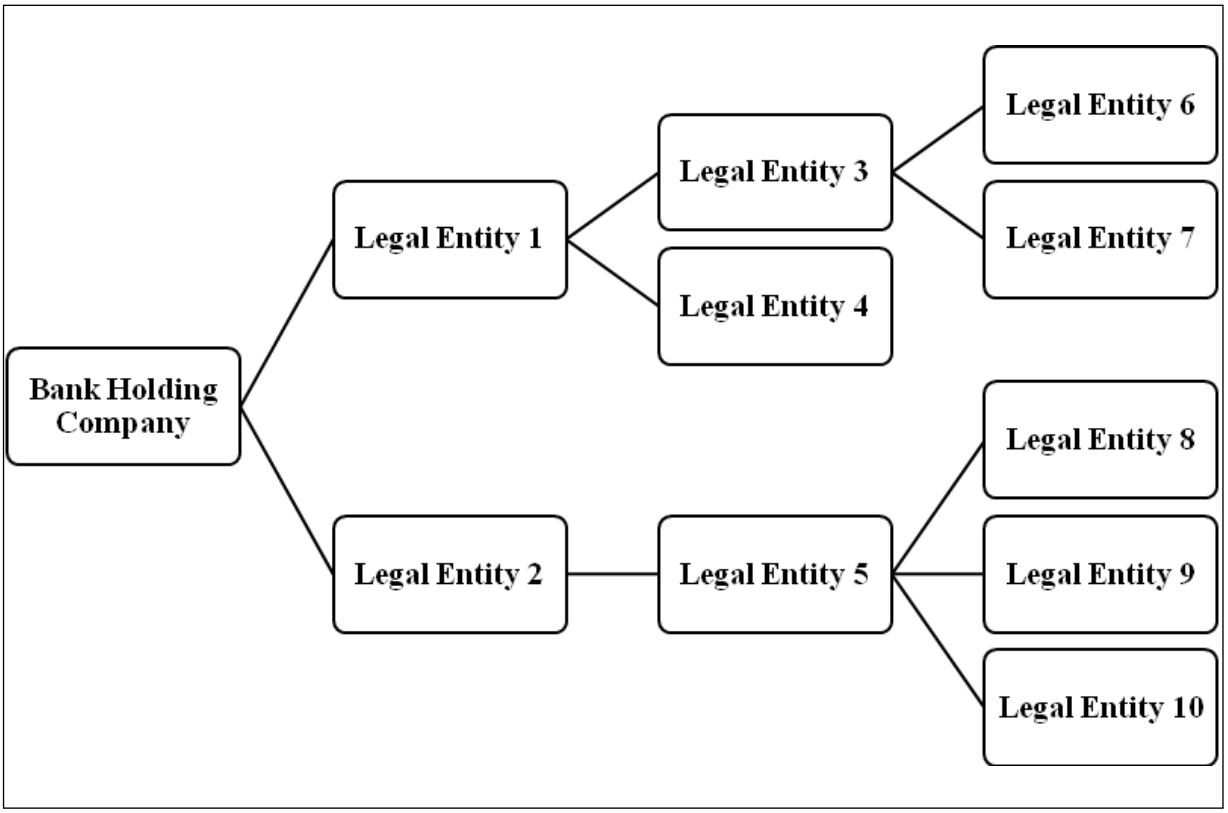
iii. The application consolidates post-haircut restricted HQLA to the extent of the consolidated subsidiary's net cash outflow and the entire amount of post-haircut unrestricted HQLA as part of the covered company's HQLA.

iv. It consolidates all cash inflows and outflows which are part of the net cash flow 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 per the LCR approach.

For example, a bank's organizational structure is as follows:

Figure 1 Bank's Organization Structure



In this example, 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. For regulated entities, intercompany transactions are not eliminated; whereas in the case of non-regulated or foreign subsidiaries, 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, based on the respective approaches, 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 or foreign subsidiary. 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 the following section.

This process continues in a step-by-step manner until the bank holding company level.

NOTE

- The stock of HQLA is calculated based on the US Federal Reserve LCR calculation approach for all subsidiaries. Only the approach to net cash outflow calculation changes based on the type of subsidiary as detailed earlier.
- The amount of HQLA that is consolidated is determined after applying the relevant haircuts that is; the post haircut value of HQLA is compared with the net cash outflow to estimate the consolidated HQLA.
- The restricted HQLA is consolidated based on the sequence of the quality of the asset that is, Level 1 HQLA is consolidated first, followed by Level 2A and 2B.
- In the case of modified holding companies, the net cash outflow is calculated per the modified LCR approach that is, the 30-day scenario. All other calculations remain unchanged.

The following table provides a mapping of the consolidation approach followed by the application based on the type of subsidiary:

Table 6 Mapping of approach and intercompany transaction elimination level to each subsidiary type

NCOF Calculation Methodology for Highest US Parent that is BHC/IHC	Subsidiary Type	NCOF Calculation Methodology during Consolidation	Intercompany Transaction Elimination Level
LCR Approach	Regulated	LCR Approach	Up to the entity itself
	Non-Regulated	Modified LCR Approach	Up to the immediate parent
	Foreign	Modified LCR Approach	Up to the immediate parent
Modified LCR Approach	Regulated	Modified LCR Approach	Up to the entity itself
	Non-Regulated	Modified LCR Approach	Up to the immediate parent
	Foreign	Modified LCR Approach	Up to the immediate parent

NOTE

- The regulated subsidiary is a consolidated subsidiary domiciled in the USA that is expected to calculate LCR separately at its level in addition to the LCR at BHC/IHC level.
- The non-regulated subsidiary is a consolidated subsidiary domiciled in the USA that is not required to calculate LCR separately from the BHC/IHC.
- The foreign subsidiary is a consolidated subsidiary domiciled in a country other than the USA.

3.3 Preconfigured Regulatory LCR Scenario

The application supports preconfigured calculations, scenarios, and reporting templates to ensure full compliance with BIS Basel III guidelines, US Liquidity Coverage Ratio calculation, and 5G liquidity reporting guidelines.

This section explains the rules and business assumptions that support regulatory inflow, outflow rates, and haircuts as per US Federal Reserve Regulation WW, Final Rule, and Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014.

NOTE This section provides only contextual information about all the business assumptions. For more detailed information, see the OFS LRS application (UI). For detailed processes and tasks, see the Run Chart section.

Topics:

- Regulation Addressed through Business Rules
- Regulation Addressed through Business Assumptions

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3.3.1 Regulation Addressed Through Business 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.

Topics:

3.3.1.1 US LCR Contractual Run

The list of preconfigured rules and the corresponding reference to the regulatory requirement that it addresses are provided in the following table:

Table 7:Preconfigured Rules: US LCR Contractual Run

Sl. No.	Process Name	Task Name	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
1	LRM - US LCR Party and Product Type Reclassification	LRM - Standard Party Type Reclassification	This is a reclassification rule to reclassify all bank party types to standard party types in the FSI_PARTY_TYPE_CLASSIFICATION table. Further, all the OOB rules and Business assumptions are defined on Standard Party Type.	
		LRM - Standard Product Type Reclassification	This is a reclassification rule to reclassify all bank products to standard product types in the FSI_REG_PROD_TYPE_RECLASS table. Further, all the OOB rules and Business assumptions are defined on Standard Product Type.	
		LRM - Classification of Products as Open Maturity	This rule is used to identify which products bank is treating as Open Maturity Products. Based on which the cash flows movement from STG_ACCOUNT_CASH_FLOWS TO FCT_ACCOUNT_CASH_FLOWS of the products marked as Open Maturity is aggregated and posted to Open Maturity Time Bucket. As part of the OOB solution, the products marked as open maturity includes Credit Cards, Current Account and Saving Account, Common Equity, Equity, Other Equity, Other Preference Shares, Preference Shares - Cumulative, Preference Shares - Non-Cumulative, Home Equity, and Overdraft.	
2	LRM - US LCR GL Data Population	LRM - Capital Accounting Head Reclassification	This rule reclassifies capital account head to standard account head items.	
3	LRM - US LCR Mitigant Data Population	LRM - Mitigant Sub Type Classification	This is a reclassification rule to reclassify all Mitigants products to standard product type in FCT_MITIGANTS.	
4	LRM - US LCR Account Derived Attributes	LRM - Time Bucket Assignment for Account Attributes	This rule updates the time bucket assignment for account attributes like Effective Maturity, Embedded Option Next Call Date, and Effective Residual Maturity.	

		LRM - Lendable Amount Calculation	This computation rule is used to compute the Lendable Amount. The lendable amount is the portion of Fair Value at which covered company can lend/sell the asset. In the OOB solution, the lendable amount is 100% of the fair value of the asset. The lendable amounts can vary based on product type, customer type, and so on. You can update the rule based on dimensional combination if required. The lendable value is required for the FR2052 reports. In the application, a placeholder rule is created for the calculation of this value. It is recommended to improvise the rule to include other relevant variables like product /customer type and so on to arrive at the lendable value.	
		LRM - Classification Of Customers As Retail And Wholesale	This rule is used to identify the customer as retail or wholesale based on customer type. This identifier is further used in business assumptions to identify whether a customer is retail or wholesale.	
		LRM - Classification Of Trust To Retail	This rule reclassifies if a trusted customer can be treated as retail. Identification of Trust is done based on customer type. By default, Trust is treated as wholesale. A trusted customer is treated as retail based on the following criteria: • Is solely for the benefit of natural persons. • Does not have a corporate trustee. • Terminates within 21 years and 10 months after the death of grantors or beneficiaries of the trust living on the effective date of the trustor within 25 years, if applicable under state law.	§ __.3 Definitions.pg.337

		LRM - Classification Of Small Business Customers To Retail	This rule reclassifies if a small business customer can be treated as retail. The identification of the small business customer is done based on customer type. By default, small business customers are treated as wholesale. A business customer is treated as a retail customer, based on the following criteria: • The bank manages its transactions with the business customer, including deposits, unsecured funding, and credit facility and liquidity facility transactions, in the same way, it manages its transactions with individuals. • Transactions with the business customer have liquidity risk characteristics that are similar to comparable transactions with individuals. • The total aggregate funding raised from the business customer is less than $1.5 million.	§ __.3 Definitions.pg.337
		LRM - Identification Of Customer As Sovereign Or MDB Or US GSE	This rule is used to identify customers is a Sovereign or MDB or US GSE with 0 % risk weight. This flag is defined as the ease of defining business assumptions.	
		LRM - Undrawn Amount Within Liquidity Horizon Update	This rule computes a portion of the undrawn amount that can be withdrawn in the liquidity horizon period. OOB considers Hundred Percent of the undrawn amount can be drawn. The user can update the rule based on a multi-dimensional combination like the product, customer, currency, and so on if required.	
		LRM - Country liquidity risk indicator for NCOF	This computation rule updates account liquidity risk flag for a legal entity having debt securities issued by a foreign sovereign in that foreign currency. The rule checks if that legal entity has foreign operations other than pure trading operations.	
		LRM - Mitigant Country Liquidity Risk Flag Update For NCOF	This computation rule updates the mitigant's liquidity risk flag for a legal entity having debt securities issued by a foreign sovereign in that foreign currency. The rule checks if that legal entity has foreign operations other than pure trading operations.	

		LRM_FSI_MTM_COLL_VALL_FLI_POP	This T2T populates the absolute value of the largest 30-consecutive calendar day cumulative net mark-to-market collateral outflow or inflow realized during the preceding 24 months resulting from derivative transaction valuation changes. The data is populated from FSI_MTM_COLL_VAL_CHANGE to FLI_LRM_INSTRUMENT for the legal entities selected in the run. In the case of consolidated run, data is moved only for the consolidated legal entity.	
5	LRM - US LCR Time Bucketing and Account Cash Flow Population	LRM - Spot or Forward Rate Assignment for Currency Conversion	This rule assigns the spot or forward rate assignment for currency conversion.	
6	LRM - US LCR Account Insured and Uninsured Amount Computation	LRM - US LCR Insurance Eligible Currency Population	This rule is used to identify eligible currency applicable for the insurance scheme.	
		US_LCR_INS_UNINS_AMT_CAL	This DT calculates the insured and un-insured amount at the Account Customer Level. This is performed at the ownership category level.	
		LRM - Account Fully Covered	This rule updates account fully covered flag in the FSI_LRM_INSTRUMENT table. If the EOP balance of the account is the same as the insured amount, then the account is considered as fully insured.	
		LRM - Insurance Scheme Cover Type Update	This rule is used to identify whether an account is fully insured or partially insured or uninsured in the FSI_LRM_INSTRUMENT table. If EOP balance is the same as the insured amount then it is fully insured. If the insured amount is zero then it is uninsured and partially insured elsewhere.	
7	LRM - US LCR Account Stable Amount Computation	LRM - US LCR Deposit Stability - Stable Amount Calculation	This rule calculates a stable amount of a deposit account. The stable retail deposit means a retail deposit that is entirely covered by deposit insurance and is held by the depositor in a transactional account or the depositor that holds the account has another established relationship with the bank such as another deposit account, a loan, bill payment services, or any similar service or product provided to the depositor that the bank demonstrates to the satisfaction of the agency would make deposit withdrawal highly unlikely during a liquidity stress event. If the deposit account satisfies the criteria of a stable amount, then the EOP balance is considered as a stable amount.	§ __.3 Definitions.pg.339

		LRM - US LCR Deposit Stability - Less Stable Amount Calculation	This rule calculates the less stable amount of a deposit account. If the deposit account does not satisfy the criteria of a stable amount, then the EOP balance is considered a less stable amount.	
		LRM - US LCR Account Fully Stable Calculation	This rule is used to identify whether an account is fully stable or not in the FSI_LRM_INSTRUMENT table. If the stable amount is the same as EOP balance then yes else No.	
8	LRM - US LCR Account Operational Amount Computation	LRM - Meets Operational Services Flag Update	This rule updates the operation services flag based on the deposit primary purpose. If the deposit primary purpose is the same as operational services specified in the regulation then yes else No. The operational services include the following: payment remittance, payroll administration and control over the disbursement of funds, transmission, reconciliation, and confirmation of payment orders, daylight overdraft, determination of intra-day and final settlement positions, settlement of securities transactions, transfer of recurring contractual payments, client subscriptions and redemptions, scheduled distribution of client funds, escrow, funds transfer, stock transfer, and agency services, including payment and settlement services, payment of fees, taxes, and other expenses; and collection and aggregation of funds. All operational deposits placed by the bank are identified similarly to that of operational deposits placed by the customer. The operational amount is identified for both assets and liabilities using the same derivation logic.	Definition of "Operational Services"(pg.no.222)

		LRM - Classification Of Deposits As Operational And Non-Operational Amount	This rule classifies a deposit is an operational deposit or not. To recognize a deposit as an operational deposit for purposes of this part, a covered company must comply with the requirements of the operational deposit. The related operational services must be performed according to a legally binding written agreement, and: • The termination of the agreement must be subject to a minimum 30 calendar-day notice period; or • As a result of the termination of the agreement or transfer of services to a third-party provider, the customer providing the deposit would incur significant contractual termination costs or switching costs; • The deposit must be held in an account designated as an operational account; • The customer must hold the deposit at the covered company for the primary purpose of obtaining the operational services provided by the covered company; • The deposit account must not be designed to create an economic incentive for the customer to maintain excess funds therein through increased revenue, reduction in fees, or other offered economic incentives; • The covered company must demonstrate that the deposit is empirically linked to the operational services and that it has a methodology that takes into account the volatility of the average balance for identifying any excess amount, which must be excluded from the operational deposit amount;	§ __.3 Definitions.pg.340

			• The deposit must not be provided in connection with the covered company's provision of prime brokerage services, which, for the purposes of this part, are a package of services offered by the covered company whereby the covered company, among other services, executes, clears, settles, and finances transactions entered into by the customer or a third-party entity on behalf of the customer (such as an executing broker), and where the covered company has a right to use or rehypothecate assets provided by the customer, including in connection with the extension of margin and another similar financing of the customer, subject to applicable law, and includes operational services provided to a non-regulated fund; • The deposits must not be for arrangements in which the covered company (as a correspondent) holds deposits owned by another depository institution bank (as the respondent) and the respondent temporarily places excess funds in an overnight deposit with the covered company.	
9	LRM - US LCR Pre - HQLA Classification	LRM - Instruments - Liquid And Readily Marketable Flag Update	This rule reclassifies an account as liquid and readily marketable based on the following criteria: • It is traded in an active secondary market • Has more than 2 committed market makers • Has a two-way market • Has timely and observably market prices • Has high trading volumes	Common Rule: Subpart A § __.3 Definitions; Page 330 – 331 Subpart C § __.20 High-Quality Liquid Asset Criteria; Page 343 – 345 Supplementary Information: Section II B 2 a The Liquid and Readily-Marketable Standard; Page 47 – 50
		LRM - Mitigants - Liquid And Readily Marketable Flag Update	This rule reclassifies a mitigant as liquid and readily marketable based on the following criteria: • It is traded in an active secondary market • Has more than 2 committed market makers • Has a two-way market • Has timely and observably market prices • Has high trading volumes	Common Rule: Subpart A § __.3 Definitions; Page 330 – 331 Subpart C § __.20 High-Quality Liquid Asset Criteria; Page 343 – 345 Supplementary Information: Section II B 2 a The Liquid and Readily-Marketable Standard; Page 47 – 50

10	LRM - US LCR HQLA Reclassification	LRM - Corporate Debt Security	This rule reclassifies a liquid and readily marketable corporate debt security as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is classified as an investment grade. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 20% over a 30-day stress period. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (1); Page 345 – 346 Supplementary Information: Section II B 2 e i Corporate Debt Securities; Page 77 – 79
		LRM - Publicly Traded Shares of Common Stock	This rule reclassifies a publicly traded common equity share as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is included in Russell 100 Index or an index that the bank's supervisor in a foreign jurisdiction recognizes for inclusion in Level 2B assets if the share is held in that jurisdiction. • Issued in US Dollars or in the currency of the jurisdiction in which the bank operates and holds the common equity share to cover net cash outflows in that jurisdiction. • Issued by an entity whose publicly traded common equity shares have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 40% over a 30-day stress period. • Not issued by a financial sector entity and not issued by a consolidated subsidiary of a financial sector entity. • If held by a depository institution, it is not acquired in satisfaction of a debt previously contracted (DPC).	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (2); Page 346 – 347 Supplementary Information: Section II B 2 e ii Publicly Traded Shares of Common Stock; Page 79 – 85

		LRM - U.S. GSE Securities	This rule reclassifies security issued by or guaranteed as to the timely payment of principal and interest by, a U.S. government-sponsored enterprise, that is investment grade under 12 CFR part 1 as of the calculation date, as a Level 2A high-quality liquid asset provided the claim is senior to preferred stock.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (1); Page 344 Supplementary Information: Section II B 2 d i U.S. GSE Securities; Page 70 – 75
		LRM - Instruments - Certain Sovereign and Multilateral Organization Securities For Level2A	This rule reclassifies security issued by, or unconditionally guaranteed as to the timely payment of principal and interest by, a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 2A high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (2); Page 344 – 345 Supplementary Information: Section II B 2 d ii Certain Sovereign and Multilateral Organization Securities; Page 75 – 76
		LRM - Certain Foreign Sovereign Debt Securities for Issuer	This rule reclassifies security issued by a sovereign entity that is not assigned a zero percent risk weight, where the sovereign entity issues the security in its own currency, the security is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67

		LRM - Certain Foreign Sovereign Debt Securities for Guarantor	This rule reclassifies security unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity that is not assigned a zero percent risk weight, where the security is issued in the currency of the sovereign entity, is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67
		LRM - Certain Sovereign and Multilateral Organization Securities for Issuer as Level1 Asset	This rule reclassifies security issued by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions; and. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67
		LRM - Certain Sovereign and Multilateral Organization Securities for Guarantor as Level1 Asset	This rule reclassifies security unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions; and. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67

		LRM - United States Government Securities	This rule reclassifies the following securities as Level 1 high-quality liquid assets: A security issued by, or unconditionally guaranteed as to the timely payment of principal and interest by, the U.S. Department of the Treasury A security issued by any other U.S. government agency whose obligations are fully and explicitly guaranteed by the full faith and credit of the U.S. government provided that they are liquid and readily-marketable.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (3) and (4); Page 343 Supplementary Information: Section II B 2 c iii United States Government Securities; Page 64 – 65
		LRM - Foreign Withdrawable Reserves For Instruments As Level 1 Asset	This rule reclassifies any reserves held in a foreign central bank that do not have restrictions on use, that is are freely withdrawable, and denominated in the local currency of that foreign country, as Level 1 high-quality liquid assets. The classification of reserves as Level 1 high quality liquid assets includes term deposits held at the foreign central bank that fulfill any one of the criteria specified as follows: • Can be withdrawn on demand prior to maturity. • Can be pledged as collateral for the term or automatically-renewing overnight advances from a Federal Reserve Bank.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (2); Page 343 Supplementary Information: Section II B 2 c ii Foreign Withdrawable Reserves; Page 64
		LRM - Instrument - Federal Reserve Bank Balances	This rule reclassifies reserves held with any US Federal Reserve Bank, both held directly or through a correspondent bank, as Level 1 high-quality liquid assets. The classification of reserves as Level 1 high-quality liquid assets includes term deposits held at a US Federal Reserve Bank, both directly or through a correspondent bank, that fulfill any one of the criteria specified as follows: • Can be withdrawn on demand prior to maturity • Can be pledged as collateral for the term or automatically-renewing overnight advances from a Federal Reserve Bank	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (1); Page 343 Supplementary Information: Section II B 2 c i Reserve Bank Balances; Page 60 – 63

11	LRM - US LCR Mitigant HQLA Reclassification	LRM - Mitigants - Corporate Debt Security As L2B	This rule reclassifies a liquid and readily marketable corporate debt security, received as a mitigant, as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is classified as investment grade • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 20% over a 30-day stress period. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (1); Page 345 – 346 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 e i Corporate Debt Securities; Page 77 – 79 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigant - Publicly Traded Shares Of Common Stock As L2B	This rule reclassifies a publicly traded common equity share, received as a mitigant, as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is included in Russell 100 Index or an index that the bank's supervisor in a foreign jurisdiction recognizes for inclusion in Level 2B assets if the share is held in that jurisdiction • Issued in US Dollars or in the currency of the jurisdiction in which the bank operates and holds the common equity share to cover net cash outflows in that jurisdiction • Issued by an entity whose publicly traded common equity shares have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 40% over a 30-day stress period. • Not issued by a financial sector entity and not issued by a consolidated subsidiary of a financial sector entity. • If held by a depository institution, is not acquired in satisfaction of a debt previously contracted (DPC) • If held by a consolidated subsidiary of the bank, it can include the publicly traded common equity share in its Level 2B liquid assets only if the share is held to cover net cash outflows of its consolidated subsidiary in which the publicly traded common equity share is held.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (2); Page 346 – 347 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 e ii Publicly Traded Shares of Common Stock; Page 79 – 85 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigant - U.S. GSE Securities For Guarantor As Level 2A	This rule reclassifies security received as a mitigant, which is guaranteed as to the timely payment of principal and interest by a U.S. government-sponsored enterprise, that is investment grade under 12 CFR part 1 as of the calculation date, as a Level 2A high-quality liquid asset provided the claim is senior to preferred stock.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (1); Page 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 d i U.S. GSE Securities; Page 70 – 75 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Mitigant - U.S. GSE Securities For Issuer As Level 2A	This rule reclassifies security, received as a mitigant, issued by a U.S. government-sponsored enterprise, that is investment grade under 12 CFR part 1 as of the calculation date, as a Level 2A high-quality liquid asset provided the claim is senior to preferred stock.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (1); Page 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 d i U.S. GSE Securities; Page 70 – 75 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigant - Certain Sovereign and Multilateral Organization Securities for L2A	This rule reclassifies security, received as a mitigant, issued by, or unconditionally guaranteed as to the timely payment of principal and interest by, a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 2A high-quality liquid asset, if it meets the criteria specified as follows: • It is assigned a zero percent risk weight • It is liquid and readily-marketable • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions; and • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (2); Page 344 – 345 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 d ii Certain Sovereign and Multilateral Organization Securities; Page 75 – 76 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Mitigants - Certain Foreign Sovereign Debt Securities for Issuer	This rule reclassifies security, received as a mitigant, issued by a sovereign entity that is not assigned a zero percent risk weight, where the sovereign entity issues the security in its own currency, the security is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigant - Certain Foreign Sovereign Debt Securities For Guarantor As Level 1	This rule reclassifies security, received as a mitigant, unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity that is not assigned a zero percent risk weight, where the security is issued in the currency of the sovereign entity, is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Mitigants - Certain Sovergn and Multilateral Organization Securities for Guarantor as L1 Asset	This rule reclassifies security, received as a mitigant, unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight • It is liquid and readily-marketable • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions; and • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigants - Certain Svrgn and Multilateral Organization Securities for Issuer as Level1 Asset	This rule reclassifies security, received as a mitigant, issued by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight • It is liquid and readily-marketable • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions; and • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Mitigants - United States Government Securities For Guarantor As Level 1 Assets	This rule reclassifies security received as a mitigant that is unconditionally guaranteed as to the timely payment of principal and interest by, the U.S. Department of the Treasury, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (3) and (4); Page 343 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c iii United States Government Securities; Page 64 – 65 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigants - United States Government Securities For Issuer As Level 1 Assets	This rule reclassifies the following securities received as mitigants, as Level 1 high-quality liquid assets: • A security issued by the U.S. Department of the Treasury. • A security issued by any other U.S. government agency whose obligations are fully and explicitly guaranteed by the full faith and credit of the U.S. government provided that they are liquid and readily-marketable.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (3) and (4); Page 343 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 c iii United States Government Securities; Page 64 – 65 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
12	LRM - US LCR Substitutable Collateral HQLA Reclassification	LRM - Substitutable Collateral - Corporate Debt Security As L2B	This rule reclassifies a liquid and readily marketable corporate debt security, which can be substituted by a bank's counterparty for an existing mitigant, as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is classified as investment grade • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 20% over a 30-day stress period. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (1); Page 345 – 346 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 e i Corporate Debt Securities; Page 77 – 79 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - Substitutable Collateral - Publicly Traded Shares Of Common Stock As L2B	This rule reclassifies a publicly traded common equity share, which can be substituted by a bank's counterparty for an existing mitigant, as a Level 2B high-quality liquid asset if it meets the criteria specified as follows: • It is included in Russell 100 Index or an index that the bank's supervisor in a foreign jurisdiction recognizes for inclusion in Level 2B assets if the share is held in that jurisdiction. • Issued in US Dollars or in the currency of the jurisdiction in which the bank operates and holds the common equity share to cover net cash outflows in that jurisdiction • Issued by an entity whose publicly traded common equity shares have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. Reliability is proven if the price has not decreased or haircut increased by 40% over a 30-day stress period. • Not issued by a financial sector entity and not issued by a consolidated subsidiary of a financial sector entity. • If held by a depository institution, is not acquired in satisfaction of a debt previously contracted (DPC). • If held by a consolidated subsidiary of the bank, it can include the publicly traded common equity share in its Level 2B liquid assets only if the share is held to cover net cash outflows of its consolidated subsidiary in which the publicly traded common equity share is held.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (2); Page 346 – 347 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 e ii Publicly Traded Shares of Common Stock; Page 79 – 85 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - Substitutable Collateral - Certain Sovereign and Multilateral Organization Securities for L2A	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, issued by, or unconditionally guaranteed as to the timely payment of principal and interest by, a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 2A high-quality liquid asset, if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (2); Page 344 – 345 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 d ii Certain Sovereign and Multilateral Organization Securities; Page 75 – 76 Section II C 3 f v Collateral Substitution; Page 188 – 189
		LRM - FSI - Substitutable Collateral U.S. GSE Securities Level 2A for Issuer	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, issued by a U.S. government-sponsored enterprise, that is investment grade under 12 CFR part 1 as of the calculation date, as a Level 2A high-quality liquid asset provided the claim is senior to preferred stock.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (1); Page 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 d i U.S. GSE Securities; Page 70 – 75 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - FSI -Substitutable Collateral U.S. GSE Securities Level 2A for Guarantor	This rule reclassifies security which can be substituted by a bank's counterparty for an existing mitigant, which is guaranteed as to the timely payment of principal and interest by a U.S. government-sponsored enterprise, that is investment grade under 12 CFR part 1 as of the calculation date, as a Level 2A high-quality liquid asset provided the claim is senior to preferred stock.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (b) Level 2A liquid assets (1); Page 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 d i U.S. GSE Securities; Page 70 – 75 Section II C 3 f v Collateral Substitution; Page 188 – 189
		LRM - Substitutable Collateral - Certain Foreign Sovereign Debt Securities For Guarantor As Level 1	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity that is not assigned a zero percent risk weight, where the security is issued in the currency of the sovereign entity, is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - Substitutable Collateral - Certain Foreign Sovereign Debt Securities for Issuer As Level 1	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, issued by a sovereign entity that is not assigned a zero percent risk weight, where the sovereign entity issues the security in its own currency, the security is liquid and readily-marketable, and the bank holds the security in order to meet its net cash outflows in the jurisdiction of the sovereign entity, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (6); Page 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c v Certain Foreign Sovereign Debt Securities; Page 67 Section II C 3 f v Collateral Substitution; Page 188 – 189
		LRM - Substitutable Collateral - United States Government Securities For Issuer As Level 1 Assets	This rule reclassifies the following securities which can be substituted by a bank's counterparty for an existing mitigant, as Level 1 high-quality liquid assets: A security issued by the U.S. Department of the Treasury A security issued by any other U.S. government agency whose obligations are fully and explicitly guaranteed by the full faith and credit of the U.S. government provided that they are liquid and readily-marketable.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (3) and (4); Page 343 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c iii United States Government Securities; Page 64 – 65 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - Substitutable Collateral - United States Government Securities For Guarantor As Level 1 Assets	This rule reclassifies security received as a mitigant that is unconditionally guaranteed as to the timely payment of principal and interest by, the U.S. Department of the Treasury, as a Level 1 high-quality liquid asset.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (3) and (4); Page 343 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c iii United States Government Securities; Page 64 – 65 Section II C 3 f v Collateral Substitution; Page 188 – 189
		LRM - Substitutable Collateral- Crtn Svrgn and Multilateral Org Securities for Issuer as Level1 Asset	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, issued by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67 Section II C 3 f v Collateral Substitution; Page 188 – 189

		LRM - Substitutable Colla - Crtn Svrgn and Multilateral Org Securities for Guarantor as Level1 Asset	This rule reclassifies security, which can be substituted by a bank's counterparty for an existing mitigant, unconditionally guaranteed as to the timely payment of principal and interest by a sovereign entity, the Bank for International Settlements, the International Monetary Fund, the European Central Bank, European Community, or a multilateral development bank, as a Level 1 high-quality liquid asset if it meets the criteria specified as follows: • It is assigned a zero percent risk weight. • It is liquid and readily-marketable. • It is issued or guaranteed by an entity whose obligations have a proven record as a reliable source of liquidity in repurchase or sales markets during stressed market conditions. • It is not an obligation of a financial sector entity and not an obligation of a consolidated subsidiary of a financial sector entity.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (a) Level 1 liquid assets (5); Page 343 – 344 Subpart D § __.32 Outflow amounts (f) Collateral outflow amount (6); Page 364 – 366 Supplementary Information: Section II B 2 c iv Certain Sovereign and Multilateral Organization Securities; Page 65 – 67 Section II C 3 f v Collateral Substitution; Page 188 – 189
13	LRM - US LCR Post - HQLA Classification	LRM - Instrument - Transferability Restriction Flag Update For Equity	This computation rule updates the transferability restriction flag as Yes for Level 2B common equities held by a legal entity which is a consolidated subsidiary of a depository institution. Common equities held by such subsidiary entities are restricted during consolidation that is allowed to be consolidated only to the extent required to cover their own net cash outflows. This flag is updated for the bank's own assets and for assets placed as collateral by the bank.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (2) (vi); Page 347 Supplementary Information: Section II B 2 e ii Publicly Traded Shares of Common Stock; Page 81 – 82
		LRM - Instruments - Meets HQLA Operational Requirements Flag Update	This computation rule identifies those assets classified as HQLA that meet all the operational requirements which are set forth by the regulator to be considered for inclusion in the stock of HQLA. It is derived based on the Operational Capability to Monetize HQLA and Controlled by Treasury Flags. This flag is updated for the bank's own assets and for assets placed as collateral by the bank as Yes if they meet all the operational requirements and No if they do not.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (a) Operational requirements for Eligible HQLA; Page 350 – 352 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110

		LRM - Instruments - Meets Generally Applicable HQLA Criteria Flag	This computation rule identifies those unencumbered or partially encumbered assets that fulfill all the generally applicable HQLA criteria specified by the regulator to be considered for inclusion in the stock of HQLA. This flag is updated for bank's own assets which are unencumbered and partially encumbered as Yes if they meet all the generally applicable HQLA criteria and No if they do not.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA; Page 352 – 354 Supplementary Information: Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118
		LRM - Instruments - Eligible High-Quality Liquid Assets Flag Update	This computation rule identifies those unencumbered or partially encumbered assets classified as HQLA that fulfill both the HQLA operational requirements and generally applicable criteria and marks them as eligible for inclusion in the stock of HQLA. This flag is updated for the bank's own assets which are unencumbered and partially encumbered.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets; Page 350 – 354 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110 Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118

		LRM - Instruments - Meets Generally Applicable HQLA Criteria on Unwind Flag Update	This computation rule identifies those encumbered assets that fulfill all the generally applicable HQLA criteria specified by the regulator to be considered for inclusion in the stock of HQLA on the unwinding of the transaction which resulted in the assets' encumbrance. This flag is updated for bank's own assets placed as collateral as Yes, if they meet all the generally applicable HQLA criteria except for encumbrance status and No if they do not.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts; Page 349 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA; Page 352 – 354 Supplementary Information: Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118 Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126

		LRM - Instruments - Eligible High Quality Liquid Assets on Unwind Flag Update	This computation rule identifies those encumbered assets classified as HQLA that fulfill both the HQLA operational requirements and generally applicable criteria, with the exception of being unencumbered. It marks such assets as eligible for inclusion in the stock of HQLA on the unwinding of the transaction which resulted in the assets' encumbrance. This flag is updated for the bank's own assets which are unencumbered and partially encumbered.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts; Page 349 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets; Page 350 – 354 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110 Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118 Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126
		LRM - Mitigants - Transferability Restriction Flag Update For Equity	This computation rule updates the transferability restriction flag as Yes for Level 2B common equities received as mitigants and held by a legal entity which is a consolidated subsidiary of a depository institution. Common equities held by such subsidiary entities are restricted during consolidation that is allowed to be consolidated only to the extent required to cover their own net cash outflows. This flag is updated for assets received as mitigants.	Common Rule: Subpart C § __.20 High-Quality Liquid Asset Criteria (c) Level 2B liquid assets (2) (vi); Page 347 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 2 e ii Publicly Traded Shares of Common Stock; Page 81 – 82 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118

		LRM - Mitigants - Meets HQLA Operational Requirements Flag Update	This computation rule identifies those mitigants classified as HQLA that meet all the operational requirements which are set forth by the regulator to be considered for inclusion in the stock of HQLA. It is derived based on the Operational Capability to Monetize HQLA and Controlled by Treasury Flags. This flag is updated for mitigants as Yes if they meet all the operational requirements and No if they do not.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (a) Operational requirements for Eligible HQLA; Page 350 – 352 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110 Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Mitigants - Meets Generally Applicable HQLA Criteria Flag Update	This computation rule identifies those mitigants, where the bank has re-hypothecation rights but are not re-hypothecated, that fulfill all the generally applicable HQLA criteria specified by the regulator to be considered for inclusion in the stock of HQLA. This flag is updated for re-hypothecate mitigants that have not been re-hypothecated or have been partially re-hypothecated as Yes if they meet all the generally applicable HQLA criteria and No if they do not.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA; Page 352 – 354 Supplementary Information: Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118

		LRM - Mitigants - High Quality Liquid Assets Eligibility Flag Update	This computation rule identifies those mitigants classified as HQLA, where the bank has re-hypothecation rights but are not re-hypothecated, which fulfill both the HQLA operational requirements and generally applicable criteria and marks them as eligible for inclusion in the stock of HQLA. This flag is updated for mitigants which are not re-hypothecated or are partially re-hypothecated	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets; Page 350 – 354 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110 Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118
		LRM - Counterparty Assets - Meets Generally Applicable HQLA Criteria on Unwind Flag Update	This computation rule identifies those re-hypothecated mitigants that fulfill all the generally applicable HQLA criteria specified by the regulator to be considered for inclusion in the stock of HQLA on the unwinding of the transaction which resulted in the mitigant assets' encumbrance. This flag is updated for assets received as mitigants, that are placed by the bank as collateral as Yes if they meet all the generally applicable HQLA criteria except for encumbrance status and No if they do not.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts; Page 349 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA; Page 352 – 354 Supplementary Information: Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118 Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126

		LRM - Mitigants - Eligible High Quality Liquid Assets on Unwind Flag Update	This computation rule identifies those re-hypothecated mitigants classified as HQLA that fulfill both the HQLA operational requirements and generally applicable criteria, with the exception of being unencumbered. It marks such mitigants as eligible for inclusion in the stock of HQLA on unwind of the transaction which resulted in the mitigant assets' encumbrance. This flag is updated for mitigant received under re-hypothecation rights which have been either fully or partially re-hypothecated.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts; Page 349 Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets; Page 350 – 354 Supplementary Information: Section II B 3 Requirements for Inclusion as Eligible HQLA; Page 102 – 110 Section II B 4 Generally Applicable Criteria for Eligible HQLA; Page 110 – 118 Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126
14	LRM - Underlying Account Attribute Population	LRM - Downgrade Impact Amount for Other Liabilities	This rule calculates the Downgrade Impact Amount for products other then Derivatives. The computation logic is EOP minus the value of underlying collateral received.	
15	LRM - US LCR Stock Calculation	LRM - 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.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (a) (3) Supplementary Information: Section II B 3 a iii. Termination of Transaction Hedging HQLA; Page 108

		LRM - Mitigants - Value to be Included in the Stock of HQLA	This rule computes the value of mitigants, classified as high-quality liquid assets, to be included in the stock by multiplying it with the portion of the mitigant which is not re-hypothecated.	Common Rule: Subpart C § __.22 Requirements for Eligible High-Quality Liquid Assets (b) Generally applicable criteria for eligible HQLA (5); Page 354 Supplementary Information: Section II B 4 f Exclusion of Certain Rehypothecated Assets; Page 118
		LRM - Reserves and Term Deposits - Value to be Included in the Stock of HQLA	This rule computes the value of central bank reserves to be included in the stock of Level 1 assets less of pass-through reserves if any. Additionally, it computes the value of term deposits classified as Level 1 assets as less of the withdrawal penalty, if any.	Common Rule: Subpart A § __.3 Definitions; Page 336 – 337 Supplementary Information: Section II B 2 c i Reserve Bank Balances; Page 60 – 63
		LRM - Total Cash Received from Repo Transaction	This rule computes the total value of cash received from repurchase transactions where the underlying asset is a high quality liquid asset.	Supplementary Information: Section II B 4 b Segregated Client Pool Securities; Page 113 – 114
		LRM - Vault Cash Updation	This rule computes the total value of vault cash that is to be deducted from the stock of Level 1 liquid assets.	Supplementary Information: Section II B 2 c i Reserve Bank Balances; Page 63
16	LRM - US LCR Determining Revised Maturity	LRM - Conservative Approach for Outflows	This rule determines the maturity for all the Outflows as per the US final Rules Determining maturity section.	Common Rule: Subpart D § __.31 Determining Maturity; Page 356-358 Supplementary Information: Section II C 2 Determining Maturity; page 147-154

		LRM - Conservative Approach for Inflows	This rule determines the maturity for all the Inflows as per the US final Rules Determining maturity section.	Common Rule: Subpart D § __.31 Determining Maturity; Page 356-358 Supplementary Information: Section II C 2 Determining Maturity; page 147-154
		LRM - Revised Maturity - Exception For Conservative Approach - Debt Securities	This rule determines the maturity for all the Exceptions for the conservative approach for debt securities as per the US final Rules Determining maturity section.	Common Rule: Subpart D § __.31 Determining Maturity; Page 356-358 Supplementary Information: Section II C 2 Determining Maturity; page 147-154
		LRM - Exception For Conservative Approach	This rule determines the maturity for all the Exceptions for the conservative approach for Borrowings as per the US final Rules Determining maturity section.	Common Rule: Subpart D § __.31 Determining Maturity; Page 356-358 Supplementary Information: Section II C 2 Determining Maturity; page 147-154
		LRM - Updating Revised Maturity Date Surrogate Key With Maturity Date Surrogate Key	This rule updates the Revised Maturity Date to Original Maturity Date.	
		LRM - Revised Maturity Time Bucket	The rule updates the Time Bucket Surrogate Key for Revised Maturity.	
		LRM - Updating Columns Using Revised Maturity Date	This rule updates Effective Residual Maturity Band Surrogate Key, Residual Maturity Band Surrogate Key, and Residual Maturity Time Bucket Using Revised Maturity Date.	

