Oracle Financial Services Basel Regulatory Compliance for Thailand

User Guide

Release 8.1.2.0.0

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ORACLE

Oracle Financial Services Basel Regulatory Compliance for Thailand User Guide

Document Control

Version Number	Revision Date	Change Log
1.0	May 2022	Created a new User Guide for Thailand jurisdiction.
2.0	December 2022	Updated the Common Functionality Impacting Across Jurisdictions section for 8.1.2.1.0 release.
3.0	February 2023	Updated the Seeded Data file link in the **Seeded Values Used** section.

Table of Contents

1 Getting Started

1.1 Intended Audience

Welcome to Release 8.1.2.0.0 of the Oracle Financial Services Basel Regulatory Compliance User Guide.

This guide is intended for:

- Technical Analyst: This user ensures that the data is populated in the relevant tables as per the specifications, executes, schedules, and monitors the execution of Runs as batches.
- Business Analyst: This user reviews the functional requirements and information sources, like reports.
- Data Analyst: This user is involved with cleaning, validation, and importing of data into the OFSAA Download Specification Format.
- Administrator: The Administrator maintains user accounts and roles, archives data, loads data feeds, and so on. The administrator controls the access rights of users.

1.2 Conventions

The following text conventions are used in this document:

Table 1: Document Conventions

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

1.3 Installing this Major Release

For detailed instructions to install this Major Release, see the Oracle Financial Services Capital Adequacy Installation and Configuration Guide Release 8.1.2.0.0.

1.4 Related Information Sources

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

- OHC Documentation Library **for OFS Capital Adequacy (OFS CAP) Application Pack:**
  - Oracle Financial Services Capital Adequacy Pack Installation Guide
- OHC Documentation Library **for OFS AAAI Application Pack:**
  - *OFS Advanced Analytical Applications Infrastructure (OFS AAAI) Application Pack Installation and Configuration Guide*
  - *OFS Analytical Applications Infrastructure User Guide*
  - *OFS Analytical Applications Infrastructure Administration Guide*
  - *Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*
- **Additional documents:**
  - OFSAA Licensing Information User Manual
  - OFS Analytical Applications Infrastructure Security Guide
  - OFSAAI FAQ Document
  - OFS Analytical Applications 8.1.2.0.0 Technology Matrix
  - Oracle Financial Services Analytical Applications Infrastructure Cloning Guide

2 What's New in this Release

In the OFS Basel Regulatory Capital Release 8.1.2.0.0, we are catering to the latest guidelines pertaining to Basel III: Finalizing Post Crisis Reforms compliance for Canada, Hong Kong, and Saudi Arabia, with respect to the Standardized Approach. This release also catered to Credit Risk – IRB changes for BIS, and Counterparty Credit Risk related changes for Australia. And this release also had the Process Modeling Framework related changes for Thailand regulatory compliance for Basel III.

This release also has additional features that help banks in complying with any changes to their data and re-execution of previous dates, based on the regulatory needs or strategic needs of the bank. It also caters to the incremental processing, which is the calculation of only specific data that has changed across different dates, and considering the remaining as is, and computing the total regulatory risk weighted assets and capital for the total. This has a significant benefit in terms of the reduced end to end processing time.

There has also been changes in terms of having a user interface that will help in viewing the reclassification rules that are currently available in the product, and also having a workflow associated with it, to control the editing and changes made to the existing reclassification rules. There has also been a user interface that helps in viewing the thresholds that are defined for complying with the operational risk loss calculations, and as specified by the regulator.

As part of this release, Thailand Jurisdictional compliance for Basel III has been updated with the technical changes to comply with the Process Modeling Framework.

Common Functionality Impacting Across Jurisdictions:

As part of this release, there have been newer functionalities introduced to cater across jurisdictions:

- User Interface for Specifying Derivatives EAD as a user input
  - Functionality allowing the user to specify whether the Derivatives EAD will be provided as an input, or will be computed by the product, using the specified method. This allows the flexibility to modularize the computations for counterparty credit risk.
- User Interface for Regulatory Capital Threshold
  - Functionality allowing the user to edit and view the thresholds specified by the regulator for the capital calculations.
- User Interface for Regulatory Capital Source
  - Functionality allowing the user to edit and view the capital data source required for the capital calculations.
- Regulatory Definition Options for Rating Assessment
  - Functionality allowing the user to select the Multiple Assessment Logic based on either the Risk Weight Rankings or the Rating Ranking.
- Regulatory Definition Options for Counterparty Credit Risk
  - Functionality allowing the user to select Counterparty Credit Risk related supervisory options based on approval and the bank's discretionary option based on the bank's internal processes as a separate option, instead of being part of the Credit Risk.

- Integration of the Reclassification User Interface for all Runs
  - The Reclassification user interface has been integrated in each of the out of box supported jurisdictional runs.
- Integration of the Portfolio for all Runs
  - Functionality allowing the user to select different portfolios that are applicable for each regulatory calculation, within a single jurisdictional calculation.

OFS Basel Regulatory Capital Analytics

The OFS Basel Regulatory Capital Analytics 8.1.2.0.0 has been enhanced with dashboards catering to the newer functionality of Operational Risk.

3 Introduction to Basel Regulatory Capital

In 1988, the Bank for International Settlements published the first guidelines on Capital Adequacy called the Basel I accord which primarily focused on credit risk. Assets of banks were classified and grouped into five categories according to credit risk, carrying risk weights. On 4 July 2006, the BIS Committee issued a comprehensive version of the Basel II Framework. This document also consisted of the changes in the June 2004 Basel II Framework, the elements of the 1988 Accord that were not revised during the Basel II process, and the 1996 Amendment to the Capital Accord to incorporate Market Risks. The major outlines of the Basel II accord are to comply with the three pillars.

- The First Pillar: Minimum Requirements for:
  - Tier 1, Tier 2, and Tier 3 capital
  - Credit Risk
  - Market Risk
  - Operational Risk
- The Second Pillar: Supervisory Review Process and
- The Third Pillar: Market Discipline

The main highlights of the Basel III accord of December 2010 (rev June 2011) were:

- Stricter Capital: Basel III requires banks to hold 4.5% of common equity (up from 2% in Basel II) and 6% of Tier I capital (up from 4% in Basel II) of risk-weighted assets (RWA).
- Capital Buffer: Basel III also introduces additional capital buffers, (i) a mandatory capital conservation buffer of 2.5% and (ii) a discretionary countercyclical buffer, which allows national regulators to require up to another 2.5% of capital during periods of high credit growth and (iii) a discretionary G-SIB / D-SIB buffer as applicable.
- Leverage Ratio: Also, Basel III introduces a minimum leverage ratio and two required liquidity ratios. The leverage ratio is calculated by dividing Tier 1 capital by the bank's Total Exposure. Banks are expected to maintain the leverage ratio above 3%.
- CVA Risk: Basel III introduced a CVA risk charge in addition to a counterparty default risk charge for Over counter derivative portfolio.

The Oracle Financial Services Basel Regulatory Capital application consists of Capital Adequacy and Risk-Weighted Assets computations as prescribed in Basel I, Basel II, and Basel III Accord.

The Oracle Financial Services (OFS) Basel Regulatory Capital application is categorized into two versions:

- OFS Basel Regulatory Capital Basic supports the Standardized Approach and its variant for the BIS Jurisdiction.
- OFS Basel Regulatory Capital Internal Rating Based Approach: is based on the approaches supported by the OFS Basel Regulatory Capital Basic Application and the advanced approaches for BIS Jurisdiction.

The following approaches and calculation are supported in the application:

- Credit Risk

  - Non-Securitization – Standardized Approach & IRB Approach
  - Securitization – Standardized Approach & IRB Approach
- Counterparty Credit Risk
  - EAD Calculation for Derivatives – OTC Derivatives, Cleared Transactions and Exchange Traded Derivatives – Current Exposure Method & Standardized Approach of CCR
  - Default Fund Contribution
- Market Risk
  - Market Risk – Standardized Approach & FRTB Standardized Approach
- Operational Risk
  - Operational Risk – Basic Indicator Approach, Standardized Approach, Alternative Standardized Approach Capital Structure & Buffers

The following jurisdictions are being supported in the out of the box, with all the calculations listed above:

- EU
  - CRR and CRD IV
  - CRR II and CRD V
- BIS
  - Basel II
  - Basel III & Further

3.1 Key Features

The important features of the OFS Basel Regulatory Capital application are as follows:

- One integrated application that allows for different approaches configured for various portfolios.
- Financial institutions can migrate to more advanced approaches as and when required.
- Comprehensive coverage of Credit Risk Mitigation techniques which ensures optimum allocation of Credit Risk Mitigants to exposures for maximum RWA reduction using the optimizer functionality in the application.
- Extensive, pre-built instrument coverage, built to meet Basel III guidelines, which means banks, can get 'up and running' quickly with minimal pre-processing.
- It is a fully transparent application where all Rules and Approaches are visible to business users, reviewers, or auditors.
- Audit Trail is present to maintain accountability of Rule changes, user activity, or system modifications.

4 Overview of OFSAA Infrastructure

Oracle Financial Services Analytical Applications Infrastructure is the complete end-to-end Business Intelligence solution that is easily accessible via your desktop. A single interface lets you tap your company's vast store of operational data to track and respond to business trends. It also facilitates the analysis of the processed data. Using OFSAAI you can query and analyze data that is complete, correct, and consistently stored in a single place. It has the prowess to filter data that you are viewing and using for analysis.

It allows you to personalize information access to the users based on their role within the organization. It also provides a complete view of your enterprise along with the following benefits:

- Track enterprise performance across information data store.
- Use one interface to access all enterprise databases.
- Create consistent business dimensions and measures across business applications.
- Automate the creation of coordinated data marts.
- Use your business language to get fast and accurate answers from all your databases.
- Deploy an open XML and web-based solution against all major relational or multi-dimensional databases on Microsoft Windows and UNIX servers.

This chapter provides an overview of Infrastructure, its components, and explains how these components are organized in the Splash window with the user login process.

4.1 Components of OFSAAI

The OFSAA Infrastructure consists of the following components/modules that are used to deploy an analytical solution.

- Data Model Management
- Data Management Tools
- Unified Analytical Metadata
- Rules Run Framework
- Metadata Browser
- Operations
- Questionnaire
- Process Modelling Framework
- System Configuration & Identity Management
- Object Administration
- Forms Framework

See OFS Analytical Applications Infrastructure User Guide for more information on all important components or modules of OFSAAI.

5 Application Processing

This section provides details on the application processing components.

5.1 Data Requirements

Data can be divided into the two categories - Setup Tables, and Slow Changing Dimensions (SCD), and can be set up by the bank

- **Setup Tables**
  - A setup table is a set of data that is static and does not change at regular intervals.
- **Dimension Tables**
  - A slowly changing dimension table is a set of data that is static and does not change at regular intervals. For more information on SCD, see the section Slow Changing Dimensions.

5.2 Data Assumptions

This section aims to identify certain data related assumptions for specific tables that help in the smooth functioning of the Basel Regulatory Capital application.

Data Format

- In all the date columns, data is expected as per the **MIS_DATE_FORMAT** of the atomic schema.
- Country and Currency codes are expected as per the ISO standard.

Dimension Table

DIM_CAPITAL_ACCT_HEAD: General Ledger items and Non-General Ledger items are differentiated in the column **F_GL_IDENTIFIER** by the flag Y that indicates the General Ledger items and the flag N that indicates non-General Ledger items.

Mapping Table

FSI_CAPITAL_STANDARD_MAPPING: For certain standard account headline items that are processed by the application, for example, Net Tier 1 Capital, Total eligible Capital, Tier 1 Capital Ratio, and Capital Ratio, you are expected to provide mapping for these items as Others in the column **V_CAPITAL_ACCOUNT_IDENTIFIER** in the **FSI_CAPITAL_STANDARD_MAPPING** table. These capital line items mapped as Others are used in the **T2T - CAPITAL_STD_ACCT_HEAD_POP** to insert records into **FCT_STANDARD_ACCT_HEAD** from **FCT_CAPITAL_ACCT_HEAD**.

Across the Basel product, in all the seeded data tables, the open-end date is mentioned as 31-DEC-9999. You must not modify this value.

FACT Table

FCT_CAPITAL_ACCT_HEAD: General Ledger items and non-General Ledger items are differentiated in the column **F_GL_IDENTIFIER** with the flag Y that indicates General Ledger items and the flag N that indicates non-General Ledger items. The T2T that populates data from the table **STG_GL_DATA** to the **FCT_CAPITAL_ACCT_HEAD** table populates the value Y in the column **F_GL_IDENTIFIER.** The T2T that populates data from the **STG_STANDARD_ACCT_HEAD** table to the table **FCT_CAPITAL_ACCT_HEAD** populates the value N in the column **F_GL_IDENTIFIER.** The reclassification of General Ledger and non-

General Ledger skeys to standard account head skey (**N_STD_ACCT_HEAD_SKEY**) happens in the **FCT_CAPITAL_ACCT_HEAD** table by either of the following tables:

- A Type 2 rule is used to reclassify by using the **DIM_CAPITAL_ACCT_HEAD** and **DIM_STANDARD_ACCT_HEAD tables.**
- The referencing the mapping table FSI**_CAPITAL_STANDARD_MAPPING**

From the **FCT_CAPITAL_ACCT_HEAD** table, General Ledger and Non-General Ledger data flows into the **FCT_STANDARD_ACCT_HEAD** table. Again, the distinction is based on the flag Y in the column **F_GL_IDENTIFIER**.

5.2.1 Data Loading

The OFSAAI Data Integrator framework allows you to move data flexibly within the Oracle Financial Services Analytical Applications (OFSAA) Data Model at different levels of granularity and various stages of the process.

Data can be loaded into the required Stage or Setup Tables in the following ways:

- **Connecting to other databases**: Relational data sources can be defined to connect to any of the Relational Database Management System (RDBMS) like Oracle, IBM DB2, MS SQL Server, and any RDBMS through native connectivity drivers or ODBC. RDBMS data source lets you define the RDBMS engine present locally or remotely with FTP access to the remote server
- **Flat-Files**: Flat File data source lets you define the flat-file present locally or remotely with FTP access to the remote server. Data files can be made available in the standard staging area configured in OFSAAI. A Flat-File data source is a local data source residing in the staging area of the Infrastructure Database Server.

For more information on the format of the flat file or RDBMS file, see the Download Specifications document.

Further, data can be loaded or maintained by using the following components available in the Data Integrator Framework:

- **Excel upload**: Choose this option when you have moderate quantities of data that are available in an excel file format.
- **Manual Data Entry – Forms**: The Data Entry Forms and Queries (DeFQ) module of the Data Integrator is designed to create user-friendly Data Entry windows with a choice of layouts, which enables data viewing and data manipulation easily. You can select tables based on which you can create forms that can be used in any application.

For more information on data loading activities like Flat File Source and Connecting to other databases, see the OFS Advanced Analytics Infrastructure User Guide.

5.2.2 Reclassification Rules

A sample list of products, customer types, issuer types, collateral types, credit ratings, and organization structure is pre-defined in the application. However, the list and naming convention of products, customer types, and so on, might differ from one bank to another. The application re-classifies the bank's data into standard data, which does not change for a given set of regulations, and then processes it based on

standard classifications. This restricts the level of modifications needed for each implementation for re-classifying the bank's data into the relevant standard classifications.

The list of reclassification rules required for the population is attached in the Annexure.

Setting up the Data

The respective Dimension Tables corresponding to products (**DIM_PRODUCT**), customer types, issuer types (**DIM_PARTY_ TYPE**), collateral type (**DIM_MITIGANT_TYPE**), credit ratings (**RATING_SRC_MASTER** and **DIM_CREDIT_RATING**), and organization structure (**DIM_ORG_STRUCTURE**) are populated with the list of product types, customer types, issuer types, collateral types, ratings, and organization structure as used in the respective bank.

As described in the Data Requirements section, these tables can be populated by directly uploading data into the tables if they are not likely to change frequently or by using the SCD component, if the data is likely to change over some time.

Also, data is expected in **STG_PRODUCT_MASTER**, **STG_PARTY_TYPE_MASTER,** and **STG_MITIGANT_TYPE_MASTER** for the product, party type, and mitigant types. SCDs populate data from these tables into **DIM_PRODUCT, DIM_PARTY_TYPE,** and **DIM_MITIGANT_TYPE**.

Modifying the Re-Classification Rules

You must only populate the SCD tables through the SCD Batches. The hierarchies related to Product Types, Customer Types, and so on, must be re-saved if the data keeps on changing. This can be done individually for each hierarchy using the Unified Metadata Manager or in bulk using the Save Metadata link under Administration on the LHS pane of the OFSAAI window. A new node is created in the source hierarchy. This node is mapped to the node in the target to be added to the target hierarchy. The pre-configured reclassification rules are modified to map the Bank's data to the Standard data using the Rules Framework.

5.3 Processing

After data stores are created and Rules, Processes, and Runs are defined, the timing and frequency of the Execution can be established. For more information on the Runs pre-configured with the application, see the Run Charts. To execute Runs as batches, see the Operations section in the Oracle Financial Services Analytical Applications Infrastructure User Guide.

The scheduling of Runs within OFSAAI can be managed on a real-time or batch basis. Batch processes can be executed daily, weekly, monthly, or to meet specific business needs. The Run Management facility also provides the ability to run jobs on a manual or real-time basis, as required. Existing investments in external schedulers can also be used to call web services within this infrastructure.

5.3.1 Batch Processing

A batch refers to a set of executable processes based on a specified rule. Batches relating to the application must be executed as specified below. These batches are executed from the Operations Menu of OFSAAI. For more information on the Operations section, see the OFSAAI User Guide.

Slowly Changing Dimension batch: This must be executed when you are installing the application for the first time. Subsequently, this batch must be executed only when new data is added. The tasks processed and the order in which the tasks are processed, are specified in the Run Charts.

5.3.1.1 Basel Common Batch

The following tasks are mapped to the Basel Common batch:

- Date Population: This task populates the table DIM_DATES.
- Party Role Map Calculation: This task populates the party and the role mapping from STG_PARTY_ROLE_MAPPING to FSI_PARTY_ROLE_MAPPING.
- FSI IRCS Calculation: This task populates FSI_IRCS from STG_IRC_RATE_HIST.

5.3.1.2 PARTY_FIN_DATA_POP Batch

Populates the party financial data and executed as required when the party financial data is available.

5.3.1.3 BASEL_DAILY Batch

This batch is to be executed daily. This batch is used to populate the exchange rate between different currencies for each date.

5.3.1.4 BASEL_SETUP_TBL_POP Batch

This batch is used for Basel set up tables' population. This batch contains T2Ts to populate data from setup tables into the corresponding processing tables. and includes rules to mark the latest data indicators. You are required to provide data in setup tables whichever applicable. The tasks in this batch are adhoc and can be selected as applicable.

For more information on the setup tables for the batches, see the Setup Table Batch Details file.

5.3.2 Basel Configurations

The Basel Configuration framework is a unique feature of the Basel Regulatory Capital application which enables a business user - without assistance from a technical analyst - to easily define a Portfolio and a Run. This framework allows you to define a Run by selecting a combination of different Basel approaches for RWA computation. It also allows you to define a Run for a combination of portfolios.

The application Runs can be executed as RRF batch from the **Run Management** UI. The Run Management UI lists all Runs defined in Rule Run Framework. For more information on the Rule Run Framework, see the Rule Run Framework in the Oracle Financial Services Analytical Applications Infrastructure User Guide.

For CBRC Jurisdiction, if Credit Risk is selected in Run Management, then the relevant questions are not displayed as Credit Risk is not a part of CBRC jurisdiction in Basel Regulatory Capital Basic and no approaches/options are mapped to the segment.

The Basel Configurations feature consists of the following 3 functionalities:

- Optimizer
- Portfolio Definition
- Run Management

5.3.2.1 Optimizer

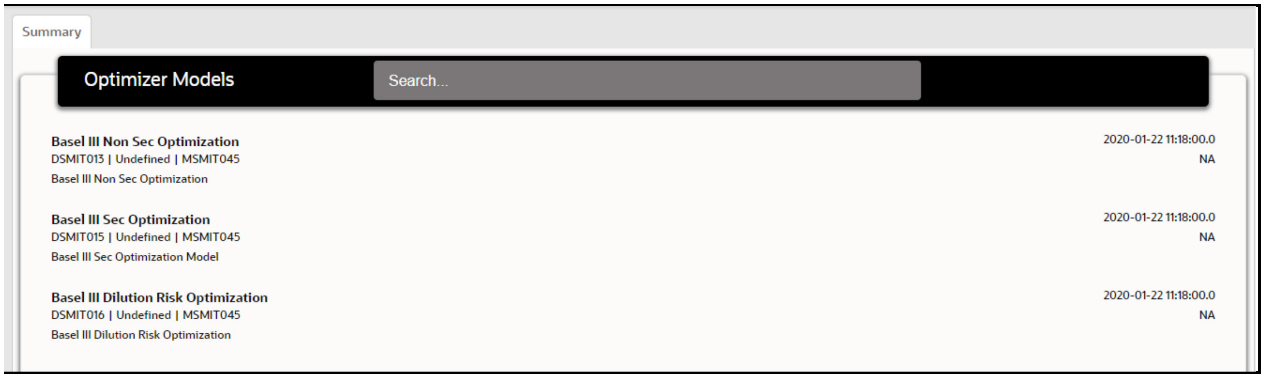
A prerequisite for defining the Optimizer is to update the pool ID in the sub-exposures **FCT_SUB_EXPOSURES** table for the selected Run.

5.3.2.1.1 Viewing an Optimizer

To view the optimizer, perform the following steps:

1. Log on to the application and select Financial Services Basel Regulatory Capital Basic.
2. On the LHS menu, click Basel Regulatory Capital Basic, click Basel Configurations, and then click Optimizer to open the Optimizer Models window.

Figure 1: The Optimizer Models Window



3. Select an optimizer to view it.

5.3.2.1.2 Executing an Optimizer

Prerequisites

You must ensure the following before executing the optimizer:

- Complete the pooling process and update the **N_POOL_ID** column in the **FCT_SUB_EXPOSURES** table.

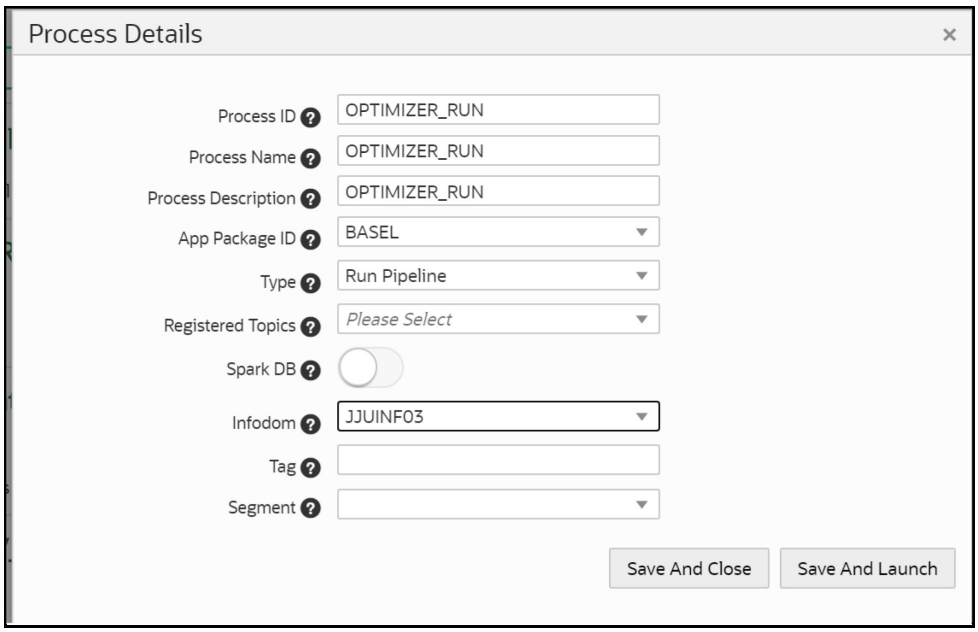
Optimizer models are defined and accessible on the Optimizer Models page. These models are mandatory in order to execute the model for a particular exposure type.

5.3.2.1.3 Executing an Optimizer through an Independent Process

Follow these steps to execute an optimizer as an independent process:

1. Log in to the application as a System Administrator.
2. Click **Basel Regulatory Capital Internal Ratings Based Approach** or **Basel Regulatory Capital Basic** depending on the application for which you have the license.
3. Click **Process Modelling** and then click **Process Modeler**.
4. Click **Add**  to open the **Process Details** Window.

Figure 2: The Process Details Window



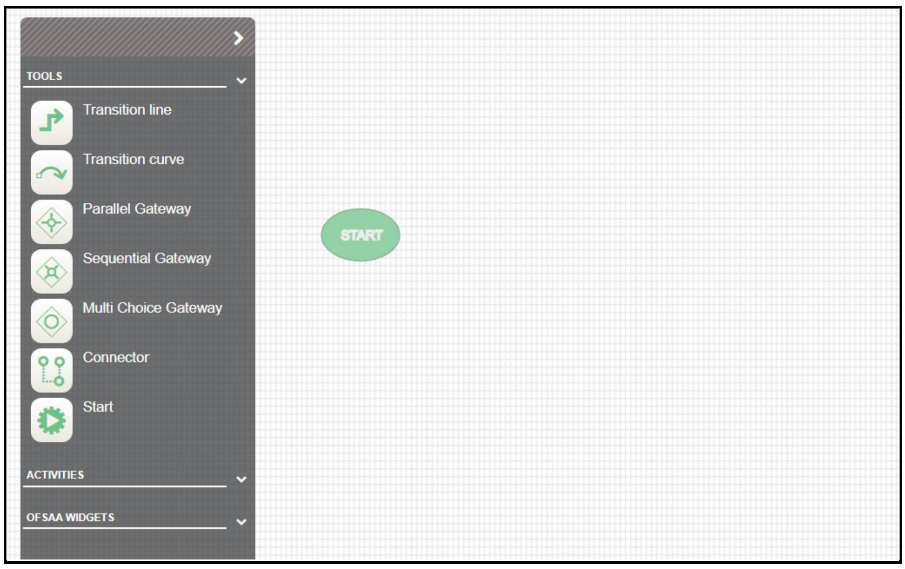
5. Populate the fields in the **Process Details** form as detailed in the following table:

Table 2: The Process Details Form

Fields	Description
Process ID	Enter an ID for the Optimizer Process.
Process Name	Enter a name for the Optimizer Process.
Process Description	Enter a description for the Optimizer Process.
App Package ID	Select an application package ID from the drop-down list.
Type	Select the type from the drop-down list.
Spark DB	Do not enable this field if you want to keep the default settings.
Infodom	Select the Infodom from the drop-down list.
Tag	Enter the names of the tags to be used for the Optimizer Process.
Segment	Select a segment from the drop-down list.