17	LRM - US LCR Adjustment Reclassification	LRM - Adjustments to Level 2B-Secured Lending Transaction	This rule identifies all the secured lending transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2B-Secured Funding Transaction	This rule identifies all the secured funding transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 d Unwind Treatment of Collateralized Deposits; Page 126 – 130 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 2B-Collateralized Derivatives Transaction-Deduction	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2B-Collateralized Derivatives Transaction-Addition	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 2B-Asset Exchange Deduction	This rule identifies all the high-quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset received by the bank is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the asset received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2B-Asset Exchange Addition	This rule identifies all the high-quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset provided by the bank is a Level 2B high-quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the asset provided by the bank as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (3); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 2A-Secured Lending Transaction	This rule identifies all the secured lending transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2A-Secured Funding Transaction	This rule identifies all the secured funding transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 d Unwind Treatment of Collateralized Deposits; Page 126 – 130 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 2A-Collateralized Derivatives Transaction-Deduction	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2A-Collateralized Derivatives Transaction-Addition	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 2A-Asset Exchange Deduction	This rule identifies all the high quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset received by the bank is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the asset received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 2A-Asset Exchange Addition	This rule identifies all the high quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset provided by the bank is a Level 2A high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (2); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 1-Secured Lending Transaction-Deduction	This rule identifies all the secured lending transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a Level 1 high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the collateral received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 1-Secured Lending Transaction-Addition	This rule identifies all the secured lending transactions maturing within the LCR horizon, which are to be unwound where the mitigant received is a high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the outstanding amount extended by the bank to the counterparty as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 1-Secured Funding Transaction-Deduction	This rule identifies all the secured funding transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the outstanding amount extended by the counterparty to the bank as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 d Unwind Treatment of Collateralized Deposits; Page 126 – 130 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 1-Secured Funding Transaction-Addition	This rule identifies all the secured funding transactions maturing within the LCR horizon, which are to be unwound where the collateral posted is a Level 1 high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the collateral posted as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 d Unwind Treatment of Collateralized Deposits; Page 126 – 130 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 1-Collateralized Derivatives Transaction-Deduction	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the mitigant received or collateral posted is a Level 1 high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the Level 1 collateral received as part of such a transaction and deduction of the amount received as part of a sell transaction where the mitigant received or collateral posted is a Level 1 asset.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 1-Collateralized Derivatives Transaction-Addition	This rule identifies all the collateralized derivatives transactions maturing within the LCR horizon, which are to be unwound where the mitigant received or collateral posted is a Level 1 high quality liquid asset. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the Level 1 collateral posted as part of such a transaction and addition of the amount paid as part of a buy transaction where mitigant received or collateral posted is a Level 1 asset.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132

		LRM - Adjustments to Level 1-Asset Exchange Deduction	This rule identifies all the high quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset received by the bank is a Level 1 high quality liquid asset or cash. It updates the type of adjustment to the stock of HQLA due to such an unwind as the deduction of the asset or cash received as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
		LRM - Adjustments to Level 1-Asset Exchange Addition	This rule identifies all the high quality liquid asset exchange transactions maturing within the LCR horizon, which are to be unwound where the asset provided by the bank is a Level 1 high quality liquid asset or cash. It updates the type of adjustment to the stock of HQLA due to such an unwind as the addition of the asset or cash posted as collateral as part of such a transaction.	Common Rule: Subpart C § __.21 High-Quality Liquid Asset Amount (f) Calculation of adjusted liquid asset amounts (1); Page 349 Supplementary Information: Section II B 5 c Calculation of Adjusted Excess HQLA Amount; Page 123 – 126 Section II B 5 e Unwind Treatment of Transactions Involving Eligible HQLA; Page 130 – 132
18	LRM - FR2052A 5G - Inflows	LRM - FR2052A 5G - Onshore Indicator Update	This rule classifies the line items to be reported for FR2052A 5G Inflows -Unsecured Info 'Onshore Placements and Offshore Placements' and Outflows - Wholesale Info 'Onshore Borrowing and Offshore Borrowing' section.	
		LRM - FR2052A 5G - Inflows - Unencumbered Assets	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unencumbered Assets section.	
		LRM - FR2052A 5G - Inflows - Capacity	This rule classifies the line items to be reported for FR2052A 5G Inflows- Capacity section.	

		LRM - FR2052A 5G - Inflows - Unrestricted Reserve Balances	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unrestricted Reserve Balances section.	
		LRM - FR2052A 5G - Inflows - Unrestricted Reserve Balances For Cash	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unrestricted Reserve Balances For Cash section.	
		LRM - FR2052A 5G - Inflows - Restricted Reserve Balances	This rule classifies the line items to be reported for FR2052A 5G Inflows- Restricted Reserve Balances section.	
		LRM - FR2052A 5G - Inflows - Restricted Reserve Balances For Cash	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unrestricted Reserve Balances For Cash section.	
		LRM - FR2052A 5G - Inflows - Unsettled Asset Purchases	This rule classifies the line items to be reported for FR2052A 5G Inflows- Restricted Reserve Balances For Cash section.	
		LRM - FR2052A 5G - Inflows - Unsecured - Other Loans	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unsecured - Other Loans section.	
		LRM - FR2052A 5G - Inflows - Unsecured	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unsecured section.	
		LRM - FR2052A 5G - Inflows - Unsecured - Excess Nostro Balances	This rule classifies the line items to be reported for FR2052A 5G Inflows- Unsecured - Excess Nostro Balances section.	
		LRM - FR2052A 5G - Inflows - Secured	This rule classifies the line items to be reported for FR2052A 5G Inflows- Secured section.	
		LRM - FR2052A 5G - Inflows - Other - Derivatives Receivables	This rule classifies the line items to be reported for FR2052A 5G Inflows- Other - Derivatives Receivables section.	
		LRM - FR2052A 5G - Inflows - Other - TBA Sales	This rule classifies the line items to be reported for FR2052A 5G Inflows- Other - TBA Sales section.	
		LRM - FR2052A 5G - Inflows - Other - Undrawn Committed Facilities	This rule classifies the line items to be reported for FR2052A 5G Inflows- Other - Undrawn Committed Facilities section.	
		LRM - FR2052A 5G - Inflows - Other - Lock-up Balance	This rule classifies the line items to be reported for FR2052A 5G Inflows- Other - Lock-up Balance section.	

		LRM - FR2052A 5G - Inflows - Other - Principal Payments Receivable	This rule classifies the line items to be reported for FR2052A 5G Inflows- Other - Principal Payments Receivable section.	
19	LRM - FR2052A 5G - Outflows	LRM - FR2052A 5G - Outflows - Others - MTM Impact On Derivative Positions	This rule classifies the line items to be reported for FR2052A 5G Outflows - Others - MTM Impact On Derivative Positions section.	
		LRM - FR2052A 5G - Outflows - Wholesale - Other Unsecured Financing	This rule classifies the line items to be reported for FR2052A 5G Outflows - Wholesale - Other Unsecured Financing section.	
		LRM - FR2052A 5G - Wholesale Outflows	This rule classifies the line items to be reported for FR2052A 5G Wholesale Outflows section.	
		LRM - FR2052A 5G - Outflows - Wholesale - Other Asset-Backed Financing	This rule classifies the line items to be reported for FR2052A 5G Outflows - Wholesale - Other Asset-Backed Financing section.	
		LRM - FR2052A 5G Outflows - Unsecured - Commercial Paper - On Off Shore Borrowings	This rule classifies the line items to be reported for FR2052A 5G Outflows - Unsecured - Commercial Paper - On Off Shore Borrowings section.	
		LRM - FR2052A 5G - Outflows - Wholesale - Unsecured - Long Term Debt - Unsecured - Structured Notes	This rule classifies the line items to be reported for FR2052A 5G Outflows - Wholesale - Unsecured - Long Term Debt - Unsecured - Structured Notes section.	
		LRM - FR2052A 5G - Outflows - Unsecured - Wholesale CD And Draws On Committed Lines	This rule classifies the line items to be reported for FR2052A 5G Outflows - Unsecured - Wholesale CD And Draws On Committed Lines section.	
		LRM - FR2052A 5G - Outflows - Secured - Other Secured Financing Transactions	This rule classifies the line items to be reported for FR2052A 5G Outflows - Secured - Other Secured Financing Transactions section.	
		LRM - FR2052A 5G - Outflows - Secured Except Collateral Swaps	This rule classifies the line items to be reported for FR2052A 5G Outflows - Secured Except Collateral Swaps section.	

		LRM - FR2052A 5G - Outflows - Secured - Collateral Swaps	This rule classifies the line items to be reported for FR2052A 5G Outflows - Secured - Collateral Swaps section.	
		LRM - FR2052A 5G - Outflows - Deposits - Transactional And Non-Transactional Accounts	This rule classifies the line items to be reported for FR2052A 5G Outflows - Deposits - Transactional And Non-Transactional Accounts section.	
		LRM - FR2052A 5G - Outflows - Deposits - Operational And Non-Operational And Escrow	This rule classifies the line items to be reported for FR2052A 5G Outflows - Deposits - Operational And Non-Operational And Escrow section.	
		LRM - FR2052A 5G - Outflows - Deposits - Reciprocal - Non-Reciprocal	This rule classifies the line items to be reported for FR2052A 5G Outflows - Deposits - Reciprocal - Non-Reciprocal section.	
		LRM - FR2052A 5G - Outflows - Deposits - Affiliated - Non-Affiliated And Other Sweep	This rule classifies the line items to be reported for FR2052A 5G Outflows - Deposits - Affiliated - Non-Affiliated And Other Sweep section.	
		LRM - FR2052A 5G - Outflows - Deposits - Other Third-Party Deposits	This rule classifies the line items to be reported for FR2052A 5G Outflows - Deposits - Other Third-Party Deposits section.	
		LRM - FR2052A 5G - Outflows - Others	This rule classifies the line items to be reported for FR2052A 5G Outflows - Others section.	
		LRM - FR2052A 5G Outflows - Others - Facilities And Retail Mortgage Commitments	This rule classifies the line items to be reported for FR2052A 5G Outflows - Others - Facilities And Retail Mortgage Commitments section.	
20	LRM - FR2052A 5G - Supplemental Info	LRM - FR2052A 5G - Supplemental Info Initial Margin Posted - House	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Initial Margin Posted - House section.	
		LRM - FR2052A 5G - Supplemental Info Initial Margin Posted - Customer	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Initial Margin Posted - Customer section.	
		LRM - FR2052A 5G - Supplemental Info Variation Margin Posted - House	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Variation Margin Posted - House section.	

		LRM - FR2052A 5G - Supplemental Info Variation Margin Posted - Customer	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Variation Margin Posted - Customer section.	
		LRM - FR2052A 5G - Supplemental Info Margin Received	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Initial Margin Received section.	
		LRM - FR2052A 5G - Supplemental Info Variation Margin Received	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Variation Margin Received section.	
		LRM - FR2052A 5G - Supplemental Info Collateral Disputes Deliverables	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Collateral Disputes Deliverables section.	
		LRM - FR2052A 5G - Supplemental Info Collateral Disputes Receivables	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Collateral Disputes Receivables section.	
		LRM - FR2052A 5G - Supplemental Info Sleeper Collateral Receivables	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Sleeper Collateral Receivables section.	
		LRM - FR2052A 5G - Supplemental Info Sleeper Collateral Deliverables	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Sleeper Collateral Deliverables section.	
		LRM - FR2052A 5G - Supplemental Info Derivative Collateral Substitution Risk	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Derivative Collateral Substitution Risk section.	
		LRM - FR2052A 5G - Supplemental Info Other Collateral Substitution Risk	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Other Collateral Substitution Risk section.	
		LRM - FR2052A 5G - Supplemental Info Derivative Collateral Substitution Capacity	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Derivative Collateral Substitution Capacity section.	

		LRM - FR2052A 5G - Supplemental Info Other Collateral Substitution Capacity	This rule classifies the line items to be reported for FR2052A 5G Supplemental Info Other Collateral Substitution Capacity section.	
		LRM - FR2052A 5G - Structured and Non Structured Debt Issued	This rule classifies the line items to be reported for FR2052A 5G Structured and Non Structured Debt Issued section.	

3.3.1.2 US Liquidity Coverage Ratio Run

The list of preconfigured rules to the regulatory requirement that it addresses is provided in the following table:

Table 8:Preconfigured Rules: US Liquidity Coverage Ratio Run

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed
1	LRM - Propagating Effect Of Assumptions On Cash Outflows And Inflows	LRM - Propagating Effect Of Assumptions On Cash Outflows And Inflows	This rule adds the adjusted cash flow to original cash flow when changing balance is selected from the Run Management window and if the original balance is selected there is no impact on the actual cash flow amount.
2	LRM - US LCR Adjustment Computation	LRM - Level 1-Asset Exchange- Adjusted Amount Calculation	This rule identifies the amount to be added to and deducted from the stock of Level 1 high quality liquid assets due to the unwinding of each asset exchange transaction.
		LRM - Level 1-Collateralized Derivatives Transaction - Adjusted Amount Calculation	This rule identifies the amount to be added to or deducted from the stock of Level 1 high quality liquid assets due to the unwinding of each Collateralized Derivatives transaction.
		LRM - Level 1-Secured Funding Transaction-Adjusted Amount Calculation	This rule identifies the amount to be added to and deducted from the stock of Level 1 high quality liquid assets due to the unwinding of each Secured Funding transaction.
		LRM - Level 1-Secured Lending Transaction-Adjusted Amount Calculation	This Rule identifies the amount to be added to and deducted from the stock of Level 1 high quality liquid assets due to the unwinding of each Secured Lending transaction.
		LRM - Level 2B Adjusted Amount Calculation	This Rule identifies the amount to be added or deducted from the stock of Level 2B high quality liquid assets due to the unwinding of each transaction.

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed
		LRM - Level 2A Adjusted Amount Calculation	This rule identifies the amount to be added or deducted from the stock of Level 2A high quality liquid assets due to the unwinding of each transaction.
		LRM - Level 1-Collateralized Derivatives Transaction - Adjusted Amount Paid Calculation	This rule identifies the amount paid to be added from the stock of Level 1 high quality liquid assets due to the unwinding of each Collateralized Derivatives transaction.
3	LRM - Peak Net Cashflow Computation	LRM - Cash flows for LCR Computation	This Rule populates the cash flows for every eligible legal entity for calculation of unmodified liquidity coverage ratio and stores at a Legal entity and currency combination in the FCT_LRM_LE_SUMMARY table.
		LRM - Cash flows for LCR Computation for handling cash comingling	This Rule populates the comingled cash flows for every eligible legal entity for calculation of unmodified liquidity coverage ratio and stores at a Legal entity and currency combination in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR NCOF Computation	This Rule populates the net cash flows for every eligible legal entity for calculation of unmodified liquidity coverage ratio and stores at a Legal entity and currency combination in the FCT_LRM_LE_SUMMARY table.
		LRM_CUMM_CASHFLOW_CALC	This DT calculates the cumulative cash flows in FSI_PEAK_NET_CASH_OUTFLOW after excluding all the Intercompany Transactions.
		LRM - Total Aggregated Cashflows Computation	This Rule calculates the Add-On amount in the FSI_PEAK_NET_CASH_OUTFLOW table.
		LRM - Net Cash Outflows Amount Computation	This Rule calculates the Net Cumulative Cash Outflow amount in the FSI_PEAK_NET_CASH_OUTFLOW table.
		LRM - 24 Month Derivative Amount Computation	This rule computes the outflow amount due to potential derivative valuation changes. This amount is the absolute value of the largest 30-consecutive calendar day cumulative net mark-to-market collateral outflow or inflow realized during the preceding 24 months resulting from derivative transaction valuation changes.
4	LRM - US LCR Adjusted Stock Calculation	LRM - US LCR Level 1 Adjustments Amount Calculation	This Rule calculates the Adjustment Amount for Asset Level 1 in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Level 2A Adjustments Amount Calculation	This Rule calculates the Adjustment Amount for Asset Level 2A in the FCT_LRM_LE_SUMMARY table.

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed
		LRM - US LCR Level 2B Adjustments Amount Calculation	This Rule calculates the Adjustment Amount for Asset Level 2B in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Level 1 Adjusted Asset Amount Calculation	This Rule calculates the Adjusted Asset Amount post Adjustment for Asset Level 1 in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Level 2A Adjusted Asset Amount Calculation	This Rule calculates the Adjusted Asset Amount post Adjustment for Asset Level 2A in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Level 2B Adjusted Asset Amount Calculation	This Rule calculates the Adjusted Asset Amount post Adjustment for Asset Level 2B in the FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Adjusted Level 2 Cap Excess Amount Calculation	This Rule calculates the Adjusted Level 2 Cap Excess Amount in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Adjusted Level 2B Cap Excess Amount Calculation	This Rule calculates the Adjusted Level 2B Cap Excess Amount in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Adjusted Excess HQLA Calculation	This Rule calculates the Adjusted Excess HQLA Amount in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Unadjusted Level 2 Cap Excess Amount Calculation	This Rule calculates the Unadjusted Level 2 Cap Excess Amount in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Unadjusted Level 2B Cap Excess Amount Calculation	This Rule calculates the Unadjusted Level 2B Cap Excess Amount in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Unadjusted Excess HQLA Calculation	This Rule calculates the Unadjusted Excess HQLA Amount in FCT_LRM_LE_SUMMARY table.
5	LRM - US LCR Ratio Computation	LRM - US SHQLA Computation	This Rule calculates the Stock of HQLA in FCT_LRM_LE_SUMMARY table.
		LRM - US LCR Computation	This Rule calculates the Liquidity Coverage Ratio in FCT_LRM_LE_SUMMARY table.
6	LRM - FR2052A 5G - Inflows – Computation	LRM - FR2052A 5G - Unencumbered Assets And Capacity Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Unencumbered Assets And Capacity section.

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed
		LRM - FR2052A 5G - Unrestricted Reserve Balances Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Unrestricted Reserve Balances section.
		LRM - FR2052A 5G - Inflows - Unrestricted Reserve Balances - Cash Balances Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Unrestricted Reserve Balances - Cash Balances section.
		LRM - FR2052A 5G - Restricted Reserve Balances Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Restricted Reserve Balances section.
		LRM - FR2052A 5G - Unsettled And Forward Asset Purchases Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Unsettled And Forward Asset Purchases section.
		LRM - FR2052A 5G - Inflows - Unsecured Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Unsecured section.
		LRM - FR2052A 5G - Excess Nostro Balances Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Excess Nostro Balances section.
		LRM - FR2052A 5G - Inflows - Secured Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Secured section.
		LRM - FR2052A 5G - Inflows - Others Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Inflows- Others section.
7	LRM - FR2052A 5G - Outflows – Computation	LRM - FR2052A 5G - Outflows - Others MTM Impact on Derivative Positions Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Other MTM Impact on Derivative Positions section.
		LRM - FR2052A 5G - Wholesale And Other Unsecured Financing Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Wholesale And Other Unsecured Financing section.
		LRM - FR2052A 5G - Outflows - Wholesale - Unsecured Computation	This Rule computes the reporting amount and reporting time bucket FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Wholesale - Unsecured section.
		LRM - FR2052A 5G - Outflows - Secured Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Secured section.

Sl. No.	Rule Name	Rule Description	Regulatory Requirement Addressed
		LRM - FR2052A 5G - Outflows - Deposits - Non-Transactional Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Deposits - Non-Transactional section.
		LRM - FR2052A 5G - Outflows - Deposits - Operational Escrow Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Deposits - Operational Escrow section.
		LRM - FR2052A 5G - Outflows - Deposits - Reciprocal And Sweep Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Deposits - Reciprocal And Sweep section.
		LRM - FR2052A 5G - Outflows - Deposits - Third Party Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Outflows - Deposits - Third Party section.
		LRM - FR2052A 5G - Outflows - Others Computation	This Rule computes the reporting amount and reporting time bucket FSI_LRM_INSTRUMENT for FR2052A 5G Outflows- Others section.
8	LRM - FR2052A 5G - Supplemental – Computation	LRM - FR2052A 5G - Supplemental Margin Posted Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Supplemental Margin Posted section.
		LRM - FR2052A 5G - Collateral Deliverables And Receivables Computation	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Collateral Deliverables And Receivables section.
		LRM - FR2052A 5G - Debt Maturing In Greater Than Thirty days Computation – Primary Market Maker	This Rule computes the reporting amount and reporting time bucket in FSI_LRM_INSTRUMENT for FR2052A 5G Structured and Non Structured Debt Issued section.

3.3.2 Regulation Addressed Through Business Assumptions

The application supports multiple assumptions with 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 business assumptions and the corresponding reference to the regulatory requirement that it addresses is provided in the following table:

Table 9: Preconfigured LCR Business Assumptions

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
1	High Quality Liquidity Asset Haircut	US LCR - High Quality Liquidity Asset Haircut	The haircuts to be applied to high quality liquid assets are pre-defined as part of this assumption. This assumption specifies the fair value, as determined under the U.S. generally accepted accounting principles (GAAP), of a covered company's Level 2A liquid assets and Level 2B liquid assets, are subject to haircuts of 15 and 50 percent.	Common Rule: Subpart C § __.3 Definitions; Page 325 – 340 Subpart C § __.20 High-Quality Liquid Asset Criteria; Page 343 – 347 Supplementary Information: Section II B 2 Qualifying Criteria for Categories of HQLA; Page 46 – 102
2	Asset Exchange Cash Inflows	US LCR - Asset Exchange Cash Inflows	The inflow rates to be applied on asset exchange transactions are pre-defined as part of this assumption. This assumption specifies the regulation on LCR and asset exchange inflow rates which depend on the level of assets the covered company receives at maturity and covered company must post at maturity.	Common Rule: Subpart C § __.33(f) Secured lending and asset exchange cash inflow amount.; Page 375 Supplementary Information: Section II C 4(f) Secured lending and asset exchange cash inflow amount page 275-288
3	Asset Exchange Cash Outflows Non Re-hypothecated Collateral	US LCR - Asset Exchange Cash Outflows where collateral re-hypothecation maturity date less than or equal to 30 days	The outflow rates to be applied to asset exchange transactions where the underlying collateral is not re-hypothecated are pre-defined as part of this assumption. This assumption specifies the regulation on LCR and asset exchange outflow rates which depend on the level of assets the covered company receives at maturity and covered company must post at maturity.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
4	Asset Exchange Cash Outflows Re-hypothecated Collateral	Asset Exchange Cash Outflows Re-hypothecated Collateral	The outflow rates to be applied to asset exchange transactions where the underlying collateral is re-hypothecated are pre-defined as part of this assumption. This assumption specifies the rule regulation on LCR and asset exchange outflow rates which depend on the level of assets the covered company receives at maturity and covered company must post at maturity.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount ;Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261
5	Collateral Outflow Derivative Collateral substitution	US LCR - Collateral outflow due to collateral substitution collateral in derivatives	The outflow rates due to collateral substitution on derivatives are pre-defined as part of this assumption. This assumption specifies the outflow rates which depend on the level of collateral pledged to the covered company by the counterparty and the level of substitutable collateral which the counterparty may replace without the consent of the bank.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194
6	Collateral Outflow Derivative Collateral Valuation Change	US LCR - collateral outflow due to derivative collateral potential valuation changes	The outflow rates due to collateral valuation change on derivatives are pre-defined as part of this assumption. This assumption specifies a 20 percent outflow on the fair value of any collateral securing a derivative transaction pledged to the counterparty by the bank that is not a Level 1 liquid asset.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
7	Collateral Outflow Derivative contractually due Collateral	US LCR - Collateral Outflow due to contractually due collateral in derivatives	The outflow rates due to collateral that the covered company has to maintain with a counterparty on derivatives are pre-defined as part of this assumption. This assumption specifies 100 percent outflow on the fair value of the collateral that the bank is contractually required to pledge to the counterparty.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194
8	Collateral Outflow Derivative Excess Collateral	US LCR - Collateral Outflow due to excess collateral in derivatives	The outflow rates due to excess collateral that counterparty has maintained with the covered company on derivatives are pre-defined as part of this assumption. This assumption specifies that on the excess collateral, 100 percent of the fair value of the collateral that the bank requires must be returned to the counterparty. This is because the collateral pledged to the bank exceeds the current collateral requirement of the counterparty under the governing contract. It also specifies that it cannot be re-hypothecated because it is not excluded as eligible HQLA by the bank.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
9	Collateral Outflow Downgrade Trigger	US LCR - Collateral outflow due change in financial condition	The outflow rates due to rating downgrade are pre-defined as part of this assumption. This assumption specifies a 100 percent outflow of all additional amounts of collateral that the bank is contractually required to pledge or to fund under the terms of any transaction. This results in change in the bank's financial condition.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194
10	Collateral Outflow Secured Lending Collateral substitution	US LCR - Collateral outflow due to collateral substitution in secured lending	The outflow rates due to collateral substitution on secured lending transactions are pre-defined as part of this assumption. This assumption specifies that on the collateral substitution, the outflow rates depend on the level of collateral pledged to the covered company by the counterparty. It also specifies the level of substitutable collateral which the counterparty may replace without the consent of the bank.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194
11	Collateral Outflow Secured Lending contractually due Co	US LCR - Collateral Outflow due to contractually due collateral in secured funding	The outflow rates due to collateral that the covered company has to maintain with a counterparty on secured lending transactions are pre-defined as part of this assumption. This assumption specifies 100 percent of the fair value of the collateral that the bank is contractually required to pledge to the counterparty.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
12	Collateral Outflow Secured Lending Excess Collateral	US LCR - Collateral Outflow due to excess collateral in secured Lending	The outflow rates due to excess collateral that counterparty has maintained with the covered company on secured lending transactions are pre-defined as part of this assumption. This assumption specifies that on the excess collateral, 100 percent of the fair value of the collateral must be returned to a counterparty by the bank as the collateral pledged to the bank exceeds the current collateral requirement of the counterparty under the governing contract. It also specifies that it cannot be re-hypothecated and it is not excluded as eligible HQLA by the bank.	Common Rule: Subpart C § __.32(f) collateral outflow amount; Page 369 Supplementary Information: Section II C3(f) Collateral outflow amount. page 183-194
13	Commitment Outflow Depository Institutions	US LCR - commitment credit and liquidity facility extended to depository institutions	The outflow rates for committed liquid and credit facilities extended to depository institutions are pre-defined as part of this assumption. This assumption specifies the outflow rate which varies depending on the affiliation of the depository institution to the covered company. If the depository institution is an affiliate of the covered company then the outflow rate is zero percent whereas fifty percent for other depository institutions.	Common Rule: Subpart C § __.32 Commitment Outflow Amount; Page 361 Supplementary Information: Section II C(e) Commitment Outflow Amount. page 169 -184

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
14	Commitment Outflow for Issuing CP or Security	US LCR - Commitment Outflow amount for issuing CP or Security excluding equity	The outflow rates for committed liquid and credit facilities extended for issuing CP or security are pre-defined as part of this assumption. This assumption specifies 100 percent of the undrawn amount of all committed credit and liquidity facilities extended to a special purpose entity that issues or has issued commercial paper or securities (other than equity securities issued to a company of which the special purpose entity is a consolidated subsidiary) to finance its purchases or E28operations.	Common Rule: Subpart C § __.32 Commitment Outflow Amount; Page 361 Supplementary Information: Section II C(e) Commitment Outflow Amount. page 169 -184
15	Commitment Outflow Retail Customers	US LCR - Committed credit and liquidity facility extended to retail customers	The outflow rates for committed liquid and credit facilities extended to retail customers are pre-defined as part of this assumption. This assumption specifies 5 percent of the undrawn amount of all committed credit and liquidity facilities extended by the covered company to retail customers or counterparties.	Common Rule: Subpart C § __.32 Commitment Outflow Amount; Page 361 Supplementary Information: Section II C(e) Commitment Outflow Amount. page 169 -184
16	Commitment Outflow Wholesale Customers	US LCR - Committed credit and liquidity facility extended to whole sale customers	The outflow rates for committed liquid and credit facilities extended to other wholesale customers are pre-defined as part of this assumption. This assumption specifies the outflow rates for other wholesale customers vary depending on type of facility (liquidity or credit) and whether the customer is a financial sector entity or not.	Common Rule: Subpart C § __.32 Commitment Outflow Amount; Page 361 Supplementary Information: Section II C(e) Commitment Outflow Amount. page 169 -184

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
17	Debt Security Outflow Amount	US LCR - Outflow Rates for debt securities where the bank is the primary market maker	The outflow rates debt securities issued by the covered company are pre-defined as part of this assumption. This assumption specifies the outflow amount for debt securities issued by the bank which matures more than 30 calendar days after the calculation date. The bank or a consolidated subsidiary of the bank is the primary market maker in such debt securities and this includes 3 percent of all such debt securities that are not structured securities and 5 percent of all such debt securities that are structured securities.	Common Rule: Subpart C § __.32 Debt Security Outflow Amount; Page 369 Supplementary Information: Section II C(i) Debt Security Outflow Amount; page 237-240
18	Exclusions for Inflows - Credit and Liquidity Facility	US LCR - Exclusions for Inflows - Credit, Liquidity or other Facilities to be excluded	The cash flows from credit and liquidity facilities provided to the covered company are excluded as part of this assumption. This assumption specifies that the amounts arising from any credit or liquidity facility extended to a covered company are excluded from the denominator of the proposed LCR.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
19	Exclusions for Inflows - Derivative Mortgage commitments	US LCR - Exclusions for Inflows Derivative Mortgage commitments, Forward Sale Mortgages	The cash flows from derivative mortgage commitments are excluded as part of this assumption. This assumption specifies that the amount that a covered company expects to receive or is contractually entitled to receive from derivative transactions which are due to forward sales of mortgage loans and any derivatives that are mortgage commitments are excluded from the denominator of the proposed LCR.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271
20	Exclusions for Inflows - Non Performing Assets	Exclusions for Inflows - Non Performing Assets	The cash flows from non-performing assets are excluded as part of this assumption. This assumption specifies that the cash flows from non-performing assets are excluded from the denominator of the proposed LCR in the following cases, when the amount payable to the covered company or any outstanding exposure to a customer or counterparty that is a non-performing asset as of a calculation date or that the covered company has a reason to expect becomes a non-performing exposure in 30 calendar days or less from a calculation date.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
21	Exclusions for Inflows - Open Maturity	US LCR - Exclusions for Inflows - Open Maturity	The cash flows from open maturity products are excluded as part of this assumption. This assumption specifies the items that have no contractual maturity date or items that mature more than 30 calendar days after a calculation date are excluded from the denominator of the proposed LCR.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271
22	Exclusions for Inflows - Operational Deposits	US LCR - Exclusions for Inflows - Operational Deposits of Financial Sector Entities	The cash flows from operational deposits placed by the covered company are excluded as part of this assumption. This assumption specifies that the covered company's inflows derived from any operational deposits at another regulated financial company are excluded from the denominator of the proposed LCR.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271
23	Less Stable Retail Outflows	US LCR - Retail outflow amount for less stable portion of the deposits	The outflow rate for the less stable portion of retail deposits which are not brokered deposits is pre-defined as part of this assumption. This assumption specifies that a bank's retail funding outflow amount as of the calculation date includes (regardless of maturity or collateralization) 3 percent of all stable retail deposits held at the bank and 10 percent of all other retail deposits held at the bank.	Common Rule: Subpart C § __.32 Funding Outflow Amount; Page 359 Supplementary Information: Section II C3(a) Retail Funding Outflow Amount; page 155-161

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
24	Mortgage Commitment Outflow Amount	US LCR - Outflow rates for mortgage commitments	The outflow rates for commitments extended for mortgage loans are pre-defined as part of this assumption. This assumption specifies that the mortgage commitment outflow amount as of a calculation date is 10 percent of the number of funds the bank has contractually committed for its own origination of retail mortgages. This can be drawn upon 30 calendar days or less from such a calculation date.	Common Rule: Subpart C § __.32 Mortgage commitment outflow amount; Page 361 Supplementary Information: Section II C 3(d) Mortgage commitment page 168-169
25	Net Derivatives Receivables or Payables	US LCR - Net Derivatives Receivables or Payables	The cash flow movements for derivative transactions are pre-defined as part of this assumption. This assumption specifies that the determination of total net cash outflow using the add-on approach, the net derivatives cash inflow and outflow is not part of add on computations. Hence these cash flows are moved to open maturity bucket.	Common Rule: Subpart C § __.30 Total net cash outflow amount; Page 354-356 Supplementary Information: Section II C 1(a) Peak Day Approach; page 137-144
26	Non Maturing Deposits Placed	US LCR- Non-Maturing Deposits cash flows maturity to be considered in day1	The maturity adjustments are pre-defined as part of this assumption. This assumption specifies that the transactions, except for operational deposits, that do not have maturity dates are considered to have a maturity date on the first calendar day after the calculation date.	Common Rule: Subpart C § __.31 Determining Maturity; Page 356-358 Supplementary Information: Section II C 2 Determining Maturity; page 147-154

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
27	Other Cash Inflows - Retail and Wholesale	US LCR - Other Cash Inflows which are not included in any inflow assumptions	This business assumption is used to exclude cash inflows from retail and wholesale customers which are non-performing. This assumption specifies that any amounts payable to the bank from an obligation of a customer or counterparty that is a non-performing asset must be made as per the calculation date.	Common Rule: Subpart C § __.33 Items Not Included as Inflows; Page 373 Supplementary Information: Section II C 4(a) Items Not Included as Inflows; page 266-271
28	Other Cash Inflows - Revolving Credit	US LCR - Other Cash Inflows which are not included in any of the Inflow assumptions	The inflow rates for revolving credit which are secured are pre-defined as part of this assumption. This assumption specifies that any other inflows which are not included need to be given a zero percent inflow. This assumption is defined to include zero percent of inflows coming for revolving credit which are secured.	Common Rule: Subpart C § __.33 Other Cash Inflow Amounts; Page 379 Supplementary Information: Section II C 4(a) Other Cash Inflow Amounts; page 290
29	Other Retail Outflows	US LCR - Retail funding from retail customer that is not a retail deposit	The outflow rates from retail customers other than retail deposits are pre-defined as part of this assumption. This assumption specifies the outflow rates from retail customers which are 40 percent of all funding from a retail customer or counterparty that is not a retail deposit or a brokered deposit provided by a retail customer or counterparty; or a debt instrument issued by the bank that is owned by a retail customer or counterparty.	Common Rule: Subpart C § __.32 Retail Funding Outflow Amount; Page 359 Supplementary Information: Section II C(a) Retail Funding Outflow Amount; page 155-161

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
30	Retail Brokered Other Maturity Deposits	US LCR - Brokered deposit outflow for maturity deposits (not reciprocal or sweep)	The outflow rates for retail brokered (non-reciprocal, non-sweep) non-maturity deposits are pre-defined as part of this assumption. This assumption specifies the brokered deposit outflow amount for retail customers or counterparties as of the calculation date. This includes 100 percent of all brokered deposits provided by a retail customer or counterparty that are not brokered sweep or reciprocal deposits and which matures in 30 calendar days or less from the calculation date. This also includes 10 percent of all brokered deposits provided by a retail customer or counterparty that are not brokered sweep or reciprocal deposits and which mature later than 30 calendar days from the calculation date.	Common Rule: Subpart C § __.32 Brokered Deposit Outflow Amount; Page 366 Supplementary Information: Section II C(g) Brokered Deposit Outflow Amount; Page 194 - 214

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
31	Retail Brokered Other Non Maturity Deposits	US LCR - Brokered deposit outflow for non-maturity deposit (not reciprocal or sweep)	The outflow rates for retail brokered (non-reciprocal, non-sweep) maturity deposits are pre-defined as part of this assumption. This assumption specifies the brokered deposit outflow amount for retail customers or counterparties as of the calculation date which includes 20 percent of all brokered deposits that are not brokered sweep or reciprocal deposits which are held in a transactional account with no contractual maturity date, where the entire amount is covered by deposit insurance and 40 percent of all brokered deposits that are not brokered sweep or reciprocal deposits which are held in a transactional account with no contractual maturity date, where less than the entire amount is covered by deposit insurance.	Common Rule: Subpart C § __.32 Brokered Deposit Outflow Amount; Page 366 Supplementary Information: Section II C(g) Brokered Deposit Outflow Amount; Page 194 - 214

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
32	Retail Brokered Reciprocal Deposits	US LCR - Outflow rates for brokered reciprocal deposits from retail customers	The outflow rates for retail brokered reciprocal deposits are pre-defined as part of this assumption. This assumption specifies the brokered deposit outflow amount for retail customers or counterparties as of the calculation date which includes 10 percent of all reciprocal brokered deposits, where the entire amount is covered by deposit insurance and 25 percent of all reciprocal brokered deposits where less than the entire amount is covered by deposit insurance.	Common Rule: Subpart C § __.32 Brokered Deposit Outflow Amount; Page 366 Supplementary Information: Section II C(g) Brokered Deposit Outflow Amount; Page 194 - 214
33	Retail Brokered Sweep Deposits	US LCR - Outflow rates for brokered sweep deposits from retail customers	The outflow rates for retail brokered sweep deposits are pre-defined as part of this assumption. This assumption specifies the brokered sweep deposit outflow amount for retail customers or counterparties as of the calculation date which includes 10 percent in cases where deposit originating company is subsidiary or affiliate of the covered company. Here the entire amount of the deposits is covered by deposit insurance and 25 percent in cases where deposit originating company is subsidiary or affiliate of the covered company. The entire amount of the deposits is covered by deposit insurance and 40 percent where less than the entire amount of the deposit balance is covered by deposit insurance.	Common Rule: Subpart C § __.32 Brokered Deposit Outflow Amount; Page 366 Supplementary Information: Section II C(g) Brokered Deposit Outflow Amount; Page 194 - 214

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
34	Retail Cash Inflows	US LCR - Retail Cash Inflow Amount	The inflow rates from retail customers are pre-defined as part of this assumption. This assumption specifies that the retail cash inflow amount as of the calculation date includes 50 percent of all payments contractually payable to the bank from retail customers or counterparties.	Common Rule: Subpart C § __.33 Retail Cash Inflow Amount; Page 375 Supplementary Information: Section II C 4(c) Retail Cash Inflow Amount; page 272-273
35	Secured Lending Cash Inflows - Collateral Non- Re-hypothecated	US LCR -Secured Lending Cash Inflows where the underlying Collateral is Non-Re-hypothecated	The inflow rates from secured lending transactions where the collateral is re-hypothecated are pre-defined as part of this assumption. This assumption specifies the outflow rate of secured lending transactions which depends on the collateral securing the lending transaction which is either re-hypothecated or not. If the collateral is re-hypothecated and cannot be returned to the counterparty within 30 days then outflow is zero percent of all contractual payments.	Common Rule: Subpart C § __.33(f) Secured lending and asset exchange cash inflow amount.; Page 375 Supplementary Information: Section II C 4(f) Secured lending and asset exchange cash inflow amount page 275-288

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
36	Secured Lending Cash Inflows - Collateral Re-hypothecated	Secured Lending Cash Inflows - Collateral Re-hypothecated	The inflow rates from secured lending transactions where the collateral is not re-hypothecated are pre-defined as part of this assumption. This assumption specifies if the collateral securing the transaction is not re-hypothecated then: 0 percent of all contractual payments, to the extent that the payments are secured by Level 1 liquid asset. 15 percent of all contractual payments, to the extent that the payments are secured by Level 2A liquid assets. 50 percent of all contractual payments, to the extent that the payments are secured by Level 2B liquid assets. 100 percent of all contractual payments, to the extent that the payments are secured assets that are not HQLA. 50 percent of all contractual payments, to the extent that the payments are secured assets that are not HQLA and payments pursuant to collateralized margin loans.	Common Rule: Subpart C § __.33(f) Secured lending and asset exchange cash inflow amount.; Page 375 Supplementary Information: Section II C 4(f) Secured lending and asset exchange cash inflow amount page 275-288

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
37	Secured Lending Cash Inflows - Underlying is Eligible HQLA	US LCR - Secured Lending Cash Inflows - Underlying is part of Eligible HQLA	The inflow rates from secured lending transactions where the collateral is eligible HQLA are pre-defined as part of this assumption. This assumption specifies 100 percent of all contractual payments due to the covered company which is secured lending transactions, to the extent that the payments are secured by assets that are not eligible HQLA and not re-hypothecated.	Common Rule: Subpart C § __.33(f) Secured lending and asset exchange cash inflow amount.; Page 375 Supplementary Information: Section II C 4(f) Secured lending and asset exchange cash inflow amount page 275-288
38	Secured Wholesale Funding Outflow Amount	US LCR - Secured funding outflow based on asset level of the underlying collateral	The outflow rates from secured funding transactions are pre-defined as part of this assumption. This assumption specifies the secured funding outflow rates for wholesale customers. This depends on the asset level of collateral which secures the secured funding transaction.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261
39	Securities Cash Inflows	US LCR - Securities Cash Inflow Amount	The inflow rates from securities are pre-defined as part of this assumption. This assumption specifies the securities cash inflow amount as of the calculation date which includes 100 percent of all contractual payments that are due to the bank on securities. These are not eligible for HQLA.	Common Rule: Subpart C § __.33 Securities cash inflow amount; Page 375 Supplementary Information: Section II C 4(e) Securities cash inflow amount; page 274-275

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
40	Segregated Account Inflows	US LCR- Broker Dealer Segregated Account Inflows	The inflow rates for broker-dealer segregated accounts are pre-defined as part of this assumption. This assumption specifies the segregated inflow amount to be calculated based on the difference between the fair value of the required balance (as of the calculation date) and the customer reserve account (as of 30 calendar days) from the calculation date.	Common Rule: Subpart C § __.33 Broker-Dealer Segregated account inflow amount; Page 378-379 Supplementary Information: Section II C 4(g) Segregated Account Inflow Amount; Page 287-290
41	Stable Retail Outflows	US LCR - Retail outflow amount for sable portion of the retail deposits	The outflow rates for a stable portion of non brokered retail deposits are pre-defined as part of this assumption. This assumption specifies that a bank's retail funding outflow amount as of the calculation date includes (regardless of maturity or collateralization 3 percent of all stable retail deposits held at the bank and 10 percent of all other retail deposits held at the bank.	Common Rule: Subpart C § __.32 Retail Funding Outflow Amount; Page 359 Supplementary Information: Section II C(a) Retail Funding Outflow Amount; page 155-161

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
42	Structured Transaction Outflow Amount	US LCR - Outflow amount where bank is the sponsor of a structured transaction	The outflow rates for debt securities sponsored by the covered company are pre-defined as part of this assumption. This assumption specifies that the structured transaction outflow is greater in the following cases: When 100 percent of the amount of all debt obligations of the issuing entity which matures ≤ 30 calendar days and commitments made by the issuing entity to purchase assets within ≤ 30 calendar days from such calculation date When the maximum contractual amount of funding the banking organization may be required to provide the issuing entity which is ≤ 30 calendar days from such calculation date through a liquidity facility.	Common Rule: Subpart C § __.32Structured Transaction Outflow Amount; Page 359 Supplementary Information: Section II C(b) Structured Transaction Outflow Amount; page 161-166

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
43	Third Party Placed Retail Outflows	US LCR - Retail deposit outflow amount for the third placed deposits	The outflow rates for non brokered retail deposits placed by the third party are pre-defined as part of this assumption. This assumption specifies that a bank's retail funding outflow amount as of the calculation date includes (regardless of maturity or collateralization) 20 percent of all deposits placed at the bank by a third party on behalf of a retail customer or counterparty that are not brokered deposits. The retail customer or counterparty owns the account and where less than the entire amount is covered by deposit insurance. And, 40 percent of all deposits placed at the bank by a third party on behalf of a retail customer or counterparty that is not brokered deposits. The retail customer or counterparty owns the account and where less than the entire amount is covered by deposit insurance.	Common Rule: Subpart C § __.32 Funding Outflow Amount; Page 359 Supplementary Information: Section II C(a) Retail Funding Outflow Amount; page 155-161
44	Unsecured Wholesale Cash Inflows - Revolving Credit	US LCR - Unsecured Wholesale Cash Inflows - Exclusion of Revolving Credit	The inflow rates from revolving credit which are not secured are pre-defined as part of this assumption. This assumption specifies the credit facilities, the amount of existing loan which is not included in the unsecured wholesale cash inflow amount.	Common Rule: Subpart C § __.33(f) Unsecured Wholesale Cash inflow Amount; Page 375 Supplementary Information: Section II C 4(b)Unsecured Wholesale Cash inflow Amount; page 275-288

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
45	Unsecured Wholesale Cash Inflows- Financial Sector entity	US LCR- Unsecured Wholesale Cash Inflows-Financial Sector entity	The inflow rates from the financial sector entity are pre-defined as part of this assumption. This assumption specifies the inflow rates which are 100 percent of all payments contractually payable to the bank from financial sector entities, or from a consolidated subsidiary or central banks and 50 percent of all payments contractually payable to the bank from wholesale customers or counterparties that are not financial sector entities or consolidated subsidiaries.	Common Rule: Subpart C § __.33(f) Unsecured Wholesale Cash inflow Amount; Page 375 Supplementary Information: Section II C 4(b)Unsecured Wholesale Cash inflow Amount; page 275-288
46	Unsecured Wholesale Deposit Non Operational and Non Brokered	US LCR - Unsecured wholesale funding from non-operational and Non brokered deposits	The outflow rates from wholesale non-operational and non brokered deposits are pre-defined as part of this assumption. This assumption specifies that the unsecured wholesale funding is not an operational deposit and it is not provided by a financial sector entity or a consolidated subsidiary. Here, 20 percent of all such funding and the entire amount is covered by deposit insurance and the funding is not a brokered deposit. Also, 40 percent of all such funding is less than the entire amount and it is covered by deposit insurance or the funding is a brokered deposit.	Common Rule: Subpart C § __.32 Unsecured wholesale funding outflow amount; page 367-368 Supplementary Information: Section II C(h) Unsecured wholesale funding outflow amount; page 219-235

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
47	Unsecured Wholesale Non Operational Brokered Deposit	US LCR - Unsecured whole funding from non-operational brokered deposits	The outflow rates from wholesale non-operational, brokered deposits are pre-defined as part of this assumption. This assumption specifies that the unsecured wholesale funding is not an operational deposit and is not provided by a financial sector entity or consolidated subsidiary. Here, 20 percent of all such funding and the entire amount is covered by deposit insurance and the funding is not a brokered deposit. Also, 40 percent of all such funding is less than the entire amount and is covered by deposit insurance or the funding is a brokered deposit.	Common Rule: Subpart C § __.32 Unsecured wholesale funding outflow amount; page 367-368 Supplementary Information: Section II C(h) Unsecured wholesale funding outflow amount; page 219-235
48	Unsecured Wholesale Operational Deposits	US LCR - Unsecured wholesale funding outflow from operational deposits.	The outflow rates from wholesale operational deposits are pre-defined as part of this assumption. This assumption specifies that 5 percent of all operational deposits, other than operational deposits that are held in escrow accounts are covered by deposit insurance.	Common Rule: Subpart C § __.32 Unsecured wholesale funding outflow amount; page 367-368 Supplementary Information: Section II C(h) Unsecured wholesale funding outflow amount; page 219-235
49	Adjustments to Secured Non-operational Brokered Deposits	Adjustments to Secured Non-operational Brokered Deposits	The adjustments to secured non-operational and brokered deposits are pre-defined as part of this assumption. This assumption specifies that the secured deposit outflow rates cannot be higher than the corresponding unsecured deposit outflow rates.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulation WW, Final Rule, Liquidity Coverage Ratio: Liquidity Risk Measurement Standards, Sep 2014 Reference
50	Adjustments to Secured Non-operational Non-brokered Deposits	US LCR - adjustments to Non-operational Non-brokered secured deposits	The adjustments to secured non-operational and brokered deposits are pre-defined as part of this assumption. This assumption specifies that the secured deposit outflow rates cannot be higher than the corresponding unsecured deposit outflow rates.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261
51	Adjustments to Secured Operational Deposits	US LCR - adjustments to secured operational deposits	The adjustments to secured operational deposits are pre-defined as part of this assumption. This assumption specifies that the secured deposit outflow rates cannot be higher than the corresponding unsecured deposit outflow rates.	Common Rule: Subpart C § __.32(j) Secured funding and asset exchange outflow amount Page 369 Supplementary Information: Section II C 3(j) Secured Funding Transactions and Asset Exchange Outflow Amounts page 240 -261
52	Asset Exchange Adjustments	Open maturity collateral swap cash flows moving to corresponding maturity buckets	This business assumption moves the asset exchange cash flows from open maturity bucket to the corresponding residual maturity bucket. This assumption specifies the determination of total net cash outflow using the Add-On approach. The asset exchange cash inflows and outflows are not part of add-on computations. Hence these cash flows are moved to open maturity bucket.	Common Rule: Subpart C § __.30 Total net cash outflow amount; Page 354-356 Supplementary Information: Section II C 1(a) Peak Day Approach; page 137-144

3.4 Modified Liquidity Coverage Ratio Calculation

The modified LCR calculation is prescribed by the US Federal Reserve for smaller banks, which requires the stock of HQLA to be sufficient to cover net cash outflows over a liquidity horizon of 30 days. These banks are required to compute a less stringent LCR, because of their relatively small size and lower complexity. The inflow and outflow rates for such banks are 70% of those prescribed under the LCR approach.

3.4.1 Process Flow

Topics:

- Changes vis-à-vis Liquidity Coverage Ratio Calculation
- Calculating Net Cash Outflows (NCOF)
- Consolidating as per Modified LCR Approach

3.4.1.1 Changes vis-à-vis Liquidity Coverage Ratio Calculation

The changes in the modified LCR calculations vis-a-vis US Fed LCR calculations are as follows:

1. 30-day LCR horizon, which means HQLA adjustments, cash inflows, and outflows are based on transactions that mature in 30 days.
2. 70% of the LCR outflow and inflow rates are used in the modified LCR calculations. HQLA haircut values remain unchanged.
3. The denominator is calculated per the BIS approach and not based on the add-on approach.

All other conditions remain unchanged between LCR and modified LCR calculations.

3.4.1.2 Calculating Net Cash Outflows (NCOF)

As per the US Federal Reserve, the net cash outflow calculated on a cumulative basis on the last day of the liquidity horizon is taken as the denominator value for the modified LCR calculations. The liquidity horizon prescribed by the US Federal Reserve for the calculation of modified LCR is 30 calendar days.

A numerical example for Net Cash Outflow Calculation – Modified LCR: The following table illustrates the modified LCR approach. For computational convenience, we have taken the liquidity horizon as 10 days instead of 30 days.

Table 10 Net Cash Outflow Calculation – Modified LCR

Calculation Day	Non-Maturity Cash Outflows	Cash Outflows with Maturity equal to Calculation Day	Cash Inflows with Maturity equal to Calculation Day
Day 1	200	100	90
Day 2	200	20	5
Day 3	200	10	5

Calculation Day	Non-Maturity Cash Outflows	Cash Outflows with Maturity equal to Calculation Day	Cash Inflows with Maturity equal to Calculation Day
Day 4	200	15	20
Day 5	200	20	15
Day 6	200	0	0
Day 7	200	0	0
Day 8	200	10	8
Day 9	200	15	17
Day 10	200	25	40
Total	200	215	200

Cumulative Cash Outflows = 200+215 = 415

Net Cash Outflows = 415 – Min (0.75* 415, 200) = 215

3.4.1.3 Consolidating Using a Modified LCR Approach

Consolidation for a modified BHC is done as follows:

a. US Consolidated Subsidiaries Subject to Modified LCR Requirements:

For a US-based legal entity that is a consolidated subsidiary of a modified LCR parent company, consolidation is done as follows:

i. The application identifies whether the subsidiary is a US consolidated subsidiary.

ii. If condition (i) is fulfilled, it identifies whether the US consolidated subsidiary is subject to modified LCR requirement that is, whether the subsidiary in question is a regulated entity.

iii. If condition (ii) is fulfilled, then it calculates the net cash outflow based on the US Federal Reserve modified LCR approach that is, based on the cumulative cash flows on the 30th day, eliminating inter-company transactions at the level of the consolidated subsidiary.

iv. Consolidates post-haircut restricted HQLA to the extent of the consolidated subsidiary's net cash outflow that is, to the extent required to satisfy modified LCR requirements of that subsidiary as part of the modified parent company's HQLA.

v. Consolidates the entire amount of post-haircut unrestricted HQLA held at the consolidated subsidiary as part of the modified parent company's HQLA.

vi. Consolidates all cash inflows and outflows which are part of the net cash flow calculation.

b. For US Consolidated Subsidiaries Not Subject to Modified LCR Requirements:

i. The application identifies whether the subsidiary is a US consolidated subsidiary.

ii. If condition (i) is fulfilled, it identifies whether the US consolidated subsidiary is subject to modified LCR requirement that is, whether the subsidiary in question is a regulated entity.

iii. If condition (ii) 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 based on the US Federal Reserve modified LCR approach that is, based on the cumulative cash flows on the 30th day.

iv. 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 modified parent company's HQLA.

v. Consolidates all cash inflows and outflows which are part of the net cash flow calculation.

c. For Non-US Consolidated Subsidiaries:

i. The application identifies whether the subsidiary is a US consolidated subsidiary.

ii. If condition (i) 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 based on the US Federal Reserve modified LCR approach that is, based on the cumulative cash flows on the 30th day.

iii. 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 modified parent company's HQLA.

iv. The application consolidates all cash inflows and outflows which are part of the net cash flow calculation.

These steps are repeated for each level in the organization structure until the final consolidation level as selected in the Run 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 per the modified LCR approach.

3.5 FR2052a and FR2052b Related Calculations

This section explains the FR2052a and FR2052b related calculations.

Topics:

3.5.1 Intermediate Calculations

The intermediate calculations include the following topics.

Topics:

3.5.1.1 Calculating Effective Drawdown Date

The funding start date, end date, and draw notice period are used to determine the effective drawdown date for the outflow of cash flows for loans or commitments provided by the bank to its customers. The application calculates the effective drawdown date for assets that have a drawdown associated with them as follows:

a. If the funding start date is greater than the As of Date, effective drawdown date equals the funding start date.

b. If the funding start date is less than the As of Date, funding end date is less than the As of Date. If the draw notice period is greater than 0 and the sum of the funding end date and draw notice period is greater than the As of Date, then the effective drawdown date equals the sum of the funding end date and draw notice period.

c. If the funding start date is less than the As of Date, funding end date is less than the As of Date, draw notice period is greater than 0 and the sum of the funding end date and draw notice period is less than or equal to the As of Date, then effective drawdown date equals the As of Date.

d. If the funding start date is less than the As of Date, funding end date is less than the as of the date and draw notice period equals 0, then the effective drawdown date equals the funding end date.

> **NOTE** The outflow rates are applied to cash outflows based on the effective drawdown date computed as above. If the effective drawdown date is less than the LCR horizon, the appropriate drawdown rates are applied based on other regulatory criteria.

3.5.1.2 Treating Commingled Securitization Cash Flows

If the commingling indicator is 'Yes' for a particular securitization then all cash flows of such a securitization are commingled with the cash flows of its parent entity. Such commingled cash flows are treated as available for use by the parent entity under normal conditions that is when there is no downgrade.

For a rating downgrade that results in the activation of the downgrade trigger for securitization, all access to commingled cash flows by the parent company becomes restricted and these are segregated from the parent company's cash flows. In this case, all cash inflows and outflows related to the securitization are completely removed from the calculation of the net cash outflow, except the downgrade impact amount which is posted as an outflow.

In a consolidated Run, the application treats commingled securitization cash flows as follows:

a. The application checks if the commingling indicator value for securitizations from SPV/SIV which is part of the consolidated entity's organization structure. If the commingling indicator is 'No', the application treats the SPV/SIV as a standalone entity and does not commingle the cash flows. The regular consolidation process is followed, refer section Liquidity Coverage Ratio for more information.

b. If the commingling indicator is 'Yes' and Run type is Contractual Run, the cash inflows and outflows of the securitization are commingled with the parent company's cash flows. Separate identification of the legal entity of such cash flows that is, SPV/SIV information is maintained.

c. If the commingling indicator is Yes and Run type is BAU or stress Run, the application checks if ratings downgrade is specified as part of the business assumption included in the Run. If the downgrade is not specified, the cash flows continue to remain commingled.

d. If rating downgrade is specified, the application checks if a downgrade trigger exists for the securitization. If there is no downgrade trigger, the cash flows continue to remain commingled.

e. If a downgrade trigger exists, the application checks if the trigger is activated based on the ratings downgrade specified as part of the business assumption included in the Run. If the downgrade trigger is not activated, the cash flows continue to remain commingled.

f. If downgrade trigger is activated based on the downgrade specified, the application segregates and excludes all the securitization cash inflows and outflows from the computation of net cash outflows and posts the downgrade impact amount calculated as per the procedure detailed as part of the above section Downgrade Impact Amount for Securitizations as an outflow.

> **NOTE** In a Solo Run, the application does not include any cash flows from commingled securitizations in the parent company's calculations. These are included only when calculations are done on a consolidated basis.

3.5.1.3 Treating Central Bank Reserves and Deposits

Central bank reserves are deposits with the central bank with the Product Type as Central Bank Reserves. These are obtained in the Correspondent Accounts table. In addition to the product type, such reserves have an additional attribute, Reserve Requirement, captured. Excess reserve at each Central Bank is calculated as follows:

$$Excess\ Central\ Bank\ Reserve = Central\ Bank\ Reserve\ Balance - Minimum\ Reserve\ Requirement$$

Central bank reserves and excess central bank reserves do not have a maturity associated with them and are bucketed in the first time bucket that is, Day 1 bucket for FR2052b reporting.

> **NOTE** Banks may place deposits with their Central Bank which has a maturity associated with them. Such deposits are bucketed based on their respective maturities for FR 2052a and b reporting.

3.5.1.4 Substitutable Collateral

The attributes required for reclassification of substitutable collateral to the HQLA level is taken at a less granular level. Currently, the application expects specific details of the asset substitutable as collateral such as the instrument code, issuer code, guarantor code, and so on. Since such a substitution has not yet occurred, a generic set of attributes is defined within the contract for the assets substitutable in the future. For example, the contract states the issuer type, guarantor type, and product of the asset which are substituted. In the event of a substitution, the specific assets which are substituted have these broad attributes along with asset-specific details. The broad characteristics are sufficient for the HQLA classification.

3.5.1.5 Operating Expenses

Operational expenses are expenses such as salaries, rents, and so on incurred at frequent intervals for the day-to-day running of the business. These are essentially income statement line items and the forecasted values of such expenses are reported as part of the FR 2052b template. Download for these items is across multiple tenors specified as days, each of which is bucketed appropriately based on a 30/360 convention.

The items in FR 2052b that are treated as operational expenses include:

- **a.** 14.3 Operating Cash Inflows
- **b.** 16.1 Common Dividends
- **c.** 16.2 Operating Expenses

For example, operating expenses are provided 100 in 1 day, 200 in 5 days, 300 in 10 days, and 400 in 60 days. They are bucketed in FR 2052b as follows:

Table 11: Bucketing in FR2052b

Time Bucket	Time Bucket Size (in Days)	Time Bucket Start Day	Time Bucket End Day	Operating Expenses
Day 1	1	1	1	100
> 1 Day <= 1 month	29 [=(30*1) – 1]	2	30 [=30*1]	500 [=200+300]
> 1 month <= 3 months	60 [=(30*3) – 30]	31	90 [=30*3]	400

NOTE Day count convention of 30/360 is used where 1 Month = 30 days and 1 Year = 360 Days.

3.5.1.6 CDS Spread

The CDS spread as reported in FR 2052b template is the spread associated with the legal entity itself. This is not the instrument level spread of the counterparty. Currently, the spread is taken at an instrument level. This is taken at a legal entity and tenor (in days) combination. In consolidated reporting, the spread associated with the consolidation entity is reported. If the 5 year CDS spread is unavailable, the spread for the tenor closest to 5 years must be reported.

3.5.1.7 Funding Pricing Curves

The funding price and funding amount are captured for ABCP multi-seller funding curve, ABCP single seller funding curve, unsecured bank funding curve, and unsecured holding company funding curve at a legal entity and tenor granularity. These values are directly reported as part of line items 20 and 21 in FR 2052b reporting template.

If multiple funding prices are available that are bucketed in a single time bucket, a weighted average of the funding price is calculated based on the funding amount. For example, unsecured bank funding curve information is provided as follows:

Table 12: Example - Unsecured Bank Funding Curve Information

Tenor (in Days)	Funding Price (in %)	Funding Amount
40	4	100
60	5	150
90	6	250

In this case, all 3 tenors occur in the > 1 month less than or equal to 3 months bucket for FR 2052b reporting. In such a case, the weighted average of these prices must be reported.

Total funding amount = 100 + 150 +250 = 500

Weights are calculated as follows:

Table 13: Example: Calculation of Weights

Funding Price	4	5	6
Weight	0.2 [=100/500]	0.3 [=150/500]	0.5 [=250/500]
Weighted Price	0.8 [=4*0.2]	1.5 [=5*0.3]	3 [=6*0.5]

Weighted average price = 0.8 + 1.5 + 3 = 5.3

3.5.1.8 Lendable Value

The lendable haircut is available at a product level and not at an account level as currently expected by the application. This is updated in the business processor that computes the lendable value.

3.5.1.9 Placed Collateral

Secured funding transactions require covered company to place collateral for the borrowings which are received from the counterparty. Secured funding is borrowings from repurchase transactions, Federal Home Loan Bank advances, secured deposits from municipalities or other public sector entities (which typically require collateralization in the United States), loans of collateral to effect customer short positions, and other secured wholesale funding arrangements with Federal Reserve Banks, regulated financial companies, non-regulated funds, or other counterparties. Secured funding could give rise to cash outflows or increased collateral requirements in the form of additional collateral or higher quality collateral to support a given level of secured debt. Collaterals are also placed for some derivatives transactions such as collateral swap, futures, forwards, and securitization, and so on.

The information required at the placed collateral level is as follows:

- **a.** Placed collaterals are securities or other assets such as credit cards, loans, and so on.
- **b.** All the attributes required for the HQLA classification and collateral amount is provided as the download for each placed collateral.
- **c.** The mapping of placed collateral and corresponding secured funding transactions are provided as a download.
- **d.** The underlying asset level, underlying asset amount, contractually required collateral amount, downgrade impact amount are computed for each secured funding transactions.
  - **i.** Collateral posted or the underlying amount is the sum of the value of all collaterals placed for the secured funding.

$$Underlying\ collateral\ Amount = \sum_{i=1}^{n} collateral\ amount\ of\ the\ placed\ collateral$$

  - **ii.** Underlying asset level: the asset level of the placed collateral for the secured funding. Ifs where the multiple collaterals were placed for a secured funding transaction with varying asset levels, the asset level corresponding to the lowest liquidity value is assigned as the underlying asset level for the secured funding transaction. For

example, if Level 1 and Level 2A assets are placed as collateral for FHLB borrowing, the underlying asset level for the FHLB borrowings is Level 2A.

$$Contractually\ due\ collateral\ = Max[0, (EOP\ Balance - Collateral\ Posted)]$$

NOTE The contractually due collateral calculation for derivative transactions is specified in the Net Exposure section.

iii. The downgrade impact amount computations are explained in the Calculation of Downgrade Impact Amount section.

3.5.2 FR2052A Reporting Validations

The Federal Reserve Board issued certain data validations on the 5G Reporting lines. These validations are pre-built in the out of the box solution. These are packaged along with the US LCR run and will be executed alongside the calculations.

The following table lists the validations:

Table 14; FR2052a Reporting Validations

Name of the Validation	Description
Validation 1: Weekend maturities	This check verifies that the cash flows are not reported using weekend values. The day buckets reflect the date on which the cash flows are observed.
Validation 2: Internal transactions reported on consolidated reporting entity	This check verifies that the transactions reported on the consolidated legal entity do not have the [Internal] flag set to True.
Validation 3: Internal transactions reported without internal counterparty	This check verifies that transactions reported with an 'Internal' counterparty set to 'True', also report the Internal counterparty value.
Validation 4: Lendable value in excess of market value	This check verifies that the lendable value measure does not exceed the market value measure.
Validation 5: 3rd party reporting entity exposures versus consolidated.	This check verifies that the sum of third party exposures of the 1st tier entities matches the consolidated group's third-party exposures.
Validation 6: Symmetry of intercompany transactions	This check verifies that symmetry exists for internal transactions between affiliates. This means that identical product groupings should be matching for inflows and outflows when transactions are internal. [Reporting entity] and [Internal counterparty] pairs are to be matched for a given set of product groupings.
Validation 7: Large haircuts on secured transactions	This check highlights potential errors in the reporting of [Maturity amount] and [Collateral Class] for secured transactions. This check computes an absolute haircut % for each record.
Validation 8: Mismatched currency reporting	This check verifies that the currency attributes linked to [Market value], [Lendable value], [Forward start amount] and [Maturity amount] correspond to the appropriate currency fields
Validation 9: Missing required products by entity type	This validation checks that for a given entity type (BHC, lead bank, branch, and so on) includes all products which are expected for the type of the reporting entity. This check highlights potential errors where products that are generally expected for a particular reporting entity, given its type (BHC, lead bank, branch, and so on), are not reported.
Validation 10: Improper Intra entity consolidation	This check verifies that for transactions where the [Internal] field is set to True, the values for [Reporting entity] and [Internal counterparty] are not the same.

Name of the Validation	Description
Validation 11: Duplicate records	Numeric values are expected to be aggregated across all unique combinations of all the other fields (text) in each table. An error occurs when two or more records exist with the same combination of text fields. This check identifies errors where FR 2052a records submitted do not reflect distinct groupings of non-numeric fields.
Validation 12: Invalid or Missing Counterparty Field	This check identifies rows where values in the [Counterparty] field: • Are missing when it is required to be reported. Or, • Are invalid values when it is required to be reported.
Validation 13: Missing or Not applicable collateral class field	This check identifies rows where values in the [Collateral class] field: • Are missing when it is required to be reported. Or, • Are reported when it does not apply to the product.
Validation 14: Large other product or counterparty balance	This check identifies instances where the balance amount is more than $1bn where, either the product or counterparty belongs to the 'Other' category. Any product with a counterparty field as 'Other', having $1bn or more against a legal entity. Any counterparty where the products belong to 'Other' categories (listed) having $1bn or more against a legal entity.

3.6 Regulation YY Liquidity Risk Calculation

The U.S. Federal Reserve issued the Final Rule for Regulation YY, that is Enhanced Prudential Standards for Bank Holding Companies and Foreign Banking Organizations, required to be established under Dodd-Frank guidelines. This rule covers requirements around liquidity risk, capital planning, stress testing, risk-based capital, leverage requirements among many others. OFS Liquidity Risk Management covers the liquidity risk related aspects of Regulation YY for both US bank holding companies (BHC) as well as foreign banking organizations (FBO).

As part of Regulation YY, banks are expected to compute their buffer requirement that is net cash flow needs under stress scenarios across multiple stress horizons. The regulatory stress horizons include overnight, 30 days, 90 days, and 1 year. The method of computing net stressed cash flow need differs for US BHCs and FBOs. Additionally, banks are expected to maintain a sufficient quantity of buffer assets to meet the buffer requirements under stress conditions. US BHCs and US intermediate holding companies of FBOs are required to main sufficient buffer to cover a 30-day stress scenario while US branches and agencies of FBOs are expected to maintain a buffer to cover a 14-day stress scenario.

The application supports both approaches for computing buffer and buffer requirement thus addressing the needs of both US BHCs and FBOs.

3.6.1 Process Flow

Regulation YY states that assets designated as HQLA as per US LCR can be considered liquidity buffer eligible assets under most conditions. Hence the application leverages the existing HQLA identification rules for identifying liquidity buffer making regulation YY specific changes wherever required. Additionally, it computes all interim metrics such as insured amount, stable amount, operational amount, downgrade impact amount, and so on required as part of US LCR to make it available for defining regulation YY stress scenarios. The process flow is detailed below:

Topics:

- Identifying Liquid and Readily Marketable Assets
- Identifying Eligible Buffer Assets
- Calculating Available Liquidity Buffer
- Calculating Interim Measures
- Identifying Intercompany, Internal and External Transactions
- Calculating Buffer Requirement
- Consolidation

3.6.1.1 Identifying Liquid and Readily Marketable Assets

Regulation YY allows highly liquid assets to be included in the available buffer. Highly liquid assets are assets that meet the following criteria:

1. Have low credit and market risk
2. Are traded in an active secondary two-way market that has observable market prices, committed market makers, a large number of market participants, and a high trading volume
3. Are types of assets that investors historically have purchased in periods of financial market distress during which liquidity has been impaired

This definition is very similar to the US LCR definition of liquid and readily marketable assets and so the application re-uses these classification rules. See the Identification of Assets as Liquid and Readily Marketable section for more details.

3.6.1.2 Identifying Eligible Buffer Assets

The following assets can be classified as liquidity buffer assets as per Regulation YY provided they are liquid and readily marketable:

1. Cash
2. Securities issued or guaranteed by the US government, US government agency or US government-sponsored enterprise
3. Any asset classified as HQLA under the US LCR, provided the bank demonstrates to the regulator that it merits inclusion

The application re-uses the US LCR HQLA classification rules for determining eligible buffer assets. See the Identification and Treatment of Level 1 Assets, Identification and Treatment of Level 2A Assets and Identification and Treatment of Level 2B Assets sections for details. Cash, in US LCR, is used for

determining the value of reserves, while it gets a separate treatment in regulation YY. As per regulation YY, all securities issued by the US government, government agencies or GSEs are classified as buffer assets provided they are liquid and readily marketable. In US LCR, there are additional parameters for the inclusion of such securities. The application has taken these changes vis-à-vis US LCR into account while re-using the US LCR HQLA classification rules for buffer asset classification.

Additionally, an asset must meet the following criteria to be considered buffer eligible:

1. Unencumbered, including any asset held as a hedge
2. Bank has demonstrated the capability to monetize the asset
3. Must be sufficiently diversified

These criteria are similar to the US LCR criteria that an asset must meet operational requirements and generally applicable HQLA criteria to be included in the stock of HQLA. The application re-uses these rules for identifying liquidity buffer assets that are eligible to be included in the available liquidity buffer. See section Identifying Eligible HQLA for details on the classification of an asset as meeting HQLA operational requirements and generally applicable HQLA criteria.

The application supports this classification for the bank's own unencumbered assets, mitigants received under re-hypothecation rights, placed collateral, and substitutable collateral.

3.6.1.3 Calculation of Available Liquidity Buffer

An asset identified as buffer-eligible based on the criteria specified in the Identifying Eligible Buffer Assets section above is included as part of the available liquidity buffer. The application provides users the ability to define and apply haircuts under multiple stress scenarios. The haircuts are applied to the buffer eligible assets to determine the available liquidity buffer. The application determines the value to be included in the available liquidity buffer as follows:

1. Cash

   The EOP balance of cash, both restricted and unrestricted, is included.

2. Central bank reserves

   In the case of Federal Reserve Bank Balances and Foreign Withdrawable Reserves, the value is calculated as follows:

   {(Reserve EOP Balance - Pass-through Balance) + (Excess Reserve EOP Balance - Pass-through Balance) + (Fair Value of Term Deposit - Withdrawal Penalty)} – Minimum Reserves

3. All other assets

   The fair value of all other buffer eligible assets is included.

   The available liquidity buffer is calculated as the sum of the haircut-adjusted values of all buffer eligible assets.

NOTE The application does not adjust the available liquidity buffer for the unwinding of transactions which is required as part of US LCR. The regulator does not specify this as a requirement in Regulation YY.

The application does not provide preconfigured haircuts for YY calculations as the values are not explicitly specified by the regulator. These are required to be specified by banks as per their own requirements through the business assumptions UI supported by OFS LRM.

If an asset is used as a hedge, then the hedge termination cost is deducted from the value of such an asset before inclusion in the available liquidity buffer.

3.6.1.4 Calculating Interim Measures

The application computes all the other measures supported as part of US LCR such a downgrade impact amount, contractually due collateral, excess collateral, and so on. You can view other LCR related measures and apply business assumptions based on these measures. The list of all the interim measures that are computed and stored are as follows:

- Contractually Due Collateral
- Excess Collateral Due
- Contractually Receivable Collateral
- Excess Collateral Receivable
- Downgrade Impact Amount
- Stable Amount
- Uninsured Amount
- Highly Stable Amount
- Insured Amount
- Less Stable Amount
- Downgrade Impact Amount
- Excess Mitigant Value
- Deficit Mitigant Value In Reporting Currency
- Maximum 30 Days Cumulative Collateral Amount Over 24 Month

NOTE These measures are only being computed and stored to apply business assumptions.