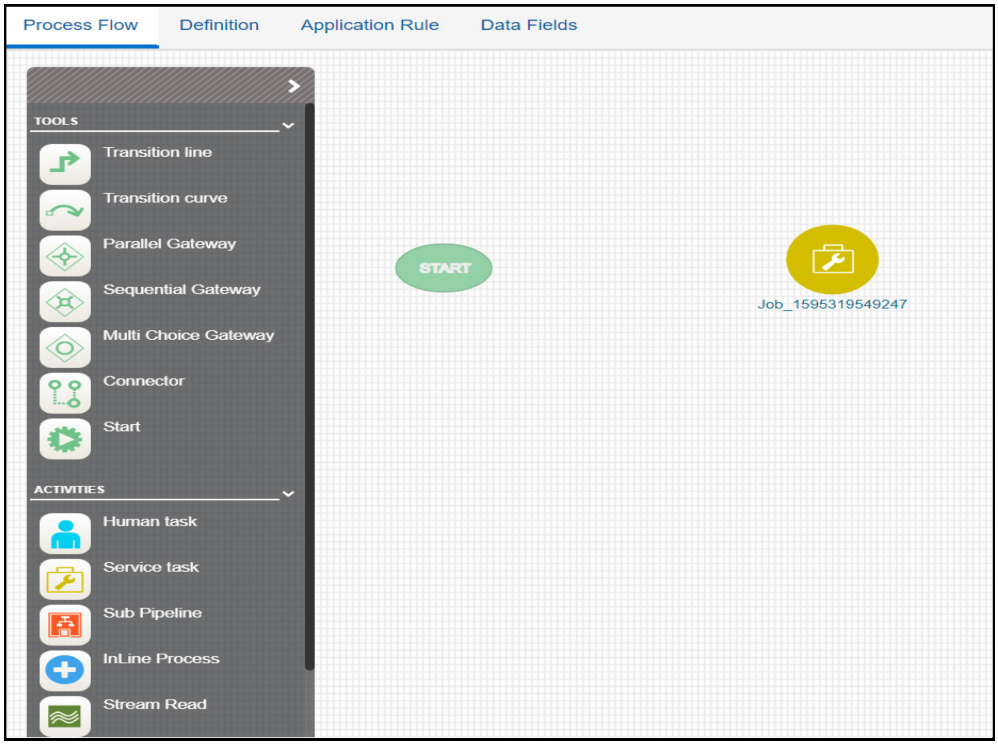
6. Click **Save and Launch** to open the **Process Definition** window.
7. Click **Start** and drag the **Start** process in to the canvas.

Figure 3: Start Process Added to the Canvas



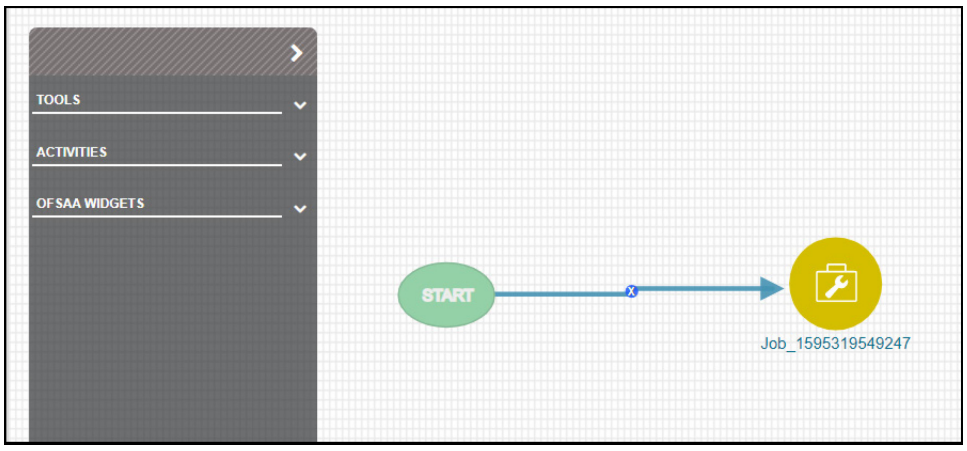
8. Click **ACTIVITIES** to expand it.
9. Click and drag **Service Task** process component into the canvas.

Figure 4: The Service Task Process has been added to the Canvas



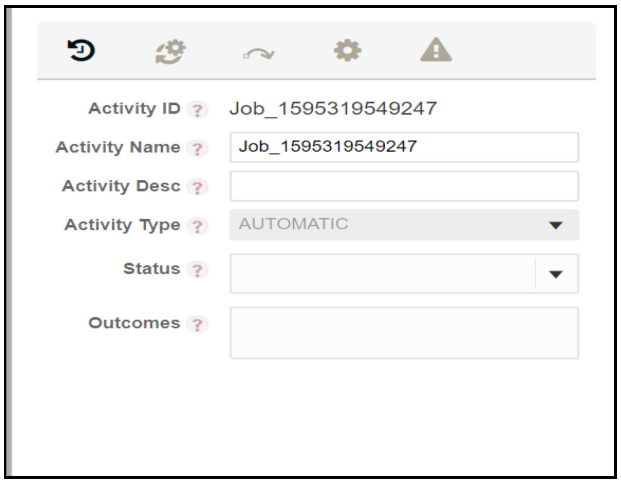
10. Join the **Start** component to the service task component by dragging the **Transition line** connector in to the canvas.

Figure 5: The Transition Line connector added to the Canvas



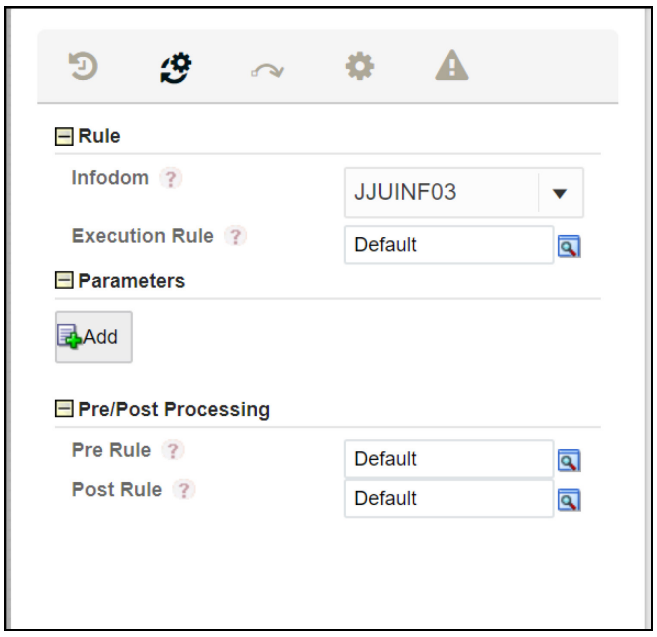
11. Double-click the service task component to open the settings window.

Figure 6: The Settings Window



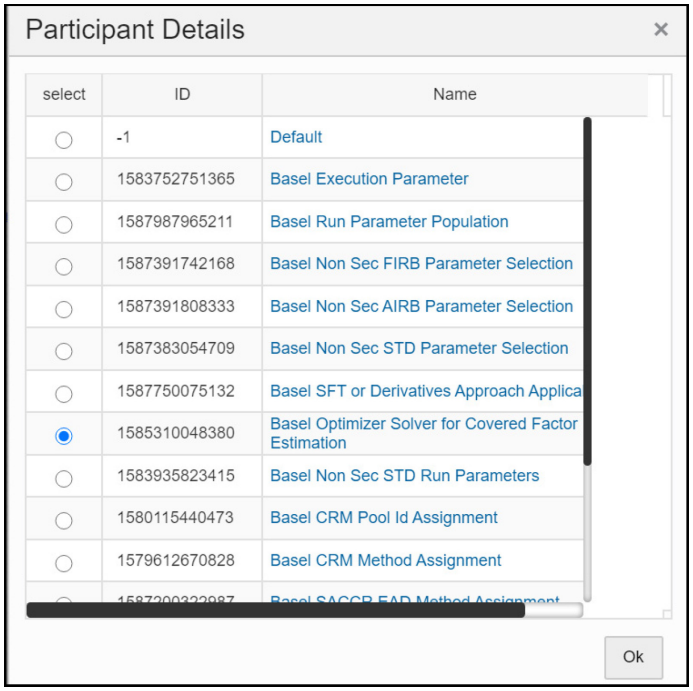
12. Click **Settings**  to open the **Settings** tab.

Figure 7: The Settings Tab



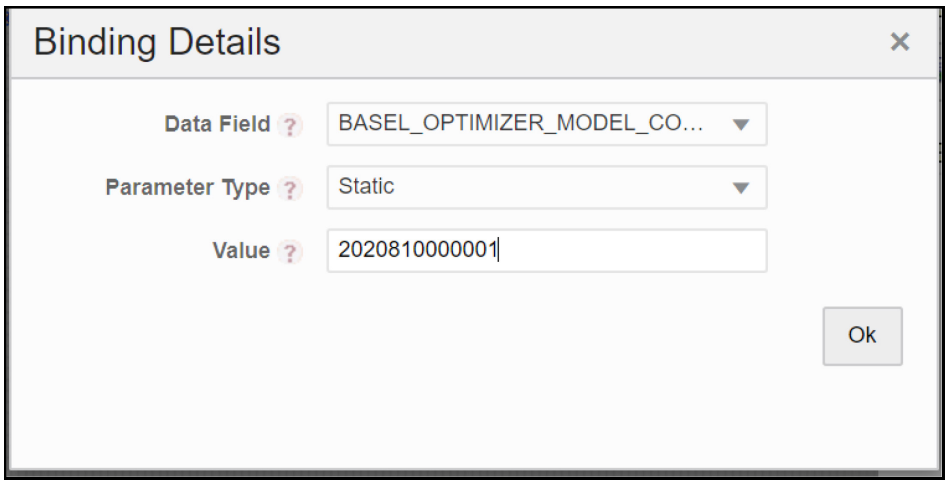
13. Click **Find** to open the **Participant Details** screen.

Figure 8: The Participant Details Window



14. Click the rule **Basel Optimizer Solver for Covered Factor Estimation** and then click **OK**.
15. Click **Add** to open the **Binding Details** window. The Data Field is automatically populated with the input value BASEL_OPTIMIZER_MODEL_CODE.

Figure 9: The Binding Details



16. Click **Ok**.

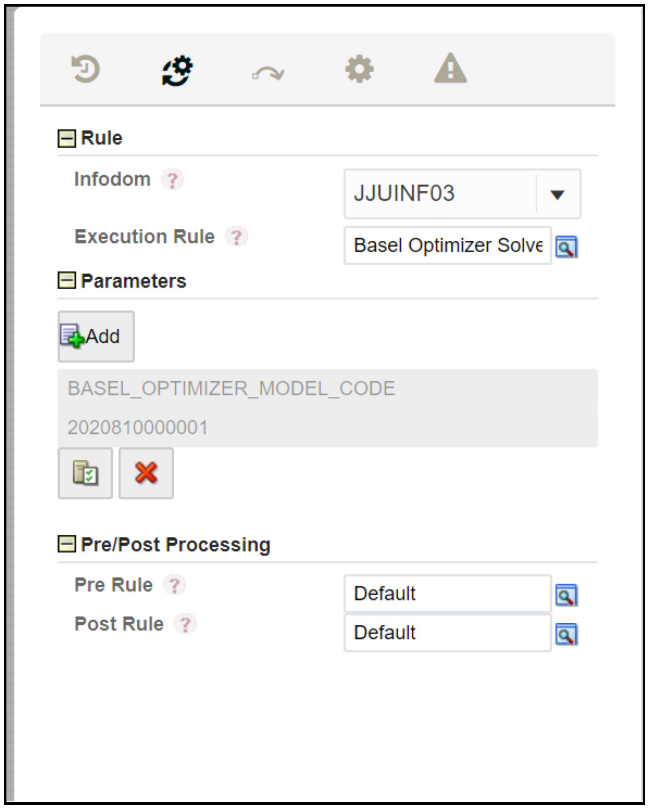
    If the model code is not available on the screen, you can retrieve it from the **FSI_BASEL_OPTIMIZER_MODEL_TL** table.

    A sample query for retrieving the model code is as follows:

```
Select * from FSI_BASEL_OPTIMIZER_MODEL_TL where V_MODEL_DESC = 'Basel III
Non Sec Optimization';
```

    The **Parameters** pane is populated with the values that you add in the **Binding Details** window.

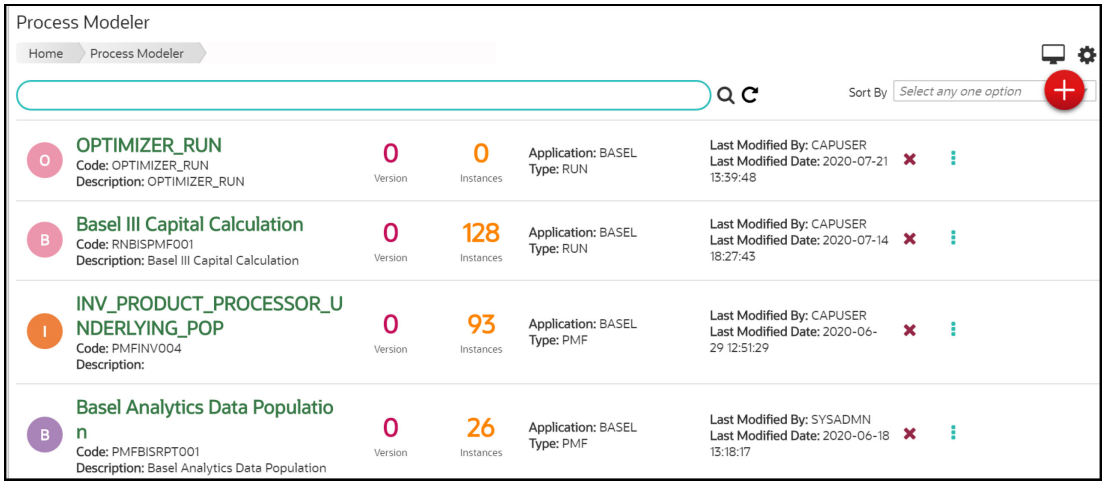
Figure 10: The Parameters Pane Populated with Values



17. Click **Save**.

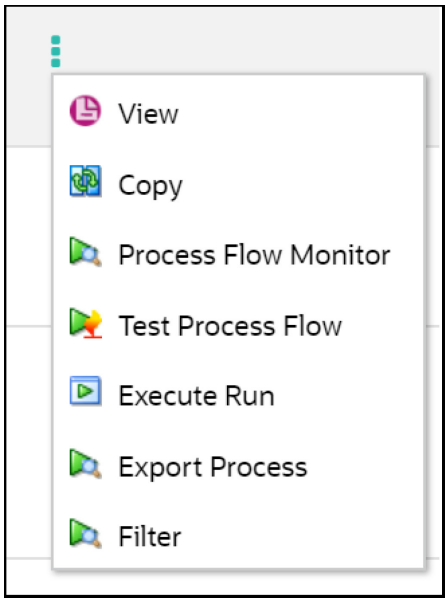
    The newly created optimizer run appears on the **Process Modeler** page.

Figure 11: Newly Created Optimizer Run on the Process Modeler Page



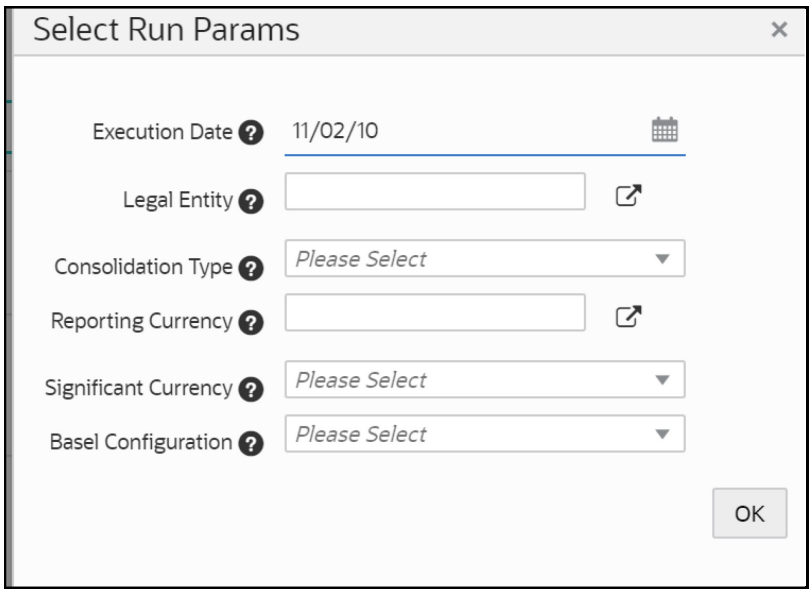
18. Click **More**  to view additional actions.

Figure 12: The Available Actions for a Run



19. Click **Execute Run** to open the **Select Run Params** Window.

Figure 13: The Select Run Params Window



20. Populate the **Select Run Params form** as detailed in the following table:

Table 3: The Select Run Params Pane

Field	Description
Execution Date	Select the Execution Date by clicking **Calendar** .
Legal Entity	Select a legal entity.
Consolidation type	Select the consolidation type from the drop-down list.
Reporting Currency	Select the Reporting Currency.
Significant Currency	Select the Significant Currency from the drop-down list.
Basel Configuration	Select the Basel Configuration from the drop-down list.

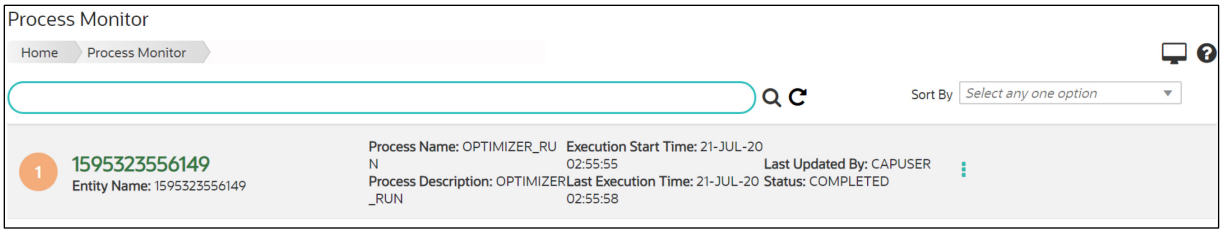
21. Click **OK** to go back to the **Process Modeler** page.

    The optimizer run is in progress.

22. Click **More** and then select **Process Flow Monitor**.

    The run status is either Running or Completed.

Figure 14: The Status of the Run



5.3.2.1.4 Executing an Optimizer via the Sub-process of a Different Run

The steps to execute an optimizer run via the sub-process of a different run is similar to the steps in the Executing an Optimizer through an Independent Process section. The only difference is that the optimizer run that you want to execute is connected to a different run in the canvas of the Process Details window.

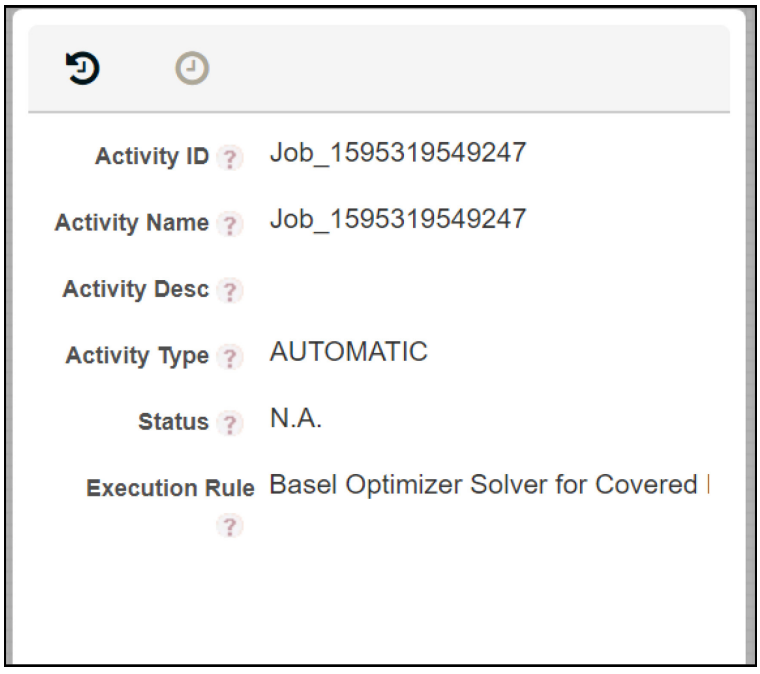
5.3.2.1.5 View the optimizer log

View the Optimizer Log on via the Process Monitor Page

Follow these steps to view the log from the Process Monitor screen:

1. On the **Process Monitor** pane, click the required optimizer for which you want to view the log to open the **Process Definition** window.
2. Double-click the service task process in the canvas to open the setting window.

Figure 15: The Setting Window



3. Click **Log**  to view the log of the optimizer run.

5.3.2.1.6 View the Optimizer Log on the Database Table

You can view the log by referring to the **CL_LOG_MESSAGE** column in the **FSI_BASEL_OPT_SOLVER_BATCH_MASTER** table.

5.3.2.1.7 View the Optimizer Log on the Server

The optimizer **BaselSolver.log** file is available in the server machine in the path:
`<web_container_location>/webapps/OFSCAP/logs`

5.3.2.2 Portfolio

You can define a combination of portfolios to participate in a Run. For example: If an institution wants to process only On Balance Sheet data and not all the product types, then the institution has the choice of selecting a subtype of an entire portfolio for processing.

5.3.2.2.1 Adding a New Hierarchy for Portfolio Creation

To add a new hierarchy for portfolio creation, the hierarchy code must be added in **PORTFOLIO_HIERARCHY_MASTER** table as detailed in the following table:

Table 4: The PORTFOLIO_HIERARCHY_MASTER table

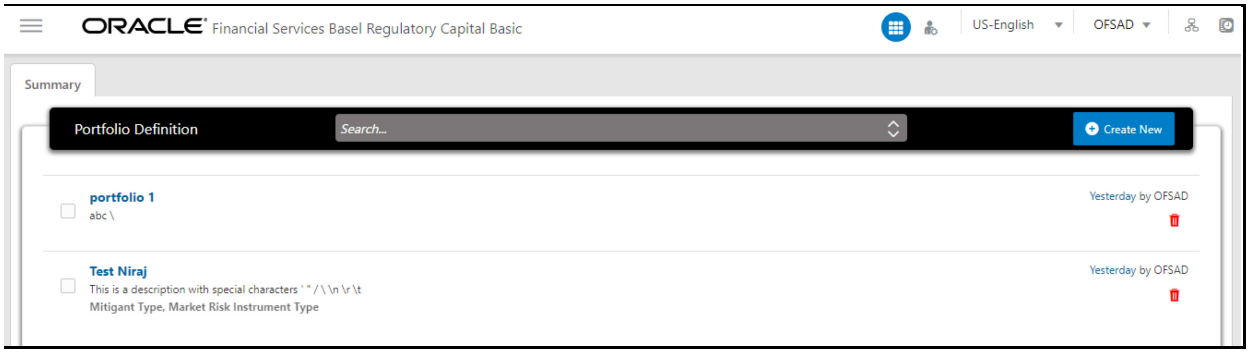
Column	Indicative values
V_HIERARCHY_CODE	Contains hierarchy code of the hierarchy to be added
F_LATEST_RECORD_INDICATOR	To be set to 'Y' for the hierarchies which have to be displayed
D_RECORD_START_DATE	Start date of the hierarchy.
D_RECORD_END_DATE	The end date of the hierarchy.

5.3.2.2.2 Access Portfolio Definition

To access a portfolio definition, follow these steps:

1. Log in to the application and select **Financial Services Basel Regulatory Capital Basic**.
2. On the LHS menu, click **Basel Regulatory Capital Basic**, click **Basel Configurations**, and then click **Portfolio** to open the **Portfolio Definition** window.

Figure 16: The Portfolio Definition window



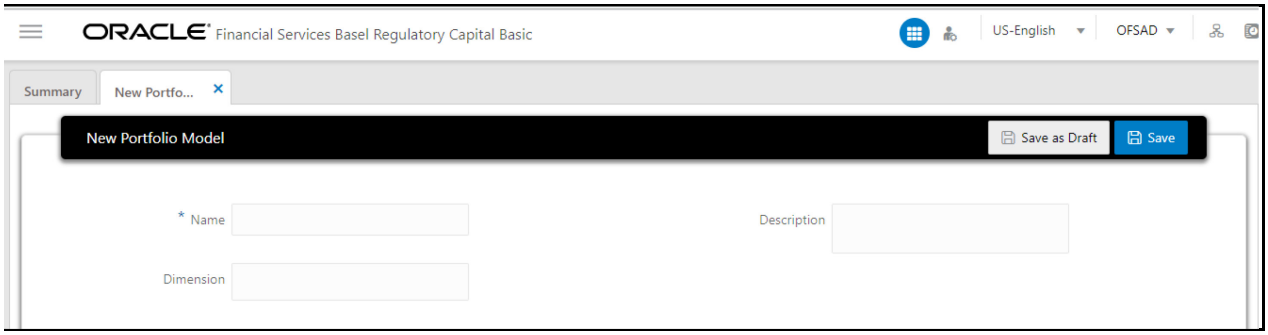
5.3.2.2.3 Create a Portfolio Definition

To create a portfolio definition, follow these steps:

1. In the **Portfolio Definition** window, click **Create New** 

to open the **New Portfolio Model** window.