3.6.1.5 Identifying Intercompany, Internal and External Transactions

The application identifies intercompany, internal, and external transactions based on the consolidation level for which the Run is executed as per the following approach:

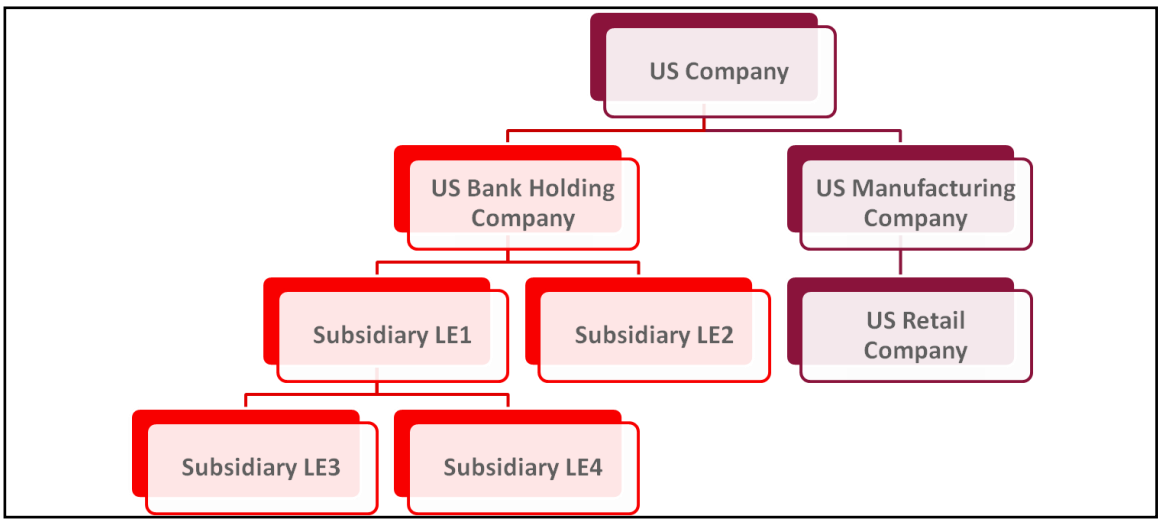
1. Any transactions between entities within the immediate organization structure of the consolidated entity are considered intercompany transactions and are eliminated during calculations.
2. Any transactions between an entity within the immediate structure of the consolidation entity and an entity outside the immediate structure of the consolidation entity but within the larger organizational structure of which the consolidation entity is a part are considered internal transactions.
3. Any transactions between an entity within the immediate structure of the consolidation entity and an entity outside the larger organizational structure of which the consolidation entity is a part, that is third party entities, are considered external transactions.

This is illustrated with the help of the following organization structure charts:

Illustration 1: Intercompany Transaction Identification for US BHC

The organization structure of a US BHC is given below where the US BHC itself is the consolidation level for calculations:

Figure 2: Intercompany Transaction Identification for US BHC



In this example, any transactions between entities highlighted in red color that is entities within the immediate structure of the consolidation entity, are considered intercompany transactions and are eliminated during calculations. Any transactions between an entity highlighted in red color and an entity highlighted in purple color are considered internal transactions. Any transactions between an entity highlighted in red color and any other entity not part of this organization structure are treated as external transactions.

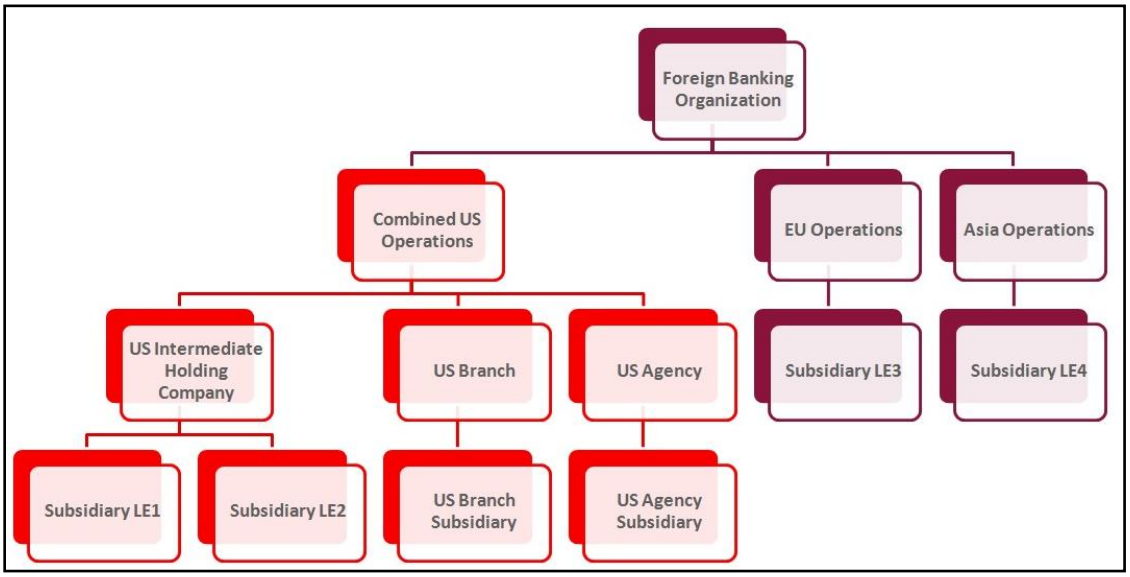
Illustration 2: Intercompany Transaction Identification for US FBOs

For example, an FBO has an Intermediate Holding Company, a Branch as well as Agency within the US. The identification of intercompany, internal, and external transactions when the consolidation entity differs is highlighted below. In each example, the transactions between entities highlighted in

red color are considered intercompany transactions. The transactions between an entity highlighted in red color and an entity highlighted in purple color are considered internal transactions. All other transactions are considered external.

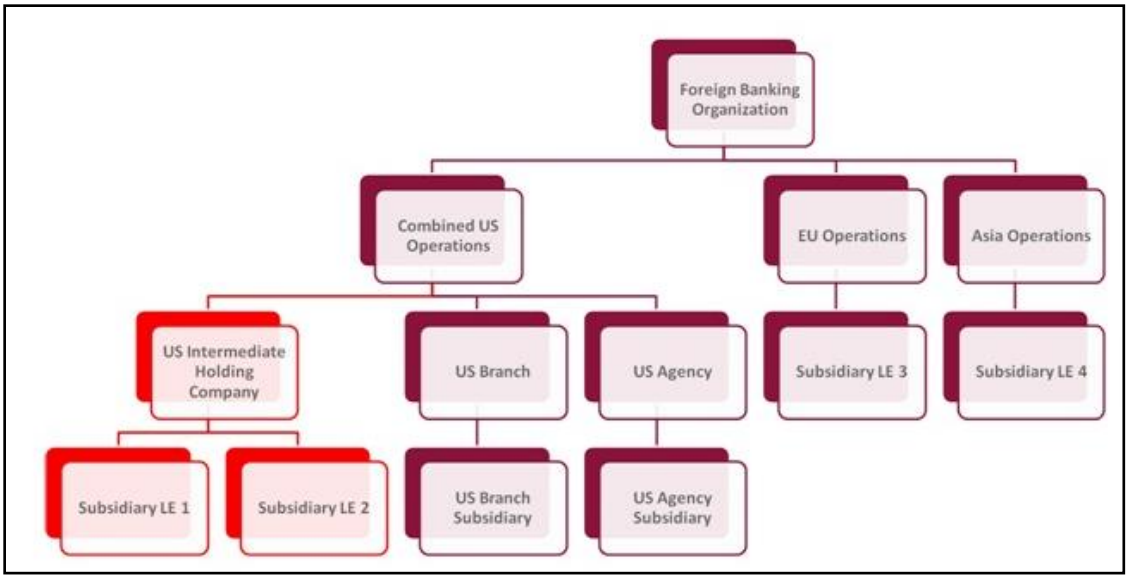
1. When consolidation entity US Combined Operations

Figure 3: Intercompany Transaction Identification for US FBOs- consolidation entity US Combined Operations



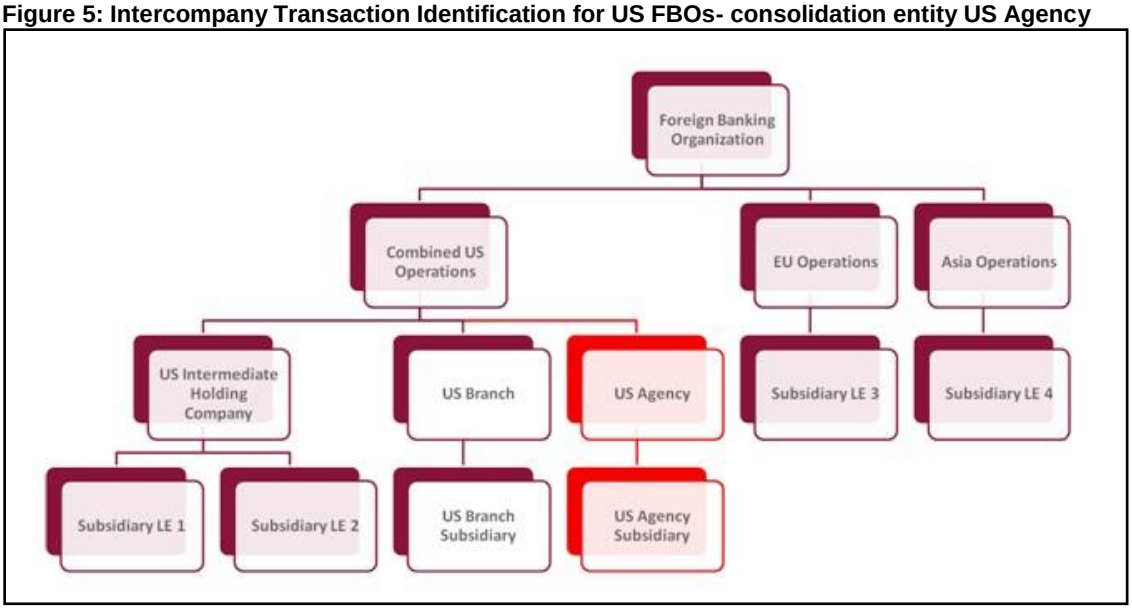
2. When consolidation entity is US IHC

Figure 4: Intercompany Transaction Identification for US FBOs- consolidation entity US IHC



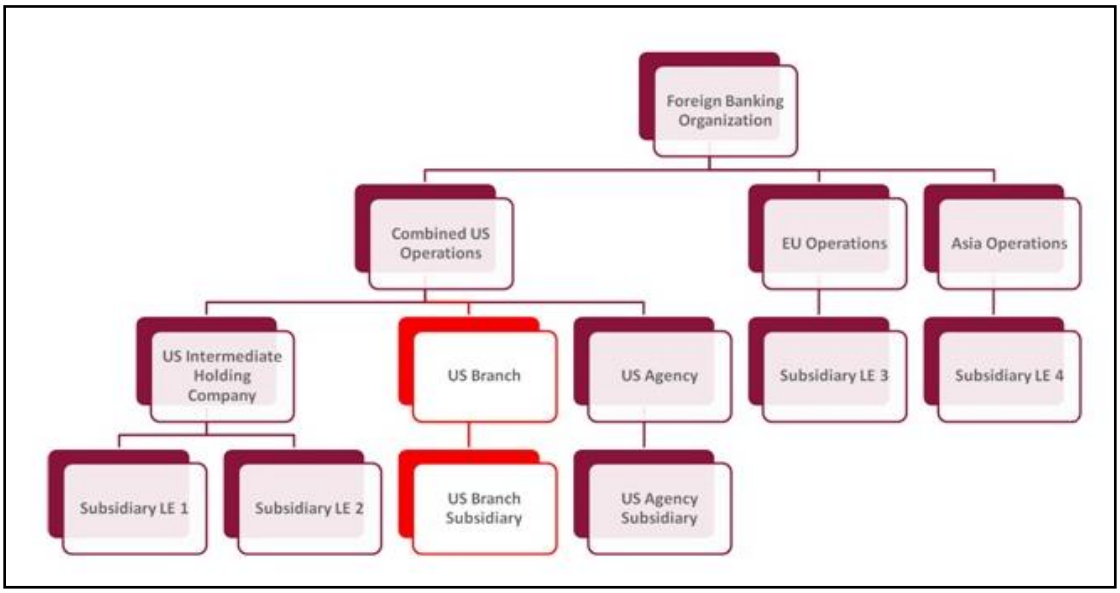
3. When consolidation entity is US Agency

Figure 5: Intercompany Transaction Identification for US FBOs- consolidation entity US Agency



4. When consolidation entity is US Branch

Figure 6: Intercompany Transaction Identification for US FBOs- consolidation entity US Branch



3.6.1.6 Calculating Buffer Requirement

As per the Dodd-Frank guidelines, Bank Holding Companies (BHCs) and Foreign Banking Organizations (FBOs) are expected to conduct stress tests across multiple horizons to assess the potential impact of liquidity stress scenarios on their cash flows, liquidity position, profitability, and solvency. The buffer requirement is computed based on the stressed cash flows. US BHCs must maintain a minimum buffer equal to the net stressed cash flow need across 30 days. And US IHCs of FBOs must maintain a minimum buffer equal to the net stressed cash flow need across 30 days while US Branches and Agencies of FBOs must maintain a minimum of buffer equal to the net stressed cash flow need across 14 days. In the case of FBOs, the external stressed cash flow sources must only be

used to cover the external stressed cash flow needs. OFS LRM supports the calculation of buffer requirement for US BHCs as well as FBOs as per the procedure given below. Since these calculations differ, the application identifies whether the BHC is US-based or is an FBO by looking up the domicile of the BHC and then automatically selects the relevant computational process.

Topics:

- Computing Buffer Requirement for US BHCs
- Computing Buffer Requirement for FBOs

3.6.1.6.1 Computing Buffer Requirement for US BHCs

The application computes buffer requirement for US BHCs and all its subsidiaries as follows:

1. The Application obtains the contractual cash flows.
2. Intercompany transactions are identified separately and eliminated during calculations.
3. The cash flows from internal and external sources are bucketed based on the time bucket definition selected as part of the Contractual Run.
4. The application computes all the other measures supported as part of US LCR calculations such a downgrade impact amount, contractually due collateral, excess collateral, and so on. These are calculated and stored to apply business assumptions.
5. The BAU and stress assumptions are applied to bucketed cash flows as part of the BAU or Stress Run. OFS LRM supports a range of business assumptions to define BAU and Stress Runs. The application does not provide preconfigured scenario values for the Regulation YY Liquidity Risk Calculation but requires users to create their own assumptions, as part of the Business Assumption window, with the relevant inflow and outflow rates. For detailed information on each business assumption supported by OFS LRM, see Chapter 6 Business Assumption; section Business Assumption Definition in the Oracle Financial Services Liquidity Risk Measurement and Management User Guide.
6. The net stressed cash flow need is computed for each user-specified stress horizon as follows:

$$\textit{Net Stressed Cash Flow Need} = \textit{Abs}\left[\textit{Min}\left\{0, \left(\sum_{i=0}^{n} \textit{Stressed Cash Flow Sources} - \sum_{i=0}^{n} \textit{Stressed Cash Flow Needs}\right)\right\}\right]$$

Where,

I = Period from open maturity to horizon

N = Horizon in days

Cash Flow Sources = Cash inflows post business assumptions

Cash Flow Needs = Cash outflows post business assumptions

The liquidity buffer requirement is equal to the net stressed cash flow need calculating for each stress horizon.

The net stressed cash flow calculation for BHCs is illustrated below considering 3 stress horizons 1 day, 5 days, and 10 days:

Table 15: Net Stressed Cash Flow calculation for BHCs

	Level 0 Time Buckets									
	Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**	**Day 8**	**Day 9**	**Day 10**
Cash Flow Sources (Inflows)										
Housing Loan	20	18	11	24	17	19	14	10	19	23
Credit Card	13	15	15	12	13	15	10	12	13	11
Balances With Banks	12	10	12	9	9	5	10	6	12	11
Total Cash Flow Sources	**45**	**43**	**38**	**45**	**39**	**39**	**34**	**28**	**44**	**45**
Cumulative Cash Flow Sources (a)	45	88	126	171	210	249	283	311	355	400
Cash Flow Needs (Outflows)										
Deposits	15	23	24	30	28	17	19	11	21	12
Borrowings	16	6	16	10	23	10	17	20	14	18
Funding Lines	6	6	5	5	6	7	6	7	5	5
Total Cash Flow Needs	**37**	**35**	**45**	**45**	**57**	**34**	**42**	**38**	**40**	**35**
Cumulative Cash Flow Needs (b)	37	72	117	162	219	253	295	333	373	408
Net Stressed Cash Flow Need For Each Horizon (Abs(Min(0,a – b))	**0**				**9**					**8**

3.6.1.6.2 Computation of Buffer Requirement for FBOs

The application computes internal and external stressed cash flow need for US IHC, US Branches, US Agencies, and their respective subsidiaries as follows:

1. The Application obtains the contractual cash flows.
2. Intercompany, internal, and external transactions are identified separately. Intercompany transactions are eliminated during calculations.
3. The cash flows from internal and external sources are bucketed separately based on the time bucket definition selected as part of the Contractual Run.
4. The application computes all the other measures supported as part of US LCR calculations such a downgrade impact amount, contractually due collateral, excess collateral, and so on. These are calculated and stored to apply business assumptions.

5. The BAU and stress assumptions are applied to bucketed cash flows as part of the BAU or Stress Run. OFS LRM supports a range of business assumptions to define BAU and Stress Runs. The application does not provide preconfigured scenario values for the Regulation YY Liquidity Risk Calculation but requires users to create their own assumptions, as part of the Business Assumption window, with the relevant inflow and outflow rates. For detailed information on each business assumption supported by OFS LRM, refer to Chapter 6 Business Assumption; section Business Assumption Definition in the Oracle Financial Services Liquidity Risk Measurement and Management User Guide.

6. The net external stressed cash flow for each day within each horizon is calculated as follows:

$$Net\ External\ Stressed\ \ Cash\ Flow\ Need_n = Abs\left[Min\left\{0, \left(\sum_{i=0}^{n} External\ Stressed\ Cash\ Flow\ Sources - \sum_{i=0}^{n} External\ Stressed\ \ Cash\ Flow\ Needs\right)\right\}\right]$$

   Where,

   I : 0 to n that is each day in the period from open maturity to horizon

   N : Horizon in days

   External Stressed Cash Flow Sources : Cash inflows from external counterparties post business assumptions

   External Stressed Cash Flow Needs : Cash outflows from external counterparties post business assumptions

7. The application computes the net stressed intra-group cash flow for each day within each horizon as follows:

$$Net\ Stressed\ Intragroup\ Cash\ Flow_i = Stressed\ Intragroup\ Cash\ Flow\ Sources_i - Stressed\ Intragroup\ Cash\ Flow\ Need_i$$

   Stressed Intra-group Cash Flow Sources: Total cash inflows from internal counterparties post business assumptions for each day

   Stressed Intra-group Cash Flow Needs : Total cash outflows from internal counterparties post business assumptions for each day

8. The application computes the daily cumulative net stressed intra-group cash flow as follows:

$$Daily\ cumulative\ net\ stressed\ intragroup\ cash\ flow_i = \sum_{i=1}^{n} Net\ Stressed\ Intragroup\ Cash\ Flow$$

9. If the daily cumulative net stressed intra-group cash flow for any day is a negative value, it is considered as a daily cumulative net stressed intra-group cash flow need.

10. The absolute value of the largest negative daily cumulative net stressed intra-group cash flow occurring during the horizon is considered the net internal stressed cash flow need

11. The application computes the net stressed cash flow need or the liquidity buffer requirement as follows:

$$Net\ Stressed\ Cash\ Flow\ Needs_n = Net\ External\ Stressed\ Cash\ Flow\ Need_n + Net\ Internal\ Stressed\ \ Cash\ Flow\ Need_n$$

    The net stressed cash flow calculation for BHCs is illustrated in the following table considering 3 stress horizons 1 day, 5 days, and 10 days:

Table 16: Net Stressed Cash Flow Calculation for BHCs

	Level 0 Time Buckets									
	Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**	**Day 8**	**Day 9**	**Day 10**
External cash flow sources (Inflows)										
Housing Loan	7	10	7	3	8	4	9	6	10	9
Credit Card	2	2	3	4	3	6	4	3	4	7
Total external cash flow sources	**9**	**12**	**10**	**7**	**11**	**10**	**13**	**9**	**14**	**16**
Cumulative external cash flow sources (a)	9	21	31	38	49	59	72	81	95	111
External cash flow needs (Outflows)										
Deposits	9	7	7	10	14	11	7	9	5	15
Borrowings	8	9	7	6	9	6	6	5	8	8
Total external cash flow needs	**17**	**16**	**14**	**16**	**23**	**17**	**13**	**14**	**13**	**23**
Cumulative external cash flow needs (b)	17	33	47	63	86	103	116	130	143	166
Net external stressed cash flow need for each horizon [c = {Abs(Min(0,a – b)}]	**8**				**37**					**55**
Internal cash flow sources (Inflows)										
Loan to Parent	6	4	9	6	6	3	4	15	5	9
Loan to non-U.S. entities	4	3	8	3	4	5	1	4	13	14
Total internal cash flow sources (d)	**10**	**7**	**17**	**9**	**10**	**8**	**5**	**19**	**18**	**23**
Intragroup cash flow needs (Outflows)										
Borrowings from parent	8	6	2	5	8	4	2	9	7	4
Borrowings from non-U.S. entities	4	7	4	7	7	11	5	8	1	5

	Level 0 Time Buckets									
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Total internal cash flow needs (e)	12	13	6	12	15	15	7	17	8	9
Net intra-group stressed cash flow (d – e)	-2	-6	11	-3	-5	-7	-2	2	10	14
Daily cumulative net stressed intra-group cash flow (f)	-2	-8	3	0	-5	-12	-14	-12	-2	12
Daily cumulative net stressed intra-group cash flow need (If f less than 0 then f, else 0)	-2	-8	0	0	-5	-12	-14	-12	-2	0
Greatest daily cumulative net stressed intra-group cash flow need for each horizon (g)	-2				-8					-14
Net internal stressed cash flow need for each horizon [g = Abs(g)]	2				8					14
Net stressed cash flow need for each horizon (c + g)	10				45					69

NOTE The application computes the buffer requirement for multiple horizons which are provided by the user as part of the stress horizons parameter in the Run Execution window. At a minimum, buffer requirement is to be computed for a horizon of 30 days for US BHCs and US IHCs of FBOs. Buffer requirement is to be computed for a horizon of 14 days, at a minimum, for US Branches and Agencies of FBOs.

Buffer requirement is calculated on Solo as well as the Consolidated basis.

The calculation of net cash outflows is done at the granularity of level 0 buckets which are part of the time bucket definition selected in the Run Management window. Users must ensure that the level 0 buckets are specified daily till the highest horizon for which buffer requirement is to be computed within a Run for accuracy of calculations. In this illustration, the level 0 time buckets must be defined on a daily basis till day 10.

3.6.1.7 Consolidation

This section explains consolidation process in regulation YY calculations.

Topics:

- Calculating Consolidated Buffer Assets
- Calculating Consolidated Buffer Requirement

3.6.1.7.1 Calculating Consolidated Buffer Assets

The transferability restrictions on buffer assets of subsidiaries are considered while computing consolidated liquidity buffer. Restricted subsidiary assets designated as liquidity buffer are available to the parent company only to the extent that they are required to off-set cash flow needs of its subsidiary on a consolidated basis. The unrestricted subsidiary assets are freely available for the parent company's use.

The application computes the transferable liquid assets buffer from subsidiary to parent in a manner similar to that followed in US LCR as follows:

1. The application eliminates all intercompany transactions at an account level up to the immediate parent as per the approach followed in US LCR for Foreign subsidiaries. Refer section Identification of Intercompany, Internal and External Transactions for information on intercompany transactions identification process for BHCs and FBOs. The internal cash flows must not be eliminated. It is possible to perform the following:
    - To view all intercompany transactions separately for each consolidation level.
    - To view internal and external cash outflows and inflows for US IHC, US Branches, and US Agencies of FBOs after excluding intercompany transactions.
    - To view cash outflows and inflows for US BHCs after excluding intercompany transactions.

2. The application computes the net stressed cash flow needs for each legal entity, for leaf-level on a solo basis and each node level on a consolidated basis. The method for computing net stressed cash flow needs varies for BHCs and FBOs. Refer section Calculation of Buffer Requirement for more information.
3. The application identifies the transferable portion of restricted buffer assets. The application transfers the restricted portion of the liquidity buffer of a legal entity to the parent to the extent of its net stressed cash flow needs. The out of the box transfer sequence for restricted assets are as follows:
   - Cash
   - A security issued or guaranteed by the US Government, US Government Agency or US Government Sponsored Enterprise (GSE) that is liquid and readily marketable
   - Other buffer assets classified as HQLA Level 1 Assets
   - Other buffer assets classified as HQLA Level 2A Assets
   - Other buffer assets classified as HLQA Level 2B Assets
   - Other buffer assets classified as Other Assets

   This is done at each level of the consolidation entity's organizational structure.

   You can view the transferable and non-transferable portion of restricted buffer assets from each subsidiary entity.

   You can change the sequence of restricted assets consideration in the table DIM_LIQ_BUFFER_COMPONENTS, column N_RANK. The ranks in the column N_RANK are considered in ascending order, with the lowest rank being considered first.
4. The application transfers the unrestricted portion of liquidity buffer fully to the parent. This is done at each level of the consolidation entity's organizational structure. You can view the unrestricted buffer assets transferred from each subsidiary entity.
5. You must perform steps (a) to (d) till the highest consolidation level is reached.
6. The approach to consolidation is similar to that followed in US LCR. However, the computation of buffer and buffer requirement is based on YY guidelines.
7. The consolidated buffer is calculated at each consolidation entity as per the following formula:

$$\begin{aligned} Consolidated\ Available\ Buffer_{Consolidation\ Entity} \\ = Buffer\ Assets_{Consolidation\ Entity} \\ + Transferred\ Restricted\ Buffer\ Assets_{Subsidiaries} \\ + Unrestricted\ Assets_{Subsidiaries} \end{aligned}$$

8. You can view the consolidated buffer assets and their corresponding HQLA asset level at the following levels:
   - Restricted buffer assets of each entity that are consolidated with the parent entity and their corresponding HQLA asset level.
   - Restricted buffer assets of each entity that are not consolidated with the parent entity and their corresponding HQLA asset level.

- Unrestricted buffer assets of each entity that are consolidated with the parent entity and their corresponding HQLA asset level.
- All of the above calculations across multiple stress scenarios.

3.6.1.7.2 Calculating Consolidated Buffer Requirement

As per Regulation YY, BHCs are required to maintain a buffer to meet its consolidated buffer requirement. Also, FBOs are required to maintain sufficient buffer to meet their consolidated buffer requirement at the following levels:

- Consolidated US Operations
- Consolidated IHC Operations
- Consolidated US Branch/Agency Operations

The application computes the buffer requirement across multiple horizons in a consolidated manner as follows:

1. The application eliminates all intercompany transactions up to the legal entity selected as the consolidation entity. See the Identification of Intercompany, Internal and External Transactions section for details on identification of intercompany transactions and the difference between intercompany and internal transactions.
2. The application computes the total stressed cash inflows and outflows, both internal and external, on a consolidated basis for the consolidation entity and all its subsidiaries.
3. The application computes the net stressed cash flow needs at the level of the consolidation entity based on the methods prescribed for BHCs and FBOs by US Federal Reserve as per Regulation YY. See the Calculation of Buffer Requirement section for more information.

NOTE

1. These calculations are done for multiple horizons in a single Run.
2. You can view the net stressed cash flow needs and its components at the following levels:
   - Each solo legal entity and consolidation entities in a single Run
   - Across multiple horizons in a single Run
   - Across multiple stress scenarios

4 FDIC Part 370 Calculations

Most countries have implemented deposit insurance schemes to safeguard the interest of the depositors if bankruptcy of the depository institution. With the introduction of regulations such as Basel III, the insured part of a deposit must be identified and treated appropriately for liquidity risk purposes. Recent regulations, such as FDIC 370, mandating banks to identify and report the insurance coverage at an account level for various ownership rights and capacities to ensure that the insurer pays out the amount due to depositors promptly.

OFS Deposit Insurance Calculations for Liquidity Risk Management covers deposit insurance calculations for liquidity coverage ratio and other calculations required for Liquidity Risk Management. The application identifies insurance eligible accounts under a particular deposit insurance scheme. The right and capacity under which these accounts are held, and the insurance limit provided by the country-specific insurer for each account. It allocates the insurance limit to the account level based on the ownership right and capacity and identifies the insured and uninsured portion of the account. Specifically, this release addresses the FDIC 370 guidelines, which will be followed by coverage for other countries.

The approach to the guidelines for the bank's deposits is split into three aspects:

- Prerequisites for Insurance Calculation
- ORC Classification and Insurance Calculation
- Insurance Allocation

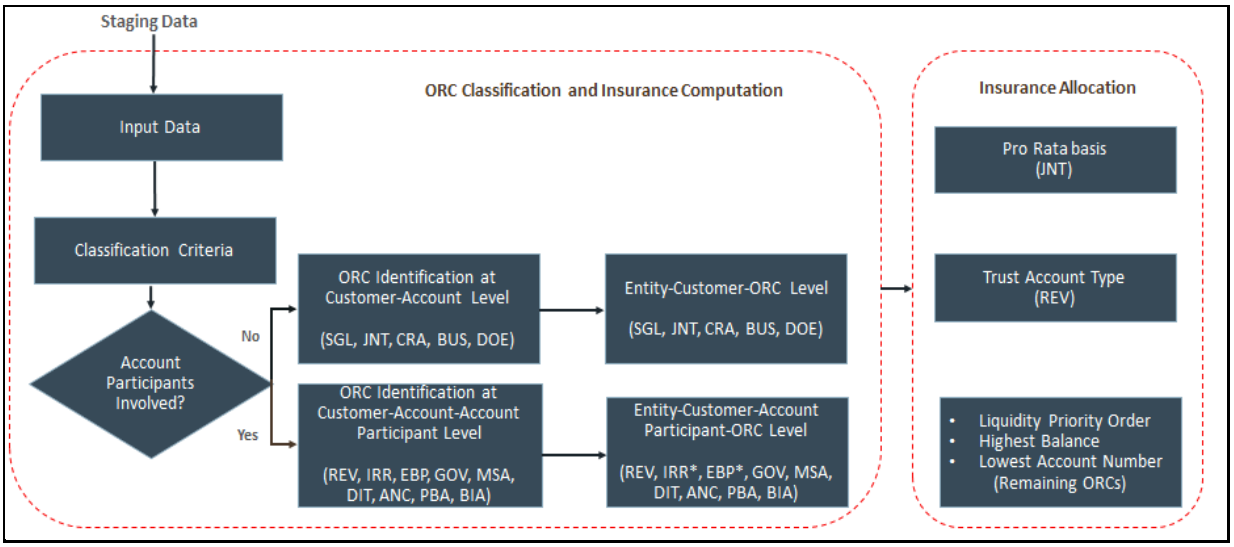
For brokered deposits, the bank may provide data in a reduced format as per Alternative Recordkeeping requirements. For such accounts, the ORC Classification is a download in OFS DICLRM. The Insurance calculation and the allocation process for these accounts are done with the bank's accounts.

Topics:

4.1 Solution Process Flow

For the Bank's accounts, the classification and calculation process to comply with FDIC Part 370 guidelines is as shown in the following diagram:

Figure 7: Solution Process Flow



4.2 Prerequisites for Insurance Calculation

Before classifying accounts and calculating the insurance, you must determine the following prerequisites. They are used during ORC classification or insurance determination. These include identifying FDIC Insurance eligible accounts, Identification and treatment of merged entities, Pre-insurance computations, and Treatment for deposits denominated in foreign currencies.

Topics:

- Identification of FDIC Insurance Eligible Accounts
- Entity based insurance calculation.
- Treatment of Deposits Denominated in Foreign Currencies
- Recognition of Death of Parties
- Pre-Insurance Determination

4.2.1 Identification of FDIC Insurance Eligible Accounts

The first step in determining insurance is to identify the subset of deposit accounts that are eligible for insurance coverage from the FDIC. Only FDIC Insurance-eligible accounts go through the FDIC Part 370 classification criteria and insurance calculation.

A deposit account is identified as eligible for deposit insurance coverage by FDIC based on the following criteria:

- Account domicile
- Domicile of the covered institution or its branch
- Whether the customer is internal to the organization structure or not

Additionally, identification and inclusion of overseas military banking facilities for the United States are also treated under the eligibility criteria.

NOTE Deposits held by a depositor in the same right and capacity with multiple insured entities or the US branch of foreign entities are covered separately per entity for all the US branches of each foreign legal entity.

Only deposit accounts that have a balance greater than zero are considered for deposit insurance.

Prepaid Cards and Credit Cards with excess balance are also considered as eligible accounts for deposit insurance.

4.2.2 Entity-based Insurance Calculation

FDIC Insurance coverage is extended at a legal entity level. This indicates that all the accounts belonging to the same counterparty, same right and capacity, and the same legal entity are aggregated for insurance determination.

In a domestic scenario, the coverage is at the legal entity level, which indicates that the branches of a legal entity are not covered separately but are included in the legal entity coverage.

In certain instances, wherein a branch is covered separately from the legal entity, such as a branch of a foreign legal entity, the application provisions identifiers to capture and process this information. The granularity of the Insurance calculation as per FDIC Part 370 is as follows:

- Insured Legal Entity/Separately insured Branch: Ownership Right and Capacity - Customer

  In this case, the beneficial owner is the customer.

- Insured Legal Entity/Separately insured Branch: Ownership Right and Capacity - Customer – Beneficial Party

  In this case, the beneficial owner is a party other than the customer. The insurance is provided on a pass-through basis.

NOTE

- Banking facilities in overseas military bases are considered as domestic and treated accordingly. That is, FDIC covers all the domestic branches of a domestic legal entity along with the legal entity itself. This includes overseas military operations of a domestic legal entity. There is no separate coverage at the branch level.
- Deposits held in multiple US branches of a foreign legal entity, in the same right and capacity, are aggregated together for FDIC insurance. The coverage is not at an individual US branch level.

4.2.2.1 Insurance after Mergers and Restructuring

During restructuring, such as mergers, the FDIC has a six months grace period in recognizing the financial institution for insurance calculations. If two depository institutions, whether insured entities or separately insured branch and entities (in the case of US branches of foreign banks), merge or go through an acquisition, the deposit treatment for these institutions are as follows:

- If the restructuring occurred less than or equal to 6 months from the As of Date:

  Treat the two entities as separate entities and compute the deposit insurance for the accounts held by them separately.

- If the restructuring occurred greater than 6 months from the As of Date:

  e. If there are term deposits whose maturity is greater than 6 months from the restructuring date and are not renewed within 6 months, then the application treats them separately from the acquiring entity for deposit insurance calculation purposes till the maturity of such deposits.

  f. If there are term deposits that are renewed within 6 months of the restructuring on identical terms as the original terms, the application treats them separately from the acquiring entity for deposit insurance calculation purposes till the first maturity.

4.2.3 Treatment of Deposits Denominated in Foreign Currencies

Deposits held in foreign currencies are covered by FDIC, provided they meet other criteria for insurance eligible accounts. The application determines deposit insurance in terms of US dollars for all accounts, including foreign currency denominated deposits. The currency conversion rates used for this purpose are the 12 PM rates, meaning noon buying rates for cable transfers quoted by the Federal Reserve Bank of New York, unless a different source is specified under the agreement. The exchange rate source for the conversion of foreign currency-denominated deposits is captured separately from the rates used for other computations at an insured entity/branch level.

4.2.4 Recognition of Death of Parties

This section applies to the FDIC Customer type *Individual* only. FDIC provides a six months grace period for recognizing an individual customer's death for deposit insurance coverage. That is an individual is recognized as dead only after 6 months from the date of his/her death for deposit insurance purposes. This grace period applies to customers only and does not apply to account participants such as beneficiaries.

4.2.5 Pre-Insurance Determination

In this process, an initial aggregation is done by the customer. If a customer's total funds in all accounts held at a Legal Entity level is less than the Standard Maximum Deposit Insurance Amount (SMDIA) and the setup master entry for the component code FDIC_DEP_AGGR_option is *Yes*, the initial aggregation is done at a Customer level. When the option is chosen as *No*, the aggregation is only done at an Ownership Right and Capacity (ORC) level.

4.3 ORC Classification and Insurance Calculation

A deposit account, if eligible for deposit insurance coverage from FDIC should be classified into one of the 14 ORCs as listed by FDIC. The classification is done using multiple criteria, such as customer type, fiduciary relationship criteria, deposit primary purpose, and so on.

After the classification is done, the insurance calculation is completed at a granularity level by the ORC to which the record is classified. For each ORC, the aggregated amounts are compared to the SMDIA. If the aggregated amount is lesser than the SMDIA, then the entire amount is insured, else, the funds up to SMDIA are insured and the portion exceeding the SMDIA is uninsured.

Topics:

4.3.1 Single Accounts (SGL)

Coverage under this ORC extends to accounts that are either owned by one natural person or treated as if one natural person owns them. The single accounts category includes the following:

- Individually owned accounts
- Accounts in the name of a deceased person or the estate of a deceased person
- Sole proprietorship accounts

The following are also included in SGL ORC:

- Retained Interest from Irrevocable Trust
- The interest of Ineligible beneficiaries for Revocable Trust
- The interest of Ineligible beneficiaries for Irrevocable Trust

- Single accounts for Taxes and Insurance premiums of mortgagors
- Business accounts not engaged in independent activity
- Joint accounts where the number of owners has reduced to one

SGL ORC is also the default ORC for any FDIC Insurance eligible account that has all its data elements available but does not fit the classification criteria for the other ORCs. For example, if an account has any data elements missing, it will be marked as 'Pending'. However, if an account has all the data elements present, but does not fit into any ORC bucket, then it is tagged as SGL.

Topics:

4.3.1.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied in the following way:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

A deposit held by an individual in his or her capacity in a single account is insured for a maximum of up to the SMDIA.

4.3.1.2 Process Flow

The process flow for Single Accounts (SGL) ORC Type Classification is as follows.

Figure 8: Process Flow – SGL ORC Type Classification

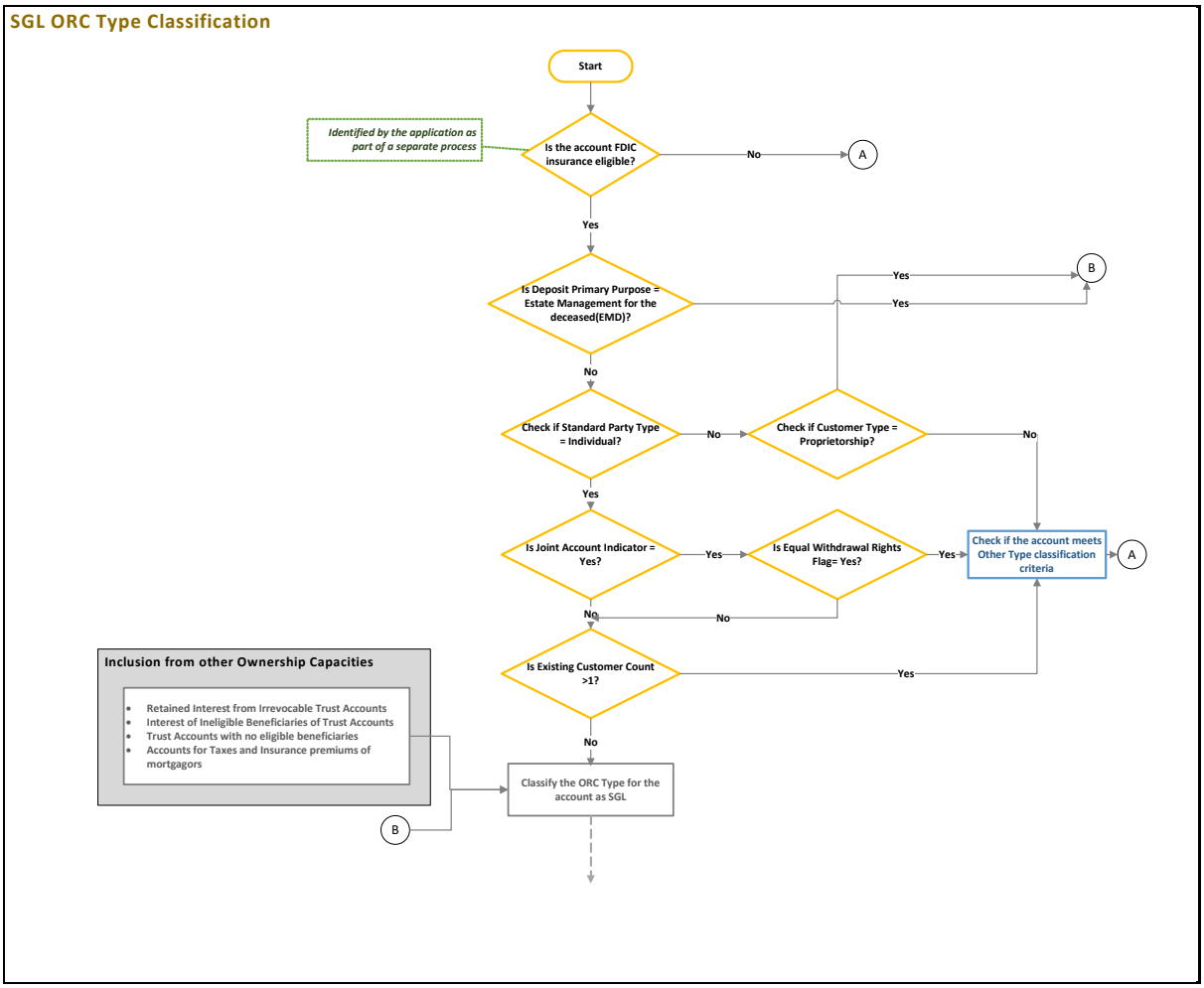
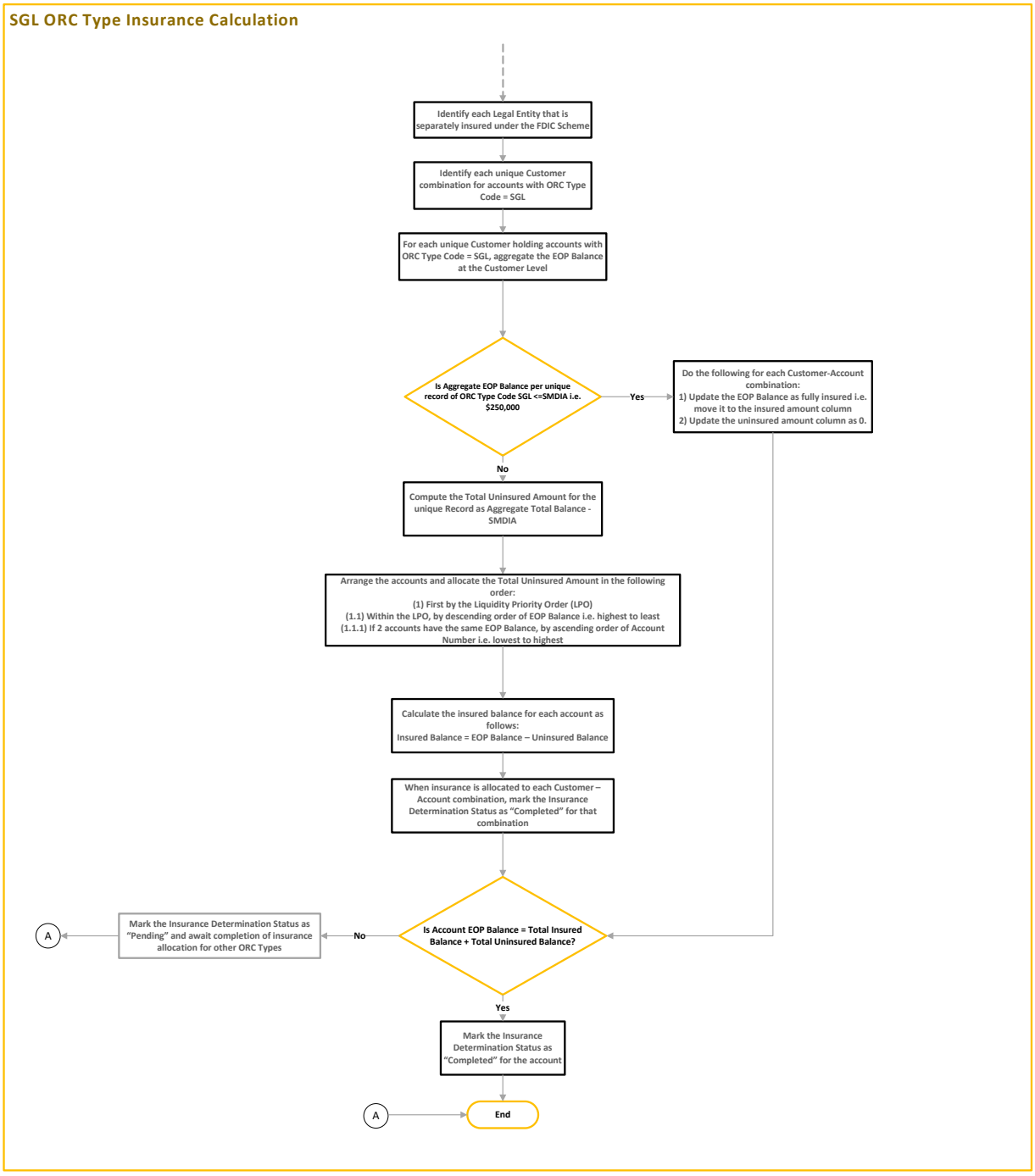


Figure 9: Process Flow – SGL ORC Type Classification (continued)



4.3.2 Joint Accounts (JNT)

A joint account is a deposit owned by two or more individuals who meet the following criteria:

g. Each co-owner must be a natural person.

h. All co-owners must have equal withdrawal rights.

i. All co-owners have signed the signature card or equivalent.

Topics:

4.3.2.1 Insurance Limit

The Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

For JNT, this translates to:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Co owner level

Each co-owner of a joint account is insured up to SMDIA for the combined amount of his or her interests in all joint accounts at the same IDI. In determining a co-owner's interest in a joint account, the Application assumes each co-owner is an equal owner.

4.3.2.2 Treatment in case of Death of co-owner

Given that the FDIC does not distinguish coverage based on whether the Joint accounts are held under 'Rights of survivorship' or 'Tenants in common', the application treats death across all joint accounts in the same manner. If a co-owner dies, the deposit balance applicable to the co-owner is distributed to the other co-owners.

For a Joint account on the death of a co-owner, if the number of surviving owners is not more than 1, then such accounts revert to be treated in the SGL category.

4.3.2.3 Process Flow

The process flow for Joint Accounts (JNT) ORC Type classification is as follows.

Figure 10: Process Flow – JNT ORC Type Classification

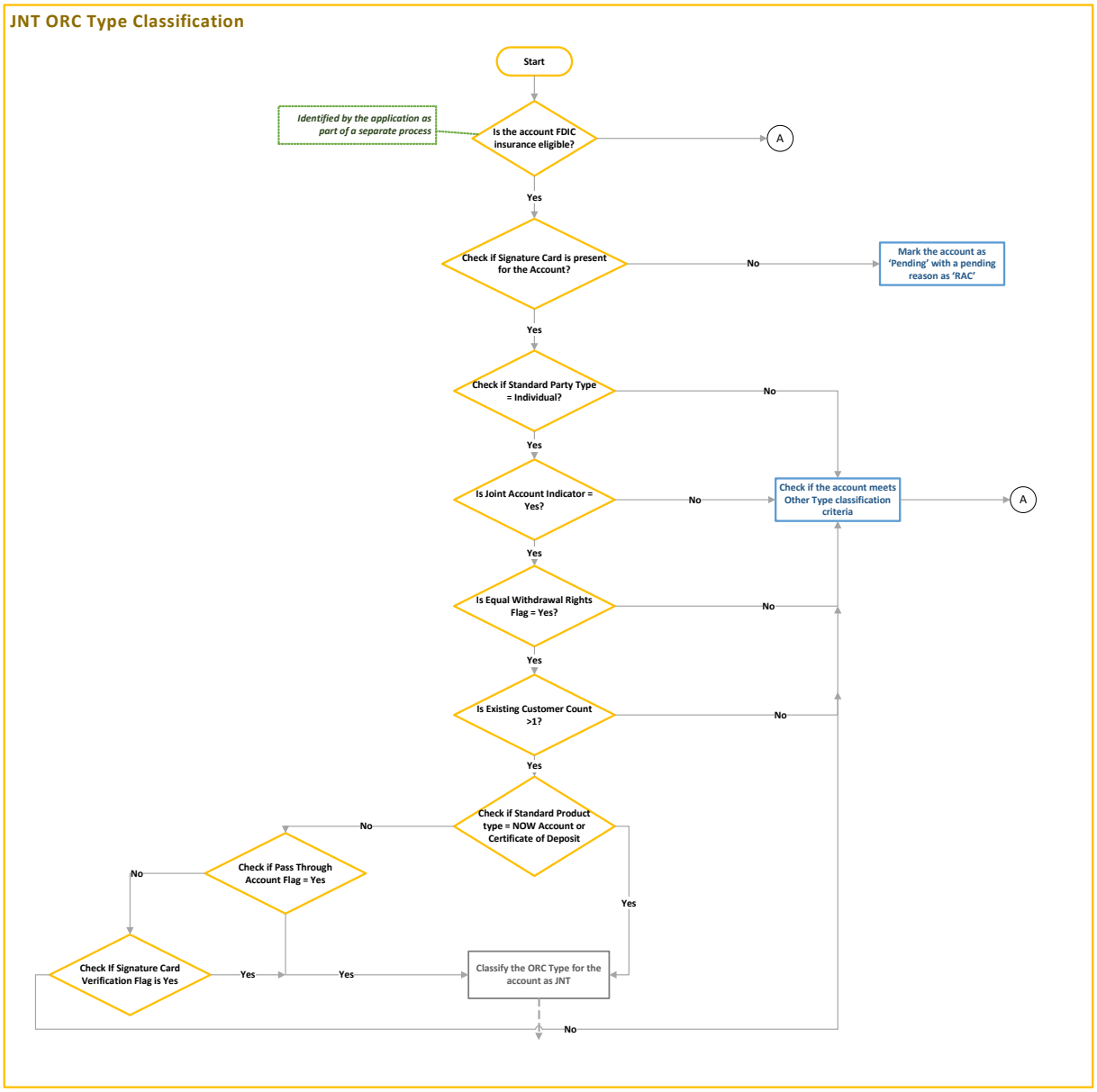
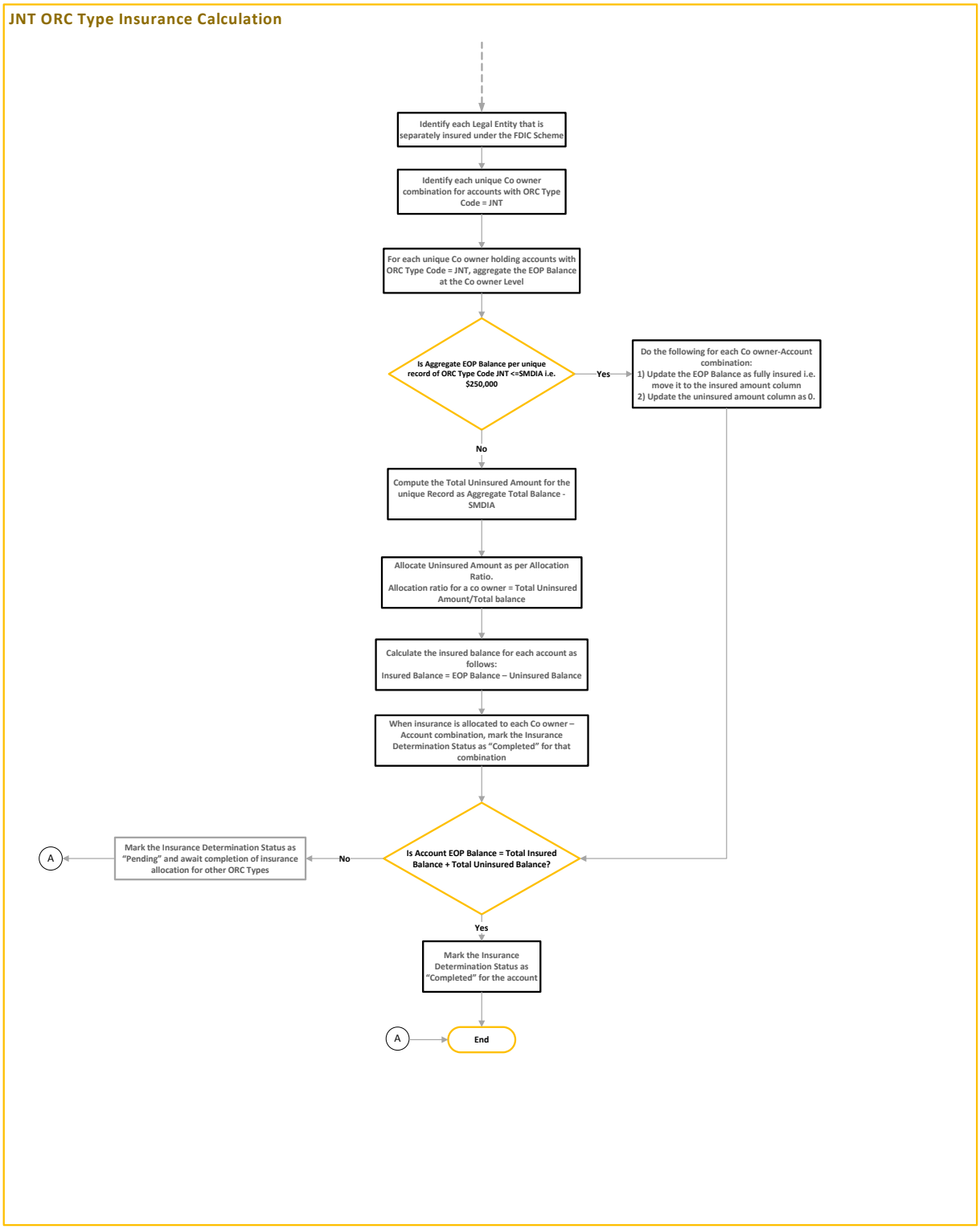


Figure 11: Process Flow – JNT ORC Type Classification (continued)



4.3.3 Certain Retirement Accounts (CRA)

This Ownership Right and Capacity include Individual Retirement Accounts (IRA) such as Traditional and Roth IRAs, Savings Incentive Match Plan for Employees (SIMPLE) IRAs, Simplified Employee Pension (SEP) IRAs, and Section 457 deferred compensation plans. This also includes self-directed Keogh Plans and self-directed Defined Contribution plans.

Topics:

4.3.3.1 Insurance Calculation

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

Insurance calculation for this ORC is done at this level irrespective of whether the customer has named beneficiaries or not.

4.3.3.2 Process Flow

The process flow of Certain Retirement Accounts (CRA) is as follows.

Figure 12: Process Flow – CRA ORC Type Classification

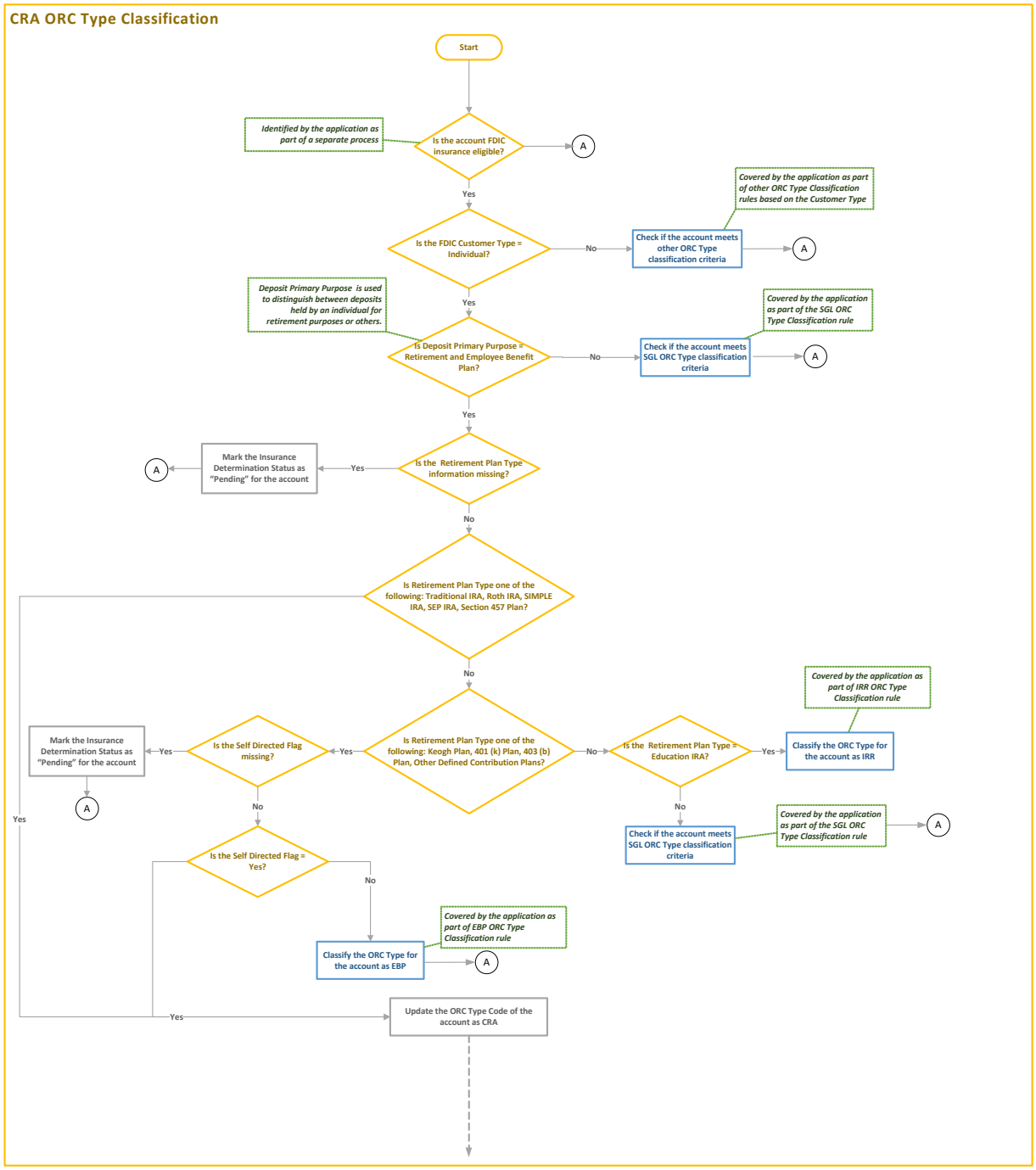
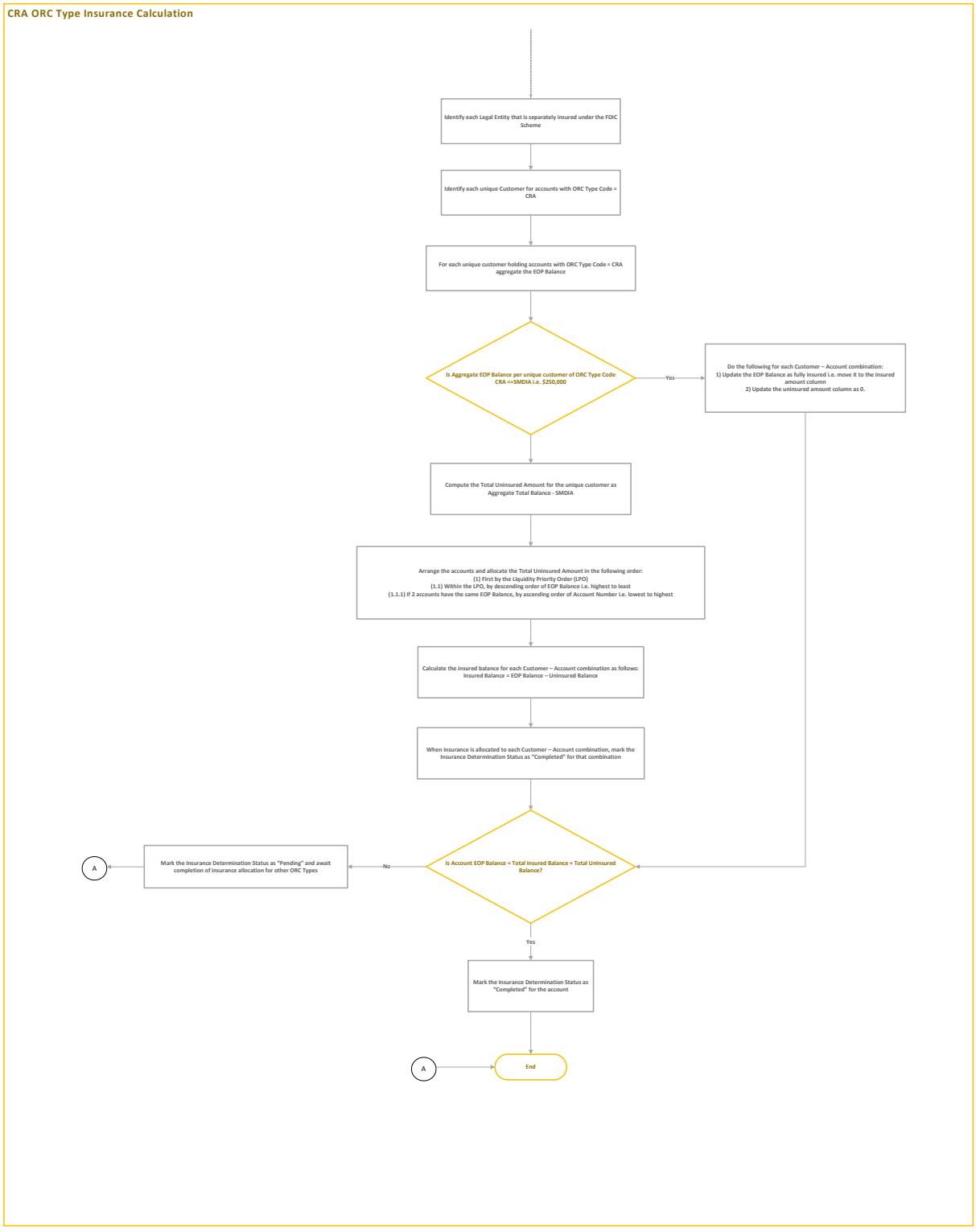


Figure 13: Process Flow – CRA ORC Type Classification (continued)



4.3.4 Employee Benefit Plans (EBP)

Under this ORC, all the defined benefit plans and defined contribution plans that are not self-directed are covered.

A defined benefit plan is one where the employer aggregates money in a retirement account and arranges to pay employees a fixed monthly payout during retirement, or mostly referred to as a pension.

A defined contribution plan, like 401(k), requires employees to put in their own money into the retirement accounts. The employer may also make contributions regularly. Future benefits in this type of plan are subject to investment fluctuations. Defined contribution plans that are not self-directed are covered in this ORC.

Overfunding amounts are computed by the Application by taking into consideration the Total Allocation Percentage of all employee benefit plan participants associated with an Employer. If the Total Percentage is less than 100%, it is determined that there is Overfunding in the deposit account. This amount does not belong to any participant and instead belongs to the Employer.

All Overfunding amounts for an Employer are aggregated and receive a separate SMDIA under EBP ORC.

Topics:

4.3.4.1 Insurance Calculation

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) for Non-Contingent Interests are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For EBP, this translates to:

Legal Entity/Separately insured branch- EBP-Employer- Employee Benefit Plan Participant level

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) for Contingent interests are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

For EBP, this translates to:

Legal Entity/Separately insured branch- EBP-Employer level

4.3.4.2 Process Flow

The process flow of EBP ORC Type Classification is as follows.

Figure 14: Process Flow – EBP ORC Type Classification

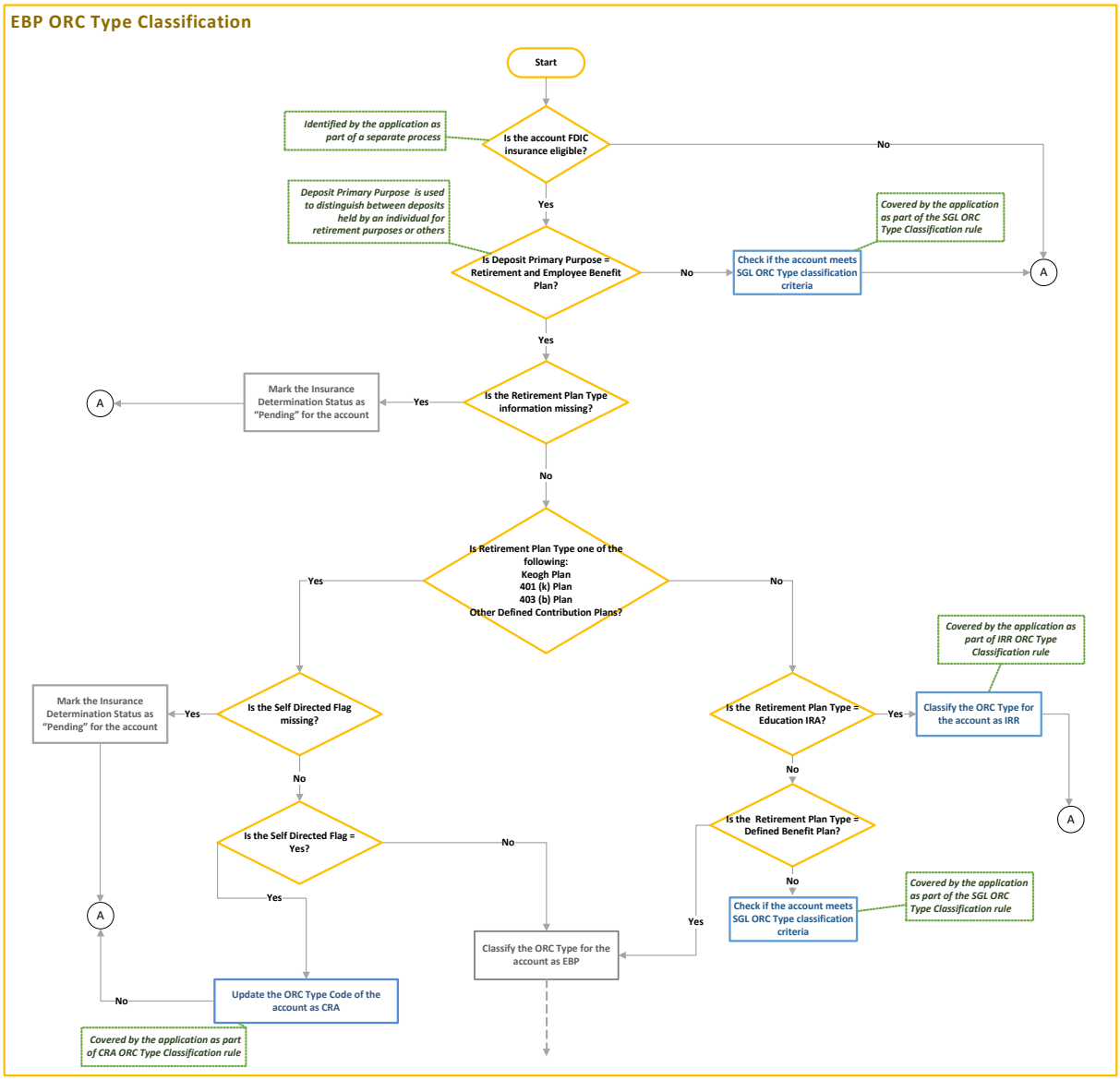
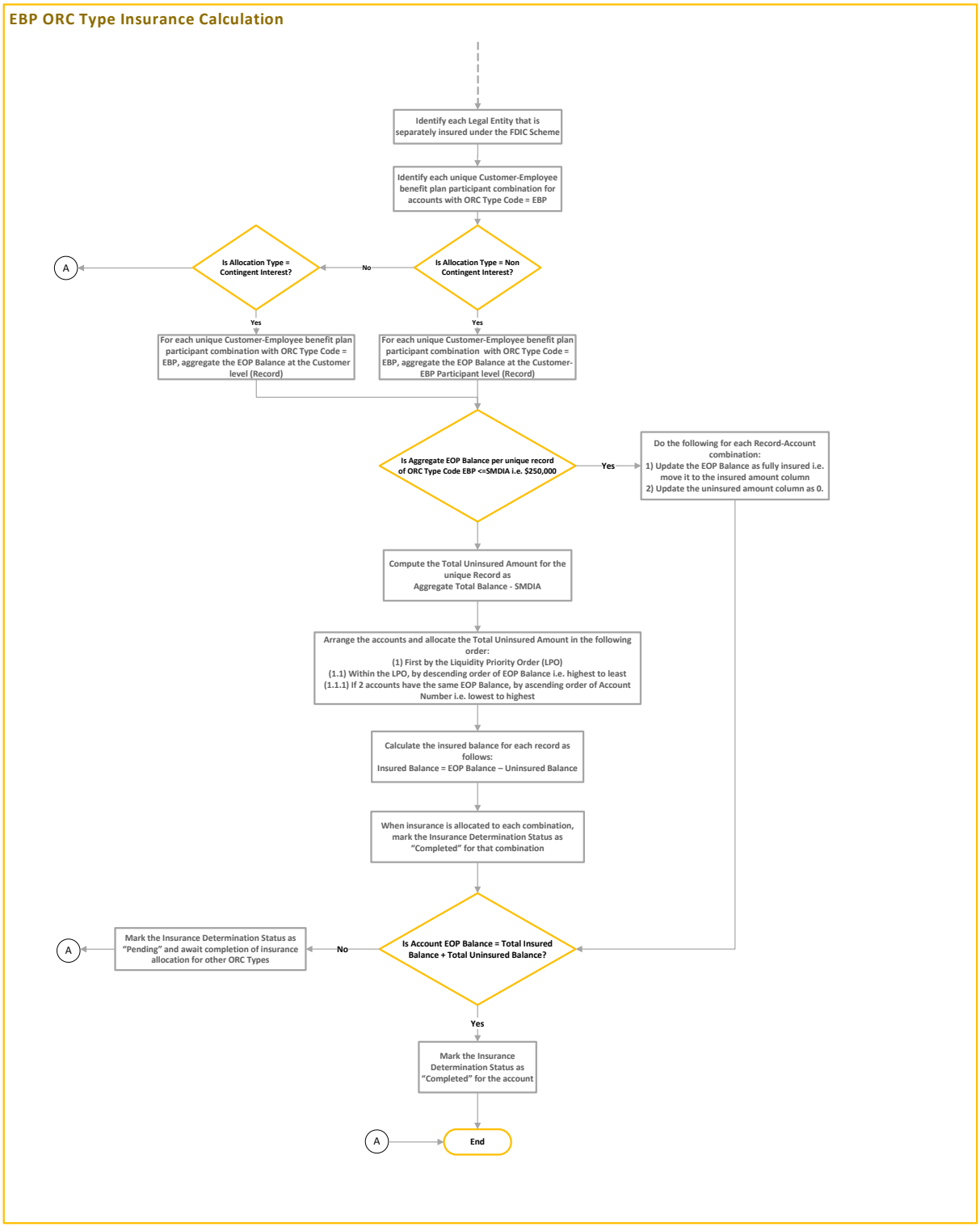


Figure 15: Process Flow – EBP ORC Type Classification (continued)



4.3.5 Trust Accounts

A trust account is a legal arrangement through which funds or assets are held by a third party for the benefit of another party, which may be an individual or a group. The creator of the trust is known as a grantor or settlor. The beneficial parties are called the beneficiaries and the third party is called the trustee.

FDIC provides insurance coverage to both Revocable and Irrevocable Trust accounts under ORC REV and IRR respectively. The terms of a Revocable Trust account, as the name suggests, can be revoked or modified at any time. An Irrevocable Trust on the other hand once set in place, cannot be modified.

To receive coverage under REV and IRR ORC, certain requirements must be fulfilled. The following is common for both REV and IRR:

Topics:

4.3.5.1 Identification of Eligible Beneficiaries

A named beneficiary of a Trust account is deemed to be eligible for coverage under REV and IRR only if the beneficiary meets the following criteria:

- A natural person
- A charitable or non-profit organization

All other types of beneficiaries are either ineligible or invalid.

An ineligible beneficiary does not meet the requirements of an eligible beneficiary but is still able to legally receive the bequest under law. In such cases, to calculate deposit insurance, the result is a reversion of funds to the single account of the grantor. Under FDIC guidelines, for ineligible beneficiaries of a revocable trust, the amounts are treated as funds in the single account of the grantor.

An Invalid beneficiary is unable to legally receive the bequest under state law. For deposit insurance, bequests to invalid beneficiaries are ignored and the funds are allocated to the remaining beneficiaries. Under FDIC guidelines, for an invalid beneficiary, the funds associated with the beneficiary should be allocated to other beneficiaries. The Application takes the Invalid beneficiary's Account participant interest and divides it equally among other beneficiaries' Account participant's interests.

The Application identifies eligible beneficiaries by using the FDIC Customer type dimension as in the following example.

Table 17: Identification of Eligible Beneficiaries

Beneficiary (Account Participant)	Account Participant Description	FDIC Customer Type Code	Eligible Beneficiary Flag (Processing)
Hema	Individual	IND	Yes
Rekha	Individual	IND	Yes

Beneficiary (Account Participant)	Account Participant Description	FDIC Customer Type Code	Eligible Beneficiary Flag (Processing)
Nirma	Others	OTH	No
Oxfam	Charitable or Non-profit organization recognized by the IRS	NFP	Yes
Amnesty International	Charitable or Non-profit organization recognized by the IRS	NFP	Yes

4.3.5.2 Death of Beneficiaries

When a beneficiary is an individual, in case of death of the beneficiary, the insurance allocation varies whether there are any substitute beneficiaries named or not. The death of a beneficiary is recognized immediately for FDIC purposes, without any grace period given as follows:

- Beneficiaries deceased with Successor beneficiaries
- Beneficiaries deceased without Successor beneficiaries

4.3.5.2.1 Beneficiaries Deceased with Successor Beneficiaries

Under FDIC guidelines, for the beneficiaries deceased, if the successor beneficiary(s) is eligible, the Application divides the amount equally among the successor beneficiaries for the deceased beneficiary.

4.3.5.2.2 Beneficiaries Deceased without Successor Beneficiaries

A) All beneficiaries deceased: Under FDIC guidelines, in this case, the amount belonging to the deceased beneficiary will be treated as funds in the Single/Joint account of the grantor or grantors.

B) Some beneficiaries deceased: In this case, the funds belonging to the deceased beneficiary is ignored for insurance calculation.

4.3.5.3 Life Estate Beneficiary Treatment

A Life Estate Beneficiary (LEB) can use the deposit assets during their life and the ownership is changed upon death. This person has the right to receive income from the trust or to use the trust assets before all other beneficiaries. The beneficiaries who inherit the estate after the LEB are called “Remainder Beneficiaries”. FDIC provides coverage to both Life Beneficiaries.

The stake of the LEB is intangible. The FDIC allocates insurance to LEB in the following way:

- A fixed amount of SMDIA under REV ORC
- (A Factor * Trust amount), under IRR ORC (Factor based on IRS Actuarial tables)

4.3.6 Revocable Trust Accounts (REV)

A revocable trust account is a deposit account owned by one or more people expressing the intent that on the death of the owner, the deposited funds will pass to one or more named beneficiaries. A revocable trust account can be revoked, terminated, or amended at the discretion of the owner(s).

FDIC deposit insurance covers two types of revocable trusts — informal revocable trusts and formal revocable trusts. Insurance calculation does not depend on the type of revocable trusts.

Topics:

4.3.6.1 Grantors as Beneficiary

FDIC regulations provide that where the co-owners of a revocable trust account are themselves the sole beneficiaries of the corresponding trust, the account shall be insured as a joint account.

4.3.6.2 Beneficiary as Another Trust account

When a Trust account names another trust account as Beneficiary, the set of owners of both Trusts are compared. If the Beneficiary Trust is owned by the Grantor or Grantors, then the Beneficiary Trust is replaced by its actual Beneficiaries. If not, this Beneficiary Trust is treated like any ineligible beneficiary.

4.3.6.3 No Eligible Beneficiary

If the account has no eligible beneficiaries, then the amount in the trust account is treated under the Single ORC or Joint ORC of the grantor or grantors.

4.3.6.4 Insurance Limit

The insurance limit is calculated as follows:

4. When the number of beneficiaries is five or fewer:

   Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

   For REV, this translates to:

Legal Entity/Separately insured branch- REV-Grantor level

5. When the number of beneficiaries is more than five and beneficiary share is unequal:

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer-Account Participant level

For REV, this translates to:

Legal Entity/Separately insured branch when beneficiaries are more than five and beneficiary share is unequal. **- REV- Grantor- Beneficiary level**

6. When the allocation across the beneficiaries is equal, irrespective of the number of eligible beneficiaries, the Insurance limit of SMDIA is at a grantor level. In other words, the treatment is the same as the case where the number of beneficiaries is five or fewer.