Figure 17: The New Portfolio Model window



2. Enter the details as per the following table:

Table 5: The New Portfolio Model pane

Field	Description
Name	Enter a name for the portfolio definition.
Dimension	Select a dimension(s) from the drop-down list. Available options are: • Counterparty Type • Market Risk Counter Party • Mitigant Type • Product • Market Risk Instrument Type
Description	Enter a description of the portfolio definition.
Add Dimension	This pane only appears after you select a dimension(s) in the Dimension field. Click Add + to open the window for the selected dimension and select the required options.

3. Click **Save as Draft** if you want to save a draft of the portfolio.
4. Click **Save**.

5.3.2.2.4 Delete a Portfolio

To delete a portfolio, follow these steps:

1. In the **Portfolio Definition** window, for the portfolio that you want to delete, click **Delete**  .

A confirmation message appears, asking you if you are sure that you want to delete the portfolio.

2. Click **Yes**.

   The portfolio is deleted, and the Portfolio page is refreshed to display the updated list of portfolios.

5.3.2.3 Run Management

The Run feature in the Rules Run Framework helps you to combine various components and/or processes together and execute them with different underlying approaches. For more information on the Run Management feature, see the Run section in the Oracle Financial Services Analytical Applications Infrastructure 8.1.2 User Guide.

See BIS Basel II Configuration, EU CRR Configurations, and EU CRR II Configurations for more details.

5.3.2.3.1 Access the Run Management Page

To access the **Run Management** window, perform the following steps:

1. Log in to the application and select **Financial Services Basel Regulatory Capital Basic**.
2. On the LHS menu, click **Basel Regulatory Capital Basic**, click **Basel Configurations**, and then click **Run Management** to open the **Run Management** window.

5.3.2.3.2 Create a Run Definition

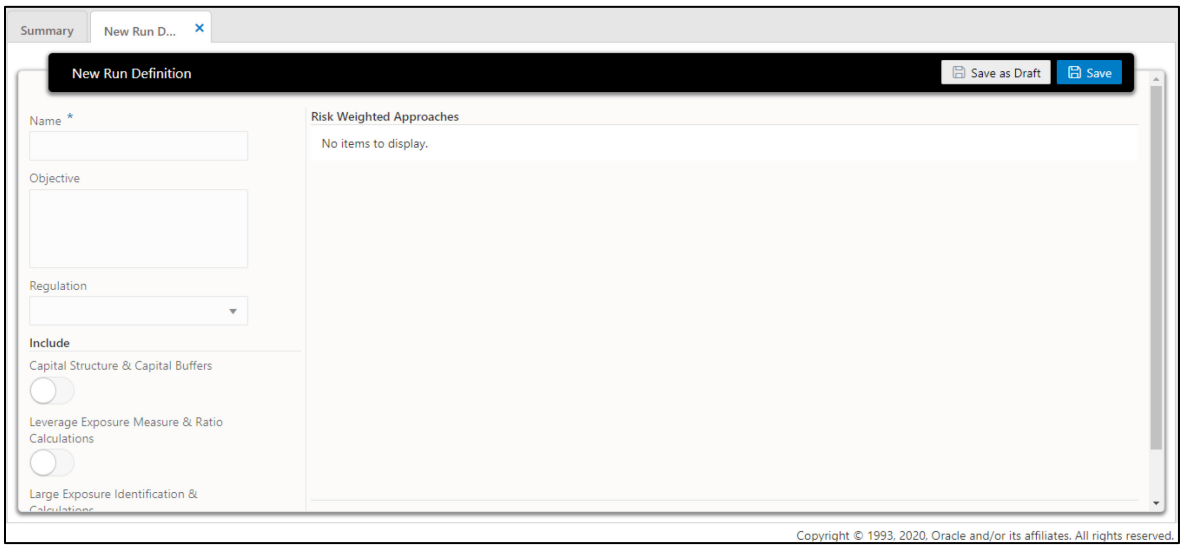
Follow these steps to create a run definition:

To create a run definition, perform the following steps:

1. In the **Run Management** window, Click **Create New** 

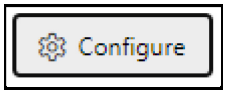
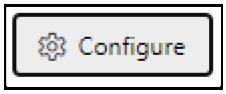
to open the **New Run Definition** window.

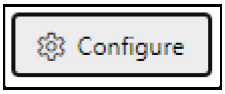
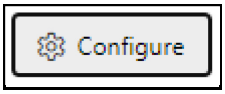
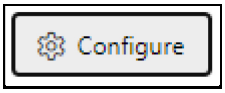
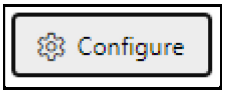
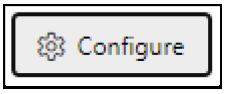
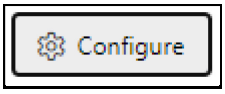
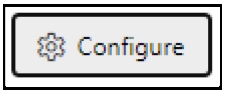
Figure 18: The New Run Definition window



2. Enter the details as per the following table:

Table 6: The New Run Definition Form

Field	Description
Name	Enter a name for the run definition.
Objective	Select an objective for the run definition.
Regulation	Select a regulation from the drop-down list. The available options are: • BASEL III • BASEL IV Depending on the value that you select in this field, the Risk-weighted Approaches pane is automatically updated.
Include pane	
Capital Structure & Capital Buffers	Click the  icon to enable this field.
Leverage Exposure Measure & Ratio Calculations	Click the  icon to enable this field
Large Exposure Identification & Calculations	Click the  icon to enable this field
Risk-weighted Approaches pane **NOTE:** The risk-weighted approaches that appear in this field depend on if you have the license for the Oracle Financial Services Basel Regulatory Capital Basic or Oracle Financial Services Basel Regulatory Capital IRB application pack and if you selected either BASEL III or BASEL IV in the Regulation field.	
Credit Risk and Counterparty Credit Risk for Non Securitization Exposures – Standardized Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Credit Risk and Counterparty Credit Risk for Non Securitization Exposures – Foundation IRB Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Credit Risk and Counterparty Credit Risk for Non Securitization Exposures – Advanced IRB Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.

Field	Description
Credit Risk for Securitization Exposures – Standardized Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Credit Risk for Securitization Exposures – IRB Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Market Risk – Standardized Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Market Risk – Internal Models Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Operational Risk – Basic Indicator Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Operational Risk – Standardized Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.
Operational Risk – Alternative Standardized Approach	Click **Configure**  to open the configurations window for this risk-weighted approach. See step 7 to view and populate the fields available in this window.

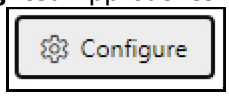
3. If you have enabled the **Risk-weighted** Approaches field, then in the required risk-weighted approaches pane, click **Configure**  to open the configuration window and populate the form as per the following table:

Table 7: The Configuration Form for a Selected Risk-Weighted Approach

Field	Description
Risk Type pane	
Credit Risk	If the risk-weighted approach requires this risk type, then select the checkbox.
Counterparty Credit Risk	If the risk-weighted approach requires this risk type, then select the checkbox.
Capital Calculation Methods pane	
The Capital Calculation Methods that appear in this field depend on if you have the license for the Oracle Financial Services Basel Regulatory Capital Basic or Oracle Financial Services Basel Regulatory Capital IRB application pack and if you selected either BASEL III or BASEL IV in the Regulation field. You must select a value from the drop-down lists.	
Calculation Parameters pane	
The Capital Calculation Methods that appear in this field depend on if you have the license for the Oracle Financial Services Basel Regulatory Capital Basic or Oracle Financial Services Basel Regulatory Capital IRB application pack and if you selected either BASEL III or BASEL IV in the Regulation field. You must select a value from the drop-down lists.	
Portfolio pane	
Select Applicable Portfolios	Select a portfolio from the drop-down list. The portfolios that you created in the Create a Portfolio Definition section appear in this field.

4. Select **Save as Draft** if you want to save a draft of this form.
5. Select **Save**.

5.3.2.3.3 Delete a Run Definition

To delete a run definition, perform the following steps:

1. In the **Run Management** window, for the run definition that you want to delete, click **Delete**  .

   A confirmation message appears, asking you if you are sure that you want to delete the run definition.
2. Click **Yes**.

   The portfolio is deleted. The **Run Management** page is refreshed and displays the list of updated run definitions.

5.3.3 Reporting

Oracle Financial Services Basel Regulatory Capital Analytics provides the customer with a reporting as well as information framework that can be used for generating reports and viewing information relevant to the capital computations and other aspects of the Basel framework. Basel Analytics provides pre-configured Basel dashboards for all the functionalities supported in the application, Pillar II reports covering most of the aspects related to stress testing and other supervisory review and Pillar III reports covering all market disclosure requirements of the Basel Accord.

For more information on Basel Regulatory Capital Analytics, see the Oracle Financial Services Basel Regulatory Capital Analytics User Guide.

The Oracle Financial Services Basel Regulatory Capital Analytics must be licensed by the Bank separately.

6 Thailand Jurisdiction

6.1 BOT III – High Level Process Flow for Internal Ratings Based Approach

The Bank of Thailand (BOT) has issued multiple guidelines to be followed by the banks for compliance with the Capital Adequacy guidelines. These guidelines are by and large compliant with the Basel III changes issued by the Basel committee (BIS).

The OFS Financial Services Basel Regulatory Capital application incorporates the guideline. The application is compliant with the Standardized approach and Internal Ratings Based Approach for Thailand Jurisdiction. The following are the functionalities that are handled:

- Non-Securitization Exposures – Standardized Approach / Internal Ratings Based Approach
- Counterparty Credit Risk Exposures – Current Exposure Method
- Settlement Risk Exposures
- Capital Structure – Capital Ratios and Buffers

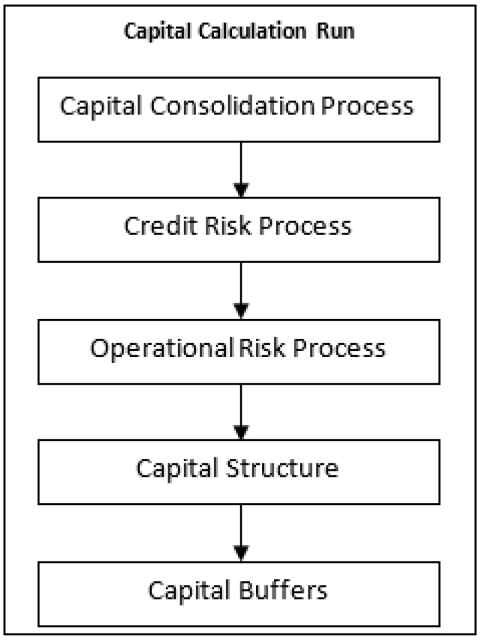
> **NOTE:**
>
> The seeded table FSI_PARTY_STD_PARTY_MAP should be updated with V_PARTY_ID as in STG_PARTY_DETAILS for MDB parties or standard parties.

The Capital Adequacy Ratio, which is defined by BOT, is delivered out-of-box in OFSAAI as a building block approach. The application computes the capital for Credit Risk.

For more information on the pre-defined Runs available with the application, see OFS Basel Regulatory Capital Run Charts available in MOS. Process Flow for Capital Adequacy Ratio Calculation

The Capital Adequacy Ratio is computed for all banks and their financial subsidiaries, which are part of the same banking regulation. The banks have to be compliant with the regulations and the required ratios at individual level (solo) and consolidated entity level (regulatory consolidation). The application supports both the Standardized Approach / Internal Ratings Based approaches.

Figure 19: Process flow of Capital Calculation run



Capital Calculation Run

The Capital Calculation Run, which is depicted in the preceding process flow diagram, is a single run which is a joined together by multiple processes. Each process is a block, compiled together to form an entire Capital Adequacy Run.

6.2 Capital Consolidation Process

Capital Consolidation is a process common to each of the individual blocks when they are triggered separately as an individual run. In Capital Consolidation, the application processes the following:

Capital Consolidation Level Selection

The reporting bank can be a part of a financial group that has multiple legal entities like parent or child entities (subsidiaries) under its name. The entity that you are required to process should be selected. Subsequently, the level at which a Run is to be executed (solo or consolidated) should also be selected.

However, if the Run is executed in the Run Rule Framework (RRF), then these options have to be set by using the Rule which is present in CAPITAL_CALCULATION_PARAM_SETTINGS process.

CAPITAL_CALCULATION_PARAM_SETTINGS is the first process to be added in all the Runs and the Run Management UI selects this process by default.

Run Parameters Assignment

The accord states different approaches for calculating RWA. The Run Management UI in the application allows the reporting bank to define and execute a Run by selecting a combination of different approaches for RWA computation.

The Run Parameter Assignment is also a part of the CAPITAL_CALCULATION_PARAM_SETTINGS process. The Rule is used to assign the Run parameters if a Run is executed in the RRF. If the Run is executed from

the Run Management UI, then the parameters are populated based on the Run defined in the Run Definition window.

Currency Conversion

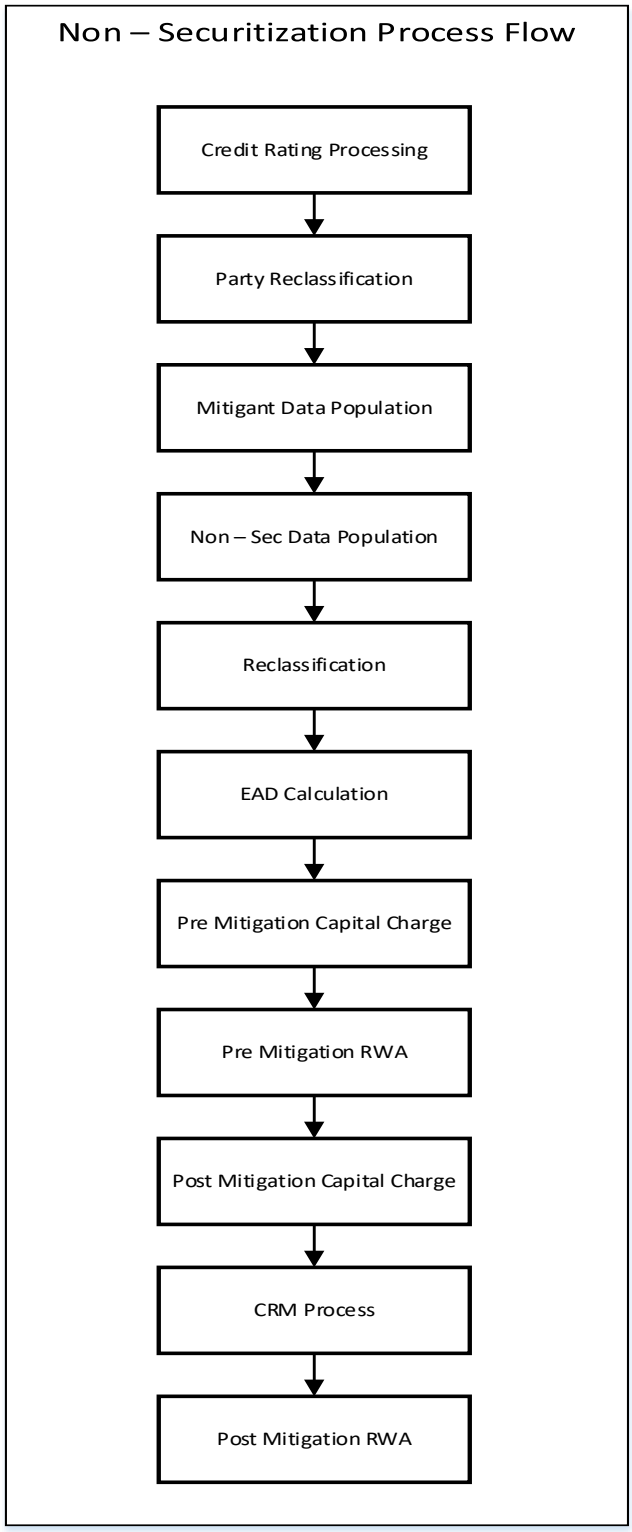
The Rules pre-defined in the application performs the currency conversion of all the General Ledger amount attributes to be used for Capital Consolidation from the Natural currency to the Reporting currency, based on the exchange rate provided.

Shareholding Percent Multiplication

For all entities in the Capital Consolidation process, the application updates the shareholding percentage against each entity data in the fact capital accounting head from the fact entity shareholding percent table. The parent data in the processing table of fact capital accounting head is updated with the value 1 and for each child entity the data is based on the parent's holding percentage specified for each child in fact entity share holding percent table.

6.2.1 Process Flow for Credit RWA

Figure 20: Process flow for credit RWA



Credit RWA Run is the Non securitization RWA. For Credit Risk, the application follows the Standardized Approach.

A few processes such as Credit Rating, Party Type Reclassification, and Mitigant Data Population are common across computations for Non-Securitization exposures.

Certain sub processes under Non-Securitization process such as Reclassification, RW assignment, and so on are common across all types of exposures. For example, banking book, over the counter derivative transactions, and securities financing transactions are executed only once in the Run. The details of these sub processes are explained under the Reclassification and Risk Weight Assignment sub process of the Non-Securitization exposures section of this document. Similarly, details of the Credit Risk Mitigation for Non-Securitization process is detailed under the Non-Securitization section of this document.

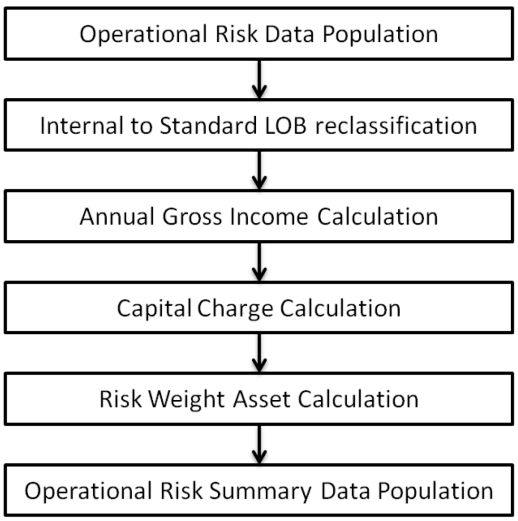
The Non Securitization process also includes calculations pertaining to the counterparty credit risk. The EAD of the counterparty credit risk are calculated using one of the Run Management option.

This also includes the settlement risk calculation pertaining to the unsettled transactions depending on the number of days they are unsettled.

For example, Non-Sec Data Population is detailed under data population and currency conversion of Credit RWA (Non-Securitization - Standardized approach) section of this document

6.2.2 Process Flow for Operational RWA

Figure 21: Process flow of operational RWA

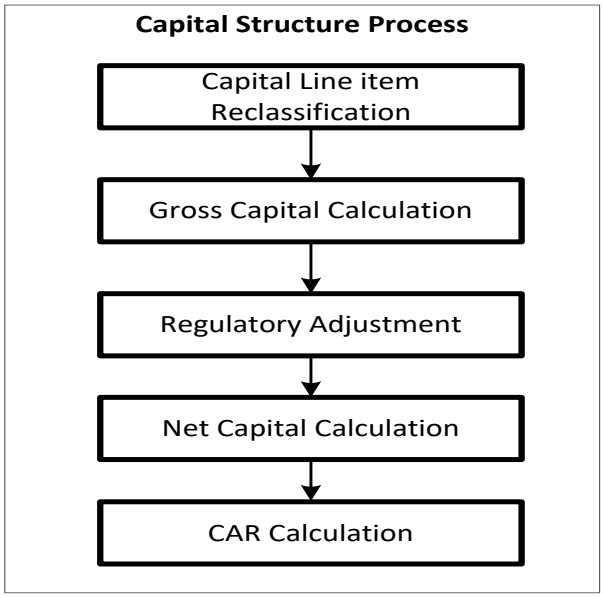


Operational RWA run is executed with the Capital Consolidation process. For more information on the Operational RWA computation.

For example: LOB Reclassification and Gross Income Calculation sub process are detailed as separate processes under the Operational RWA section of this document.

6.2.3 Process Flow for Capital Structure

Figure 22: Process flow for capital structure

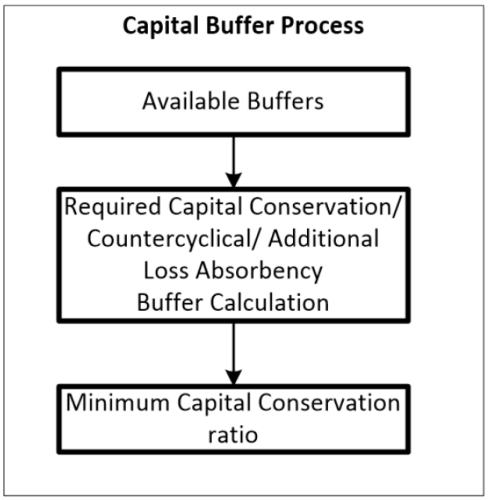


Capital Structure is executed with Capital Consolidation, Credit Risk, and Operational Risk RWA processes.

For example: 'Gross Capital Calculation' mentioned in the preceding process flow, is explained in detail under 'Gross Capital Calculation for CET1, AT1, and T2' sub process section of the Capital Structure section in this document. Likewise, 'Regulatory Adjustment' and 'Net Capital Calculation' is detailed under 'Regulatory Adjustment to Common Equity Tier 1, Additional Tier 1, and Tier 2' section along with 'Treatment of Insignificant and Significant Investment Data Treatment' and 'Calculation of Net Capital' sub process section of Capital Structure in this document.

6.2.4 Process Flow for Capital Buffers

Figure 23: Process flow for capital buffers



Capital Buffer is calculated after the calculation of Capital Ratios, as they go as an input to Buffer calculation. Each sub-process is explained in detail under Capital Buffer section of the user guide.

For more information on Capital Buffers, see Capital Buffers section.

For example, Required Capital Conservation Buffer and Required Countercyclical Buffer calculation are detailed in the 'Required Total Buffer' sub-section of the Capital Buffer section in this document. Similarly, Minimum Capital Conservation ratio is detailed in the 'Capital Conservation Ratio' sub section of Capital Buffer section in this document.

6.3 Credit RWA

The application supports the computation of Credit RWA as per the guidelines laid out in the BOT accord..

For Credit Risk for Non Securitized Exposures, the application follows the Standardized Approach, Foundation IRB Approach, and Advanced IRB Approach.

6.4 Non-Securitization – Internal Ratings Based Approach

Foundation IRB/Advanced IRB Approach consists of the following:

- Banking Book Products
- Over-the-Counter Derivative Products
- Securities Financing Transactions
- Credit Risk Mitigation

Banking Book Products

Rating reclassification is the initial step in the process. All exposures are rated by different agencies. The rating expectation as per BOT guidelines are the rating grades, which are not the same as what are

provided as the rating by the rating agencies. Hence, the application re-classifies the rating information shared in the bank's data to standard rating as recommended in the BOT. Rating are required futher for determining mitigant eligibility.

For the specialized lending exposures solution reclassifies the internal ratings of the bank into external ratings and further reclassifies the external rating into categories mentioned in the BOT guidelines. This is happening in the sub process "Rating Reclassification Data Population", "Regulatory Reclassification" and "Basel Rating Assignment".

The exposure amount and other amount attributes that are provided as input (in the stage tables) should be in the natural currency (currency of the exposure) and this is usually different for exposures across different countries. The application converts them to reporting currency, so that processing occurs in a single currency.

The Credit Risk exposures are identified by their product types, counterparty types, and their corresponding asset classes by the application. A sample list of products types, party types, mitigant types, and credit ratings are pre-defined in the application. However, this list and naming convention differs from one bank to another. The application reclassifies the bank's product types and party types to Basel standard product and party types. Based on standard Basel product and standard party type, it forms an asset class for each exposure. Some exposures can be hedged against Credit Risk through various mitigants like guarantors, collaterals, credit derivatives, and so on.

These provide mitigation to credit risk and are considered while computing Credit RWA as per the Accord. Hence, the application calculates pre-mitigation RWA amount and post-mitigation RWA amount.

The application calculates the correlation factor using the formula specified for each asset class. Using this Correlation Factor, Probability of Default (PD), and Loss Given Default (LGD), the application calculates the pre-mitigation capital charge for each exposure. This value signifies the capital charge that the bank must maintain for each exposure, before considering any mitigation effects.

The application calculates pre-mitigation EAD amount and RWA for each exposure and then computes pre-mitigation risk weighted assets (Pre-CRM RWA) by multiplying the EAD by the risk weight. The risk weight is arrived at by multiplying pre-mitigation capital charge with 12.5 and 1.06, as mentioned by the BOT guidelines.

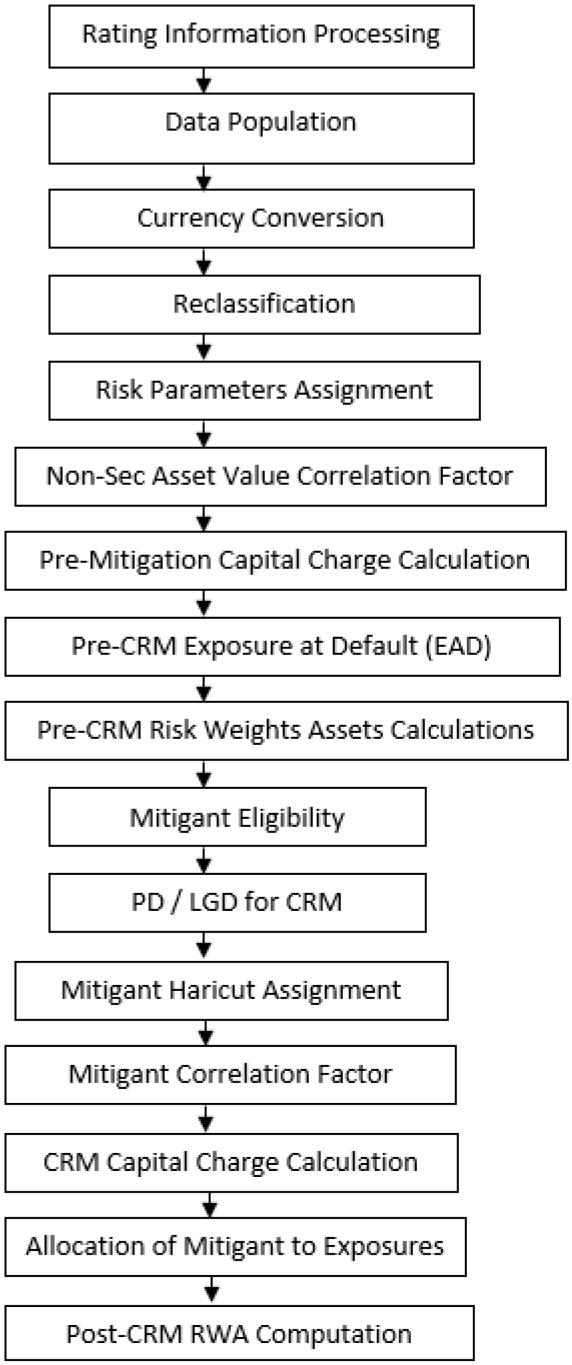
With the Credit Risk Mitigation (CRM) process, the bank considers the mitigation effect. The application checks on the eligibility of the mitigants, based on BOT specifications. It assigns a haircut to each mitigant based on their currency, residual maturity, and expected volatility in their market value. Volatility haircut considers the change in the mitigation effect that arises due to future fluctuations in the value of the mitigant. FOREX and Maturity Haircuts consider any currency and maturity mismatches that the mitigants have with the exposures it covers. The application allocates mitigants to exposures based on optimizer function and subsequently the capital charge is calculated for each mitigant.