4.3.6.5 Process Flow

The process flow of REV ORC Type Classification is as follows.

Figure 16: Process Flow – REV ORC Type Classification

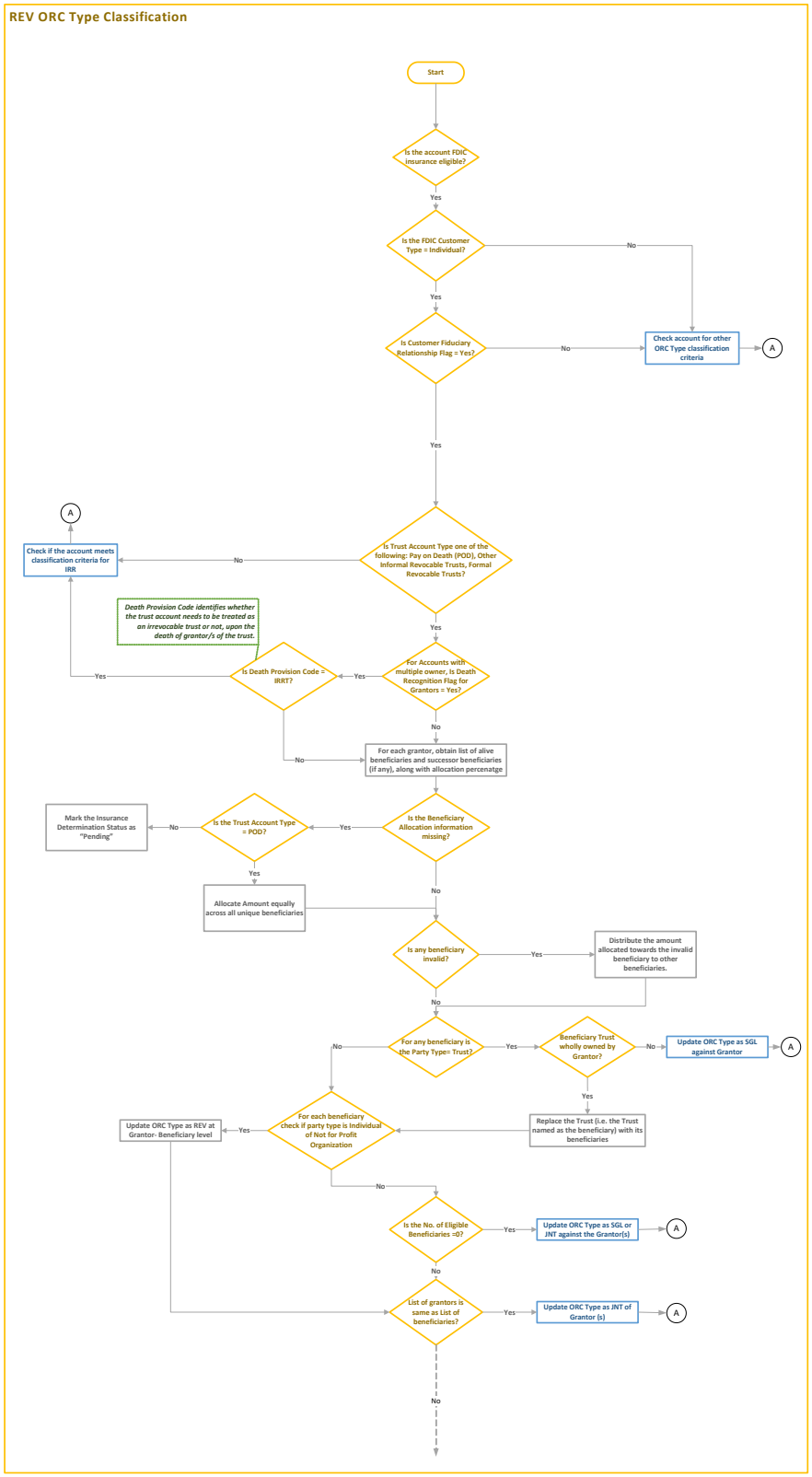
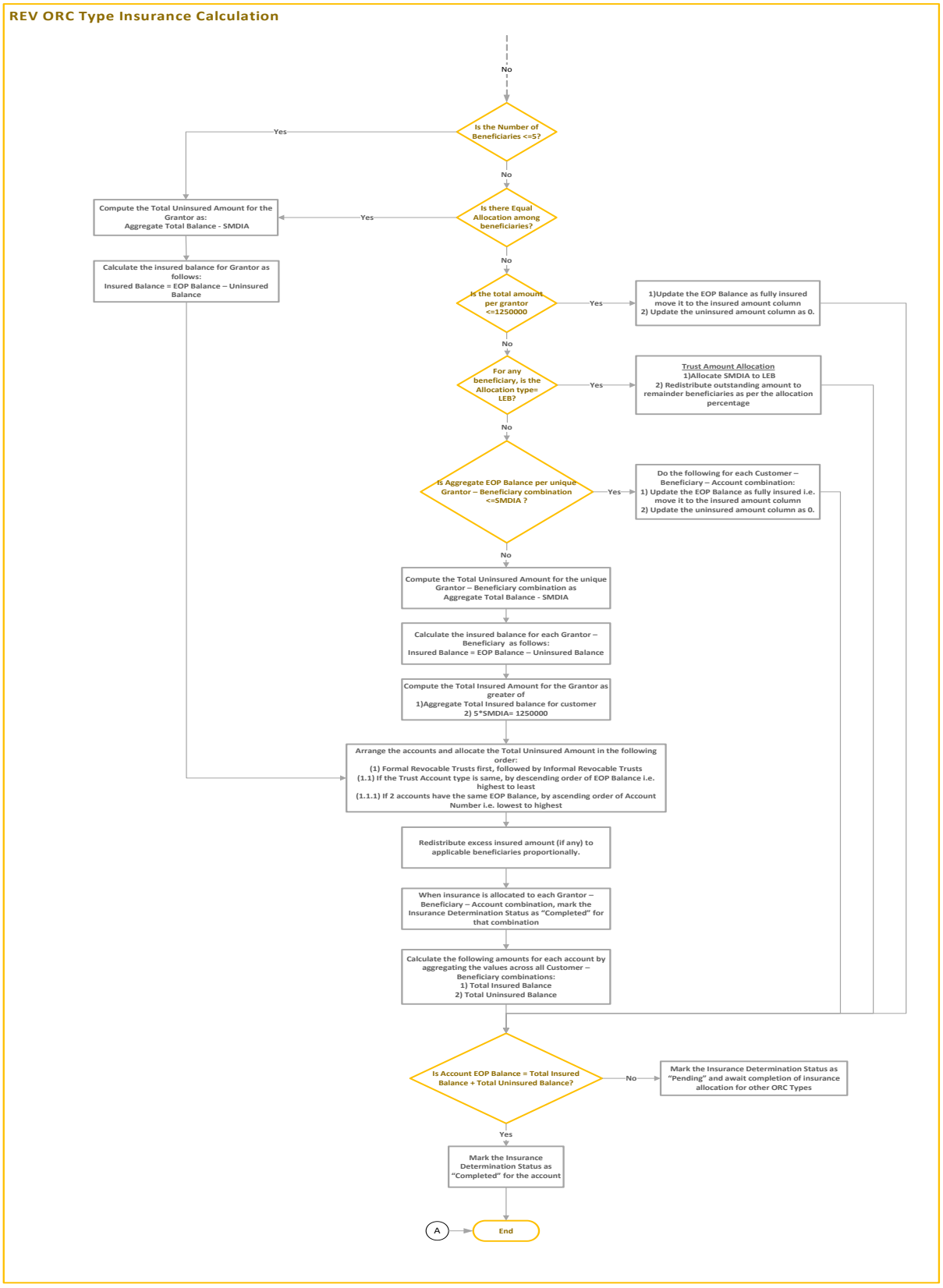


Figure 17: Process Flow – REV ORC Type Classification (continued)



4.3.7 Irrevocable Trust Accounts (IRR)

Irrevocable trust accounts are deposit accounts held by an irrevocable trust established by a statute, written trust agreement, or valid court order. An irrevocable trust may also be created through the death of the grantor of a revocable living trust.

The following types of interests are present in an Irrevocable Trust:

- **Retained Interest**

  Retained Interest represents those assets that can be returned by the trustee to the grantor by the terms of the trust agreement. For deposit insurance purposes, the funds under Retained interest are treated under SGL ORC.

- **Non-Contingent Interest**

  Non-contingent trust interest is defined in the FDIC's regulations as an interest capable of determination without evaluation of contingencies. The only exception for contingencies, in this case, is present worth/life expectancy.

- **Contingent Interest**

  Contingent interest is a beneficiary interest that is subject to any types of contingency other than present worth/life expectancy.

The application identifies these interests under the Allocation Type Code dimension.

Topics:

4.3.7.1 Creation by Death of a Grantor of a Revocable Trust

Certain Revocable Trusts which have multiple co-owners have a provision in the Trust Agreement to convert the Trust into an Irrevocable Trust on the death of any co-owner. When such a clause is triggered, the Revocable Trust receives coverage under IRR ORC. The Application identifies this treatment through the Trust Treatment Code dimension.

The amounts of such cases are treated as Non-Contingent interests.

4.3.7.2 Insurance Calculation

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) for Non-Contingent Interests are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For IRR, this translates to:

Legal Entity/Separately insured branch- IRR- Grantor- Beneficiary level

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) for Contingent interests are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

For IRR, this translates to:

Legal Entity/Separately insured branch- IRR-Grantor level

4.3.7.3 Process Flow

The process flow of IRR ORC Type Classification is as follows:

Figure 18: Process Flow – IRR ORC Type Classification

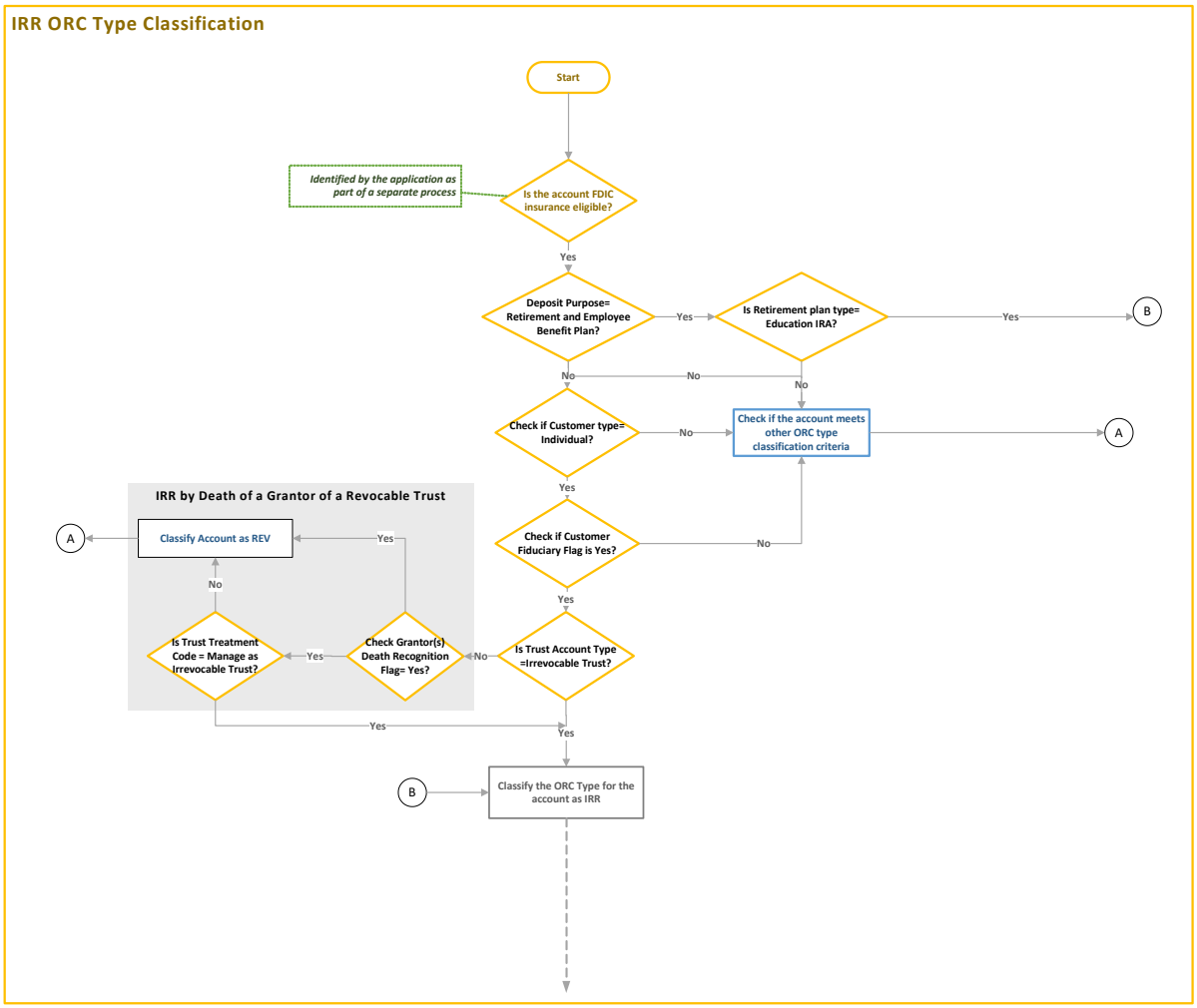
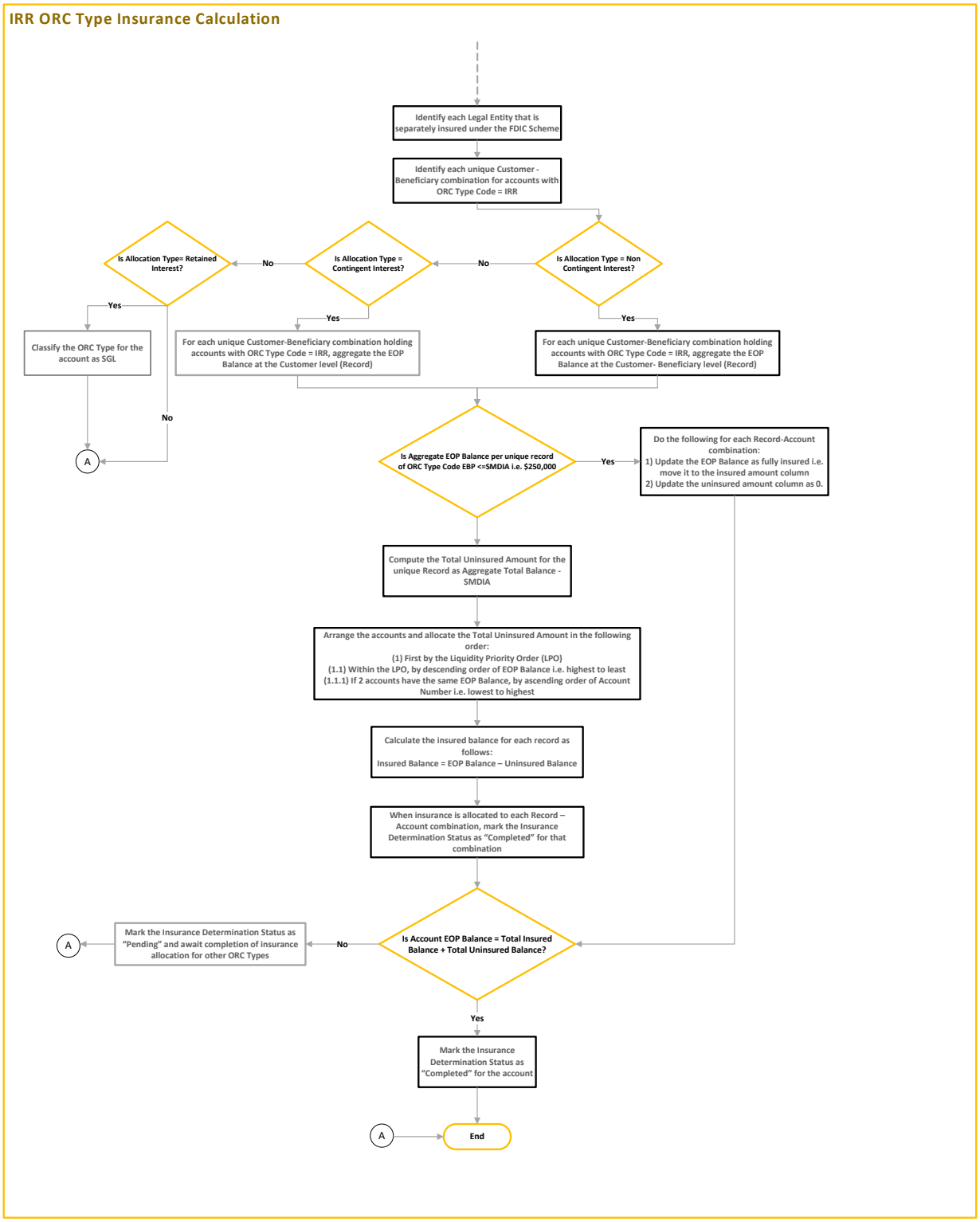


Figure 19: IRR ORC Type Classification (continued)



4.3.8 Business Accounts (BUS)

This ORC includes accounts from unincorporated associations, Partnerships, and Corporations engaged in the independent activity. The business itself is a beneficial party in this case. A deposit account that is a sole proprietorship or doing business as a (DBA) account is not insured under this ORC-this is insured as a single account of the owner.

For an unincorporated association, the Application checks for additional criteria such as the name of the association in the account title. This is an additional classification criterion for such accounts to be considered under the BUS ORC. If the title of the account does not have the name of the Unincorporated Association, the account will be insured under the SGL ORC of the account holders.

If multiple accounts belong to a corporation under different names (Such as those for each Division/department), the application identifies a Primary customer and maps all other accounts of the corporation under the primary customer. The Primary customer is the one who is separately insured by the FDIC.

Topics:

4.3.8.1 Insurance Calculation

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

4.3.8.2 Process Flow

The process flow of BUS ORC Type Classification is as follows.

Figure 20: Process Flow – BUS ORC Type Classification

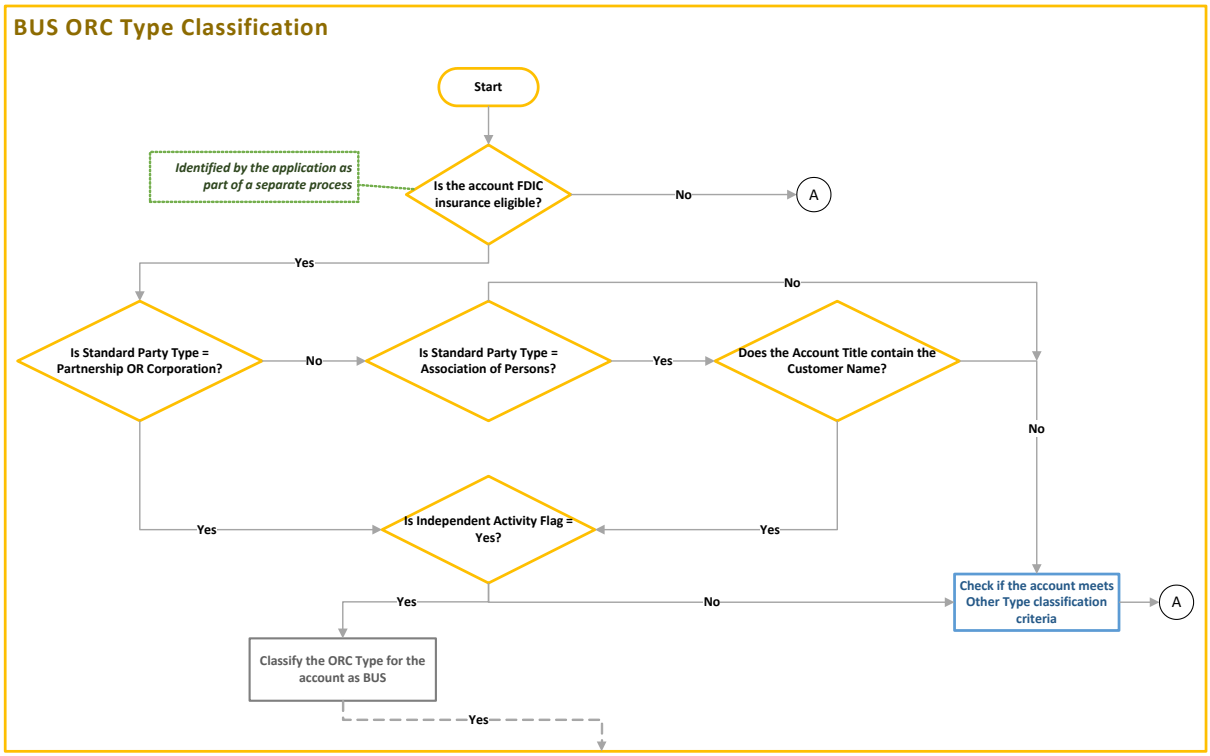
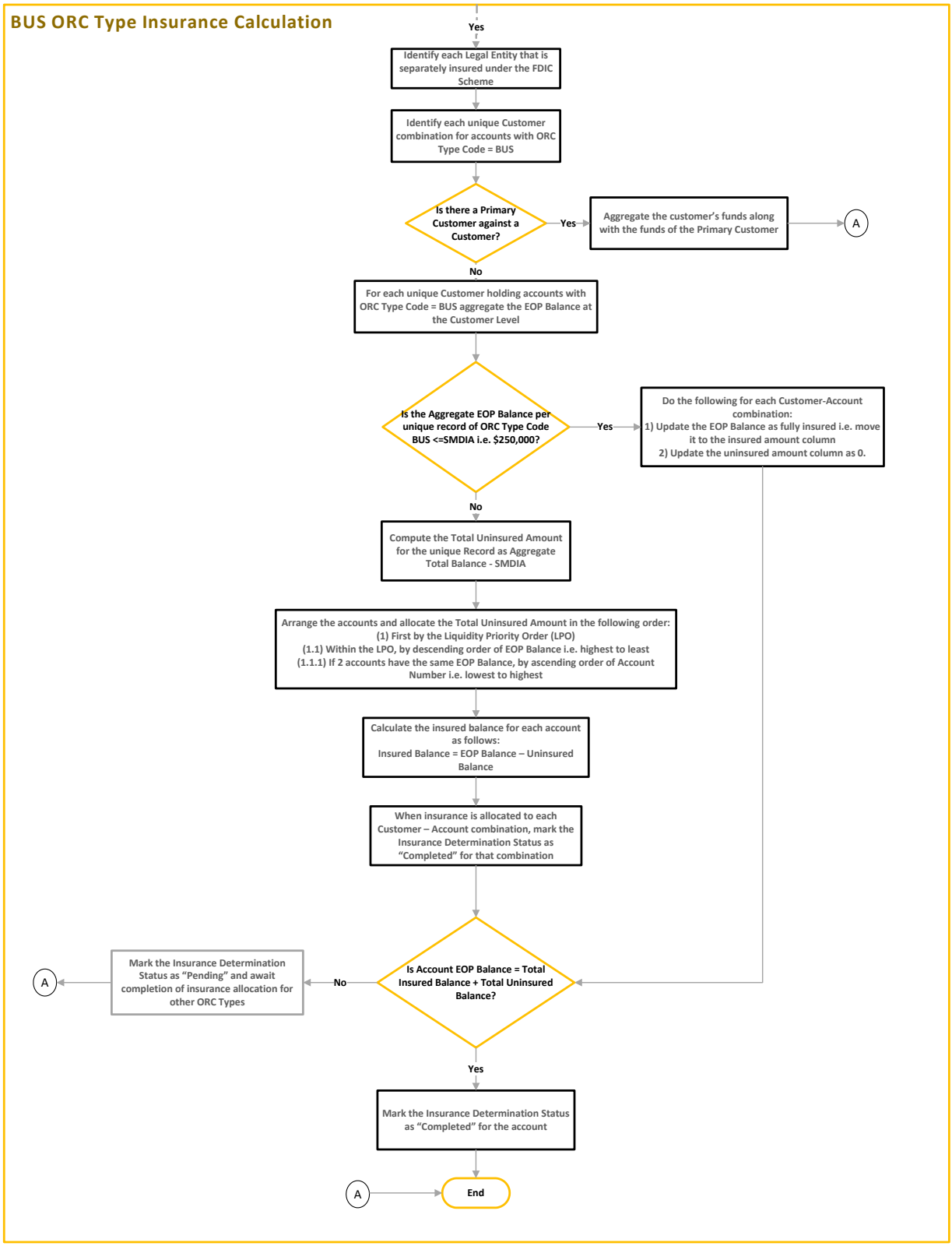


Figure 21: Process Flow – BUS ORC Type Classification (continued)



4.3.9 Government Accounts (GOV)

Under this ORC, the coverage is extended to accounts of the federal government, state governments, and other governmental bodies.

Topics:

- Insurance Limit
- Process Flow

4.3.9.1 Insurance Limit

Depending on the deposit product type and whether the account is held in state or not, the Application tags three ORC codes, GOV1, GOV2, and GOV3.

The following are the criteria.

Table 18: Criteria for the ORC Codes

ORC Criteria	Standard Product type	ORC
Held by official custodian of The United States. OR The official custodian of a Native American tribe. OR Official custodian in a CI located in the same state as the public unit.	Certificate of Deposit, Savings Account, Term Deposits, Money Market Deposit Account, Negotiable Order of Withdrawal accounts	GOV1
	Demand deposit account	GOV2
Held by official custodian located outside the state in which the public unit is located		GOV3

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level.

For GOV, this translates to:

Legal Entity/Separately insured branch- GOV-Public Unit- Official Custodian- level

Each official custodian receives coverage up to SMDIA for each of the three codes GOV1, GOV2 and GOV3 separately.

4.3.9.2 Process Flow

The process flow for GOV ORC Type Classification is as follows.

Figure 22: Process Flow – GOV ORC Type Classification

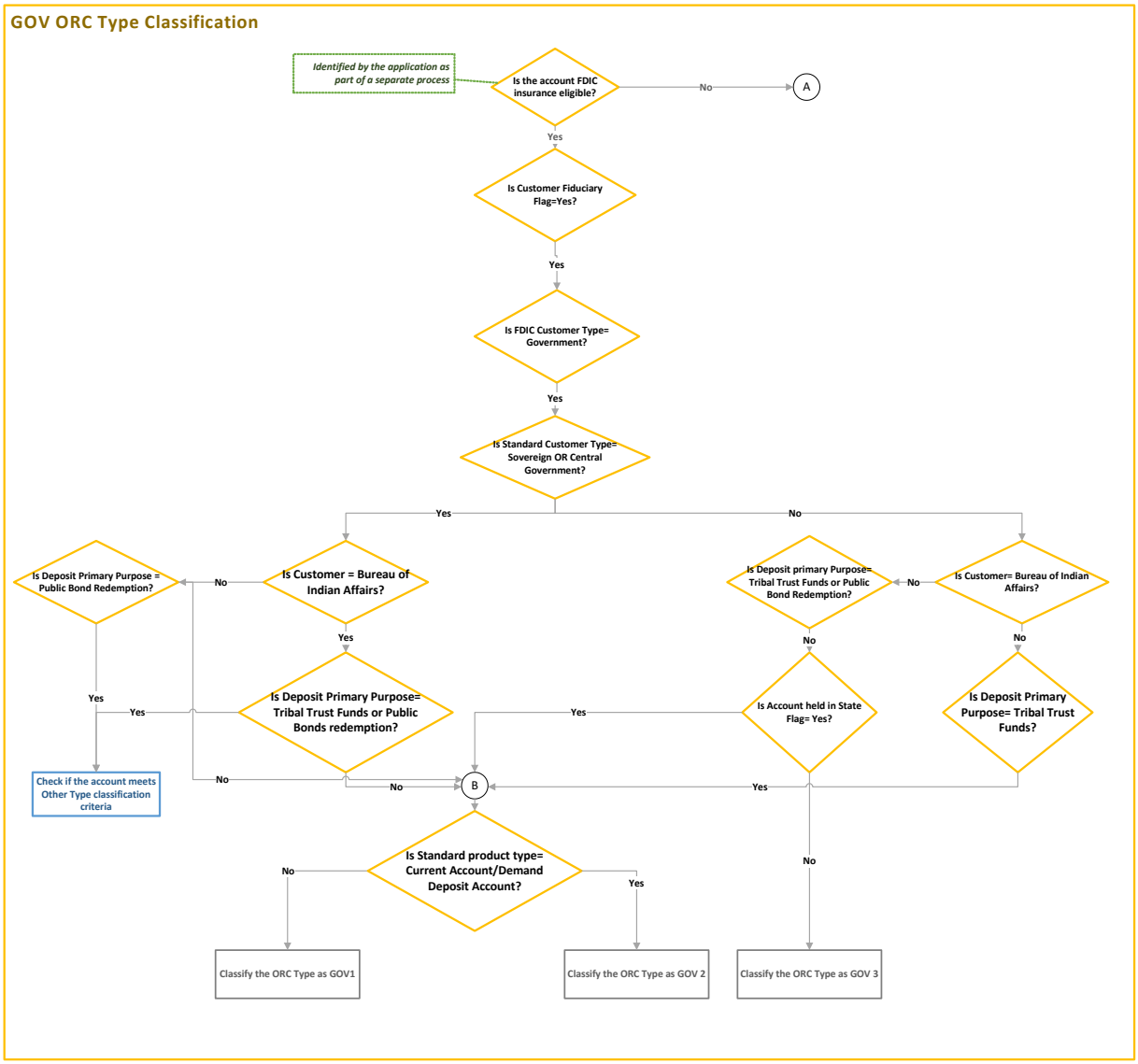
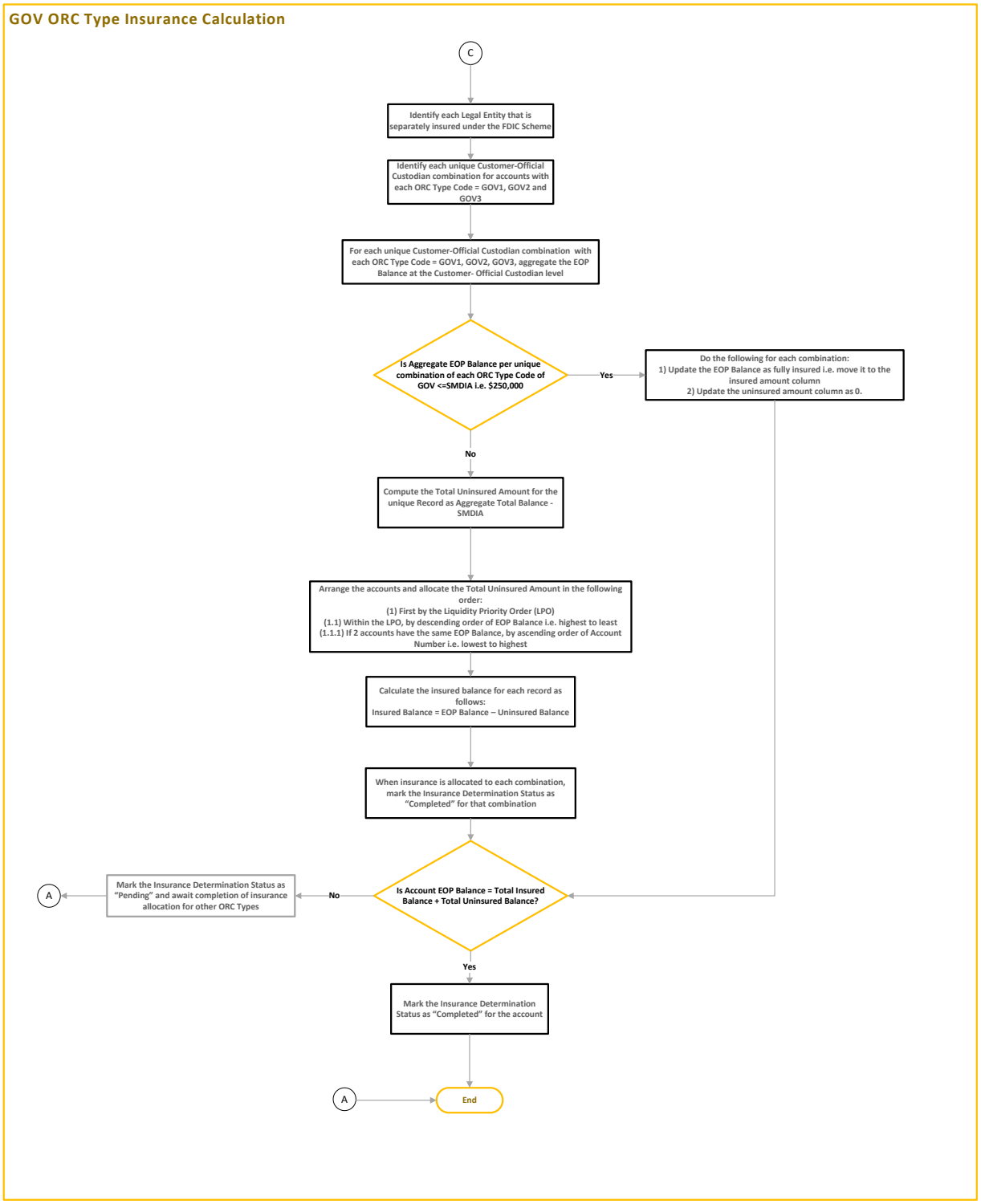


Figure 23: GOV ORC Type Classification (continued)



4.3.10 Mortgage Servicing Accounts (MSA)

Mortgage servicing accounts are deposit accounts opened by mortgage servicers to hold payments made by mortgagors. To this extent, the Principal and Interest portion of the Mortgage Servicing payments are covered under this right and capacity. The amounts held for payments of taxes and insurance premiums, on the other hand, are not covered in MSA ORC and are treated in the Single ORC classification for the Mortgage Servicer.

Overfunding amounts are computed by the Application by taking into consideration the Total Allocation Percentage of all the mortgagors concerning a Mortgage Servicer. If the Total Percentage is less than 100%, it is determined that there is Overfunding in the deposit account. This amount does not belong to any participant and instead belongs to the Mortgage Servicer. Overfunding Amounts are also treated under MSA ORC and allotted a separate SMDIA as compared to the Principal and Interest Amounts.

Topics:

4.3.10.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For MSA, this translates to:

Legal Entity/Separately insured branch- MSA-Mortgage Servicer- Mortgagor- level

Mortgagors will be insured for up to SMDIA for all mortgages held with the same mortgagor.

4.3.10.2 Process Flow

The process flow for MSA ORC Type Classification is as follows.