The application then calculates the post mitigation RWA Unexpected Loss (Post CRM RWA UL) and post mitigation RWA Expected Loss (Post CRM RWA EL). Some credit risk exposures that fall under the category of internal transactions like holding own subsidiaries shares or investment in its capital, are treated separately under Capital Structure.

Process Flow for Banking Book Products

The following is a comprehensive explanation of the process flow:

Figure 24: Process flow for banking book products



Rating Information Processing

Pre Processing Steps

Data on ratings is captured in the following rating specific tables:

- Accounts Rating Table (STG_ACCOUNT_RATING_DETAILS)

Ratings of all the Credit Risk Non Securitized Exposures are captured in this table.

- Instrument Rating Table (STG_INSTRUMENT_RATING_DETAILS)

  Ratings for investment exposures subject to credit risk (one that are in STG_INVESTMENTS), and mitigants are captured in this table.

- Party Rating Table (STG_PARTY_RATING_DETAILS)

  Credit Rating for all customers and issuers are captured in this table.

- Sovereign Rating Table (STG_SOVEREIGN_RATING_DETAILS)

  Credit Rating for all countries is captured in this table.

- External Underlying Exposures Rating Table (STG_EXT_ULY_ACCT_RATING_DTL)

  The Credit Rating for all external underlying exposures are captured in this table. In the case of underlying exposures, it is expected that the value of the Exposure ID is that of the instrument ID to which the underlying exposures belong to. For example: The Underlying Exposure ID EXP001, which belongs to the instrument INSTR001, contains the parent ID as PARENT001; in this case, the data expected in this table is of the instrument INSTR001, with the Exposure ID as INSTR001.

> **NOTE:**
>
> For the purpose of IRB, the ratings expectation are the internal ratings, which is a single rating for each account. These are the ratings to be reclassified into the credit quality steps of 1 to 6. For the purpose of Mitigant eligibility , the ratings expectation are external ratings, and they will be reclassified into rating grade 1 to 6.

The multiple assessment is applicable only for External ratings, which are applicable for Sold credit protection exposures, and mitigants. In the case of other Non Securitized Exposures, we do not have any requirement for external ratings, and hence require only internal ratings. The internal ratings are reclassified into 5 categories for specialized lending exposures. The internal ratings will be a single rating, and hence there is no requirement for multiple assessment.

Processing Steps

Banks obtain credit ratings from different sources and these are provided as an input in the application through the four rating tables mentioned in the preceding list. The application re-classifies the rating information to BOT specific ratings pertaining to the Rating Grades of 1 to 6 standard ratings.

The rating reclassification lookup table (FSI_RATING_CLASSIFICATION) is used to lookup reclassified Basel ratings, so that the reclassification rule is not repeated for each of the rating processing tables. Ratings are then populated from the stage tables (STG_PARTY_RATINGS_DETAILS) to FSI tables (FSI_PARTY_RATING_DETAILS) by using the lookup table (FSI_RATING_RECLSSIFICATION) to obtain the reclassified rating.

> **NOTE:**

In the STG_PARTY_RATINGS_DETAILS table ensure that the following columns are mandatorily populated with data: Rating source code (V_RATING_SRC_CODE) Party Code (V_PARTY_CD) Purpose (V_PURPOSE): In this field, whether the rating is a domestic rating or foreign rating should be indicated. If any other rating is provided, then the exposure is considered as unrated. Rating Code (V_RATING_CODE)

Data Population

Pre Processing Steps

Credit Risk exposures are updated in the application for all the product types through their respective input tables known as Product Processors. The following are the main categories of Credit Risk Non-Securitization exposures, along with their respective table names that are used as an input:

Table 8: List of products and product processors

Product	Product Processor
Bills	STG_BILLS_CONTRACTS
Credit Cards	STG_CARDS
Swaps	STG_SWAPS_CONTRACTS
Futures	STG_FUTURES
Guarantees	STG_GUARANTEES
Investments	STG_INVESTMENTS
Lease Contracts	STG_LEASE_CONTRACTS
Letters of Credit	STG_LC_CONTRACTS
Line of Credit	STG_CREDIT_LINE_DETAILS
Commitment Contracts	STG_COMMITMENT_CONTRACTS
Loans	STG_LOAN_CONTRACTS
Money market instruments	STG_MM_CONTRACTS
Overdraft	STG_OD_ACCOUNTS
Options	STG_OPTION_CONTRACTS
Re purchase contracts	STG_REPO_CONTRACTS
Equity Exposures	STG_INVESTMENTS
Underlying Exposures for Derivatives and Securitization	STG_UNDERLYING_EXPOSURES
Underlying Exposures for Repo contracts	STG_PLACED_COLLATERAL / STG_MITIGANTS
Credit Derivatives	STG_CREDIT_DERIVATIVES
Fixed Assets	STG_FIXED_ASSETS_DETAILS

Stage Correspondent Accounts	STG_CORRESPONDENT_ACCOUNT

There is data population pertaining to the placed collateral, which are required for the collateral placed with third party, for the sake of derivatives.

Table 9: Details about Placed Collateral and source product processor

Product	Source Product Processor
Placed Collateral	STG_PLACED_COLLATERAL

There is data population pertaining to the mitigants, which cater to all the types of mitigants like collateral, guarantee, and credit derivatives. There is one data population pertaining to the counter guarantee for the guarantor. There is also mapping data population of Exposure to Mitigant Data and the Guarantor to Counter guarantee data population.

Table 10: Details about product and source product processor

Product	Source Product Processor
Mitigants – Collateral, Guarantee, Credit Derivatives	STG_MITIGANTS
Counter Guarantee	STG_MITIGANT_COUNTER_GUARANTEE

There is data population pertaining to the mapping between the exposures and the mitigants. And one data population pertaining to the mapping between the exposures and the placed collateral. There is also data population pertaining to the mapping between the guarantee and the counter-guarantee.

Table 11: Details about products and source tables

Product	Source Table
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAP
Mapping for Exposures and Placed Collateral	STG_ACCT_PLACED_COLL_MAP
Mapping for Guarantee and Counter Guarantee	STG_MITIGANT_CNTR_GUAR_MAPPING

Processing Steps

Staging data from the Product Processors or other staging tables are populated in the respective processing tables. Information from all the Product Processors data is populated in a common Fact table for all non sec exposures (FCT_NON_SEC_EXPOSURES), except for equity data that is first populated in the respective equity

table (FCT_EQUITY_EXPOSURES) and is then populated in the common Fact table for all Non Securitized exposures.

Currency Conversion

The application converts the amount attributes, which are in the natural currency, to the reporting currency that is used for further calculations. The column names suffixed with '_ncy' are in the natural currency and are then multiplied by the currency conversion factor to populate values in the reporting currency. The Rule Reporting Currency Code Assignment assigns the reporting currency. For more information on Currency Conversion, see Exhibit 4 in *Annexure A: Key Concepts*.

> **NOTE:**
>
> The data populated in the Product Processor is expected in natural currency of the exposure.

Reclassification

The application reclassifies the bank's product types and party types to the Basel standard product and party types. Based on the standard Basel product and party type, it forms an asset class for each exposure. Similarly, the application reclassifies mitigants on the basis of its mitigant types, and then reclassifies it to standard mitigant types.

> **NOTE:**
>
> Ensure that all products and party type and mitigants which are bank specific are reclassified, as part of the setup activity.

> **NOTE:**
>
> In the case of product reclassification pertaining to QRRE exposures, which are qualified retail revolving exposures, the data expectation is only the consolidated exposure. As this is a consolidated exposure, the criteria pertaining to the counterparty level total exposure being less than 100,000 Bhat must be handled by the bank, during the reclassification.

Risk Parameters Assignment

The application assigns risk weight parameters of PD, LGD, and maturity to all exposures. The PD of the exposure is either obtained from the customer / issuer's party level PD estimate, or the instrument's PD estimate, depending on the account type. The LGD and maturity are based on supervisory estimates in the case of Foundation IRB Approach, and based on bank's estimates in the case of Advanced IRB Approach.

For Foundation Internal Rating Based (FIRB) approach, the application assigns the PD based on bank's estimate. The LGD and Effective Maturity are based on the supervisory estimate as applicable for the asset classes. In the case of Retail asset class, the LGD is based on the bank's own estimate. The Expected Loss is computed as per the formulae specified by the BOT guidelines for the various asset classes. The expected loss is computed before the PD Flooring, as the PD floor considers the LGD and the EL. The

expected loss is computed again after the PD Flooring, as that is the final Expected loss which is applicable for the bank using the final PD for the exposures, and the LGD for the exposures.

LGD for housing loans shall not be lower than 10% except the loan is secured by government guarantee. Also, the purchase receivables have a different LGD assignment.

For defaulted exposures, PD is assigned 100%, and this requires the input of both LGD and Best estimate of expected loss.

In Advanced Internal Ratings Based (AIRB) approach, the PD, LGD, Best Estimate of Expected Loss and Effective Maturity values are directly taken as downloaded values from the reporting bank. All other computations remain same as in FIRB.

The sub process "PD LGD Assignment" details the assignment of the risk parameters.

For the failed trade exposures application takes the PD, LGD as per the IRB guidelines in FIRB and assigns 45% LGD for the NON DVP transactions nonmaterial failed trade exposures when bank uses AIRB approach. This happens in LGD CALCULATION - AIRB Process.

For the purchase corporate receivables calculating Default risk as per the guidelines Commercial banks can follow bottom approach and top down approach based on the level of estimates of risk components i.e, either individual basis or pool basis. The estimates of risk components are based on banks option. The PD,LGD assignments for default risk is calculated in process "PURCHASE RECEIVABLES LGD-PD ASSIGNMENT".

Corporate exposures meeting the following condition must be treated as Small and Medium Enterprises. The total sales volume of the business group is less than 1000 million baht per annum. This happens in Asset Reclassifications process.

Risk Parameters Assignment for Dilution Risk

The PD for dilution risk is same as the PD of the Instrument or Party as applicable, and which is used in the Capital charge computation of the exposures.

For Foundation IRB (FIRB) approach, the LGD for dilution risk is based on the supervisory estimate, as applicable for the calculations. In the case of Advanced IRB (AIRB), the LGD is based on either the bank's own estimate or the supervisory provided LGD value. This is based on the run management option selected by the bank.

The sub process "DILUTION RISK PD-LGD ASSIGNMENT" details the assignment of the risk parameters for dilution risk.

The bank can get exemption from the national supervisor, for the calculation of the dilution risk, if the exposures are immaterial. This is again based on the run management option.

The Purchased Receivables are eligible for retail treatment. This is handled in the "Dilution Risk Eligibility" sub process.

The Purchased Receivables will be pooled together using the Retail Pooling ID, as there are specific calculations, which require the processing to happen at pool level. The application will perform the summation of the pool records, and then further processing of pre CRM RWA calculations will happen. And post that, the pool record value is prorated to the individual accounts, to ensure that CRM happens on the individual account level values. This is handled in the sub process "PURCHASE RECEIVABLES LGD-PD ASSIGNMENT & CAPITAL CALCULATION".

Asset Value Correlation Multiplier

In the Basel III accord, BCBS has introduced a multiplier of 1.25 to the Asset Value Correlation (AVC) of exposures. These exposures relate to regulated financial firms with assets of at least 100 billion USD and to exposures of unregulated financial firms (regardless of size). The revised correlation formula for financial entities is as follows:

Correlation (R_FI) = 1.25 x [0.12 x (1 - EXP (-50 x PD))

AVC Rule is applicable for Non Securitization accounts and for issuers of credit risk mitigation.

> **NOTE:**
>
> The computation of AVC does not change for any entity executing a Solo or Consolidation Basel Run. As per the guidelines the USD is converted into BHAT.

Pre-mitigation Capital Charge Calculation

Pre-mitigation capital is calculated for all asset classes using the Correlation factor, PD, and LGD where correlation factor is calculated for each asset class on the basis of PD. Capital for defaulted exposures is calculated through separate Rules. For exposures that have defaulted, the application uses two inputs - LGD and Best Estimated Expected Loss of a Bank.

The specialized lending exposures can opt for risk weighting instead of the IRB specific PD, LGD calculations. This is again handled by the run management option. And if the risk weighting option is selected, the solution applies the risk weight for these exposures. This is handled in the sub process "Specialized Lending Treatment".

The other assets, for which BOT guidelines specify the risk weight treatment, instead of the PD, LGD approach, are handled in the sub process "OTHER_ASSETS_GL_RISK_WEIGHT_ASSIGNMENT" and "OTHER_ASSETS_NON_SEC_RISK_WEIGHT_ASSIGNMENT_IRB".

Other Assets Non – Sec Flow

Fixed assets, cash etc. are identified as "Other Assets" and are further treated based on other attributes such as the party type etc. A default RW of 100% is applied to all the items which are classified to Other Assets, an array of overriding rules update the risk weight accordingly. Some of the RW rules are based on the below items.

1. Cash and balances with banks such as in Nostro Accounts.
2. The derivatives with positive Mtm, the mtm value gets risk weighted separately.
3. Cash items that are in process of collection.
4. Fixed Assets and so on.

Credit Conversion Factor

This is applied to all off-balance sheet exposures. Off-balance sheet exposures can be identified at the first level in the Basel Product Types Dimension (DIM_BASEL_PRODUCT_TYPE) table. A CCF of 100% is applied over all the off-balance sheet exposures.

For all types of unused commited credit lines, commercial banks shall apply CCF of 75 percent regardless of maturity.

CCF percent for FIRB approach is assigned by the application based on the supervisory provided CCF values, and in the case of AIRB approach, the CCF is considered based on the bank's estimate.

Commercial banks shall use their own estimate CCF across different types of off-balance sheet item, with exception to off-balance sheet item that is subject to CCF of 100.

Pre CRM Exposure at Default (EAD)

Exposure at default is calculated for all asset classes based on:

- Current Exposure Amount
- Write off amount
- Undrawn Amount
- CCF Percent
- CCF PERCENT DRAWN

The EAD calculation differs for different products, based on the BOT guidelines. This is handled in the sub process "NON_SEC_EAD_PRE_MITIGATION - IRB" where the rule calculates drawn EAD by adding write off amount and multiplying with CCF percent drawn and undrawn EAD by multiplying undrawn amount by CCF percent undrawn. The final EAD is arrived by summing up drawn and undrawn EAD.

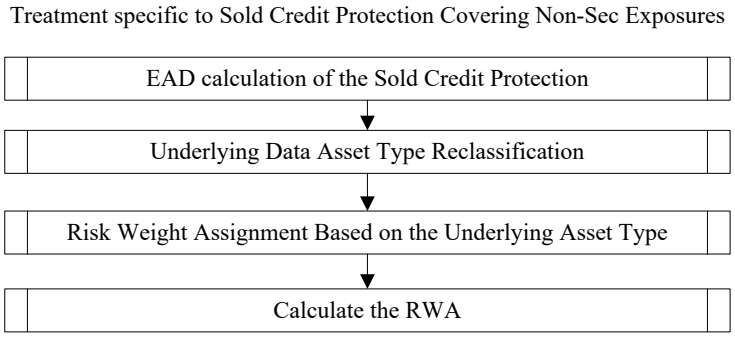
The EAD for purchase receivables is calculated in different rule post calculating dilution risk capital charge.

Sold Credit Protection Covering Non-Sec Exposures

- The risk weight for the sold credit protection is based on the underlying exposure's asset class.
- The risk weighting applicable based on the underlying exposure's asset class.

Process Flow for the Calculations

Figure 25: Process flow of calculations



EAD Calculation of the Sold Credit Protection

The EAD for the sold credit protection is equal to the notional amount of the contract.

Underlying Data Asset Type Reclassification

The asset type reclassification for the underlying of the sold credit protection is same as any other non-sec exposure Asset type reclassification. This is handled in the Non-Sec Exposures asset type reclassification.

Risk Weight Assignment based on the Underlying Asset Type

- The risk weight assignment for the sold credit protection is based on the asset type of the underlying exposure, which is the same as any other non-sec exposure.
- The risk weight for the underlying exposure is calculated and this is updated to the sold credit protection exposure.

Calculate the Risk Weight Assessment

- The RWA is calculated as the Pre-mitigation EAD multiplied by the Pre-Mitigation Risk Weight.
- In the case of sold credit protection exposures, the Pre-Mitigation EAD and the Post Mitigation EAD are the same since there are no mitigants for these exposures.

Pre-CRM RWA Computation

The Pre-CRM RWA is calculated for all asset classes by multiplying the Pre-CRM EAD with the risk weight. RWA for Unexpected Loss is calculated as follows:

Non Sec Pre-Mitigation Exposure at Default * Non Sec Risk Weight for UL before Mitigation

Equity Exposures Treatment

Equity Exposures are treated in the Equity Exposures (FCT_EQUITY_EXPOSURES) table where EAD is calculated using the post off-set amount. The offset amount is arrived based on the risk position mapping long position of equity exposures with applicable short position of equity exposures. For more information, see the Download Specifications document.

The equity exposures are reclassified into the Equity Exposure asset class. Also, any subordinated exposures will also be reclassified into Equity Asset class, based on the BOT guideline requirements.

Equity Exposure can be treated using the Simple Risk Weight Assignment (SRWA) method, PD/LGD approach or Internal Model Method. You can define the approach to be used to calculate the RWA for equity approach, in the run management option.

If PD/LGD approach is selected, the risk parameters of PD, LGD and Effective maturity are provided based on whether the bank is following FIRB or AIRB. Using these risk parameters, the capital charge parameters of Correlation, Capital Charge and RWA are calculated.

If SRWA is selected, the RW is calculated based on equity being Exchange Traded or Private Traded.

If IMM is selected, the Capital Charge Derived from VaR Model is taken as input and RW is assigned. The PD/LGD approach RWA is used for the flooring purpose for the IMM approach, and hence, the applications computes both the method for these exposures.

As per the BOT guidelines the equity exposures which satisfies certain conditions should follow Standardized approach instead of IRB Approach. The application stamps the exposures with exemption

criteria in FCT_EQUITY_EXPOSURES table. This assignment is happening in sub process" Equity Exemption Criteria".

Equity Investments in Funds – (Collective Investment Units (CIU) Processing)

As per the BOT guidelines the commercial banks hold investment units which invest in both debt securities and equity securities, there are three approaches for determining credit risk weighted assets. The application supports two approaches,

- Look through approach
- Mandate based approach

In case of Investment in funds solution follow hierarchy of approaches based on the complete underlying information.

The exposures to the CIU are expected in the Stage Investments table (STG_INVESTMENTS), and the instrument code is expected to be populated for these exposures. The static information related to the instruments are expected in the Instrument contract dimension table (DIM_INSTRUMENT_CONTRACT), and the information pertaining to the instruments which changes periodically like the current outstanding issue amount is expected in the Stage Instrument Contract Detail table (STG_INSTRUMENT_CONTRACT_DTL).

The underlying exposures of the CIU are expected in STG_FUND_CIS_COMPOSITION with the fund code (instrument_code) populated also into V_PARENT_INSTRUMENT_CODE. The underlying composition of the CIU are expected in the Stage Fund Underlying Composition table (STG_FUND_UNDERLYNG_COMPOSITION). This has the underlying composition details of the fund, across various products, and the maximum permissible limit of investment in each of the product types, with the fund code as the Instrument ID.

> **NOTE:**
>
> The fund underlying composition and/or the underlying exposures are required for processing, only when the underlying of the fund is not available and when there is mandate information available for the fund. When the derivatives products are the underlying for a CIU, then the MTM value of the derivative is expected to be given as N_ASSET_MTM_VALUE in STG_FUND_CIS_COMPOSITION. MTM value of the derivative must also be populated to N_COMPOSITION_VALUE to check for the complete underlying exposure availability of the CIU underlying's. The instrument code of the CIU funds are also expected to be given STG_EXPOSURE_MASTER for the correct processing.

> **NOTE:**
>
> Unless operational criteria are met, the look through approach is not applicable.

Look Through Approach

The first approach in the hierarchy that application assigns based on the operational criteria given in the accord. For the purpose of validating the operational criteria or conditions given, data is expected as input. Along with the suggested conditions application also checks for the availability of the underlying

information. If all the sufficient information is available, the application assigns the Look Through Approach (LTA) and computation will be followed as given in the accord. If operational criteria are not met, the application checks for the immediate next approach.

To check the information provided is verified by the third party or not a column (STG_INSTRUMENT_CONTRACT_DTL .F_INFO_VERIFIED_BY_THIRD_PARTY) is introduced where value 'Y or N" is given as input by the bank.

Under this approach for IRB, accord suggests few logics to calculate or use risk weights. The case where accord suggests to use risk weights same as standardized approach when banks cannot calculate risk weights using IRB will not be handled by the application as there is a mention of "partial use of provision" which relates to the mixed pool, the rest of the cases will be taken care by the application.

Mandate Based Approach

This approach is applied when the information of the underlying and the third party risk weights that can be used under the look through approach are not available. To continue with this approach banks need to have the mandate information required. Once the application checks for the information and assigns the approach, computations for MBA under Standardized approach are in line with the Basel Accord

Over-the-Counter Derivative Products

The accord recommends the calculation of Counterparty Credit Risk (CCR), wherein the counterparty can default before the final settlement of a transaction. Unlike the firm's exposure to credit risk arising from a loan, CCR creates a bilateral risk of loss. Market value of the transaction can be positive or negative for either parties in the transaction at different points in time, till the maturity or closure of the transaction. This market value is dependent on the movement of the underlying risk factor. The BOT has proposed Rules to calculate the EAD or exposure amount for the instrument with CCR.

> **NOTE:**
>
> All OTC Derivatives and Repo products are part of the CCR computation.

The application's treatment for the instrument with CCR is divided into three categories:

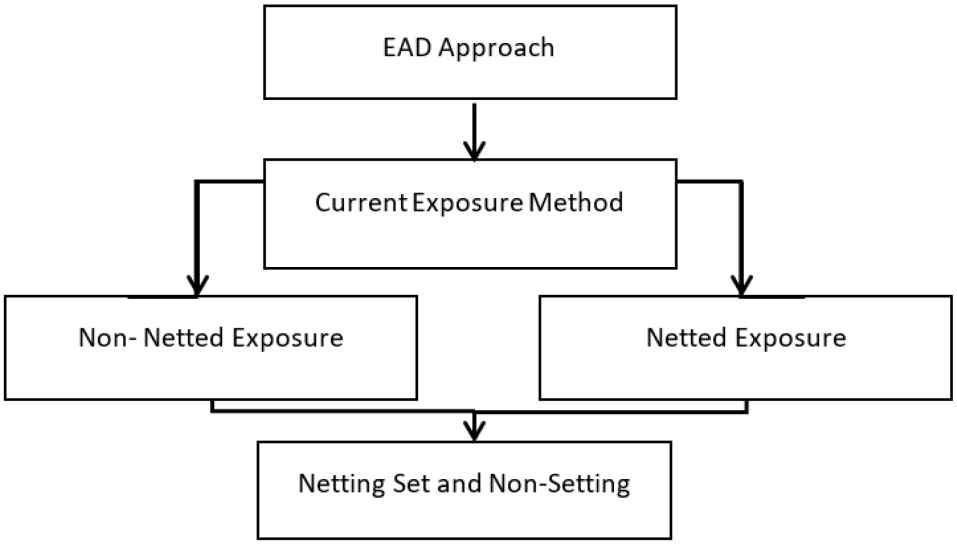
1. Exposure at Default (EAD)
2. Risk Weighted Asset (RWA)
3. Credit Risk Mitigation (CRM)

Process Flow for Over-the-Counter Derivatives – EAD Approach

Exposure at Default (EAD)

A comprehensive explanation of the process flow is as follows:

Figure 26: EAD Approach process



The Application enables the banks to calculate Counterparty Credit Risk (CCR) by using the Current Exposure Method. Banks can use any of these approaches for calculating the exposure value for all its derivative contracts. The selection of the exposure calculation method is dependent on the bank's derivative portfolio and trading portfolio. Derivative portfolio and trading portfolio exposure conditions are operational in nature and are satisfied by the bank.

Current Exposure Method (CEM)

The application calculates the EAD for two different sets of the records with a different methodology - Netting Agreement Records and Non Netting Agreement Records. The process BOT_NON_SEC_CURRENT_EXPOSURE_METHOD handles this computation.

Table 12: Maturity and derivatives details

Maturity[1]	Derivatives (except credit derivatives)[2]							
	Foreign exchange and gold	Interest rate	Equity	Commodity and precious metal	Other commodities	Bond		
						Government	Eligible	Not eligible
Less than 14 days	0	0	6	7	10	0	5	10

Maturity[1]	Derivatives (except credit derivatives)[2]							
	Foreign exchange and gold	Interest rate	Equity	Commodity and precious metal	Other commodities	Bond		
						Government	Eligible	Not eligible
Less than 1 year	1	0	6	7	10	0	5	10
More than 1 year – 5 years	5	0.5	8	7	12	0.5	5	10
Over 5 years	7.5	1.5	10	8	15	1.5	5	10

Non Netted Exposure

To compute an EAD for non-netting records, the application requires the following inputs:

- Total replacement cost which is the greater than the Mark to Market value of the contract or zero for all the contracts.
- An amount for potential future credit exposure is calculated based on the notional amount and multiplied by the add-on factor based on the underlying type in the contracts. The assignment of the add-on for different products gets assigned based on the underlying type code.

Netted Exposure

To compute the EAD for netting the agreement records, the application requires the following inputs:

- Total replacement cost, which is positive Mark to Market value for all the contracts.
- An amount for potential future credit exposure is calculated based on the notional and multiplied by the add-on factor based on the following formula:

  $A_{net} = 0.4 * A_{Gross} + 0.6 * NGR * A_{Gross}$

- The application creates new records for netting the agreement and then populates it into the OTC Exposure processing table. It selects all the records with the following attributes which are similar to computing the netting agreement exposure:
  - Trades with Entity
  - Customer
  - Product Level – All OTC trades
  - Netting Agreement
  - Book Code: Trading or Banking
  - Long Settlement transaction Flag
  - GAAP Code

Under the CEM approach wherever the exposures belong to a netting agreement, two NGR calculation methods have been provided:

1. Option 1 – Individual approach.
2. Option 2 – Aggregate approach.

Data Expectation

- For derivatives where notional amounts are exchanged several times, such as a commodity swap, the actual notional amount is equal to the notional amount multiplied by the remaining times for such notional amounts to be exchanged.
- Potential future exposures of options sold that commercial banks have not received the whole amount of premium is equal to unpaid premium not yet received from buyers.
- The underlying type applicable for the derivatives for BOT Add on assignment are as below:
  - Foreign Exchange and Gold – EXRATE & GOLD
  - Interest Rate – INTRATE
  - Equity – EQTY
  - Commodity and Precious Metal – OTHPM
  - Other Commodities – OTHCOM
  - Bonds - DEBIST

Allocation of RWA at Exposures

CCR RWA calculated at the netting set level is allocated to the exposures of the nettable pool using the following formula:

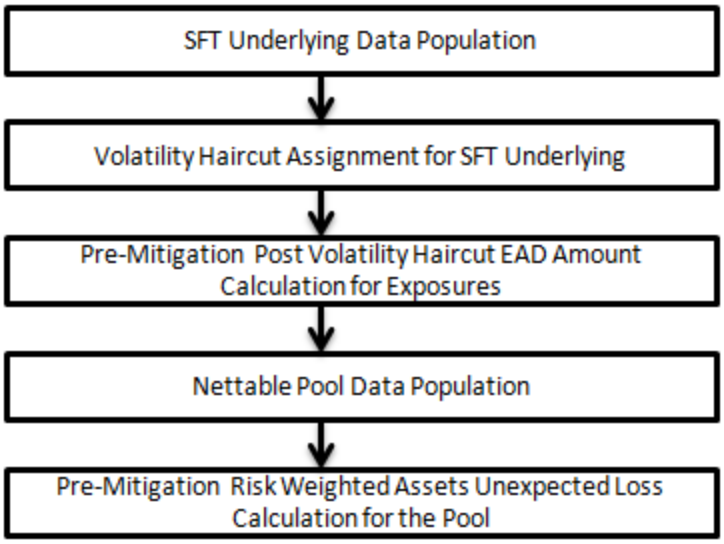
RWA at Exposure Level = Total CCR RWA at netting set level * Pre Mitigation EAD for Exposure / Sum of Pre-Mitigation EAD for all Exposures part of CCR RWA at netting set level

Securities Financing Transactions

Process Flow for Credit Risk Securities Financing Transactions

The SFT EAD is computed in the sub process SFT Exposures RWA - Comprehensive Approach

Figure 27: Process flow for credit risk securities financing transactions



A comprehensive explanation of the process flow is as follows:

SFT Underlying Data Population

The two data elements present in the SFT transactions are captured as follows:

Firstly, the parent transaction is captured in the Repo contracts table (STG_REPO_CONTRACTS) and secondly the underlying information, on which the parent transaction is built, is captured separately in the mitigant table (STG_MITIGANTS) or Placed collateral staging table (STG_PLACED_COLLATERAL), depending on the product type.

The underlying data is identified by using the Exposure Mitigant Mapping Staging table (STG_ACCOUNT_MITIGANT_MAPPING), wherein this is linked to the data in the repo contracts staging table, for any collateral which is provided to the repo contracts.

And the underlying data for any collateral placed with the counterparty, is identified by using the Account placed collateral Mapping Staging table (STG_ACCT_PLACED_COLL_MAP), wherein this is linked to the data in the repo contracts staging table.

For example, a commercial bank undertakes a repo transaction (denoted 1) with counter party 'A', i.e. the commercial bank borrows from counter party 'A', and then pledges security 'a' as collateral. The bank then undertakes reverse repo (denoted 2) transactions with counter party B, i.e. the Commercial Bank lends to counter party B and receives security "b" as collateral. The commercial bank must maintain capital funds for both transactions. For instrument (1), the Commercial Bank's risk is when the value of the pledged security 'a' is higher than the cash received from the counter party. For instrument (2), the commercial bank's risk is similar to normal secured credits where the value of collateral "b" can deteriorate.

Volatility Haircut Assignment for SFT Underlying

This is computed by the following Rules:

- Exposure Volatility Haircut Assignment for Supervisory Haircut

- CRM Exposure Volatility Haircut for Equity and Mutual Fund
- Exposure Volatility Haircut Assignment - Scaling Up for "Capital Market Driven" or "Repo Style" transaction types
- Exposure Volatility Haircut Assignment - Own Estimate
- FOREX Haircut

Treatment for Double Default

In the BOT guideline, there is a different Capital charge formulae, compared to other exposures when there is a double default. The eligibility criteria for the exposures, as per the BOT guidelines are validated, the exposure gets identified for the double default treatment through a flag. This is handled in the sub process Double Default Exposures Identification.

The protection providers of the unfunded credit protection are also identified for the double default treatment, based on the BOT guidelines. This is handled in the sub process Mitigant Eligibility for Double default Treatment.

The exposures and the corresponding mitigant, for which the eligibility for the double default treatment are met, are updated based on the guidelines. This is handled in the sub process Double Default Exposures Identification Based on Mitigant Type.

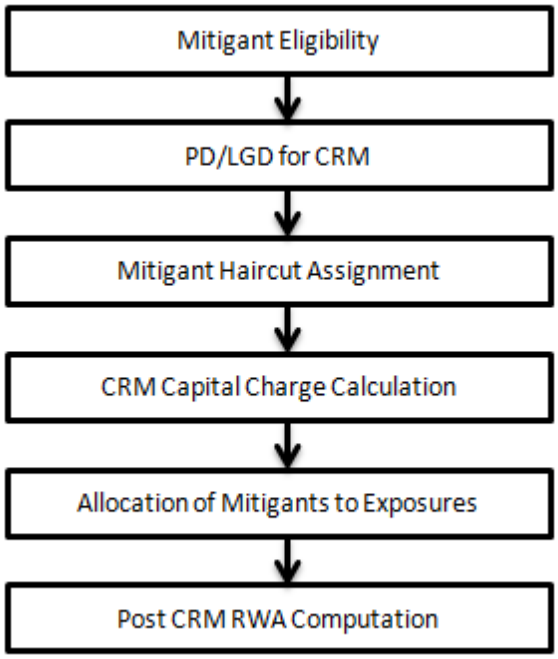
After the Double Default Flag value is defined, the maturity adjustment, risk weight, and risk weighted asset amount are calculated. The EL is also assigned as 0% as per the accord. This is handled in the sub process Post CRM Risk Weight Calculations.

Credit Risk Mitigation

The application handles multiple mitigants for credit risk mitigants like financial collateral, on-balance sheet netting, guarantees, credit derivatives, and so on. In CRM reclassification, collateral and issuer is reclassified to standard collateral and issuer type. The mitigant is identified as eligible or not based on the eligibility rules for CRM.

Process Flow for Credit Risk Mitigation

Figure 28: Credit risk mitigation process



Mitigant Eligibility

In the Comprehensive approach, credit rating of the mitigant of the collateral is considered for all mitigant types issued by all party types, while deciding whether the mitigant is eligible for a particular exposure or not. The application has pre-defined Rules that perform these eligibility checks. Separate eligibility Rules for mitigants types that are equity, mutual funds, or debt security exist in the application. For the remaining mitigant types, a mitigant is marked as eligible if it satisfies the following conditions:

- The credit rating is better than the exposure to which it is providing protection
- The exposure is classified as senior in position.

Mitigant eligibility is also checked based on the original and residual maturity of the collateral. Collateral is classified as eligible only if its original maturity is more than a year and residual maturity is more than 3 months.

Types of collateral recognized by the Bank of Thailand as credit risk mitigation for commercial banks that adopt the FIRB are as follows:

All the eligible financial collaterals which are under standardized approach are eligible under IRB approach.

Commercial real estate and residential real estate can be recognized as the collaterals if they meet the following conditions.

The debtor's ability to repay doesn't significantly depend on the performance of the underlying asset.

The value of collateral pledged must not significantly depend on operating performance of debtor

Mitigant Haircut Assignment

The application assigns three kinds of Mitigant Haircut, which are volatility haircut, FOREX haircut, and maturity mismatch haircut.

In the case of bank applying the own estimate of haircut, instead of the supervisory estimate of haircuts, based on the run management option, this will be provided by the bank by using their modeling parameters. This is handled in the sub process "Volatility Haircut Assignment for Mitigants Banks Estimate".

The bank can also opt for Forex haircut assignment based on the bank's own estimate, by using their modeling parameters. This is handled in the sub process Forex Haircut Assignment for Mitigants Banks Estimate

CRM Capital Charge Calculation

Capital charge is calculated for all the exposures using mitigants effective maturity, correlation factor, probability of default, loss given default, and maturity adjustment value.

PD/LGD for CRM

The application assigns the PD and LGD to the mitigants as follows:

In the FIRB approach for financial collateral, PD used is that of the exposure that the collateral is covering and the LGD used is the LGD*, computed as per the BOT guidelines. For other mitigants like guarantees or credit derivative, the PD used is that of the mitigant and LGD used is that of the exposure that the mitigant is covering.

For LGD assignment, the application considers the minimum collateralization effect as stated in the BOT guidelines. Additionally, if there is any over collateralization amount, the application does the mitigant value adjustment based on the over collateralization percentages as stated in BOT Guidelines.

For AIRB Approach, the institutions must provide the PD or LGD data at a mitigant level. However, if the reporting bank is able to model the PD or LGD of the exposure considering the mitigation effects, then the application offers the flexibility to the reporting bank to include the mitigation effects at exposure level. In such cases, the reporting bank need not provide mitigant data separately, as they have already factored in its effects at the exposure level PD and LGD.

The PD and LGD assignment for the mitigants are handled in the sub process CRM PD LGD Assignment.

Minimum Collateralization & Overcollateralization check

For LGD assignment, the application considers the minimum collateralization effect as stated in the BOT guidelines. Additionally, if there is any over collateralization amount, the application performs the Mitigant Value Adjustment based on the over collateralization percentages as stated in the BOT Guidelines.

After the collateralization level is checked, the LGD for exposure and the risk weight for mitigants are assigned as applicable.

This is handled in the CRM Mitigant collateralization level sub process.

Inline with the supervisory approval, the banks can opt for CRE/RRE to be risk weighted instead of using LGD. This is based on the run management option.

This is handled in the sub process CRM RW Assignment.

Mitigant Correlation Factor

Similar to Non Securitization exposures, correlation factor for collaterals or mitigants are also calculated for mitigants belonging to all asset classes. This is based on the protection provider's PD or the instrument's PD, and the LGD as per the BOT guidelines. The correlation factor calculation is handled in the sub process CRM Correlation Factor Calculation.

The effective asset class reclasification is performed for the guarantees and credit derivative. This is required for computing the capital charge, as per the formulae specified in the accord. The effective asset reclassification is handled in the sub process Effective Asset Reclassification.

Table 13: List of types of collateral

Type of collateral	Minimum LGD	C*	C**
Eligible financial collateral	0%	0%	n.a.
Receivables	35%	0%	125%
CRE / RRE	35%	30%	140%
Other collaterals	40%	30%	140%

Allocation of Mitigants to Exposures

The application has a pre-built optimizer for optimum allocation of mitigants to the exposures for CRM purposes. One-to-One, Many-to-One, and Many-to-Many mapping of mitigants are handled in an efficient manner. This involves storage of intermediate computations for traceability.

All mitigants which are eligible and mapped to an exposure are then populated to a new table where each exposure is broken down to the mitigant types.

An additional row is included which treats the exposure as having covered and uncovered portion. The covered factor and uncovered factor is also populated in this table.

Post-CRM RWA Computation

Pre-mitigation EAD is divided into Post-mitigation EAD for the covered portion and Post-mitigation EAD for uncovered portion. Covered portion is the portion of the exposure covered by the mitigant and uncovered portion is portion of the exposure not covered by the mitigant. For multiple mitigants covering one exposure, there is more than one record for the covered portion of that exposure. Post-mitigation RWA UL (Post CRM RWA UL) is calculated by multiplying post-mitigation EAD and its Capital Required UL with 12.5. Post-mitigation RWA Expected Loss is calculated by multiplying the PD, LGD, and post-mitigation EAD amount with 12.5.

This is handled in the sub process POST_CRM_NON_SEC_IRB.

6.4.1 Securitization – Standardized Approach

The BOT guidelines differentiates the Credit Risk computation of the Securitized exposures from Non Securitized exposures. As securitized exposures are part of off-balance sheet transactions, it follows a waterfall cash flow mechanism unlike the other exposures. Hence these exposures are treated differently. Due to the economic crisis of 2008, the Basel Rule has categorized securitized exposures into securitized and re-securitized exposures.

Securitized exposures are exposures which are issued out of a pool of underlying exposures for the transfer of risk.

The treatment of securitization exposures based on the bank role in the securitization transactions as per BOT is as follows:

1. Originator
2. Investor
3. Credit Enhancement Provider
4. Servicer
5. Liquidity Facility Provider
6. Underwriter

For all the Bank Roles, the data is expected in the Stage Underlying Exposures (STG_UNDERLYING_EXPOSURES) for the underlying of the pool, Total Pool Level attributes in the Stage Pool table (STG_SECURITIZATION_POOL), Tranche Level attributes in the Stage Tranche table (STG_SECURITIZATION_TRANCHE), and the Exposure Level Attributes in the respective product processor (PP) tables.

The securitized exposures out of the pool are expected in the respective PP tables, depending on the product type of the underlying exposures.

If the exposure is a credit protection in the form of guarantee, it is expected in the Stage Guarantees table (STG_GUARANTEES), and if it is a credit derivative, it is expected in the Stage Credit Derivatives table (STG_CREDIT_DERIVATIVES). If it is a regular investment in the Tranches by an investing bank, or it is part of the mandate for retention in the pool or tranche for an originating bank, the data is expected in the Stage Investments table (STG_INVESTMENTS).

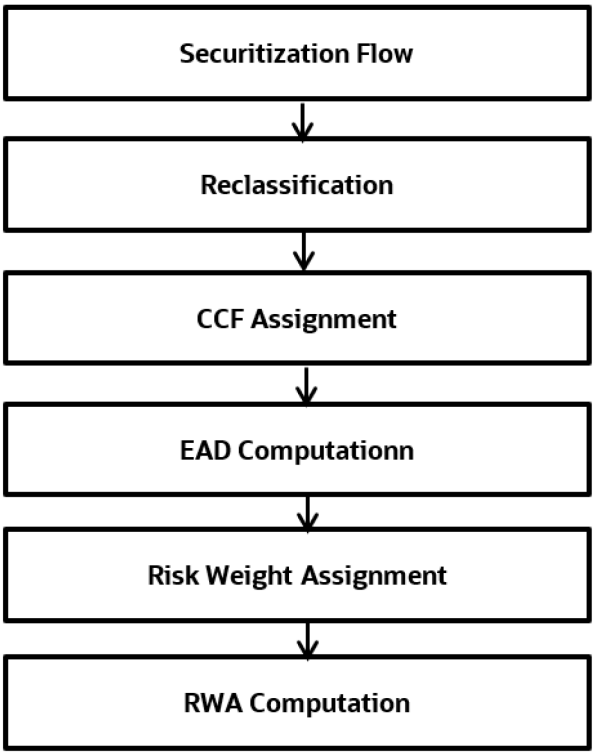
For exposures being a facility like liquidity facility, or servicer cash advance, the exposures are expected in the Stage Commitment Contracts table (STG_COMMITMENT_CONTRACTS).

For a few procedures, the calculations pertaining to the underlying exposures of the Securitization transaction are required before processing the Securitization exposures. This is computed before processing the Securitization exposures. For Securitization approach, BOT does not have specific treatment in both standardized and IRB.

Process Flow for Securitization – Standardized Approach

The process flow for standardized approach of Securitization exposures are as follows:

Figure 29: Process flow for securitization



Sec Data Population

The data pertaining to pool, tranche, and exposures are populated from the staging tables to the processing tables. The underlying exposures data are captured in the respective Product Processor tables (and for these, the process pertaining to the non-securitization exposures is followed).

Sec Reclassification

The application uses the standardized data for all kinds of calculations (product type like eligible liquidity facility, bank role like originator, pool type like mortgage backed securities). Before any computations, the application reclassifies the bank specific data to standard data as stated in the Basel accord. It reclassifies the bank role to the standard bank role of an originator or investor. Any other bank roles like sponsor, credit protection provider, and so on, are reclassified into originator, investor, and so on, respectively. The application also reclassifies the pool type to the standard pool type like credit cards receivable pool, auto loans, and so on. It also reclassifies the product type to the standard product type like mortgage backed securities, eligible liquidity facility, and so on.

BOT has specific treatment based on bank role and few additional bank roles such as Credit enhancement provider, Servicer, liquidity facility provider, Underwriter is applicable for BOT.

Sec Pre-CRM Computations

The application calculates the pre-CRM RWA for the exposures by multiplying the pre-CRM EAD with the risk weight of the exposures. This is handled in the Sec STD Pre CRM Computations sub process.

CCF Assignment

100% CCF is applicable for all the bank roles except underwriter, where bank is acting as underwriter, bank assigns 50% CCF percent to the securitization exposure arising from underwriting activities. CCF is applicable during the underwriting process. After the underwriter proceeding, if bank is not able to offload all the required securities then bank has to invest in those securities in that case bank assigns 100% CCF.

EAD Computation

EAD is computed as the Drawn EAD and Undrawn EAD.

Here,

Drawn EAD - Sec Exp Amount - ((Provision Amount * Sec Exp Amount)/ (Sec Exp Amount + Undrawn Amount))

In order to get drawn EAD, provision attributed for drawn amount gets deducted from exposure amount/drawn amount.

Undrawn EAD - (undrawn amount - (((Provision amount * Undrawn Amount)/(Sec Exp Amount + Undrawn Amount))- sec exp amount))*CCF

In order to get undrawn EAD, provision attributed for undrawn amount gets deducted from exposure amount/undrawn amount.

Risk Weight Assignment

For Securitization, the risk weights assignment are different from the Non Securitization exposures. The application assigns the risk weights based on the following parameters

- Bank role
- Tranche seniority
- Number of tranche in the pool

Risk Weight Assignment for Credit Enhancement Provider

Financial institution provides the credit enhancement as a Guarantor and as a First Loss Facility Provider.

- Bank as a Guarantor, risk weight equal to weighted average risk weight.
- Bank as First Loss position provider receive 1176.5% risk weight

Above treatment is applicable to financial institution other than credit foncier companies.

Part types as Housing Finance Company (HFC) and Mortgage Guarantee Company (MGC) is considered as credit foncier companies.

BOT has suggested capital deduction approach as applicable in Basel II guideline for the amount subjected to first loss position. Since the application supports Basel III calculation, and there is no such mention in the accord, the flow has been taken to be same as in BIS. In BIS, anything which was deducted from T1 and T2 capital of Basel II were assigned the maximum risk weight in Basel III. Hence, in line with the same flow, the maximum risk weight, provided by BOT, of 1176.5% has been assigned, instead of the capital deduction treatment of Basel II.

Risk weight for Servicer/ Back Servicer

Bank acting as a Servicer and back up servicer means bank act as agent for the SPV in collecting or undertaking legal enforcement on the debtors, preparing accounting, reports, keeping documents and so on.

Financial Institutions are not exposed to any kind of risk when they act as servicer. However, If the financial institutions assume such liability either fully or partially from acting as servicer, then financial institution has to treat such exposure as first loss position and such exposures get risk weight of 1176.5%.

Risk weight for Underwriter

Where bank is acting as underwriter, bank should attract risk weight of SPV. However, BOT has not specified any method to calculate risk weight for SPV in securitization guideline. Hence, underlying weighted average risk weight is considered in this case.

Risk weight for Investor of Securitization Securities

Financial institution can invest in the securitization securities based on their risk appetite. Securitization securities get divided into various tranches based on their risk profile.

Financial institution has to maintain the capital based on the risk profile of the securities on which they have invested.

BOT suggests average risk weight of underlying risk weight. The application considers weighted average risk weight of underlying asset.

In order to determine if first loss position has adequate risk protection or not, BOT suggests bank to assess capital adequacy of first loss tranche by an external rating agency. Since BOT has not detailed any specific rating which identify capital adequacy of first loss tranche, it is inferred that if Mezzanine tranche has rating equivalent or better than investment grade then first loss tranche is considered to adequate protection else otherwise.

Treatment for Liquidity Facility Provider

Liquidity facility refers to the principal and interest payment made to the investor by the bank wherever there is timing mismatch between SPV receiving principal or interest from the underlying assets and paying interests to the investors and such cases bank role is considered as liquidity facility provider.

However, liquidity or credit facility must not be intended to cover any losses and financial institution shall comply with following regulations:

- Financial institution gets payment as soon as SPV receive interest and principal payment from underlying assets.

- Financial institution granted credit facility must receive payment within three months dated the credit is granted if there is no delinquencies in the underlying assets.

If the financial institution is not able to meet either of the above two regulations, then financial institution has to treat such securitization exposures as first loss position and assign 1176.5% risk weight. And if the bank complies with the above regulations, then the treatment is same as bank providing guarantee.

Treatment for Excess Investment

Originator Bank can invest in the securitize exposures no more than 10% value of the tranche and the case where the originating financial institution provided firm underwriting for the instruments issued by the SPV and has to invest more than 10% of the securities value in each tranche, the financial institution disposes the securities within 90 days to reduce its holding to no more than 10% of the value in each tranche.

If bank has investment more than 10% of the tranche value in above cases, then excess investment receives risk weight of 1176.5% while investment which is lower than 10% of the tranche value receives treatment as per BOT guideline suggested on investment in securitization exposure by originator bank

BOT has suggested that originator must not invest more than 25% of CET-1 in the first loss position. In that case, application has a rule which compares the amount subjected to first loss position and 25% of bank's net and excess amount first loss position amount is stored against CAP ID

6.5 Operational RWA

Operational risk is the total risk the company undertakes when it attempts to operate within a specific sector or industry.

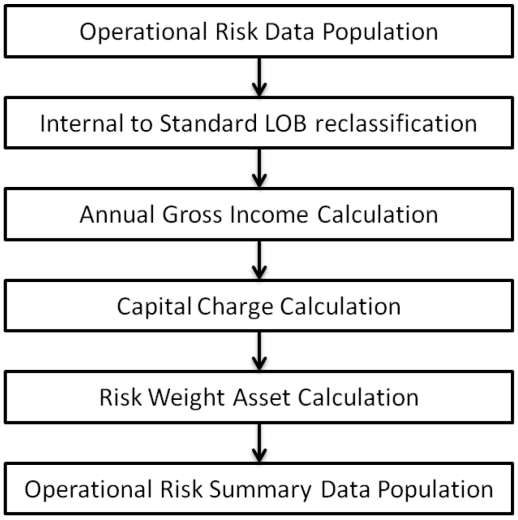
It is the risk not inherent in a financial, systematic, or market-wide risk. It is the risk remaining after determining the financial and systematic risk, and includes risks resulting from breakdowns in internal procedures, people, and systems.

The Accord has prescribed three methods for calculating the Operational Risk capital charges and banks can use any of these methods to calculate the capital charge:

- Basic Indicator Approach
- Standardized Approach
- Alternative Standardized Approach

6.5.1 Process Flow for Operational RWA

Figure 30: Process flow for operational RWA



Operational RWA run is executed with the Capital Consolidation process.

For example: LOB Reclassification and Gross Income Calculation sub process are detailed as separate processes under the Operational RWA section of this document.

6.5.2 Capital Structure

The economic crisis of 2008 showed the need for global banking systems to maintain high quality capital in order to survive. The Basel Committee observed that the definition of the required capital varied across the globe and the regulations governing the same had to be strengthened in order to make the banks less susceptible to a similar crisis like situation. To address this, the Basel Committee has prescribed the Basel III guidelines. The same has been adopted, with jurisdictional modifications, by various regulators, one of them being the Bank of Thailand.

Components of Capital

The Bank of Thailand classifies Capital into three components:

Tier 1 capital

- Common Equity Tier 1
- Additional Tier 1

Tier 2 capital

The regulator puts restrictions on each qualifying instrument that needs to be classified into each of the capital components as well as on the minimum required capital to be maintained under each tier. Common Equity Tier 1 (CET1) should be maintained at a minimum of 4.5% of the total risk weighted assets. Tier 1 capital should be at a minimum of 6% of the total risk weighted assets. The total Capital must be at a minimum of 8.5% of total risk weighted capital.

6.5.2.1 Process Flow for Capital Structure

NOTE:
All the GL line items are expected at the Solo level for each entity. The consolidated data is discarded.

While executing the Solo Run, the parent entity data is processed. Investment into the subsidiary data is processed as per the Credit Risk and Market Risk rule. Capital line items pertaining to the parent entity are processed.

While executing the Consolidation Run, the parent entity and the subsidiary data is considered. The regulatory Investment data to financial institutions that are a part of regulatory consolidation are treated as an internal transaction. Those subsidiaries which are outside the scope of consolidation are treated as per the insignificant and significant rule.

Common Equity Tier 1 capital

The Bank of Thailand lists out a number of items that it deems to be of eligible quality for CET1 capital classification.

1. Gross Capital

This contains the sum of items that are eligible to be considered as a part of CET1 form the Gross CET1 capital. These items are captured as downloads in the STG_GL_DATA or FSI_STD_ACCT_HEAD tables.