Figure 24: Process Flow – MSA ORC Type Classification

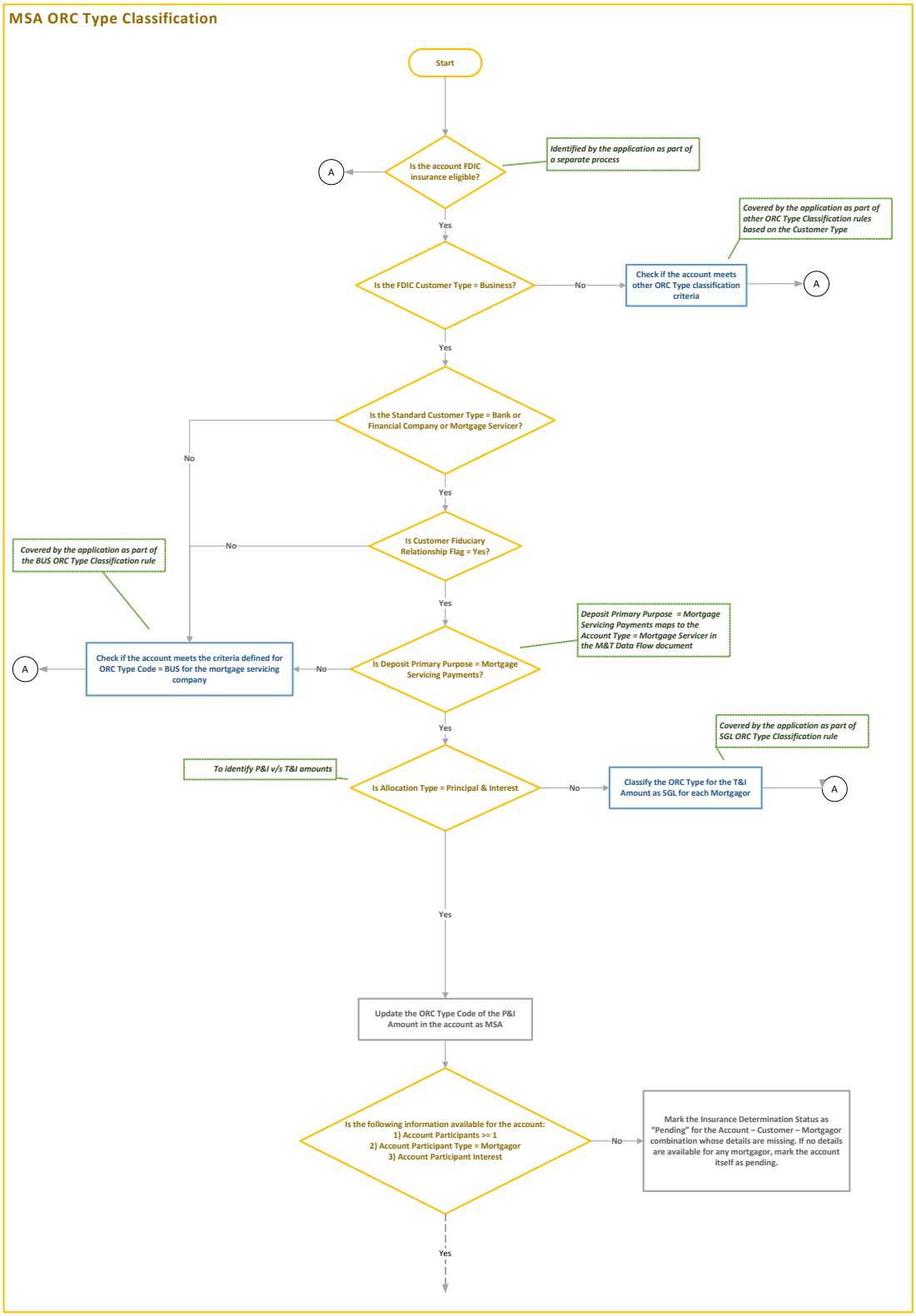
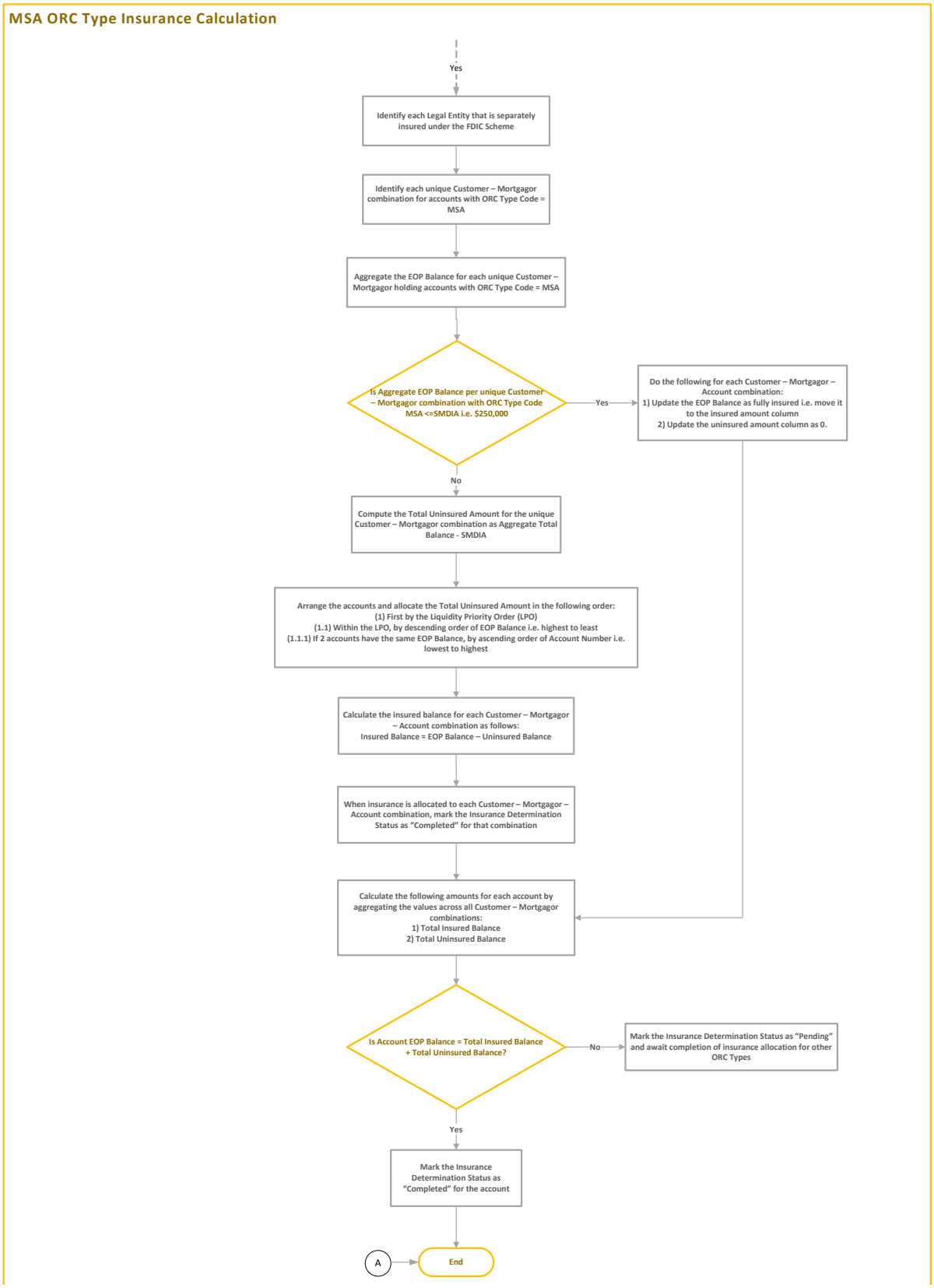


Figure 25: Process Flow – MSA ORC Type Classification (continued)



4.3.11 Accounts held by a Depository Institution as the Trustee of an Irrevocable Trust (DIT)

Under this ORC, coverage is extended to accounts held by an IDI as a trustee of an irrevocable trust. This category is applicable whether the IDI as trustee holds the trust funds in a deposit account at the IDI, or whether the IDI as trustee places the funds into a deposit account at another IDI.

Deposit insurance coverage for irrevocable trusts in this category is separate from, and in addition to, deposit insurance coverage for other ownership categories.

Topics:

4.3.11.1 Insurance Limit

For Accounts with Commingled Trust Funds, Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For DIT, this translates to:

Legal Entity/Separately insured branch - DIT-Insured Depository Institution- Beneficiary level

For Irrevocable Trust Accounts where an IDI is a Trustee, Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Trust Account- Account Participant level

For DIT Trust Account at a beneficiary level, this translates to:

Legal Entity/Separately insured branch - DIT-Customer-Trust Account- Beneficiary level

The FDIC insures each trust fund owner or beneficiary represented for up to the SMDIA.

Under this ORC, both allocated and unallocated funds are covered.

4.3.11.2 Process Flow

The process flow for DIT ORC Type Classification is as follows.

Figure 26: Process Flow – DIT ORC Type Classification

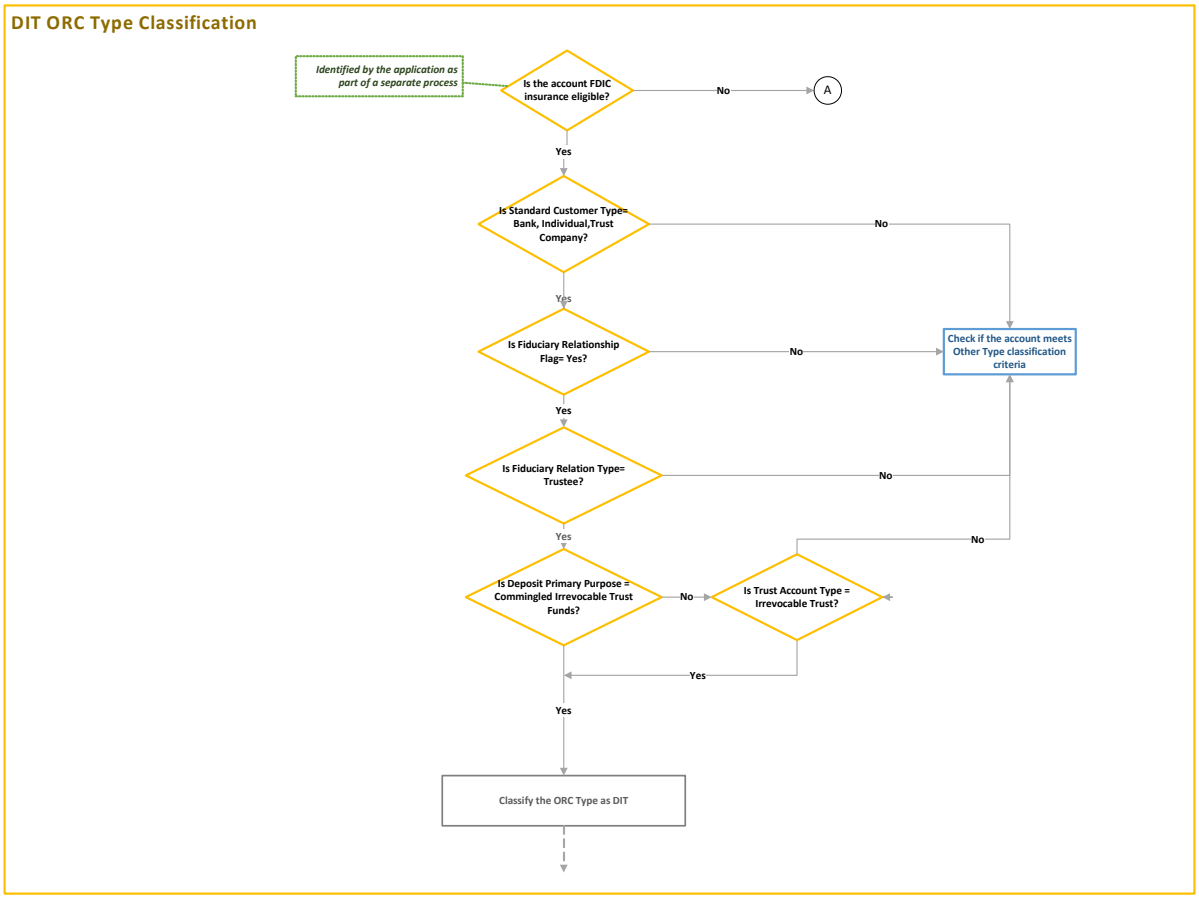
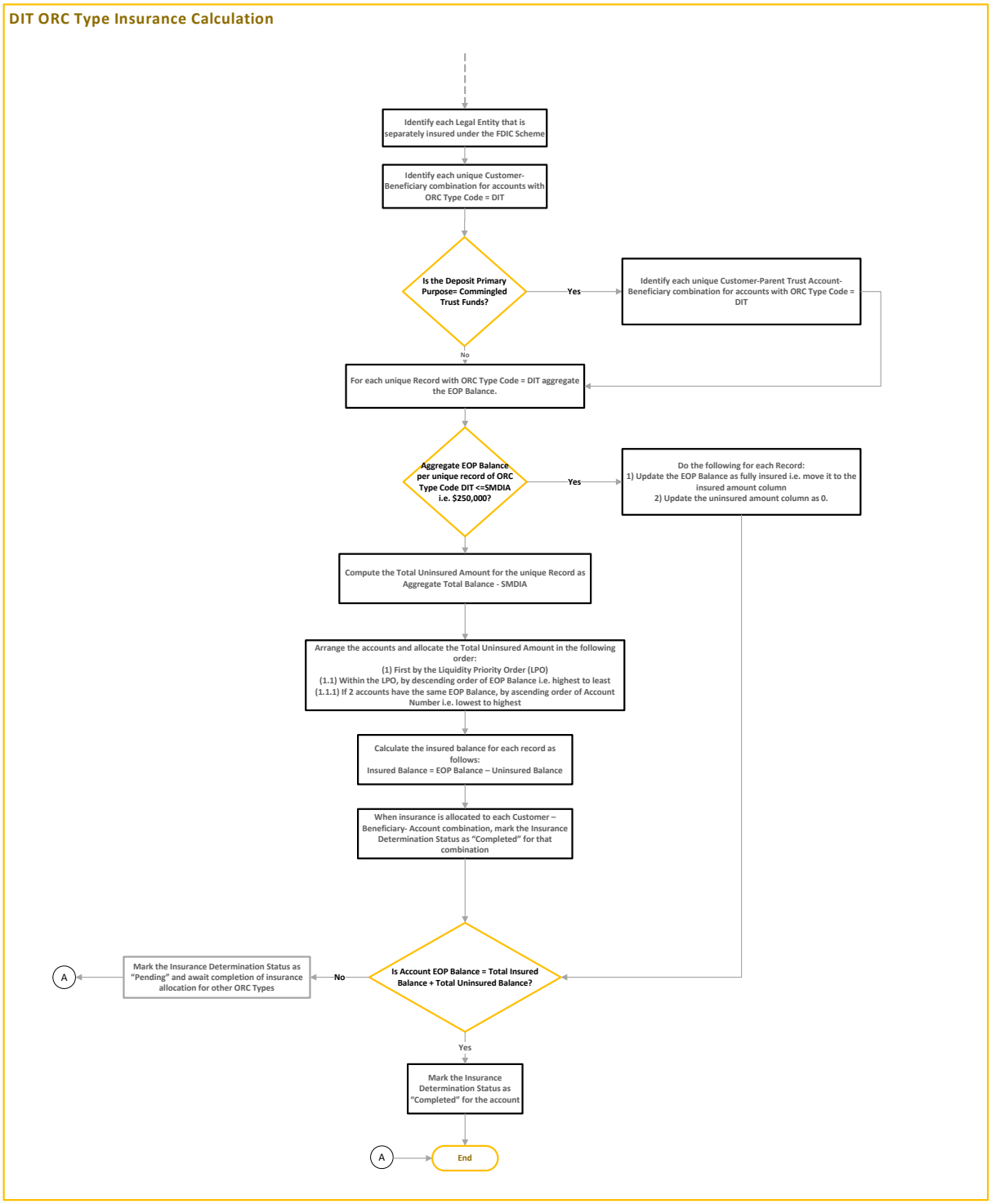


Figure 27: Process Flow – DIT ORC Type Classification (continued)



4.3.12 Annuity Contracts (ANC)

Under this ORC, the coverage is extended to deposit accounts that are set up by an insurance company or other corporation to hold funds for the sole purpose of funding life insurance or annuity contracts and any such benefits incidental to those contracts.

In certain states the funds are directly held by the annuitant who is the ultimate beneficial owner. In such cases, the granularity of insurance computation is different from when the insurance company holds the funds.

Topics:

4.3.12.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For Funds held by the Insurance Company, this translates to:

Legal Entity/Separately insured branch- ANC-Insurance company/corporation- Beneficiary (Annuitant) level

For Funds held by the Annuitant, Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- ANC - Beneficiary (Annuitant) level

4.3.12.2 Process Flow

The process flow of ANC ORC Type Classification is as follows.

Figure 28: Process Flow – ANC ORC Type Classification

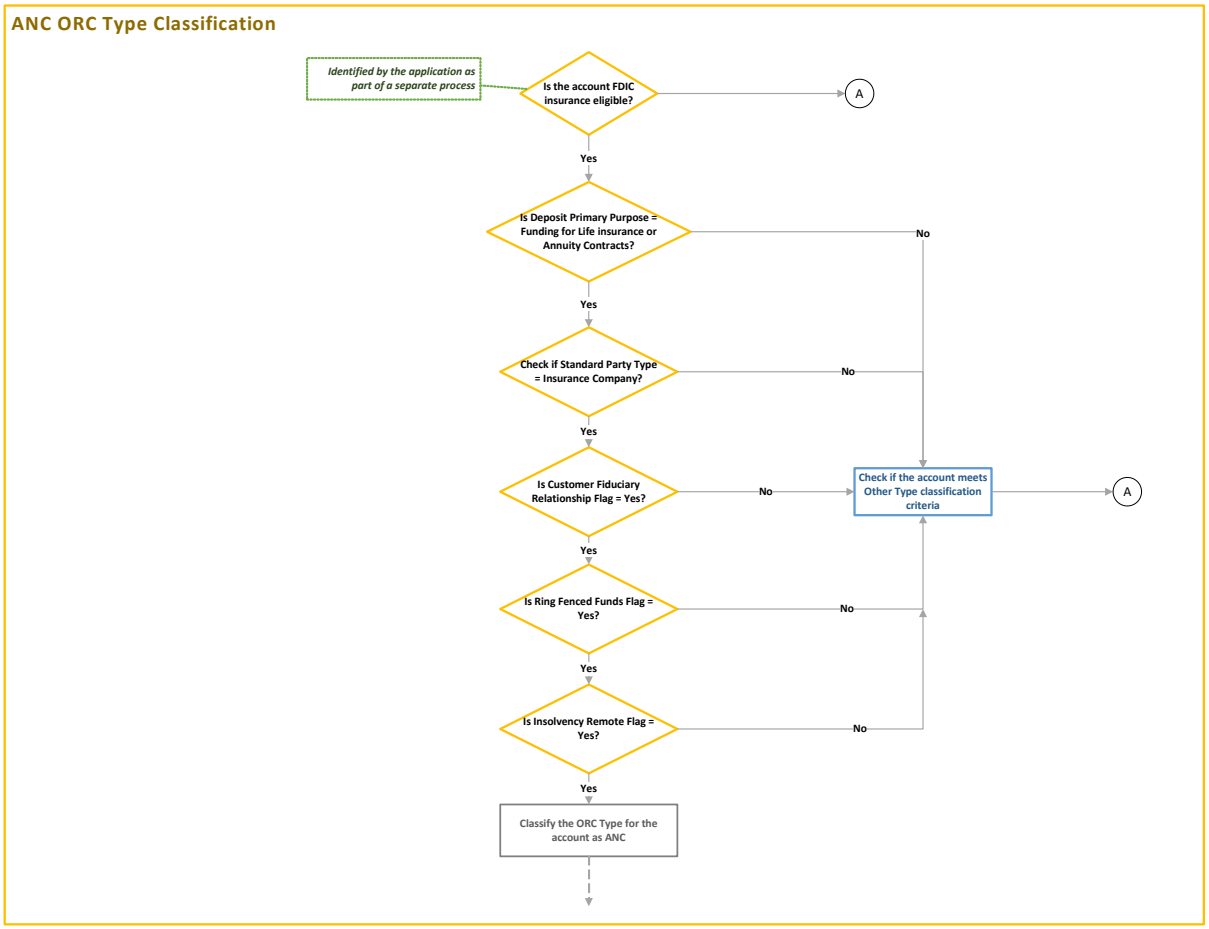
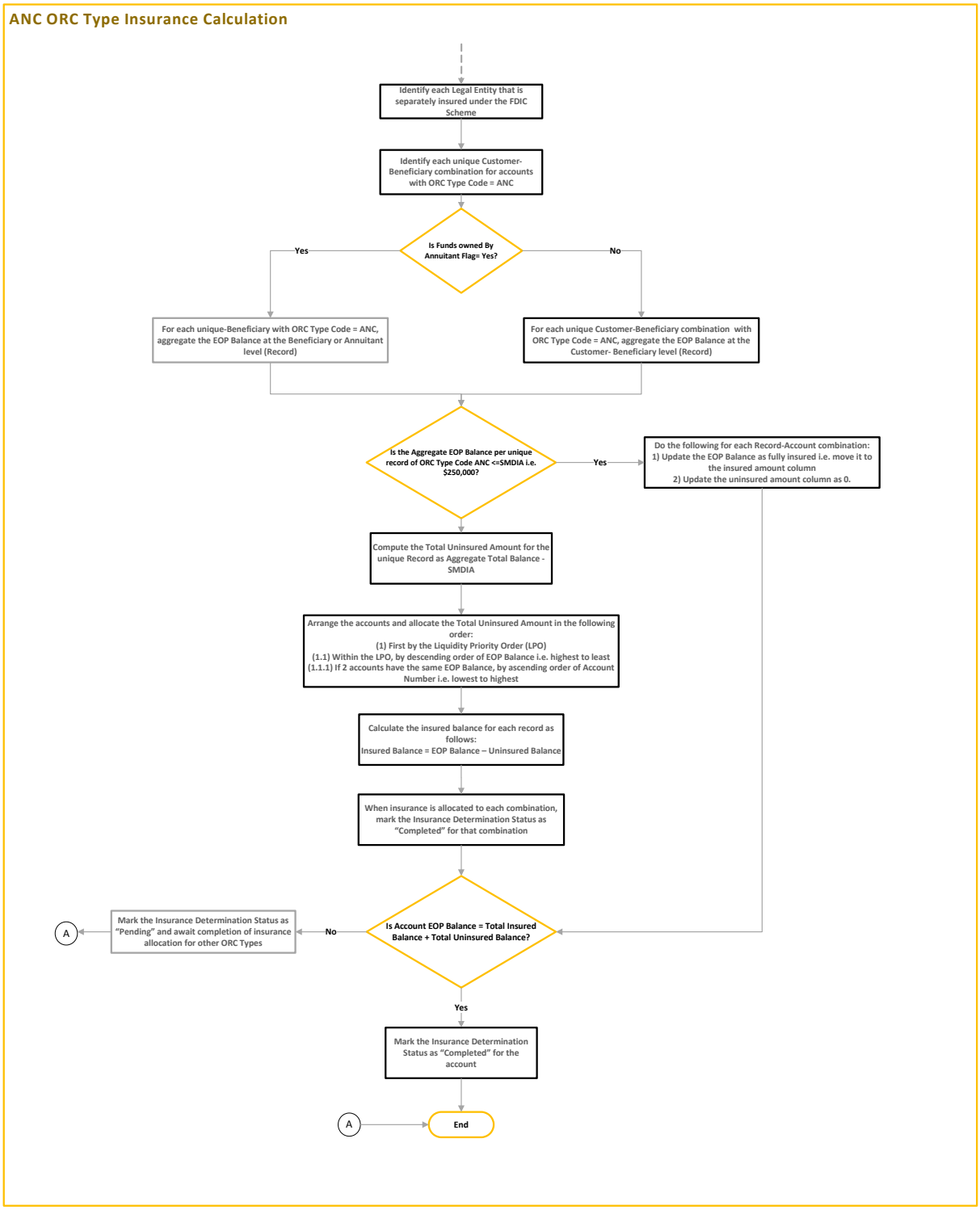


Figure 29: Process Flow – ANC ORC Type Classification



4.3.13 Public Bond Accounts (PBA)

This ORC extends coverage to deposits held by an officer, agent, or employee of a public unit under a law or bond indenture that requires the deposits to be set aside to discharge a debt owed to the holders of notes or bonds issued by the public unit.

Topics:

4.3.13.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For PBA, this translates to:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Public Unit-Bondholder- level

Bondholders will be insured for up to SMDIA for all bonds issued by the same issuer regardless of whether there are different series involved.

4.3.13.2 Process flow

The process flow for PBA ORC Type Classification is as follows.

Figure 30: Process Flow – PBA ORC Type Classification

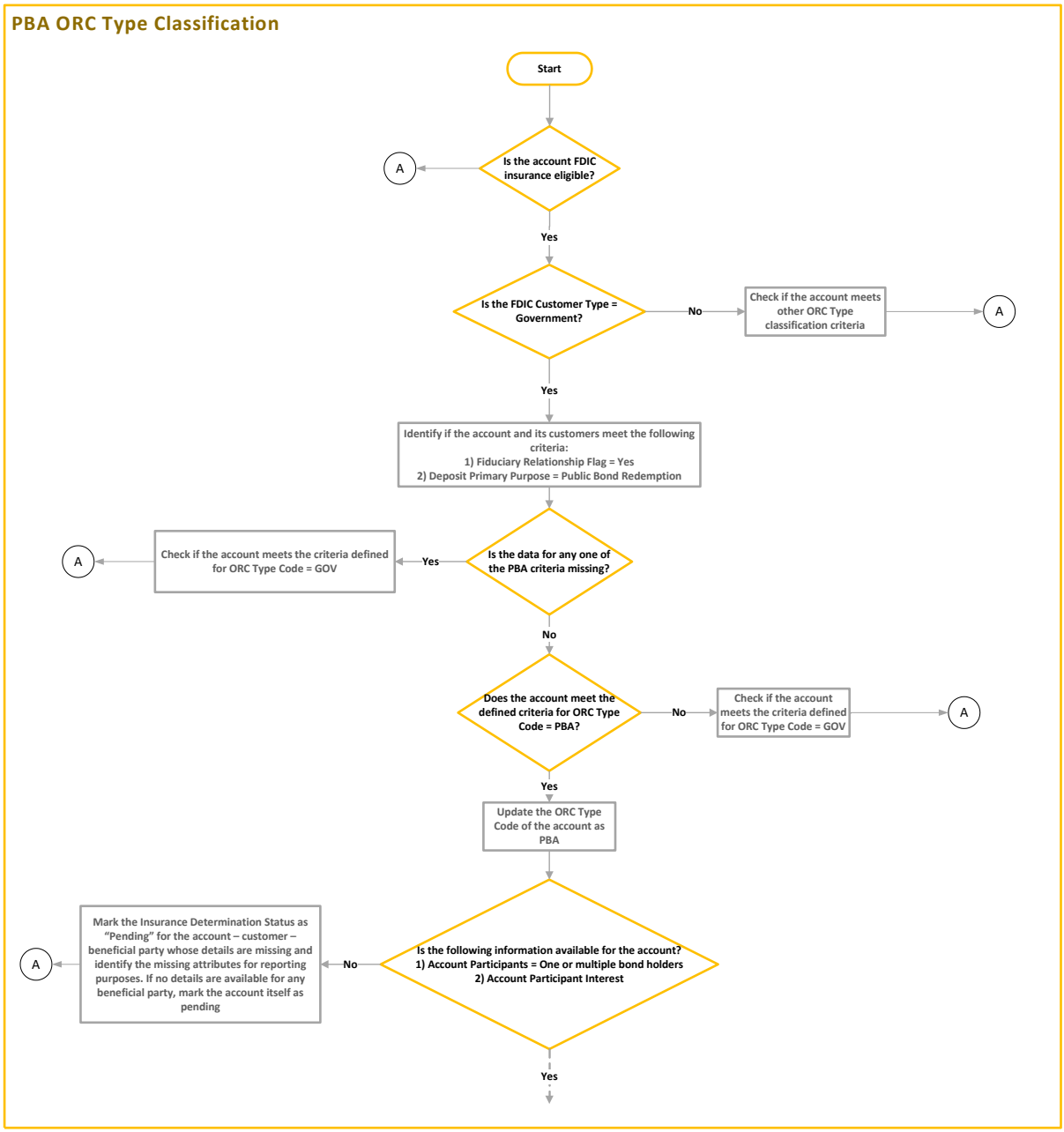
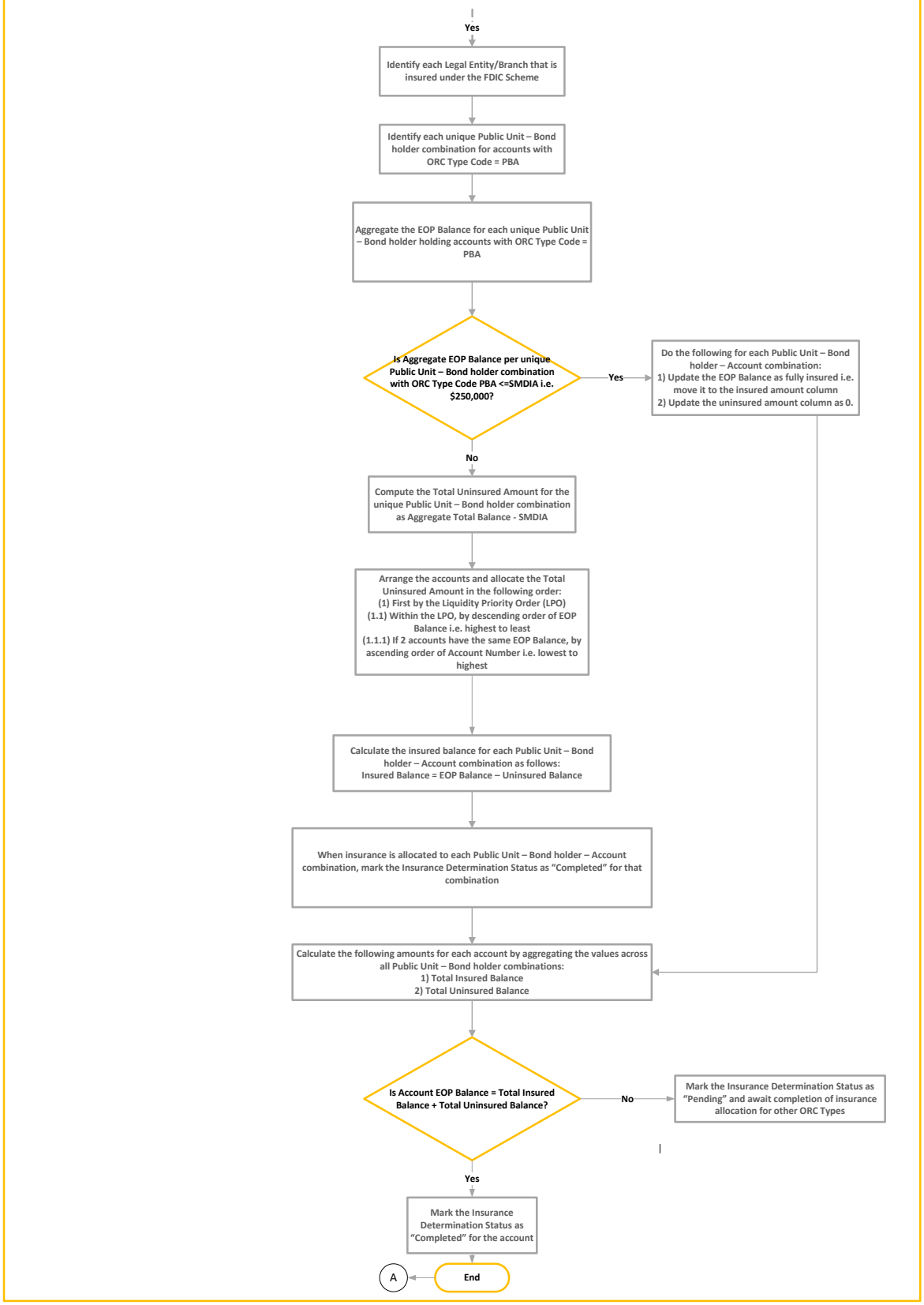


Figure 31: Process Flow – PBA ORC Type Classification (continued)

PBA ORC Type Insurance Calculation



4.3.14 Custodian Accounts for American Indians (BIA)

This ORC extends coverage to deposit accounts held by the Bureau of Indian Affairs (BIA) on behalf of Native Americans and deposited into an IDI. If the account does not meet the classification criteria for BIA ORC, then they should be evaluated for GOV and SGL ORCs.

Topics:

4.3.14.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer- Account Participant level

For BIA, this translates to:

Legal Entity/Separately insured branch- BIA-Bureau of Indian Affairs- Native American- level

Under this category, the custodian accounts are insured up to SMDIA for each Native American for whom the Bureau of Indian Affairs is acting.

4.3.14.2 Process Flow

The process flow for BIA ORC Type Classification is as follows.

Figure 32: Process Flow – BIA ORC Type Classification

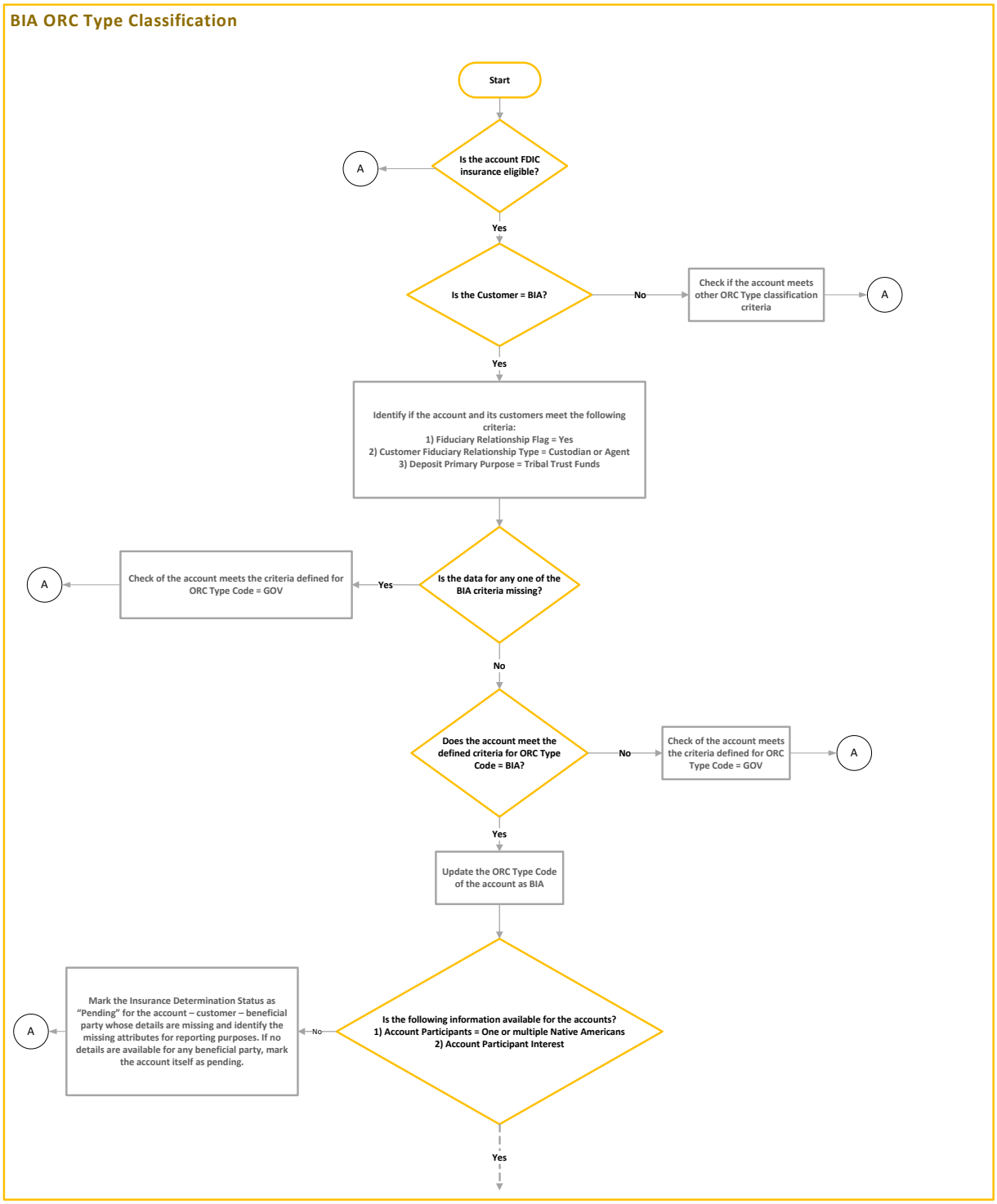
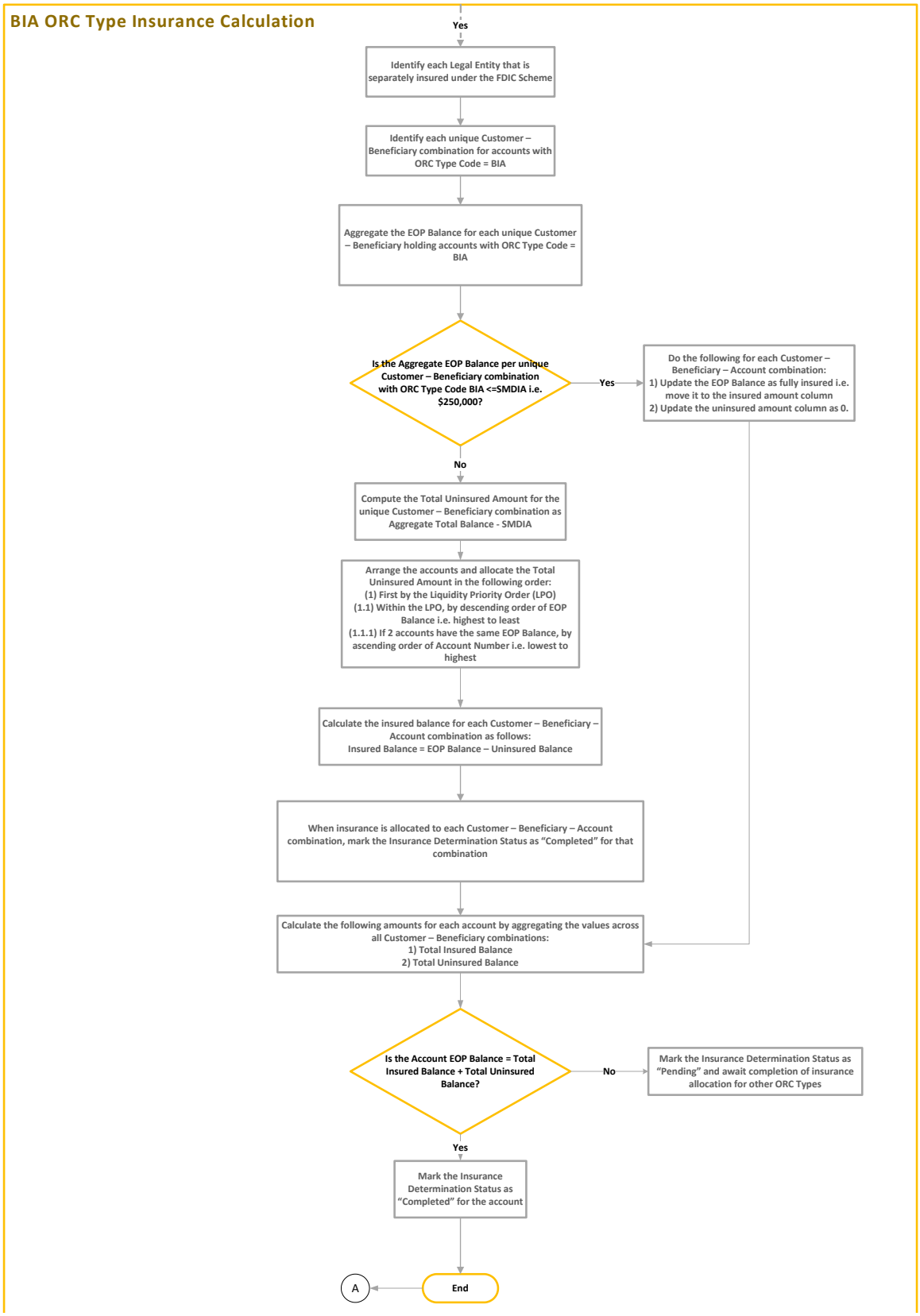


Figure 33: Process Flow – BIA ORC Type Classification (continued)



4.3.15 Accounts of an Insured Depository Institution Pursuant to the Bank Deposit Financial Assistance Program of Energy (DOE)

This category consists of funds deposited by an IDI under the Bank Deposit Financial Assistance Program of the Department of Energy.

Topics:

4.3.15.1 Insurance Limit

Insurance calculation and the Standard Maximum Deposit Insurance Amount (SMDIA) are applied at:

Legal Entity/Separately insured branch- Ownership Right and Capacity-Customer level

Each IDI depositing funds under this program will receive coverage up to SMDIA under this ORC.

4.3.15.2 Process Flow

The process flow for DOE ORC Type Classification is as follows.