- Reserves appropriated from net profits at the end of an accounting period. This is calculated as the sum of multiple reserves such as General Reserve, Capital Reserve, Revenue Reserve, Contingencies & Special Reserve, Disclosed Reserves, and Undisclosed Reserve.
- Accumulated other comprehensive income.

2. Adjustments and Deductions to CET 1 capital

The Bank of Thailand allows for certain adjustments and deductions to be made from the Gross CET1 capital to arrive at the net CET1 capital. The following are some of the major deductions from CET1 allowed by the Bank of Thailand:

- Accumulated gain and loss from the fair value measurement of derivatives, which are used for hedging cash flow risk
- Accumulated gain and loss from fair value measurements of debt instruments
- Accumulated gain and loss from fair value measurements of loan and other banking products
- Accumulated gains (losses) that have occurred from any changes in commercial banks' own creditworthiness (Debit valuation adjustment)
- Net loss from each accounting period
- Internal transactions and surplus of Non-Controlling Interest
- Goodwill, Intangible assets, Deferred Tax Assets, and Temporary differences after being netted for deferred tax liabilities in respective items are deducted from the gross CET1 capital.

- Gains from securitization transactions that result in an increase of a commercial banks' capital
- Investment in their own shares (Treasury Stock) that form a part of the CET1 capital
- Reciprocal cross holding of equity instruments
- Direct and Indirect Investments in equity instruments and warrants of finance companies and credit foncier companies.
- Significant and Insignificant investments in CET1 instruments
- Shortfall in Additional Tier 1 capital

Additional Tier 1 capital

1. Gross Capital

The sum of items that are eligible to be considered as a part of Additional Tier 1 form the Gross Additional Tier 1 capital. These items are captured as downloads in the STG_GL_DATA or FSI_STD_ACCT_HEAD tables.

- Phase out of ineligible instruments from the capital are also a part of the Additional Tier 1 gross capital along with the other items prescribed by the Bank of Thailand. The items which were previously eligible to be included in Tier 1 capital are ineligible under the eligibility conditions prescribed by the Bank of Thailand Basel III rules.

2. Deductions from AT1 Capital

The Bank of Thailand allows for certain deductions to be made from the Gross AT1 capital to arrive at the net AT1 capital. The following are some of the major deductions from AT1 allowed by the Bank of Thailand:

- Internal transactions and surplus of Non-Controlling Interest
- Investment in their own shares (Treasury Stocks) that form a part of the AT1 capital.
- Reciprocal cross holding of AT1 instruments
- Direct and indirect investments in AT1 of other commercial banks or other finance companies
- Significant and Insignificant investments in AT1 instruments
- Shortfall in Tier 2 capital

Tier 2 capital

1. Gross Capital

The sum of the items that are eligible to be considered as a part of Tier 2 form the Gross Tier 2 capital. These items are captured as downloads in the STG_GL_DATA or FSI_STD_ACCT_HEAD tables.

- The Phase out of ineligible instruments from the capital are also a part of the Tier 2 gross capital along with the other items prescribed by the Bank of Thailand. The items which were previously eligible to be included in Tier 2 capital and are ineligible under the eligibility conditions prescribed by Bank of Thailand Basel III rules are to be phased out from the capital.

2. Deductions from Tier 2 Capital

The Bank of Thailand allows for certain deductions to be made from the Gross Tier 2 capital in order to arrive at the net Tier 2 capital. The following are some of the major deductions from Tier 2 that are allowed by the Bank of Thailand.

- Internal transactions and surplus of Non-Controlling Interest
- Investment in their own shares (Treasury Stock) which form a part of the Tier 2 capital.
- Reciprocal cross holding of Tier 2 instruments
- Direct and indirect investments in Tier 2 of other commercial banks or other finance companies.
- Significant and Insignificant investments in Tier 2 instruments

Internal Transactions

The deduction also includes internal transactions in each tier of capital among the various entities which are part of the regulatory consolidation. The internal transactions are identified in the Non Securitization process. The internal transactions are identified as any capital related transactions within the organization structure group, which is part of the regulatory consolidation. These deducted items are not processed further under any other process.

Non-Controlling Interest

Non-Controlling Interest as per the Bank of Thailand Basel III guidelines are calculated and the surplus amount in each tier of capital, which is attributed to third parties, are deducted from the gross capital of the respective tier of capital.

- The minority interest is calculated as the third party's interest (shareholding percent) in the surplus capital (available capital – minimum required capital).
- All the values required for processing are populated into the Minority Interest Capital (FSI_MINORITY_INTEREST) table, which is the processing table for minority interest calculations
- The sub process Minority Interest Calculations process covers this processing.

DTL related to Goodwill, Intangible assets, DTA and Temporary differences

All the Deferred Tax Liabilities (DTLs) related to Goodwill, Intangible assets, Deferred Tax Assets (DTA), and Temporary differences are expected as a download in the STG_GL_DATA table. The application calculates the values of Goodwill, Intangible Assets, Deferred Tax Assets, and Temporary differences in the net of DTL by deducting the values of the associated DTL from the value of the respective standard account heads. These are then processed for the Regulatory Adjustments.

Reciprocal Cross Holding

The investments in reciprocal cross holdings are calculated as the sum of the pre-mitigation EAD (EAD Premitigation Measure Value (N_EAD_PRE_MITIGATION) in the Fact Non Sec Exposures (FCT_NON_SEC_EXPOSURES) table) of the exposures which have the flag of reciprocal cross holding indicator (F_RECIPROCAL_CROSS_HLDG_IND) as "Y".

For this processing, the reciprocal amount is expected as a download in the Stage Capital Investments Position Table (STG_CAP_INVESTMENTS_POSITIONS) at an instrument level. The instrument code provided in this table is the instrument in which the reporting bank has invested, and for which there is a reciprocal cross holding by the reporting bank. The reciprocal cross holding amount is also captured in

this table. The solution expects the staging data of the exposures to have the reciprocal cross holding indicator (F_RECIPROCAL_CROSS_HLDG_IND) as 'Y'.

The solution, as part of the sub process Non Sec Reciprocal Cross Holdings Data Population in the processes Non Sec Reciprocal Cross Holdings Data Population splits the exposure into two, based on the reciprocal cross holding amount. The exposure which meets the reciprocal cross holding amount is stamped with the reciprocal cross holding indicator (F_RECIPROCAL_CROSS_HLDG_IND) as 'Y'. This will be taken for the reciprocal cross holding treatment for the capital instruments.

The portion of the exposure, which is above the reciprocal cross holding amount, is treated as a regular exposure and is risk weighted as per the Basel asset class for that instrument.

Write down of AT1 instruments

The banks are allowed to convert the convertible equity shares in their portfolio into a paid up common equity by writing down the convertible shares that a form part of AT1 instruments into CET1 instruments of paid up common equity. This is done when the trigger level of CET1 is hit and the bank is required to raise its CET1 capital levels. The trigger level of CET1 prescribed by the Bank of Thailand is at 5.125% of total risk weighted assets. The application reports the amount that the bank is supposed to write down in order to be over the trigger level. This is done in the sub process Capital Ratio Calculation.

Net Capital Calculation

The Net CET1, Net AT1, and Net T2 capital amount are calculated post all regulatory adjustments, including the insignificant, significant, and threshold treatment. The net capital is calculated by taking into account any effect that is brought in by the transition arrangement. The deductions and the ineligible instruments are processed in accordance with the transition schedule prescribed by the Bank of Thailand. Any shortfall in the T2 capital amount is adjusted against Net AT1 amount and any shortfall of the AT1 capital amount is adjusted against the Net CET1 amount.

Insignificant Investment Treatment for Accounting Entity where Parent Bank Holding is not more than 10% of Issued Common Shares

The total investment amount of all the insignificant entities are checked against the set limit of 10% of the CET1 amount of the parent bank amount post regulatory adjustments. The amount above the 10% limit is processed for deduction. The total deduction amount is pro-rated among each tier of capital based on the percentage of investment in each tier of capital. The amount arrived at is deducted from each tier of the capital.

The investment amount below the 10% limit is treated as per the trading book and banking book rule for the instrument belonging to trading book and banking book respectively.

The following is the computation done by the application:

- Entities are marked as insignificant investment entities by updating the flag F_SIGNIFICANT_INVESTMENT_IND in Fact Entity Information (FCT_ENTITY_INFO) with the value N.
- The exposure amount of the banking book and trading book exposures to these entities are summed up by grouping their component of capital. They are then compared against the 10% of the parent bank's CET1 capital. The portion of amount which exceeds the 10% limit is deducted.

- This is done by calculating the tier wise deduction percentage and multiplying this percentage with the exposure amount to arrive at the amount to be deducted from each tier of capital.
- The total investment values are populated into FSI_NON_REG_CONSL_ENTITY_INVST which is the processing table for insignificant and significant investment deductions.
- The INSIGNIFICANT_INVESTMENT_CALCULATION process covers this processing.

Significant Investment Treatment for Accounting Entities where the Parent Bank Holding is more than 10% of the Issued Common Shares

The total investment amount of all the significant investment entities is checked against the set limit of 10% of the CET1 amount of the parent bank post insignificant investment amount adjustment. The CET1 amount greater than 10% is deducted from the CET1 post insignificant investment amount deduction. The CET1 amount lower than 10% is then risk weighted at 250%. The investment amount in AT1 and T2 is fully deducted from its respective AT1 and T2 tier of capital. The following is the computation done by the application:

The entities are marked as significant investment entities by updating the flag – 'F_SIGNIFICANT_INVESTMENT_IND' in Fact Entity Information (FCT_ENTITY_INFO) with the value 'Y'. The exposure amount of the banking book and trading book exposures to these entities are summed up by grouping their component of capital and are then compared against 10% of the parent bank's CET1 capital. The portion of amount which exceeds the 10% limit is then deducted from CET1. The exposures of AT1 and T2 are fully deducted from the respective tier of capital. The deduction percentage for CET1 is calculated and this percentage is multiplied with the CET1 exposure's exposure amount to arrive at the amount to be deducted from the CET1 capital.

The investment in venture capital business is also part of significant and insignificant investments. If the private equity and venture capital related investments are more than 50%, it will be consolidated, to handle this a rule is created for any investment more than 50% to be fully consolidated. Any investment less than 50% will not be part of consolidation. For the same a consolidation flag to be updated by the bank, if any special scenario of considering investments less than 50% to be part of consolidation. The sub process SIGNIFICANT_INVESTMENT_CALCULATION process covers this processing.

Direct and Indirect Investments

The direct and indirect investments by banks in Equity and Warrants of Financial institutions, Housing Finance companies, and Mortgage Guarantee companies are deducted from the gross common equity tier 1 capital. Similarly in the case of additional tier 1 and tier 2 capital, the eligible products of the respective capital tiers issued by Commercial Banks and Financial Institutions are deducted from the respective capital tiers. In all cases, any of these direct and indirect investments which have been treated under and deducted as part of investment in their own shares, internal transactions or reciprocal cross holdings are not considered under this head in order to avoid double counting. Similarly, the investments which are deducted under the head of direct and indirect investments are not counted for and processed as significant and insignificant investments for deductions.

To identify and further process the exposures related to the credit foncier and financial companies, the application will consider the party types "Housing Finance Company", "Mortgage Guarantee Company", and "Financial entity"

Fair Value

The fair value option approach is used in accordance with IAS39 for regulatory adjustments of items that are not included in the capital of commercial banks as they are accounting items. Instruments considered for this approach are Accumulated gains (losses) for the debt instruments and loans or financial asset instruments.

> **NOTE:**
>
> In this scenario, the gains/ losses are due to the increase / decrease in fair value arising from the unreliable fair value measurement.

To get these values, which is computed or stored in line with an IFRS guideline, the application integrates with the IFRS application and downloads the gains and losses as mentioned above. The total sum of these values is populated into the required CAP IDs.

Transition Arrangement

Phase in of Deductions

The regulatory adjustment line items that include intangible assets, gain on sales related to sec transaction, minority Interest, cumulative gain and losses from fair value measurement of available for sale debt instruments, cumulative gains and losses arising from translating the financial statements of a foreign operation, cumulative gains and losses from fair value measurement of derivatives used for hedging risks incurred from a net investment in a foreign operation follows the phase-in arrangement as per the timelines defined in the BOT accord. Similarly, insignificant investment, significant investment line items also follow phase-in arrangement, after insignificant, significant treatment calculation. The phase-in deduction percent for each year is available in the setup table FSI_SETUP_CAPITAL_HEAD.

The entire processing is done in the process TRANSITION_DEDUCTION_TREATMENT.

All the investment transactions in insignificant entity and significant entity are stamped. Insignificant investment amounts lower than 10% is stamped as “INSIG_RWA”. Any amount above 10% is stamped as “INSIG_DED”. The same logic is applied to the significant investment amount in CET1. The exposure to be deducted is marked with the standard account head surrogate key based on whether the deduction is an insignificant or significant investment and based on the capital component group.

This splitting of exposures is done in Fact Non Sec Exposures (FCT_NON_SEC_EXPOSURES) in the process NON_SEC_INSIGNIFICANT_EXPOSURE_POPULATION and NON_SEC_SIGNIFICANT_EXPOSURE_POPULATION.

This splitting logic is carried to Equity Exposures (FCT_EQUITY_EXPOSURES) and Fact Sub Exposures (FCT_SUB_EXPOSURES) as well in the NON_REGULATORY_EQUITY_INVESTMENT_POPULATION and NON_REGULATORY_INV_SUB_EXPOSURE_POPULATION the sub processes that are involved in this processing.

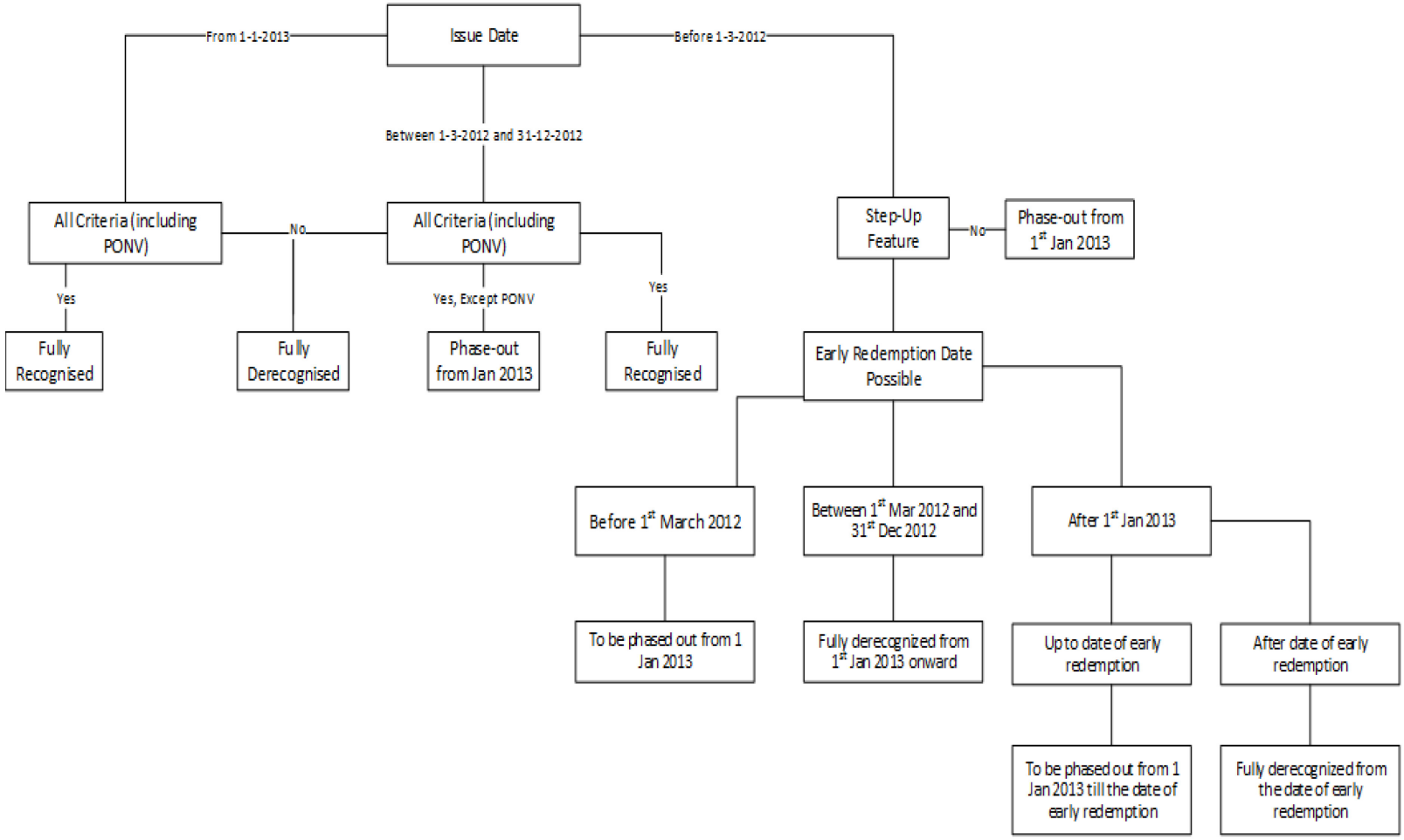
Phase out of ineligible instruments from gross capital

Ineligible or De-recognized Instruments refer to the instruments which were considered to be eligible to form the tier 1 and tier 2 capital in Basel II but with the on-set of the Basel III regulations are no more eligible to be part of Additional Tier 1 or Tier 2 capital. Bank of Thailand says that, in case the banks have on their books investment in these kind of instruments and are used to form their capital then such instruments are to be phased out through divestment at a rate of 10% every year starting 1st of January 2013 resulting in a complete divestment by 1st of January 2022.

The method of identification and qualification of the instrument is as indicated below;

Phase out flow

Figure 31: Phase outflow process



Capital Ratio Calculation

CET1 ratio, T1 ratio, T2 ratio, and Capital Adequacy ratio are calculated by using the Total RWA amount, Net CET1 Capital, Net T1 Capital, Net T2 capital, and Total Capital (sum of Net T1 Capital amount,

and Net T2 Capital Amount).

The transitional arrangement for capital ratios began on April, 2014. The capital ratios and deductions

from Common Equity are fully phased-in and implemented as on March 31, 2019. The phase-in arrangements for banks operating in Thailand are indicated in the following table:

Table 30: List of capital ratios and the duration

Minimum Capital Ratios	1-Apr-13	31-Mar-14	31-Mar-15	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19
Minimum Common Equity Tier (CET1)	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Capital Conservation Buffer (CCB)				0.625	1.25	1.875	2.5
Minimum CET1+CCB	4.5	4.5	4.5	5.125	5.75	6.375	7
Minimum Tier 1 Capital	6.0	6.0	6.0	6.625	7.250	7.875	8.5
Minimum Total Capital	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Minimum Total Capital + CCB	8.5	8.5	8.5	9.125	9.750	10.375	11.0
Phase-in of all deductions from CET1	-	20	40	60	80	100	100

Expected loss is more than provision then commercial banks which are locally incorporated can deduct the full amount of difference between total EL and provisions from Common equity tier 1 capital.

Commercial banks which are locally incorporated can include the surplus provisions in Tier 2 capital however the surplus of provision include in Tier 2 capital must not exceed 0.6% of total credit risk-weighted assets calculated under the IRB.

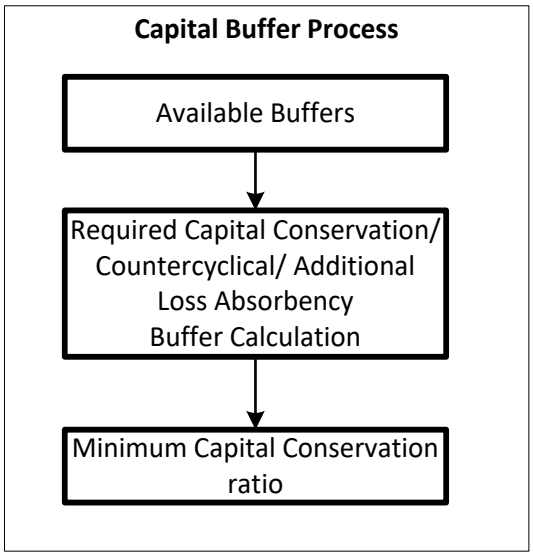
6.5.3 Capital Buffers

Capital Buffer is calculated after the calculation of Capital Ratios, as they go as an input to Buffer calculation. The application complies with the various buffer calculations of Capital Conservation Buffer,

Countercyclical Buffer, and GSIB Buffers. The following illustrations displays the process flow for Capital Buffers:

6.5.3.1 Process Flow for Capital Buffers

Figure 32: Process flow for capital buffers



Capital Buffer is calculated after the calculation of Capital Ratios, as they go as an input to Buffer calculation. Each sub-process is explained in detail under Capital Buffer section of the user guide.

For more information on Capital Buffers, see Capital Buffers section.

For example, Required Capital Conservation Buffer and Required Countercyclical Buffer calculation are detailed in the 'Required Total Buffer' sub-section of the Capital Buffer section in this document. Similarly, Minimum Capital Conservation ratio is detailed in the 'Capital Conservation Ratio' sub section of Capital Buffer section in this document.

7 Thailand Basel III – Standardized Approach

7.1 Credit RWA

Credit RWA is the calculation of Non-securitization RWA

This includes the portfolio of banking and investment for the non-securitized exposures and securitization portfolio for the securitization positions. The application complies with the standardized approach and IRB approach of the credit risk calculations.

A few processes such as Credit Rating, Party Type Reclassification, and Mitigant Data Population are common between. Credit RWA and Counterparty Credit RWA.

This also includes the settlement risk calculation about the unsettled transactions depending on the number of days they are unsettled.

7.1.1 Banking Portfolio

7.1.1.1 Rating Population

The data on ratings is captured in the following rating specific tables:

- Account Rating Table (**STG_ACCOUNT_RATING_DETAILS**)
  - Ratings of all Credit Risk Banking Exposures are captured in this table.
- Party Rating Table (**STG_PARTY_RATING_DETAILS**)
  - Credit Rating for all customers and issuers are captured in this table.
- Sovereign Rating Table (**STG_SOVEREIGN_RATING_DETAILS**)
  - Credit Rating for all countries is captured in this table.

7.1.1.2 Processing Steps

Banks obtain credit ratings from different sources and these are provided as an input in the application through the rating tables mentioned in the preceding list.

This is handled in the sub-process RATING_RECLASSIFICATION_POPULATION in EU Other Reclassifications process.

The application re-classifies the rating information to EU Specific standard ratings. The out-of-box application supports the Fitch / Moodys / S&P and DBRS credit rating reclassification for Long Term and Short Term ratings.

This is handled in the sub-process Credit Rating Reclassification in EU Other Reclassifications process.

The rating reclassification lookup table (**FSI_RATING_CLASSIFICATION**) is used to lookup reclassified standard ratings so that the reclassification rule is not repeated for each of the rating processing tables.

Ratings are populated from the stage tables (for example, **STG_PARTY_RATING_DETAILS**) to FSI tables (for example, **FSI_PARTY_RATING_DETAILS**) using the lookup table (**FSI_RATING_CLASSIFICATION**) to obtain a reclassified rating.

Ensure that all the columns as indicated in the DL Specs are mandatorily populated with data. For example, in the Stage Party Rating Details (**STG_PARTY_RATING_DETAILS)** table: Rating source code (**V_RATING_SRC_CODE**), Party Code (**V_PARTY_CD**), Purpose (**V_PURPOSE**) are required to be populated. The purpose code is to indicate whether the rating is a domestic rating or foreign rating. If any other rating is provided, then the exposure is considered as unrated.

7.1.1.3 Data Population

Credit Risk exposures are updated in the application for all the product types through their respective input tables known as Product Processors. Main categories of Credit Risk Banking exposures, along with their respective table names that are used as an input, are detailed in the following table:

Table 14: Categories of Credit Risk Banking Exposures and their Tables

Product	Source Product Processor
Assets Sold	STG_ASSETS_SOLD
Bills	STG_BILLS_CONTRACTS
Credit Cards	STG_CARDS
Guarantees	STG_GUARANTEES
Lease Contracts	STG_LEASE_CONTRACTS
Letters of Credit	STG_LC_CONTRACTS
Line of Credit	STG_CREDIT_LINE_DETAILS
Commitment Contracts	STG_COMMITMENT_CONTRACTS
Loans	STG_LOAN_CONTRACTS
Overdraft	STG_OD_ACCOUNTS

There is a data population about the mitigants, which cater to all the types of mitigants like collateral, guarantee, and credit derivatives. There is one data population about the counter-guarantee for the guarantor. The following table details data populations and its tables:

Table 15: Table for Mitigant and Counter Guarantee Data Population

Product	Source Product Processor
Mitigants – Collateral, Guarantee, Credit Derivatives	STG_MITIGANTS
Counter Guarantee	STG_MITIGANT_COUNTER_GUARANTEE

There is a data population about the mapping between the exposures and the mitigants.

Table 16: Data Population between Exposures and Mitigants

Product	Source Table
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAP
Mapping for Exposures and Placed Collateral	STG_ACCT_PLACED_COLL_MAP
Mapping for Guarantee and Counter Guarantee	STG_MITIGANT_CNTR_GUAR_MAPPING

Processing Steps

Staging data from the Product Processors or other staging tables are populated in the respective processing tables. Information from all the Product Processors data is populated in a common Fact table for all non sec exposures (FCT_NON_SEC_EXPOSURES), except for equity data that is first populated in the respective equity table (FCT_EQUITY_EXPOSURES) and is then populated in the common Fact table for all Non Securitized exposures.

7.1.1.4 Shareholding Percent Multiplication

The exposure amount that is a part of the input data (Product Processors) is the exposure amount for a solo entity. However, for a consolidated Run, the parent exposure is considered only by the shareholding percentage, based on the following calculation:

Exposure Amount X Share Holding Percent = Updated Exposure Amount

Where:

The Shareholding percent is allotted a value by the Rule Cap Consl Effective Shareholding Percent for an Entity in the process - ENTITY_SHAREHOLDING.

This assignment uses the Rule <Attribute > Shareholding Percent Multiplication that relates to the BOT Accord. The Shareholding percent multiplication is computed for the following attributes:

- Outstanding Principal
- Current Exposure Amount
- Undrawn Amount
- Exposure Market Value
- Exposure Accrued Interest
- Provision Amount
- Write Off Amount
- Notional Principal, and Contract Amount for OTC products
- Any other amounts

Currency Conversion

The application converts the amount attributes, which are in the natural currency, to the reporting currency that is used for further calculations. The column names suffixed with '_ncy' are in the natural currency and are then multiplied by the currency conversion factor to populate values in the reporting currency. The Rule Reporting Currency Code Assignment assigns the reporting currency. For more information on Currency Conversion, see Exhibit 4 in Annexure A: Key Concepts.

> **NOTE:**
>
> The data populated in the Product Processor is expected in natural currency of the exposure.

7.1.1.5 Common Reclassification Rules

The application reclassifies the bank's product types and party types to standard product and party types. Based on the standard product and party type, the asset class for each exposure is arrived at. Similarly, the application does reclassification for mitigant based on its mitigant types and reclassifies it to standard mitigant types.

Ensure that all products and party type and mitigants which are bank-specific are reclassified, as part of the setup activity. If they are not reclassified, the treatment might not happen as expected by the regulator.

1. Product Type Reclassification

Product types used by the reporting bank as input data are reclassified to standard product types as recommended in the Accord. The product types after reclassification are stored as Basel product types. For Example, Fixed Rate Bond is reclassified as Debt Securities

This is handled in the Basel Product Type Reclassification which is part of the COMMON_RECLASSIFICATION process.

2. Party Type Reclassification

Similar to the product type, the customer type (which are stored as counterparty type) are also reclassified as standard counterparty type. The customer information is expected in the Stage Party Master (STG_PARTY_MASTER), and this also includes the Party Type based on the Stage Party Type Master (STG_PARTY_TYPE_MASTER).

Party type reclassification Rules handle reclassification for customer types. For Example, housing finance company is reclassified as Corporate

This is handled in the Party Type Reclassification which is part of COMMON_RECLASSIFICATION process.

3. Rating Reclassification

As part of the Rating Reclassification, it is expected that bank will reclassify the ratings into the different Basel credit rating of AAA Equivalent, AA Equivalent etc. This gets handled in the BOT Credit Rating Grade Reclassification of the process "BOT-Rating Reclassification ".

4. Other Reclassification

As part of the reclassification rules, any other data which is being brought inside the application like seniority, transaction type and so on also get reclassified into OFSAA specific values. This is also mandatory to be done, as otherwise data will not be available for processing as required by the regulator.

This happens as part of the process COMMON_RECLASSIFICATION.

7.1.1.6 Asset Reclassification Rules

Based on Basel product type and standard counterparty type, an asset class is formed by the application. This asset class is used for data processing. The asset class is the same as specified in the accord.

For example, Standard Counterparty is Corporate non-SME and Corporate SME, the asset class is corporate. For Basel product type gold, the asset class is Gold. When the standard counterparty is a central government, the asset class is a domestic or foreign sovereign depending on the country of the exposure.

The asset class for all mitigants is reclassified based on their standard mitigant types and standard issuer type.

This happens in the process BOT Asset Class Assignment STD.

7.1.1.7 Mitigant Reclassification

For mitigants, the application reclassifies the mitigant type to the standard mitigant type like debt securities, credit derivative, cash, and so on. It also reclassifies the mitigant issuer type to the standard mitigant issuer type like Banks, Corporate, and so on. The reclassification tasks are present in the **OFSAA_STANDARD_RECLASSIFICATION** process.

In the case of the underlying exposures of SFT and the CIU that are mitigants, the underlying exposure product types are reclassified into standard mitigant types. This is also a part of the Mitigant Reclasification Process.

7.1.1.8 Pre-mitigation Calculations

Based on the asset class, the application calculates the Pre-Credit Risk Mitigation (CRM) Exposure at Default (EAD) for each exposure. This value signifies the maximum loss that the bank can suffer, in case of default on this exposure, before considering any mitigation effects.

Some exposures can be hedged against credit risk through various mitigants such as guarantees, collaterals, credit derivatives, and so on. These provide mitigation to credit risk and must be considered while computing Credit RWA, as per the Accord. Hence, the application calculates the pre-mitigation exposure amount and post-mitigation exposure amount.

The application also computes pre-mitigation risk-weighted assets (Pre CRM RWA) and post-mitigation risk-weighted assets (Post CRM RWA) by multiplying the respective EAD by risk weight. The risk weight is arrived at, by considering the credit rating of the exposures and mitigants as per the guidelines.

7.1.1.8.1 Exposure at Default Amount Calculation

Pre CRM EAD

Exposure at Default (EAD) is calculated for all the products. This is being computed using the Exposure Amount (EOP Balance of the Exposure and adjusting for Provision amount, if any)

Through the CRM process, the bank considers the effect of the mitigation and calculates the post-mitigation exposure at the default amount. This signifies the maximum loss that the bank can suffer in

case of default on this exposure, after considering the effects of the mitigation. This will be the EAD of the Exposure Pre-Mitigation less the covered portion of the mitigant.

7.1.1.8.2 Multiple Assessment

For exposures with multiple ratings, risk weight assignment is based on multiple assessment process. For each exposure, the final rating is the worst of the best two ratings assigned to the exposure.

The risk weight corresponding to this rating is then assigned to the exposure.

Exposures for multiple rating assessment are first moved into the table FSI Multiple Rating Processing (FSI_MULTIPLE_RATING_PROCESSING) wherein the ranking and final selection of which rating to use takes place.

This happens in the sub process of BOT - Multiple Rating Assessment, wherein the data for the multiple assessment processing gets populated into the FSI table. MULTIPLE_RATING_ASSESSMENT, wherein the identification of the multiple rating for the exposure happens, and the

BOT - Multiple Assessment Based Risk weight Assignment wherein the actual risk weight and final rating assignment happens for the exposures.

All the above fall under BOT Risk Weight Assignment.

7.1.1.8.3 Issue Issuer Assessment

For all exposures which remain unrated after the multiple assessment processes, the issue issuer process is performed. This happens in the Issue Issuer Assessment sub-process (BOT - Issue Issuer Assessment). In this case, the unrated exposures are assigned a reference rating based on the reference issue available or the rating of the party, whichever is applicable. These unrated exposures are assigned a risk weight based on the reference rating.

For unrated Non-Securitized exposures, the application does an issue-issuer assessment to infer a rating of the unrated exposures, based on the rating of a similar instrument (referred to as reference issue hereafter) issued by the same issuer. The reference issue is used only when it is of the same currency as the exposure and the exposure is senior or equivalent to the same. For the unavailable reference issue, the party rating is used. In the case of the party also being unrated, the exposure remains unrated. Also, the application populates whether the exposure is LT rated or ST rated, based on the rating assigned to the exposure.

7.1.1.8.4 Risk Weight Assignment

Non Sec Exposures Risk Weight

The Risk Weight is assigned on the basis of the asset class and the credit rating as per the BOT

Guidelines. The risk weight rules operate on the risk weight table (FSI_RW_MAP_MASTER). Highly rated exposures are allocated as low risk weight and poorly rated exposures are allocated as high risk weights.

If an exposure has more than one rating (rated by more than one agency), then the final rating is

assigned on the basis of multiple assessments. The application updates the risk weights against the

exposures directly when ratings are not considered. Options for risk weighting are selected during the

Run definition if the Run Management UI is used. If the Run Rule Framework (RRF) of OFSAAI is used, a

setup code from USR_DEFINED_RUN_PARAMETERS is set in the Rule User Defined Run Setup

Param Assignment.

The multiple assessment of ratings are performed in the Multiple Assessment Processes NON_SEC_MULTIPLE_RATING_ASSESSMENT and NON_SEC_MULTIPLE_ASSESSMENT_BASED_RISK_WEIGHT_ASSIGNMENT. The logic for multiple assessment is as below:

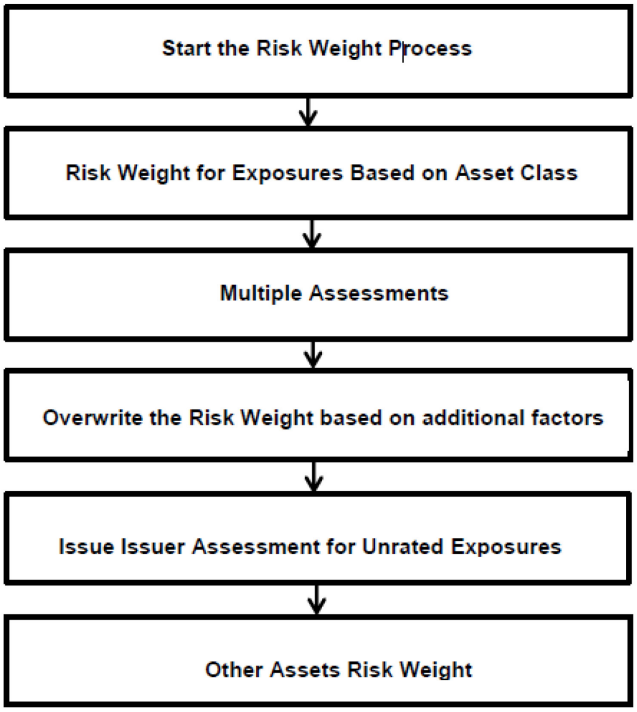
For each exposure, the various standard ratings associated with that exposure and the respective risk weights are identified. If the number of ratings are 1, then the same rating gets assigned as the standard rating for the exposure and the risk weight associated with that standard rating gets assigned as the Premitigation

Risk Weight. If the number of ratings are greater than or equal to 2, then the exposure is assigned a risk weight which is the worst of the best two risk weights. And the corresponding rating is assigned to the exposure.

For all the exposures which remain unrated after the multiple assessment process, the Issue-Issuer Process is performed. This happens in the Unrated Exposure Issue Issuer Assessment process (UNRATED_EXPOSURE_ISSUE_ISSUER_ASSESSMENT). In this case, the unrated exposures get assigned a reference rating based on the reference issue available or the rating of the party, whichever as applicable. These Unrated Exposures are Assigned Risk Weight based on the reference rating.

Process Flow for Risk Weight

Figure 33: Process Flow for Risk Weight



Exposures Treated as Sovereign and Banks and Financial Institutions

Claims belonging to asset classes like Sovereign, Central Bank, and PSE's treated as Sovereign will follow the below approach.

1. If an exposure belongs to the mentioned asset class and the denominated currency of the exposure is the same as the domestic currency of the sovereign, the portion not exceeding liabilities will get 0% risk weight. If an exposure belongs to the mentioned asset classes and the denominated currency of the exposure is the same as the domestic currency of the sovereign, the portion exceeding liabilities will get the risk weight assigned based on the "Domestic Currency Rating" If an exposure belongs to the mentioned asset classes and is denominated in the foreign currency of the sovereign, it will get the risk weight assigned based on the Foreign Currency Rating.

a. In the case where the claims have guarantees from sovereigns or central banks, in which the guarantees are in that country's domestic currency, and commercial banks have liabilities denominated in the same currency to fund the claims, the commercial banks shall use a risk weight of 0% for the guaranteed portion.

2. For treatment of exposures denominated in domestic currencies, there will be two approaches which will be identified using a run management option. There will be two existing approach, with two setup tables is place. First method is to have the setup table <FSI_SETUP_SOV_DOM_CURR_LIAB> to be at currency granularity. The other method is by using f_exp_fund_ccy_same_ind in Fct Non-Sec Exposures. This column gets populated from Staging PP tables at exposure level. This column indicates if the exposure is covered or not. For exposure which have 'Y' as value, we consider the exposure is covered and a straight 0% needs to assign to the exposure. If the exposure have value 'N' for the same flag, then we consider the exposure is uncovered and assignment of risk weight will happen based rating.

Treatment of Exposures denominated in Domestic Currency

1. Based on Option 1, the liability ratio is calculated by pro-rating the liability amount at an exposure level.
2. Exposures belonging the single country is grouped together and sorted in a descending order of Risk Weight.

The liability amount denominated in the domestic currency for the country will be used to offset the exposure (Highest risk weighted / low credit rating). If two exposures have same rating then they should be ordered by their respective EAD is descending order.

3. The liability amount will start offsetting the highest exposures first and will stop offsetting in either case when the exposure in partially covered or the liability is exhausted.
4. For bank exposures falling under maturity window less than 3 months, the risk weight for "Notexceeding liability amount" is floored at 20%.
5. The RWA is computed by multiplying the EAD amount and the post processed RW.

> **NOTE:**
>
> Financial companies are considered as financial entities and Credit Foncier Companies are captured as asset management companies and housing finance companies.

Multilateral Development Banks (MDBs)

As per the BOT guidelines the below parties are assigned a risk weight of 0%. The remaining MDBs are assigned risk weight as per the rating provided by the rating agencies.

To handle this requirement of 0% RW to the specific parties, since the bank can consider varying codes for the same parties as part of the source system, the application treats them as standard parties. These parties need to be mapped to the banks custom party codes corresponding to the standard party in the Standard Party Map table (FSI_PARTY_STD_PARTY_MAP):
World Bank Group: IBRD and IFC

- Asian Development Bank
- African Development Bank
- European Bank for Reconstruction and Development
- Inter-American Development Bank
- European Investment Bank
- European Investment Fund
- Nordic Investment Bank
- Caribbean Development Bank
- Islamic Development Bank
- Council of Europe Development Bank
- International Finance Facility for Immunization
- Multilateral Investment Guarantee Agency
- International Bank for Reconstruction and Development (IBRD)
- International Finance Corporation

The risk weighting of the MDBs happen as per the guidelines mentioned in the accord.

Corporate Exposures

The exposures to corporates will be risk weighted using the Basel rating assigned to the exposure, based on whether the exposure is long term or short term. This is handled in the **BOT_ASSET_CLASS_RATING_RW_MAPPING** process.

The bank can overwrite the risk weight of these exposures with 100%, based on supervisory approval. This is captured as a run management option, and require the bank to provide a response to the question listed below:

Corporate RW Treatment - Supervisory approval to risk weight all claims to corporate at a specific risk weight instead of rating based risk weighting

The option code ot handle this requirement is: OPT0016 (Yes) and OPT0017 (No)

High Risk Exposures

The exposures which received 150% and in certain cases, 100% risk weight also are treated as high risk exposures, and given the revised risk weight based on the provision coverage ratio. This happens as per the BOT Guidelines. This is handled in the sub process High Risk Categories Risk Weight Assignment of the process BOT_EXPOSURE_RISK_WEIGHT.

Retail Exposures

Assignment of risk weight for retail exposures is based on four criteria; orientation, product, granularity, and low value to individual exposure. The product and orientation criteria are validated during the Asset Reclassification Process. Granularity and low value to individual exposure are checked by calculating the total retail exposure and the total retail exposure belonging to the group of connected parties bank.
The total retail exposure belonging to the group of connected parties is calculated by considering all the exposures which belong to the same retail pool id. The retail pool id of the exposure is captured in the Setup Account Modeling Info table (FSI_SETUP_ACCT_MODELING_INFO). The total retail exposure of the bank is considered by summing up all the retail exposures of the bank.
All these checks are handled in the Retail Portfolio Processing (RETAIL_PORTFOLIO_PROCESSING) Process.

The risk weight assigned to the exposures are as below:

1. If the exposure satisfies all the four criteria, it will be risk weighted at 75%.
2. If the exposure fails any of the criteria (Threshold, Granularity) and if the corresponding party belong to SME, then the asset class for those specific exposures are updated to be Corporate asset class and risk weights assigned correspondingly.
3. If the exposure fails any of the criteria (Threshold, Granularity) and if the party type is an individual and has taken any business loan, then the entire retail pool to which the party belongs to is updated to be Corporate asset class and risk weighted accordingly.
4. If the individual has not taken any business loan, then credit card related exposures are risk weighted at 75% and remaining exposures as 100%.

The risk weight assignment of the Regulatory Retail Exposure is handled in the process BOT Exposure Risk Weight (**BOT_EXPOSURE_RISK_WEIGHT**).

This is an iterative method to eliminate those retail pools which do not meet the granularity check.

5. For all the exposures belonging to Regulatory Retail Portfolio (RRP) and Claims secured by residential property (RES), n_ead_pre_mitigation belonging to a retail pool (FSI_NON_SEC_EXPOSURES.V_RETAIL_POOL_ID) are summed up to calculate group retail pool exposure.
6. For all the exposures belonging to Regulatory Retail Portfolio (RRP) and Claims secured by residential property (RES), n_ead_pre_mitigation is summed up to calculate total retail exposure.
7. The ratio of Group retail pool Exposure Amounts to the Total Retail Exposure Amount is

calculated and a "Y" flag is assigned to the pool if the ratio is less than or equal to 0.002 and an

"N" flag is assigned otherwise.

8. The loop executes again to calculate the group retail and total retail exposure amounts for only those pools for which the flag is "Y".
9. Loop continues to execute and eliminate until only those pools are left which meet the granularity criterion ratio of less than or equal to 0.002.

Residential Mortgage Exposures (RME)

The risk weight assignment for Residential Mortgage Exposures is based on the characteristics of the exposure like lien position, mitigant value, loan to mitigant value, Account Purpose, and Account Insurance Flag. The asset class reclassification for RME is based on the standard party type, individuals, and product type as claims secured by residential mortage. The risk weight assignment for these exposures are handled in the sub process Claims Secured by Residential Property Risk Weight Assignment belonging to the process BOT Exposure Risk Weight (BOT_EXPOSURE_RISK_WEIGHT).

Other Assets

Equities, fixed assets, cash etc. are identified as "Other Assets" and are further treated based on other attributes such as the party type, product type etc.

The assets which are available with the bank at GL level is captured at Stage General Ledger Data and the processing for the same happens in the FSI General Ledger Data (FSI_GL_DATA). Any exposure

which does not have any asset reclassification assigned based on the previous reclassification will be

treated as other assets.

The risk weighting for all the other assets are handled in the process OTHER_ASSETS_GL_RISK_WEIGHT_ASSIGNMENT for all the GL line items and for the other assets

part of the product processor tables, the processing happens in the

OTHER_ASSETS_NON_SEC_RISK_WEIGHT_ASSIGNMENT process.

Non Performing Assets

A nonperforming asset (NPA) refers to an classification for loans on the books of financial institutions that are in default or are in arrears on scheduled payments of principal or interest. Past due is a flag derived from the number of delinquency days and the application considers 90 days delinquent as past due exposures. The risk weight assignment happens as per the BOT guidelines. And this is handled in the process BOT_PASTDUE_RISK_WEIGHT_ASSIGNMENT which happens post the Credit Risk Mitigation Process.

Over-the-Counter Derivative Products

The accord recommends the calculation of Counterparty Credit Risk (CCR), wherein the counterparty can default before the final settlement of a transaction. Unlike the firm's exposure to credit risk arising from a loan, CCR creates a bilateral risk of loss. Market value of the transaction can be positive or negative for either parties in the transaction at different points in time, till the maturity or closure of the transaction. This market value is dependent on the movement of the underlying risk factor. The BOT has proposed Rules to calculate the EAD or exposure amount for the instrument with CCR.

> **NOTE:**
> All OTC Derivatives and Repo products are part of the CCR computation.

7.1.1.8.5 Credit Risk Mitigation

The application handles multiple mitigants for credit risk mitigation like financial collateral, on-balance sheet netting, guarantees, credit derivatives, and so on. CRM reclassification is done by reclassifying collateral and issuer to standard collateral and issuer type. The mitigant is identified as eligible or not based on the eligibility rule for CRM.

The application supports the following two approaches for credit risk mitigation:

- Simple Approach
- Comprehensive Approach

The Fair value of mitigants will be considered as the Mitigant Value. The Bank will provide the fair value in Fsi_Setup_Mtgnt_Valuation_Dtls which will be in the CRM processing.

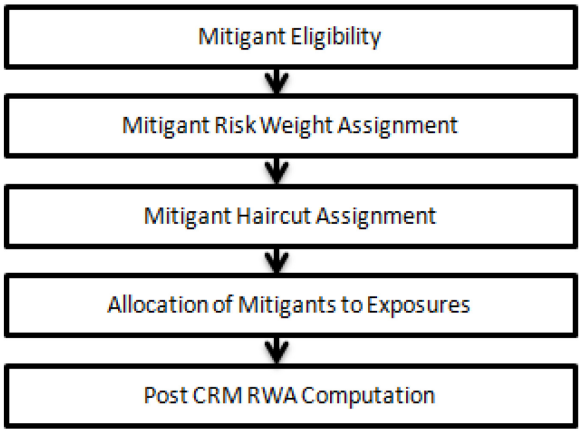
Mitigant Reclassification

The application reclassifies the mitigant type to the standard mitigant type such as the debt securities, credit derivative, cash, and so on. Warrants, covertable debenture will be reclassified into equity and convertible bond respectively and bills of exchange, certificate of deposits will be reclassified into standard mitigant type as cash.

It also reclassifies the mitigant issuer type to the standard mitigant issuer type, such as banks, corporate, and so on. The reclassification tasks are present in the mitigant reclassification sub process.

Process Flow for Credit Risk Mitigation

Figure 34: Process flow for credit risk mitigation



Mitigant Eligibility

The mitigant is identified as eligible or not based on the eligibility rules for CRM as mentioned in the Basel III accord. Credit rating of the collateral is considered for all mitigant types issued by all party types, while deciding whether a mitigant is eligible for a particular exposure or not.

Separate eligibility Rules exist for mitigants types like equity, mutual funds, or debt security, to perform these checks. For the remaining, a mitigant is marked as eligible only if its credit rating is better than the exposure to which it is providing protection and also if it is classified as senior in position. This is handled in the sub process - Mitigant Collateral Eligibility - Comprehensive Approach.

Mitigant eligibility is also checked based on the original and residual maturity of the collateral. The collateral is classified as eligible only if its original maturity is more than a year and the residual maturity is more than 3 months.

Counter guarantee or indirect guarantee from a sovereign can also be treated as an eligible guarantee from a sovereign.

Mitigant Risk Weight

Similar to non-securitization exposures, mitigants are also assigned a risk weight based on their issuer type, credit rating, and original maturity of the mitigant. Collateral risk weight will be floored at 20% under the simple approach. However there are a few exceptions to the 20% risk weight floor, where a bank can assign a 0% risk weight.

Mitigant Haircut Assignment

The application assigns three kinds of mitigant haircuts; Volatility Haircut, FOREX Haircut, and Maturity Mismatch Haircut. Volatility Haircuts are assigned to the collateral to account for any future fluctuations in the market value of the financial collateral. Separate Rules exist in the application for various types of financial collaterals like debt securities, equity, mutual funds, and so on. When the exposure and collateral are in different currencies, the application makes an adjustment by applying the FOREX haircut. If the residual maturity of CRM is less than the underlying credit exposure, then a maturity mismatch is applied. If there is a maturity mismatch and CRM has an original maturity of more than a year, the maturity mismatch haircut is applied to adjust the value. The application assigns a volatility haircut by using the Supervisory Haircut method.

In case of the Supervisory Haircut method, the application assigns the volatility haircut based on issues, issuer's ratings, mitigant's residual maturity, and type of mitigant as per the Basel III accord. The FOREX

haircut is also assigned based on these transaction types as per the Basel III accord. Only eligible mitigants are considered for haircut assignment. The eligible mitigants data flows from Mitigants (FCT_MITIGANTS) table to Sub Exposures (FCT_SUB_EXPOSURES) table.

The bank has to adjust the haircut in cases where the transection types are not matching the minimum holding period requirement and re-margining /revaluation frequency.

The bank also has the choice to choose to provide the Own Estimate of haircuts that they can choose to do from the run management options. In doing this, the bank can provide its own estimates of haircuts in STG_MITIGANTS table. The user can only choose to provide the Own Estimate of haircuts when they are going for the comprehensive approach of CRM.

Allocation of Mitigants to Exposures

The application has a pre-built optimizer for the optimum allocation of mitigants to the exposures for CRM purposes. One-to-One, Many-to-One, and Many-to-Many mapping of mitigants are handled in an efficient manner. This involves the storage of intermediate computations for traceability.

All mitigants which are eligible and mapped to an exposure are then populated to a new table where each exposure is broken down to the mitigant types. An additional row is included that treats the exposure as having covered and uncovered portion. The covered factor and uncovered factor is also populated in this table.

The application uses the linear programming method to allocate the mitigants to the exposures. Pooling identifies the exposure and mitigant data from sub exposures (FCT_SUB_EXPOSURES) table. Exposure identifier and mitigant identifier are the attributes on which Pooling is performed. It assigns the pool ID for each exposure-mitigant combination. Based on these pool ids, the optimizer allocates a covered factor to the exposures. The optimizer allocates mitigants to exposures to attain the most favorable EAD output. For more information on pooling and optimizer, see Exhibit 2 and Exhibit 3 in Annexure A: Key Concepts of OFS Basel Regulatory Capital Basic User Guide - Release 8.0.6.0.0.

> **NOTE:**
>
> A tag <ALTER_STATEMENTS> is present in Optimizer_Config.xml. This statement is used to enable the parallel Data Manipulation Language (DML) for the optimizer. This is disabled by default, due to which the following warning appears which is printed in the Optimizer log: “Error: Could not find node ALTER_STATEMENTS in the xml” The administrator can uncomment this tag to enable parallel DML for the optimizer.

Post CRM RWA Computation

Pre mitigation EAD is divided into Post Mitigation EAD for the covered portion and Post Mitigation EAD for uncovered portion. The covered portion is the portion of the exposure covered by the mitigant and the uncovered portion is the portion of the exposure that is not covered by the mitigant. For multiple mitigants covering one exposure, there is more than one record for the covered portion of that exposure. Post mitigation RWA UL (Post CRM RWA UL) is calculated by multiplying the post mitigation EAD and its Capital Required UL with 12.5. Post mitigation RWA Expected Loss is calculated by multiplying the PD, LGD, and post mitigation EAD amount with 12.5.