Figure 34: Process Flow – DOE ORC Type Classification

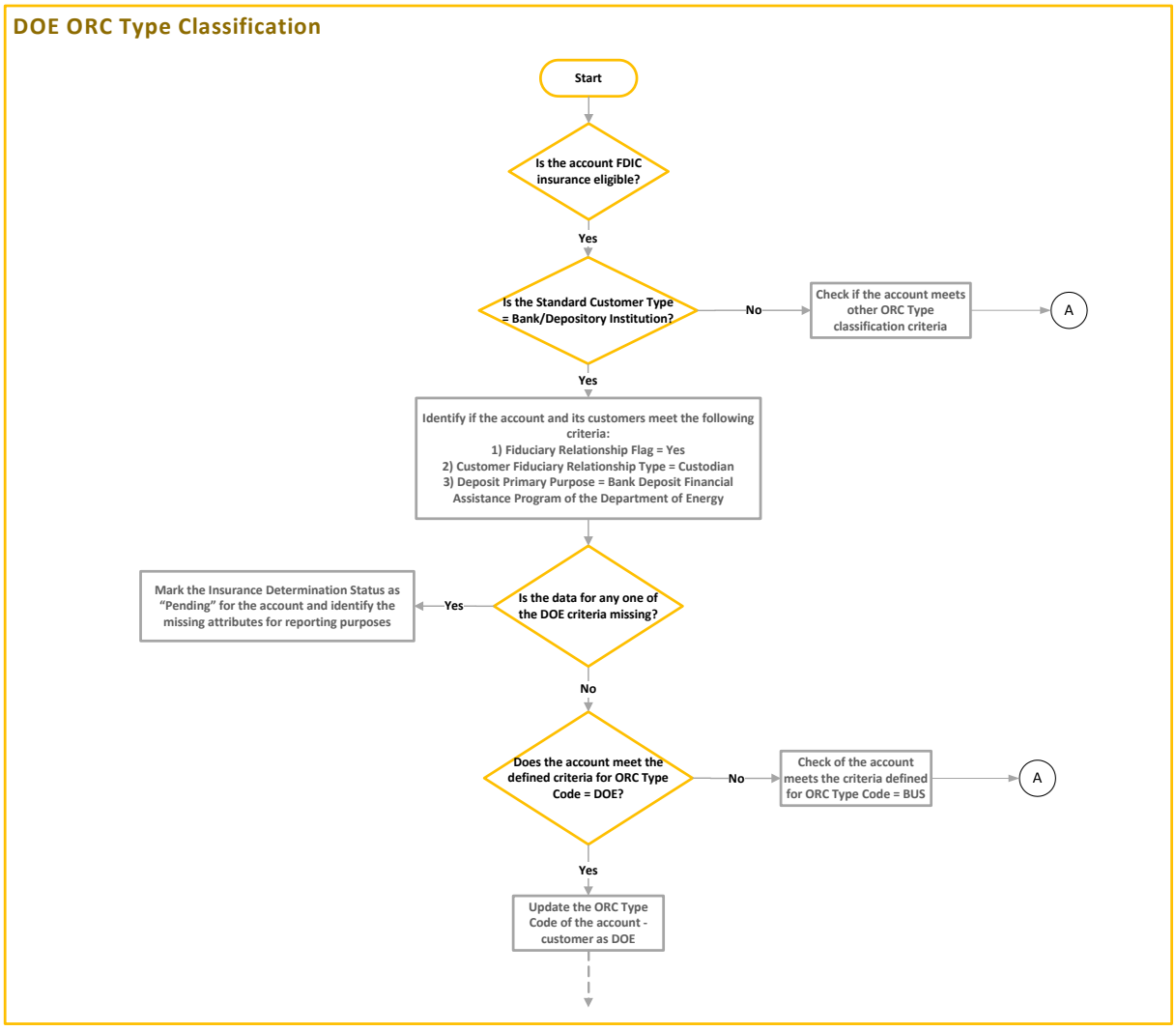
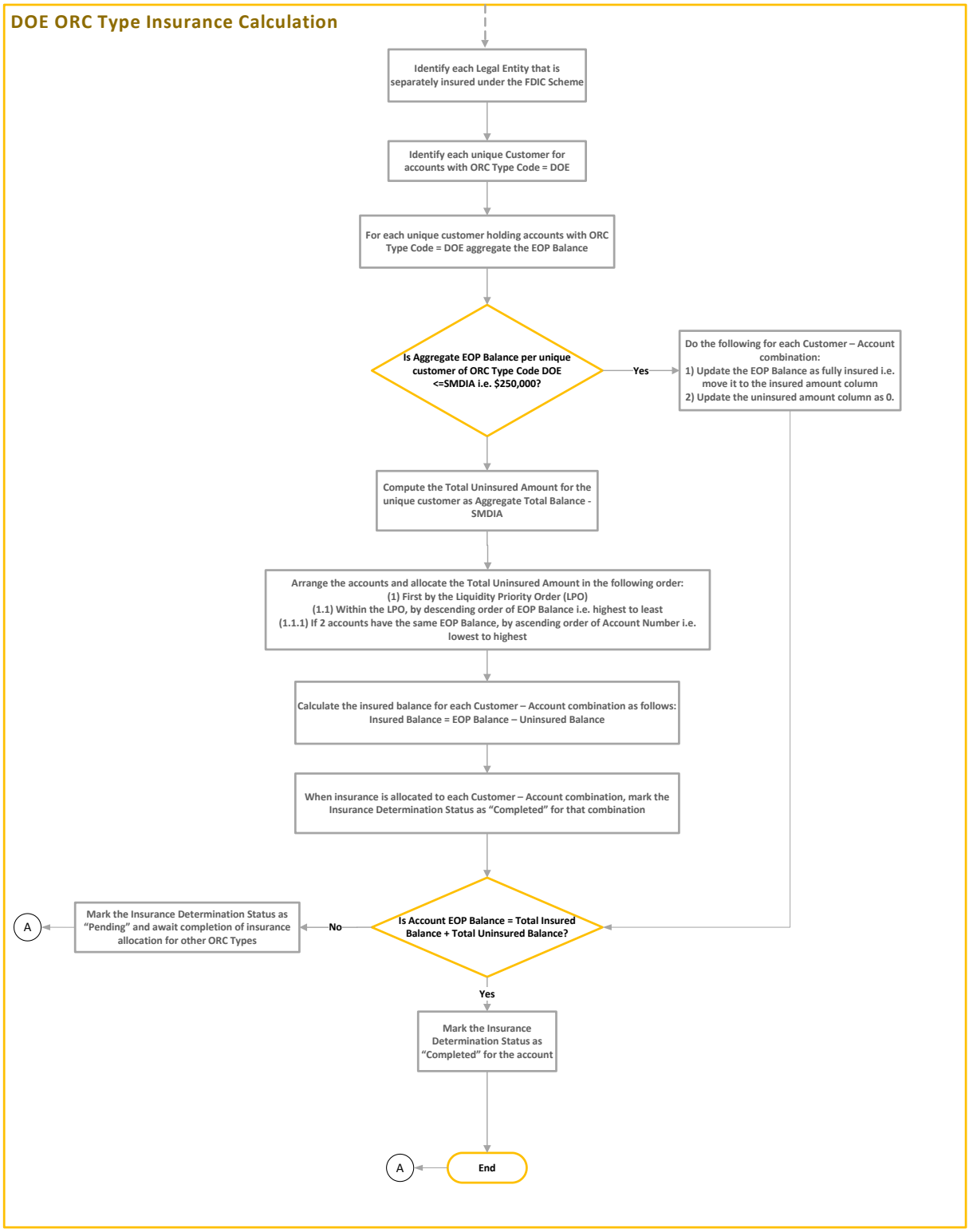


Figure 35: Process Flow – DOE ORC Type Classification (continued)



4.4 Insurance Allocation

The allocation towards the account level is always concerning the uninsured amounts. The insured amount for each account is calculated as a difference between the Total Balance and Uninsured amounts. The allocation is towards the total End of the Period balance of the account.

Topics:

4.4.1 Liquidity Priority Order

The liquidity priority order is outlined to allocate insured amounts to depositors who have multiple accounts. This order helps in deciding the priority towards allocating uninsured funds and subsequently the insured funds. Except for jointly owned and revocable trust accounts, for all other ORCs, the uninsured amount is allocated by the Standard Product type and is in the following table.

Table 19: Liquidity Priority Order

Priority	Standard Product Type
1	Certificate of deposit
2	Savings account
3	Money market account
4	Negotiable order of withdrawal
5	Demand deposit account

For example, a customer's account which is a certificate of deposit carries a higher priority than a savings account. Therefore, uninsured funds for a customer would be allocated to that account first.

4.4.2 Balance Order

If a customer has accounts that are of the same product type, the allocation of uninsured amounts is done based on the End of Period balance. The account with the highest balance gets higher priority.

Rarely, customer accounts have the same product type and same balance. In this case, the account with the lowest number gets priority.

4.4.3 Joint Accounts and Revocable Trusts

Formal revocable trust accounts receive a higher priority than informal revocable trust accounts. As the revocable trust category allows an account to have single and multiple owners, the suggested debiting order is followed for joint revocable trust accounts.

Table 20: Joint Accounts and Revocable Trusts Priority Order

Priority	Trust Account Type
1	Formal Revocable Trusts
2	POD
3	Informal Revocable Trusts- Other

If an account is joint and not titled to a formal or informal trust, uninsured amounts are debited on a pro-rata basis based on the co-owner's share percentage regardless of the account product type.

Jointly owned revocable trust accounts are treated according to the order for revocable trusts.

4.5 Pending Accounts

Accounts that do not have the requisite information to proceed for ORC Classification or Insurance calculations are parked with a Pending state as Insurance Determination Status.

The following fields are considered optional. A missing value in these fields does not qualify for a Pending Status.

- Customer Type
- Product category
- Participant Type

For each pending record, a reason is populated in the form a pending reason code as per FDIC Part 370 Regulation.

Table 21: Pending Accounts – Code and Description

Code	Comment
A	Missing Agent/Custodian information
B	Missing Beneficiary Information for Trusts
RAC	Missing Right and Capacity Code
OI	Missing Official Item
ARB	Direct Obligation Brokered Deposit
ARBN	Non-Direct Obligation Brokered Deposit
ARCRA	Certain Retirement Accounts
AREBP	Employee Benefit Plan Accounts
ARM	Mortgage Servicing for Principal and Interest Payments

Code	Comment
ARO	Other Deposits
ARTR	Trust Accounts

4.6 Alternative Recordkeeping

As per FDIC Part 370, an IDI may not be required to maintain all information needed by the FDIC to calculate the entire amount of deposit insurance available to each depositor concerning certain types of deposit accounts. For this reason, IDIs are subjected to Alternative Recordkeeping requirements that apply to certain types of accounts such as brokered deposits.

For such accounts, data in a granular form with additional attributes such as ORC, contingent/non-contingent interest, and so on, is taken as a download. These records then go through Insurance calculation and Insurance allocation along with the bank's deposits.

If data required for insurance computation is missing, then the record will be marked as Pending, similar to that of the bank's deposits. The *Pending Reason* code is segregated for Alternative Recordkeeping which is prefixed with **AR**.

5 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.

5.1 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:

5.1.1 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.

5.1.2 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 22: 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 23: 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

5.1.3 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 considering 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 24: 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									

5.1.4 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 25: 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 26: 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 27: 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

2. Equally Changing Balance:

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

a. The following parameters are obtained as inputs:

i. First Forward Date Balance: This is the forward balance as of the first forward date. If this parameter is not provided, the application considers the spot balance as the first forward balance as well.

ii. Forecasting Period: This is the number of calendar days over which the balance is changing equally 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:

iv. When holidays are included:

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

v. 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 28: 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 29: 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	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

3. Balance Download:

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

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

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

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

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

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

Where,

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 30: 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 31 : 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 32: 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 33: 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
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.

4. Balance Change Download:

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

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

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

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

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

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 34: 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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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
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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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
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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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
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

Product	Currency	Balance Change Amount	Balance Change Amount Date	Forward Date
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 35: 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

5. Constant Balance:

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

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

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

Table 36: 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 37: 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

6. 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.

5.1.5 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.

5.1.5.1 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 38: 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 39: 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.

5.1.5.2 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 40: 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.

5.1.5.3 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).

5.1.5.4 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 41: 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 42: 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 43: 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 44: 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

5.1.6 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

5.1.6.1 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 45: 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 46: 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.

5.1.6.2 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 47: 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 48: 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 49: 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'

5.1.7 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

5.1.7.1 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 considered for forward liquidity calculations. Interest cash flows as of the current date are ignored.

5.1.7.2 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 50: 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.

5.1.7.3 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 51: 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.

5.1.7.4 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'.

5.1.7.5 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.

5.1.7.6 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

5.1.7.7 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.

5.1.8 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 Liquidity Coverage Ratio Calculation section.

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.

5.1.9 Preconfigured Forecasting Rules

The following rules have been preconfigured for forecasting.

Topics:

5.1.9.1 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.

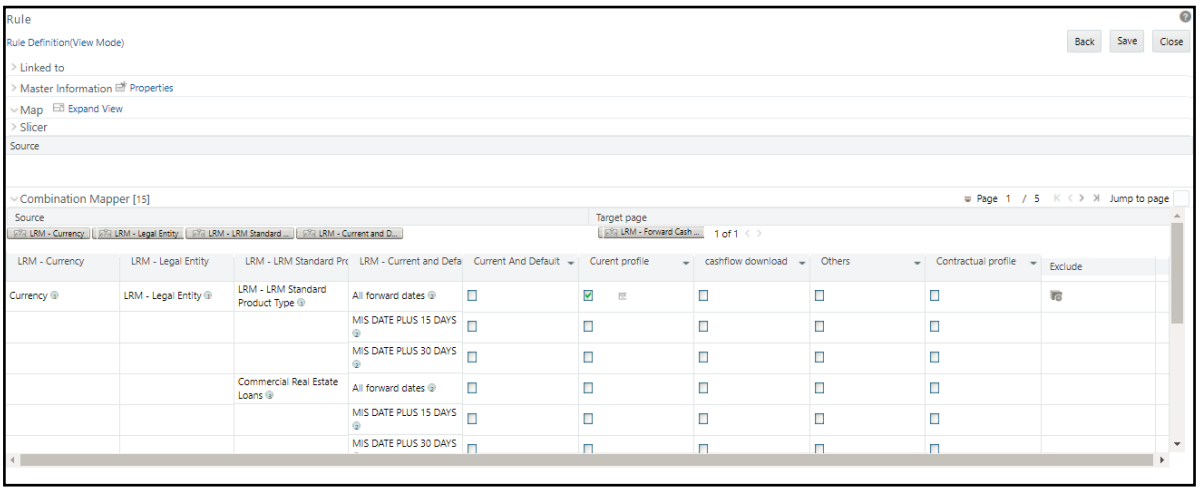
The additional Dimension – “LRM- Current and Default Method – Forecast” (Source hierarchy) must be selected when you wish to map the “Current and Default Profile” method to any of the dimensions (product, currency, and legal entity).

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.



5.1.9.2 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:

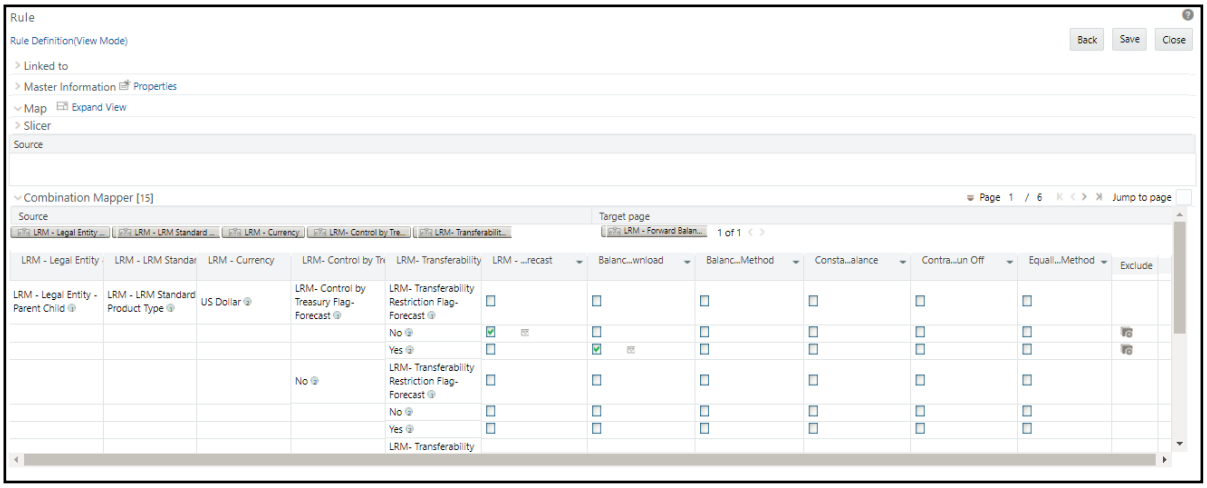
- Standard Product Type

- 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 36: Balance Calculation



5.1.9.3 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”.

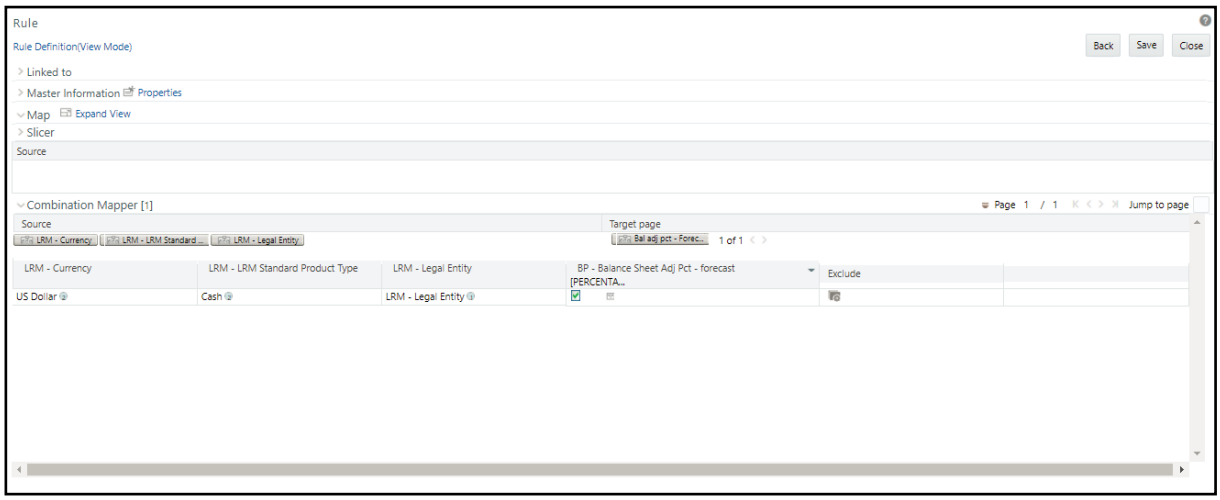
The list of mandatory source dimensions for this rule is as follows:

- 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 37: 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.

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

6 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. 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:

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%.

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

The NSFR ratio is expected to be at least 100%.

6.1 Process Flow

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

Topics:

6.1.1 Identifying Maturity Bands

Maturity bucket of the instrument is one of the various dimensions used to allocate ASF and RSF factors. For NSFR computation, maturity bands are used to allocate the factors. The US FED 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 to one year
- Open maturity

All accounts are categorized as one of the above bands depending on the maturity date. To categorize any product as open maturity, the Rule "LRM - Classification of Products as Open Maturity" must be edited and the product is included in the rule.

6.1.2 Computing Available Amount of Stable Funding

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

Foreign bank branches can account for the undrawn contractual committed facilities from its head office or other branches which are the same entity and are regional hubs as ASF up to 40% of the minimum ASF required to meet the minimum requirement of NSFR.

The formula to calculate the Available Amount of Stable Funding is:

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

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

An example of the application of the ASF factor is as follows:

Consider an assumption defined with the following dimensional combination and ASF factors, with the Based On the measure being Total Stable Balance:

Table 52: Example- Application of the ASF factor

Dimensional Combination			ASF Factor
Product	**Retail/Wholesale Indicator**	**Residual Maturity Band**	
Deposits	R	Less than or equal to six months	95%
Deposits	R	six months - one year	95%
Deposits	R	Greater than or equal to one year	95%

If there are five accounts with this dimensional combination, the resulting amounts after the assumption is applied with application of ASF factors is as follows.

Table 53: Example continued - Application of the ASF factor

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

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

If OFS Basel is not installed, 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

6.1.3 Computing Required Amount of Stable Funding

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 guided by the NSFR standard. The required stable funding is considered as sum of all the weighted amounts where an RSF factor is applied.

The required stable funding factor is a weight function and is applied similar to the ASF. The formula to calculate the Required Amount of Stable Funding is as follows:

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

$$where\ n = Number\ of\ asset\ accounts$$

$$where\ m = Number\ of\ off\ balance\ sheet\ accounts$$

6.1.3.1 Computing Off Balance Sheet Items

Off balance sheet items are considered under the RSF factor and are given the appropriate factor as guided. Some combinations in line of credit have a pre-defined RSF factor as guided and 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.

6.1.4 Computing Derivatives

Derivatives are handled through the 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. The application of factors on derivatives is done on the market value after subtracting the variation margin posted/received against the account. The computation is described below:

1. NSFR derivative liabilities = Derivative liabilities – (Total collateral posted as variation margin against the derivative liabilities)
2. NSFR derivative assets = Derivative assets – (Cash collateral received as variation margin against the derivative assets)
3. The factors are 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 are derivative accounts with market value as negative. Derivative assets are derivative accounts with market value as positive. Apart from the variation margin, the initial margin against derivative contracts is also treated with the appropriate factor.

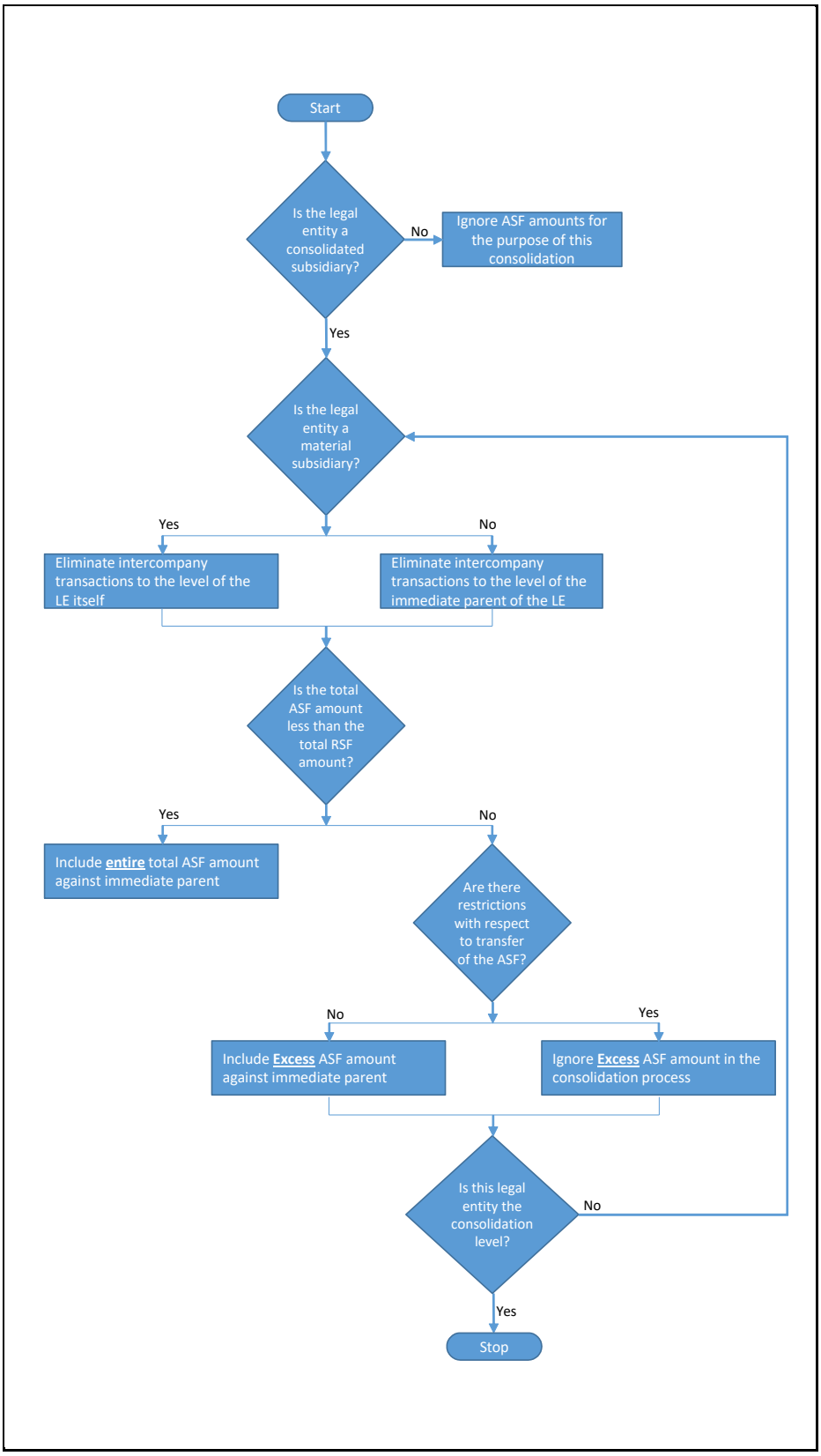
6.2 Modified NSFR

Some covered companies do not require to maintain a 100% NSFR and can maintain a lower ratio. For such companies, the Rule LRM - Determining RSF Factor Percentage for the Modified NSFR, multiplies the RSF by the specified percentage in the Rule.

6.3 NSFR Consolidation

A consolidated NSFR is computed for a parent legal entity by considering transferability restrictions and material aspects of the legal entity. The process is as illustrated in the following flowchart.

Figure 38: NSFR Consolidation Process



6.3.1 Computation of Net Stable Funding Ratio

The Net Stable Funding Ratio is calculated as follows:

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

6.4 Preconfigured US FED Regulatory NSFR Scenarios

OFS LRRCUSFR supports out-of-the-box US FED NSFR assumptions according to US Federal Reserve guidelines.

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

Table 54: Document Identifiers for Regulatory References

Regulation Reference Number	Document Name	Issued Date
12 CFR Part 249	Net Stable Funding Ratio: Liquidity Risk Measurement Standards and Disclosure Requirements	May 2016

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

6.4.1 Regulation Addressed through Business Assumptions

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

Table 55: Preconfigured NSFR Business Assumptions

Sl. No.	Assumption Name	Assumption Description	Regulatory Requirement Addressed	Regulatory Reference: Federal Reserve-12 CFR Part 249
1	[Fed]-Regulatory Capital Elements	Common Equity Tier 1, Additional Tier 1, and Tier 2 capital prior to the application of capital adjustments or deductions.	This assumption specifies factors for 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.	Paragraph II-C-3(a) and K.104
2	[Fed]-Stable Retail Deposits	Stable Retail deposits held directly at a covered company.	This set of assumptions specifies factors for Retail Deposits based on whether it is brokered or not and if brokered-based on the type of brokered deposit such as Reciprocal, sweep and other deposits.	Paragraph II-C-3(b, c, and d) and K.104
3	[Fed]-Less Stable Retail Deposits	Less Stable Retail deposits held directly at a covered company.		
4	[Fed]-Reciprocal brokered deposits	Fully insured and uninsured Reciprocal Brokered Deposits.		
5	[Fed]-Brokered Sweep Deposits	All types of Brokered sweep deposits including insured and uninsured accounts, affiliated and unaffiliated broker accounts.		
6	[Fed]-Other Brokered Deposits	Brokered deposits which are neither reciprocal nor sweep deposits.		
7	[Fed]-Retail non deposit funding	Retail Funding which is not in the form of deposits.	This assumption specifies the factors for all funding other than deposits from Retail customers.	Paragraph II-C-3(e.) and K.104
8	[Fed]-Non operational balances from non financial customers	Non-operational funding received from wholesale customers who are not financial entities or consolidated entities of a financial entity and which matures within 6 months.	This set of assumptions specifies the factors for deposits from wholesale customers based on operational deposit, type of wholesale counterparty, and secured/unsecured status.	Paragraph II-C-3(d) and K.104
9	[Fed]-Non operational CF from non financial customers	Non-operational funding received from wholesale customers who are not financial entities or consolidated entities of a financial entity and which matures beyond 6 months.		

10	[Fed]-Operational balances from wholesale customers	Operational funding received from all types of wholesale customers and which matures within 6 months.		
11	[Fed]-Operational CF from wholesale customers	Operational funding received from all types of wholesale customers and which matures beyond 6 months.		
12	[Fed]-Non operational balances from financial customers	Non-operational funding received from wholesale customers who are either financial entities or consolidated entities of a financial entity and which matures within 6 months.		
13	[Fed]-Non operational CF from financial customers	Non-operational funding received from wholesale customers who are either financial entities or consolidated entities of a financial entity and which matures beyond 6 months.		
14	[Fed]-Secured deposits and other funding from wholesale customers	Secured funding received from wholesale customers and which matures within 6 months.		
15	[Fed]-Secured deposits and other funding from wholesale customers-CF	Secured funding received from wholesale customers and which matures beyond 6 months.		
16	[Fed]-Long term liabilities	Deposits and Borrowings with a remaining term to maturity of greater than 1 year as prescribed in the US NSFR guidelines.	This assumption specifies the factor for long term funding from wholesale customers. (Maturity beyond one year).	Paragraph II-C-3(a) and K.104
17	[Fed]-Issued Securities	Securities issued by the covered company.	This assumption specifies the factor for securities issued by the covered company.	Paragraph II-C-3(a, d and e.) and K.104
18	[Fed]-Trade date payables	Trade date payables that result from purchases by a covered company of financial instruments, foreign currencies, and commodities.	This assumption specifies the factor for trade date payables.	Paragraph II-C-3(e.) and K.104
19	[Fed]-Deferred Tax liabilities	Deferred Tax Liabilities.	This assumption specifies the factor for deferred tax liabilities.	

20	[Fed]-Cash and cash items in process of collection	Coins, banknotes, cash, restricted cash, and cash items in process of collection, such as bank drafts and cheques.	This assumption specifies factors for coins, banknotes, cash, and restricted cash held by the bank.	Paragraph II-D-3(a) (i) and K.106 (1)
21	[Fed]-Central bank reserves	All central bank reserves, including, required reserves and excess reserves.	This assumption specifies factor for Central bank reserves.	
22	[Fed]-Trade date receivables	Trade date receivables that result from the sale of financial instruments, foreign currencies, and commodities.	This assumption specifies the factor for trade date receivables.	Paragraph II-D-3(a) (i) and K.106 (1)
23	[Fed]-Claims on central banks	Unencumbered loans and other claims on central banks.	This set of assumptions specifies factors for claims on Central banks.	Paragraph II-D-3(a) (i) and K.106 (1) (iii) and (iv)
24	[Fed]-Encumbered claims on central banks	Encumbered loans and other claims on central banks.		
25	[Fed]-Unencumbered Level 1 assets	Unencumbered assets that qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.	This set of assumptions specifies factors for unencumbered and encumbered high-quality liquid assets.	Paragraph II-D-3(a) (ii),(iv) and (v) and K.106(2),(4) and (5)
26	[Fed]-Unencumbered Level 2A and 2B assets	Unencumbered assets that qualify for inclusion in Level 2A and 2B of High quality liquid assets as defined in the LCR.		
27	[Fed]-Encumbered Level 1 assets	The encumbered portion of assets which qualify for inclusion in Level 1 of High quality liquid assets as defined in the LCR.		
28	[Fed]- Encumbered Level 2 assets	The encumbered portion of assets which qualify for inclusion in Level 2A and 2B of High quality liquid assets as defined in the LCR.		
29	[Fed]-Loans to FI secured by Level 1 asset	Unencumbered loans to financial institutions where the loan is secured against Level 1 assets as defined in the LCR.	This set of assumptions specifies factors for loans to financial parties based on encumbrance and maturity.	Paragraph II-D-3(a) (vi), (vii) and K.106(6) and (7)
30	[Fed]-Encumbered loans to FI secured by Level 1 asset	Encumbered loans to financial institutions where the loan is secured against Level 1 assets as defined in the LCR.		
31	[Fed]-Loans to FI secured by other assets	Unencumbered loans to financial institutions where the loan is secured against assets belonging to levels other than Level 1, as defined in the LCR.		

32	[Fed]- Encumbered loans to FI secured by other assets	Encumbered loans to financial institutions where the loan is secured against assets belonging to levels other than Level 1, as defined in the LCR.		
33	[Fed]-Unsecured loans to financial institutions	Unencumbered unsecured loans to financial institutions.		
34	[Fed]- Encumbered unsecured loans to FI	Encumbered unsecured loans to financial institutions.		
35	[Fed]-Loans to other parties maturing in 1year	Unencumbered loans with residual maturity less than a year to other counterparties that is Nonfinancial corporates, retail and small business customers, sovereigns, Public sector enterprises, and sovereigns.	This set of assumptions specifies factors for loans to non-financial parties based on encumbrance and maturity.	Paragraph II-D-3(a) (vi), (vii) and K.106(6) and (7)
36	[Fed]-Encumbered loans to other parties maturing in 1year	Encumbered loans with residual maturity less than a year to other counterparties that is Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises, and sovereigns.		
37	[Fed]-Loans to other parties maturing beyond 1year	Unencumbered loans with residual maturity beyond one year to other counterparties that is Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises, and sovereigns.		
38	[Fed]-Encumbered loans to others maturing beyond 1year	Encumbered loans with residual maturity more than a year to other counterparties that is Non-financial corporates, retail and small business customers, sovereigns, Public sector enterprises, and sovereigns.		
39	[Fed]-Unencumbered residential mortgage loans	Unencumbered residential mortgage loans which would qualify for a) 50% or lesser risk weight as per U.S. Capital Rules b) higher than 50% risk weight as per U.S. Capital Rules.	This set of assumptions specifies factors for residential mortgage loans based on their risk weight.	Paragraph II-D-3(a) (vi),(vii) and K.106(6),(7)
40	[Fed]-Encumbered residential mortgage loans	Encumbered residential mortgage loans which would qualify for a) 50% or lesser risk weight as per U.S. Capital Rules b) higher than 50% risk weight as per U.S. Capital Rules.		

41	[Fed]-Operational balances with other banks	Operational portion of encumbered deposits held at other financial institutions, for operational purposes.	This set of assumptions specifies the factors for deposits held at other covered institutions.	Paragraph II-D-3(a) (v) and K.106(5
42	[Fed]-Non operational balances with other banks	The non-operational portion of operational deposits held at other financial institutions.		
43	[Fed]- Encumbered balances with other banks	Encumbered deposits held by the covered company at other financial institutions.		
44	[Fed]-Non HQLA assets	Unencumbered securities which do not qualify as High-Quality Liquid Assets(HQLA) under the LCR Rule.	This set of assumptions specifies factors for unencumbered and encumbered assets which are not HQLA.	Paragraph II-D-3(a) (v) (vii) and K.106(5),(7)
45	[Fed]-Encumbered non HQLA assets	Encumbered securities which do not qualify as High-Quality Liquid Assets(HQLA) under the LCR Rule.		
46	[Fed]- Derivative liabilities	Potential valuation changes for derivative liabilities.	This set of assumptions specifies factors for Derivatives.	Paragraph 107(5)
47	[Fed]- NSFR Derivative liabilities	NSFR derivative liabilities, with consideration of the variation margin, posted.		Paragraph 107(c and d)
48	[Fed]- NSFR Derivative assets	NSFR derivative assets along with consideration of variation margin received as cash.		
49	[Fed]-Credit and liquidity facilities extended to customers	Off balance sheet exposures- Irrevocable and conditionally revocable credit and liquidity facilities offered to clients by the bank.	This assumption specifies factors for credit and liquidity facilities extended to customers.	Paragraph II-D-3(a) (ii) and K.106 (1)
50	[Fed]-Initial margin for derivatives	Initial margin provided by the covered company and the covered company's contributions to a central counterparty (CCP) mutualized loss-sharing arrangements.	This set of assumptions treat initial and variation margin placed and received against derivatives.	Paragraph 107(b-6)
51	[Fed]-Variation margin received	Variation margin received by the covered company whose RSF treatment is per the type of collateral received.		Paragraph 107(b)(4)
52	[Fed]-Commodities	Unencumbered commodities held by the covered company.	This set of assumptions specifies factors for commodities based on encumbrance.	

53	[Fed]-Encumbered commodities	Encumbered commodities held by the covered company.		Paragraph II-D-3(a) (vii) and K.106(7)

7 Back-Dated Run Execution

This feature is available for Contractual Runs, for the run purpose **US Fed Deposit Insurance Calculation (FDIC) 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 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. See the Liquidity Risk Measurement and Management User Guide for details on back-dated execution.

> **NOTE** Ensure to select the back dated option in FDIC Run, before making any changes in the US Federal Reserve Contractual Run.

8 Appendix A: Data Transformations/Functions used in LRRCUSFR

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

- **TB_DATE_ASSIGNMENT**

  This function performs the following actions:

  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 table.

  c. The business day convention (prior, conditional prior, following, no-Adjustment) is applied, considering the holiday calendar applicable for a Legal Entity, and is 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 DIM_FCST_RATES_SCENARIO tables. It performs the following actions:

  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 the 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 the 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 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 the STG_MITIGANTS table. The link between the loan account and the mitigant is captured in the STG_ACCOUNT_MITIGANT_MAP table. From STG_ACCOUNT_MITIGANT_MAP table, data moves to FCT_ACCOUNT_MITIGANT_MAP table.

The function identifies the account mitigant mapping from the 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 column FSI_LRM_INSTRUMENT.N_UNDERLYING_RECV_LEG_MKT_RCY as $500 for the loan contract account.

Similarly, consider another example of a 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 column 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 table) and updates it 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 the FCT_ACCT_PLACED_COLL_MAP.N_DRWN_PORTION_COLL_AMT column.

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 columns 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.

9 Appendix B: User Configuration and Settings

This section includes the user configurations and settings.

Topics:

9.1 Standard Reclassifications

The regulatory guidelines specify classifications and computations based on certain generic products and party types. Each bank, internally, will have its own product and party types, which differ from bank to bank. 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 LRRCUSFR respectively.

Topics:

9.1.1 Standard Product Type Reclassification

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

9.1.2 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.

9.2 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.

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