7.1.2 Investment Portfolio

7.1.2.1 Rating Population

The data on ratings is captured in the following rating specific tables:

1. Instrument Rating Table (**STG_INSTRUMENT_RATING_DETAILS**)
    - Ratings for investment exposures subject to credit risk (one that is in **STG_INVESTMENTS**) and mitigants are captured in this table.
2. Party Rating Table (**STG_PARTY_RATING_DETAILS**)
    - Ratings for the customer are captured in this table.
3. Sovereign Rating Table (**STG_SOVEREIGN_RATING_DETAILS**)
    - Credit Rating for all countries is captured in this table.
4. External Underlying Exposures Rating Table (**STG_EXT_ULY_ACCT_RATING_DTL**)
    - Credit Rating provided by an External Agency for all underlying exposures is captured in this table. In the case of underlying exposures of CIU transactions, it is expected that the value of Exposure ID is that of the instrument ID to which the underlying exposures belong to. For example: If the Underlying Exposure ID EXP001, which belongs to the instrument INSTR001, and which has the parent ID as PARENT001; in this case, the data expected in this table is of the instrument INSTR001, with the Exposure ID as INSTR001.

7.1.2.2 Processing Steps

Banks obtain credit ratings from different sources and these are provided as an input in the application through the rating tables mentioned in the preceding list.The rating reclassification lookup table (**FSI_RATING_CLASSIFICATION**) is used to lookup reclassified standard ratings so that the reclassification rule is not repeated for each of the rating processing tables. Ratings are populated from the stage tables (for example, **STG_PARTY_RATING_DETAILS**) to FSI tables (for example, **FSI_PARTY_RATING_DETAILS**) using the lookup table (**FSI_RATING_CLASSIFICATION**) to obtain a reclassified rating.

Ensure that the following columns are mandatorily populated with data in the **STG_PARTY_RATING_DETAILS** table: Rating source code (**V_RATING_SRC_CODE**), Party Code (**V_PARTY_CD**), Original Credit Rating Indicator (F_ORIGINAL_CREDIT_RATING_IND) Purpose (**V_PURPOSE**): In this field whether the rating is a domestic rating or foreign rating must be indicated. If any other rating is provided, then the exposure is considered as unrated.
Data Population.

This is handled in the sub-process Rating Reclassification in Common Data processing.

Preprocessing steps

Credit Risk exposures are updated in the application for all the product types through their respective input tables known as Product Processors. Main categories of Credit Risk Investment exposures, along with their respective table names that are used as an input, are as follows:

Table 17: Type of Credit Risk Investment Exposures and their Table Names

Product	Source Product Processor
Investment Products:	STG_INVESTMENTS
Money Market Instruments	STG_MM_CONTRACTS
Spot Forex Transactions	STG_FX_CONTRACTS
Fixed Assets	STG_FIXED_ASSETS

7.1.2.3 Data Population

Pre Processing Steps

Credit Risk exposures are updated in the application for all the product types through their respective input tables known as Product Processors. The following are the main categories of Credit Risk Non-Securitization exposures, along with their respective table names that are used as an input:

Table 18: List of Credit Risk Non-Securitization exposures

Product	Product Processor
Bills	STG_BILLS_CONTRACTS
Credit Cards	STG_CARDS
Swaps	STG_SWAPS_CONTRACTS
Futures	STG_FUTURES
Guarantees	STG_GUARANTEES
Investments	STG_INVESTMENTS
Lease Contracts	STG_LEASE_CONTRACTS
Letters of Credit	STG_LC_CONTRACTS
Line of Credit	STG_CREDIT_LINE_DETAILS
Commitment Contracts	STG_COMMITMENT_CONTRACTS
Loans	STG_LOAN_CONTRACTS
Money market instruments	STG_MM_CONTRACTS
Overdraft	STG_OD_ACCOUNTS
Options	STG_OPTION_CONTRACTS
Re purchase contracts	STG_REPO_CONTRACTS
Equity Exposures	STG_INVESTMENTS
Underlying Exposures for Derivatives	STG_UNDERLYING_MASTER
Underlying Exposures for Repo contracts	STG_PLACED_COLLATERAL / STG_MITIGANTS

Credit Derivatives	STG_CREDIT_DERIVATIVES
Fixed Assets	STG_FIXED_ASSETS_DETAILS
Stage Correspondent Accounts	STG_CORRESPONDENT_ACCOUNT

There is data population pertaining to the placed collateral, which are required for the collateral placed with third party, for the sake of derivatives.

Table 19: Data population for collateral

Product	Source Product Processor
Placed Collateral	STG_PLACED_COLLATERAL

There is data population pertaining to the mitigants, which cater to all the types of mitigants like collateral, guarantee, and credit derivatives. There is one data population pertaining to the counter guarantee for the guarantor. There is also mapping data population of Exposure to Mitigant Data and the Guarantor to Counter guarantee data population.

Table 20: Data Population for Mitigants

Product	Source Product Processor
Mitigants – Collateral, Guarantee, Credit Derivatives	STG_MITIGANTS
Counter Guarantee	STG_MITIGANT_COUNTER_GUARANTEE

There is data population pertaining to the mapping between the exposures and the mitigants. And one data population pertaining to the mapping between the exposures and the placed collateral.

Table 21: Data Population for the Mapping between Exposures and Mitigants

Product	Source Table
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAP
Mapping for Exposures and Placed Collateral	STG_ACCT_PLACED_COLL_MAP
Mapping for Guarantee and Counter Guarantee	Mapping for Guarantee and Counter Guarantee

Processing Steps

Staging data from the Product Processors or other staging tables are populated in the respective processing tables. Information from all the Product Processors data is populated in a common Fact table for all non sec exposures (FCT_NON_SEC_EXPOSURES), except for equity data that is first populated in the respective equity table (FCT_EQUITY_EXPOSURES) and is then populated in the common Fact table for all Non Securitized exposures.

Shareholding Percent Multiplication

The exposure amount that is a part of the input data (Product Processors) is the exposure amount for a solo entity. However, for a consolidated Run, the parent exposure is considered only by the shareholding percentage, based on the following calculation:

Exposure Amount X Share Holding Percent = Updated Exposure Amount

Where:

The Shareholding percent is allotted a value by the Rule Cap Consl Effective Shareholding Percent for an Entity in the process - ENTITY_SHAREHOLDING.

This assignment uses the Rule <Attribute > Shareholding Percent Multiplication that relates to the BOT Accord. The Shareholding percent multiplication is computed for the following attributes:

- Outstanding Principal
- Current Exposure Amount
- Undrawn Amount
- Exposure Market Value
- Exposure Accrued Interest
- Provision Amount
- Write Off Amount
- Notional Principal, and Contract Amount for OTC products
- Any other amounts

7.1.2.4 Common Reclassification Rules

The application reclassifies the bank's product types and party types to standard product and party types. Based on the standard product and party type, the asset class for each exposure is arrived at. Similarly, the application does reclassification for mitigant based on its mitigant types and reclassifies it to standard mitigant types.

Ensure that all products and party type and mitigants which are bank-specific are reclassified, as part of the setup activity. If they are not reclassified, the treatment might not happen as expected by the regulator.

1. **Product Type Reclassification**

   Product types used by the reporting bank as input data are reclassified to standard product types as recommended in the Accord. The product types after reclassification are stored as Basel product types. For Example, Fixed Rate Bond is reclassified as Debt Securities

   This is handled in the Basel Product Type Reclassification which is part of the COMMON_RECLASSIFICATION process.

2. **Party Type Reclassification**

   Similar to the product type, the customer type (which are stored as counterparty type) are also reclassified as standard counterparty type. The customer information is expected in the Stage Party Master (STG_PARTY_MASTER), and this also includes the Party Type based on the Stage Party Type Master (STG_PARTY_TYPE_MASTER).

Party type reclassification Rules handle reclassification for customer types. For Example, housing finance company is reclassified as Corporate

This is handled in the Party Type Reclassification which is part of COMMON_RECLASSIFICATION process.

3. **Rating Reclassification**

   As part of the Rating Reclassification, it is expected that bank will reclassify the ratings into the different Basel credit rating of AAA Equivalent, AA Equivalent etc. This gets handled in the BOT Credit Rating Grade Reclassification of the process "BOT-Rating Reclassification".

4. **Other Reclassification**

   As part of the reclassification rules, any other data which is being brought inside the application like seniority, transaction type and so on also get reclassified into OFSAA specific values. This is also mandatory to be done, as otherwise data will not be available for processing as required by the regulator.

   This happens as part of the process COMMON_RECLASSIFICATION.

7.1.2.5 Asset Reclassification Rules

Based on Basel product type and standard counterparty type, an asset class is formed by the application. This asset class is used for data processing. The asset class is the same as specified in the accord.

For example, Standard counterparty is Corporate non-SME and Corporate SME, the Asset Class is corporate. For Basel product type gold, the asset class is Gold. When the standard counterparty is a Central Government, the asset class is a domestic or foreign sovereign depending on the country of the exposure.

The asset class for all mitigants is reclassified based on their standard mitigant types and standard issuer type.

This happens in the process BOT Asset Class Assignment STD.

7.1.2.6 Pre-mitigation Calculations

Based on the asset class, the application calculates the Pre-Credit Risk Mitigation (CRM) Exposure at Default (EAD) for each exposure. This value signifies the maximum loss that the bank can suffer, in case of default on this exposure, before considering any mitigation effects.

Some exposures can be hedged against credit risk through various mitigants such as guarantees, collaterals, credit derivatives, and so on. These provide mitigation to credit risk and must be considered while computing Credit RWA, as per the Accord. Hence, the application calculates the pre-mitigation exposure amount and post-mitigation exposure amount.

The application also computes pre-mitigation risk-weighted assets (Pre CRM RWA) and post-mitigation risk-weighted assets (Post CRM RWA) by multiplying the respective EAD by risk weight. The risk weight is arrived at, by considering the credit rating of the exposures and mitigants as per the guidelines.

7.1.2.6.1 Exposure at Default Amount Calculation

Pre CRM EAD

Exposure at Default (EAD) is calculated for all the products. This is being computed using the Exposure Amount (EOP Balance of the Exposure and adjusting for Provision amount, if any)

This happens in the sub process I BOT - Pre CRM EAD Computation of the process BOT INV Processing STD

Through the CRM process, the bank considers the effect of the mitigation and calculates the post-mitigation exposure at the default amount. This signifies the maximum loss that the bank can suffer in case of default on this exposure, after considering the effects of the mitigation. This will be the EAD of the Exposure Pre-Mitigation less the covered portion of the mitigant.

7.1.2.6.2 Multiple Assessment

For exposures with multiple ratings, risk weight assignment is based on multiple assessment process. For each exposure, the final rating is the worst of the best two ratings assigned to the exposure.

The risk weight corresponding to this rating is then assigned to the exposure.

Exposures for multiple rating assessment are first moved into the table FSI Multiple Rating Processing (FSI_MULTIPLE_RATING_PROCESSING) wherein the ranking and final selection of which rating to use takes place.

This happens in the sub process of BOT - Multiple Rating Assessment, wherein the data for the multiple assessment processing gets populated into the FSI table. MULTIPLE_RATING_ASSESSMENT, wherein the identification of the multiple rating for the exposure happens, and the

BOT - Multiple Assessment Based Risk weight Assignment wherein the actual risk weight and final rating assignment happens for the exposures.

All the above fall under BOT Risk Weight Assignment.

7.1.2.6.3 Issue Issuer Assessment

For all exposures which remain unrated after the multiple assessment processes, the issue issuer process is performed. This happens in the Issue Issuer Assessment sub-process (BOT - Issue Issuer Assessment). In this case, the unrated exposures are assigned a reference rating based on the reference issue available or the rating of the party, whichever is applicable. These unrated exposures are assigned a risk weight based on the reference rating.

For unrated Non-Securitized exposures, the application does an issue-issuer assessment to infer a rating of the unrated exposures, based on the rating of a similar instrument (referred to as reference issue hereafter) issued by the same issuer. The reference issue is used only when it is of the same currency as the exposure and the exposure is senior or equivalent to the same. For the unavailable reference issue, the party rating is used. In the case of the party also being unrated, the exposure remains unrated. Also, the application populates whether the exposure is LT rated or ST rated, based on the rating assigned to the exposure.

7.1.2.6.4 Risk Weight Assignment Rules

Non-Sec Exposures Risk Weight

Risk Weight is assigned based on asset class and the credit rating as per Basel guidelines. The risk weight rules operate on the risk weight table (**FSI_RW_MAP_MASTER**). Highly rated exposures are allocated low-risk weight and poorly rated exposures are allocated high-risk weights.

If exposure has more than one rating (rated by more than one agency), then the final rating is assigned based on multiple assessments. The application updates the risk weights against the exposures directly, when ratings are not considered.

Options for risk-weighting are selected during Run definition if the Run Management UI is used, to update the required calculations as allowed by the specific jurisdiction. For more details on the options, see the Run Management section.

This is handled under the process BOT Risk Weight Assignment

Specific Standard Party treatment

The application has set of Specific Standard Parties. The list of Standard Parties and its details are detailed in the following table:

Table 22: List of Standard Parties

V_STD_PARTY_CODE	V_STD_PARTY_NAME	V_PARTY_ID
IBRD	International Bank for Reconstruction and Development	P11
IFC	International Finance Corporation	P12
ADB	Asian Development Bank	P13
AFDB	Africa Development Bank	P14
EBRD	European Bank for Reconstruction and Development	P15
IADB	Inter-American Development Bank	P16
EIB	European Investment Bank	P17
EIF	European Investment Fund	P18
BIB	Nordic Investment Bank	P19
CDB	Caribbean Development Bank	P20
IDB	Islamic Development Bank	P21
CEDB	Council of Europe Development Bank	P22
IFFI	International Finance Facility for Immunization	P23
MIGA	Multilateral Investment Guarantee Agency	P24
BFIS	Bank for International Settlements	P27
IMF	International Monetary Fund	P28
ECB	European Central Bank	P29
IDA	International Development Association	P31
EU	European Union	P37
EAEC	European Atomic Energy Community	P38
EFSF	European Financial Stability Facility	P39
ESM	European Stability Mechanism	P40

> **NOTE**
>
> The party IDs mentioned in table are sample values that can be changed to meet the bank's logic for the party ID.

For exposures to these exposures, the asset class determined earlier gets overridden to mainly International Organizations and Multilateral Development Bank (Zero Risk Weight) takes place. These exposures will be assigned a risk weight of 0%.

This treatment of Standard Parties is handled in sub process MDBs Risk Weight Assignment in BOT - Risk Weight Assignment process.

Funds/ Collective Investment Units

Equity Investments in Funds – (Collective Investment Units (CIU) Processing)

The CIU is funds that have invested in various exposures. The accord has specified various criteria for risk-weighting CIU exposures which are held in Banking Book. The application supports all the approaches. In the case of CIU, the application follows a hierarchy of approaches depending upon the level of information provided:

Look Through ApproachMandate Based Approach

- Fall Back Approach

The exposures to CIU are expected in the table Stage Investments (STG_INVESTMENTS), and the instrument code is expected to be populated for these exposures. The static information related to the instruments is expected in the Instrument contract dimension table (DIM_INSTRUMENT_CONTRACT), with the V_UNDERLYING_INSTRUMENT_CD column to be non nullable for main exposures to CIU, and the information about the instruments, which change periodically like the current outstanding issue amount, is expected in the Stage Instrument Contract Detail table (STG_INSTRUMENT_CONTRACT_DTL).

The underlying exposures of CIU are expected in STG_FUND_CIS_COMPOSITION with the fund code (instrument code) populated also into Parent Instrument Code.

The underlying composition of the CIU is expected in the table Stage Fund Underlying Composition (STG_FUND_UNDERLYNG_COMPOSITION). This has the underlying composition details of the fund, across various products, and the maximum permissible limit of investment in each of the product types and within that percentage allocation in capital instruments with the fund code as the Instrument ID.

> **NOTE:**
>
> The fund underlying composition and/or the underlying exposures are required for processing, only when the underlying of the fund is not available and when there is mandate information available for the fund. Further there are certain data expectations with respect to Issuer of the various products related to underlying composition to be furnished.

When the derivatives products are underlying for a CIU, then the MTM value of the derivative is expected to be given as Asset MTM Value (N_ASSET_MTM_VALUE) along with basic details required as part of EAD

computation (N_NOTIONAL_PRINCIPAL, D_INSTRUMENT_MATURITY_DATE) in Stage Fund CIS Composition (STG_FUND_CIS_COMPOSITION).

> **NOTE:**
>
> Unless operational criteria are met, the look-through approach is not applicable.

Look Through Approach

The first approach in the hierarchy that application assigns based on the operational criteria given in the accord is LTA. Under Look through Approach the Undelrying Exposures of CIU are considered as exposures which are directly held by the Bank. To validate the operational criteria or conditions given, data is expected as input. Along with regulatory prescribed conditions application also checks for the availability of the underlying information. If all the sufficient information is available, the application assigns the Look Through Approach (LTA) and computation will be followed as given in the accord. If operational criteria are not met, the application checks for the immediate next approach.

The look through approach are handled process BOT Investment CIU Processing STD Weight Assignment.

Mandate Based Approach

This approach is applied when the information of the underlying and the third-party risk weights that can be used under the look-through approach are not available. To continue with this approach banks are required to provide Fund'smandate information. Once the application checks for the information and assigns the approach, computations for MBA under the Standardized approach are in line with the Basel Accord.

This is handled in the sub-process CIU - INV – Risk Weight Method Assignment – Mandate Based Approach in the process INV_CIU_RISK_WEIGHT_METHOD_CALCULATION.

Risk Weight Calculated by Mandate Based and Look Through Approaches will be capped at 1250%.

Fall Back Approach

If no approach from the hierarchy is applicable based on the checks performed, the application assigns Fall Back Approach. In this approach, all the exposures will be risk-weighted at 1250%.

This is handled in the sub-process CIU - INV – Risk Weight Method Assignment – Fall Back Approach in the process INV_CIU_RISK_WEIGHT_METHOD_CALCULATION.

Partial use of an approach

A bank may use a combination of the three approaches when determining the capital requirements for an equity investment in an individual fund, provided that the conditions for all the approaches are met.

This will be applicable only in the case of the treatment of funds in other funds, as within a fund the method cannot be different.

Treatment of funds invested in other funds

If the underlying information is available, then application checks for the approach that is used by the funds. If the approach is not same across then FBA will be assigned i.e. if the approach used for determining the RW of a fund and the same approach is also where it is invested. Further, if same then application carry on with the same approach (Look through or Mandate based approach respectively), if not then we will assign 1250% under Fall Back Approach.

7.1.2.6.5 RWA Calculations

The RWA is calculated as the Pre-mitigation EAD multiplied by the Pre-Mitigation Risk Weight.

This is handled under the sub-process BOT - Pre CRM EAD Computation under the process BOT INV Processing STD.

7.1.2.7 Credit Risk Mitigation Process

In order to calculate the post CRM RWA, application needs to account for mitigants which may be in the form of collaterals, guarantees, credit derivatives. Not all mitigants are eligible for RWA computation. All the mitigants which get populated into the system are being made ineligible, and then the regulatory approved mitigant types and the issuer type combination are made eligible.

7.1.2.7.1 Mitigant Processing

Mitigant Data Population

Mitigant data is loaded from various Stage Mitigant tables (STG_MITIGANTS and STG_FUND_CIS_COMPOSITION) into the FSI CAP Mitigants table (FSI_CAP_MITIGANTS) where further processing takes place and also data population for Counter guarantees. This takes place under the process BOT Mitigant Eligibility Processing STD

Mitigant Multiple assessment

Similar to exposures with multiple ratings, mitigants with multiple ratings are also subject to Multiple rating Assessment. This is handled under the sub-process Mitigant Multiple Rating Assignment under the process BOT Mitigant Eligibility Processing STD .

7.1.2.7.2 Mitigant Approaches and their Risk Weighting Rules

Mitigant Risk Weight

For Simple approach and Comprehensive approaches, the application assigns risk weight to mitigants on the basis of credit rating (CAP Mitigant Basel Rating and Risk Weight Assignment).

And then the risk weight is been assign based on Standard party type, Rating (Short term and long term), Standard Mitigant type, for Covered bond, mutual fund ,Counter guarantees and also for financial collaterals . These fall under the process BOT - Mitigant Risk weight calculation

Mitigant Eligibility

The application will make all mitigants as ineligible and then identifies the eligible mitigants based on the criteria as mentioned by the Regulator. The application identifies the following standard mitigants– collateral, guarantees, and credit derivatives, Pledge Instruments, Nettable Liabilities.

The application is capable of using the Simple Approach and the Comprehensive Approach for the mitigants which are part of the collateral. The application identifies the eligibility of the financial collateral for both of the simple approach and the comprehensive approach. The eligibility of the collateral mitigants are based on the party type of the mitigant, mitigant types, the credit rating assigned to the mitigant or the party (as applicable), and the classification of collateral as senior or not also for Covered bond, mutual fund and Counter guarantees.

The option for the bank to select Collateral Simple Approach or Comprehensive Approach is based on the Run Management option as selected in the UI.

7.1.2.7.3 Mitigant Haircut Assignment

Under Standardized approach, the bank has to follow supervisory estimates for Mitigant Haircut assignment. This is based on the various categories like mitigant type, residual maturity, rating, issuer type and so on. This is applicable only if the bank follows comprehensive approach for collateral.

Only eligible mitigants are considered for haircut assignment and for further processing. Post haircut assignment, the eligible mitigants are moved from mitigants table (FSI_CAP_MITIGANTS) to sub exposures table (FSI_CAP_SUB_EXPOSURES).

The application does computations for three kinds of Mitigant Haircuts which are volatility haircut, Forex haircut, and maturity mismatch haircut.

Volatility Haircut

Volatility haircuts are assigned to the collateral to account for any future fluctuations in the market value of the financial collateral. The application assign haircuts for various type of financial collateral like debt securities, equity, mutual funds, and so on. In the supervisory haircut method, the application assigns volatility haircut based on issues, issuer's ratings, mitigant's residual maturity, and type of mitigant.

This is handled in the process BOT Mitigant Volatility Haircut Processing STD CAP CRM Mitigant Volatility Haircut - Supervisory Haircut under CRM Sub Exposure Data Haircut Assignment Process.

Forex Haircut

If the exposure and collateral are in different currencies, then the application makes an adjustment by applying the Forex haircut.

This is handled in CAP CRM Forex Haircut Sub Exposures under CRM Sub Exposure Data Haircut Assignment process.

Maturity Mismatch Haircut

If the residual maturity of the Credit Risk Mitigant is less than that of the underlying credit exposure, then a maturity mismatch haircut is applied to adjust the value.

This is handled under CAP CRM Maturity Mismatch Haircut under CRM Sub Exposure Data Haircut Assignment process Post CRM computations.

7.1.3 Operational RWA

Operational risk is the total risk the company undertakes when it attempts to operate within a specific sector or industry.

It is the risk not inherent in a financial, systematic, or market-wide risk. It is the risk remaining after determining the financial and systematic risk, and includes risks resulting from breakdowns in internal procedures, people, and systems.

The Accord has prescribed three methods for calculating the Operational Risk capital charges and banks can use any of these methods to calculate the capital charge:

- Basic Indicator Approach
- Standardized Approach
- Alternative Standardized Approach

7.1.3.1 Basic Indicator Approach

To calculate the capital charge under the basic indicator approach, the annual gross income for each of the past three years for a standard line of business is multiplied by a fixed percentage of 15%. The average is considered to calculate the capital charge. If the annual gross income is negative or zero in any of the past three years, then the value from the numerator is excluded thereby reducing the base denominator by the same count.

The capital charge formula is as follows:

$$ERWA_{BIA} = 12.5 \times K_{BIA}$$

$$K_{BIA} = \frac{\sum (GI_{1...n} \times \alpha)}{n}$$

Where:

K_{BIA} = the capital charge under the Basic Indicator Approach

GI = annual gross income, where positive, over the previous three years

n = number of the previous three years for which the gross income is positive

α = 15 per cent, which is set by the BCBS, relating the industry wide level of required capital to the industry wide level of the indicator.

7.1.3.2 Standardized Approach

In this approach, banking activities are divided into eight lines of business. The gross income for each line of business is multiplied by the beta factor that is pre-defined in the Basel accord. Every year the gross income of the standard line of business is multiplied by the respective beta factor. The total capital charge is calculated as the three-year average of the sum of the regulatory capital charges across each line of business every year. The total capital charge is calculated as follows:

$$ERWA_{SA-OR} = 12.5 \times K_{SA-OR}$$

$$K_{SA-OR} = \frac{\sum_{year1-3} \max\left[\sum (GI_{1-8} \times \beta_{1-8}), 0\right]}{3}$$

Where:

KTSA = the Capital Charge under the Standardized Approach

GI_{1-8} = annual gross income in a given year (as defined in the Basic Indicator Approach) for each of the eight lines of business.

β_{1-8} = a fixed percentage, set by the committee, relating the level of required capital to the level of the gross income for each of the eight lines of business.

7.1.3.3 Alternative Standardized Approach

This approach is an extension of the standardized approach. In this approach for two lines of business: Retail Banking and Commercial Banking, the loan and advance amount is used (rather than annual gross income) which is multiplied by the fixed factor "m" and the beta factor. The beta factor as in the standardized approach remains the same for retail and commercial banking. The constant factor "m" is equal to 0.035. The capital charge for retail and commercial banking uses the loan and advance amount and for the remaining, the calculation of capital charge is the same as in the standardized approach.

The total capital charge is calculated as the three-year average of the sum of the regulatory capital charges across each lines of business every year.

$$K_{RB} = \beta_{RB} \times m \times LA_{RB} \text{ (for retail banking)}$$
$$K_{CB} = \beta_{CB} \times m \times LA_{CB} \text{ (for commercial banking)}$$

Where:

KRB, KCB = Minimum capital base required for retail banking and commercial banking business lines under ASA .

βRB, βCB = Constant risk value (β value) of retail banking and commercial banking business lines under ASA.

LARB, LACB = Average annual outstanding amount over the previous 3 years of retail banking and commercial banking business lines.

m = Fixed value equals to 0.035.

7.1.3.4 Process Flow for Operational Risk

Prerequisites

Before calculating the capital charge for Operational Risk, the following should be computed as a prerequisite.

In the processes OPS_RISK_STD_APPROACH, OPS_RISK_BASIC_IND_APPROACH, and OPS_RISK_ALTERNATE_STD_APPROACH the task defined as OR_Capital_Std_App, Opr_Risk_Capital_Charge, and OR_Capital_Std_App respectively, should mention the number of years (in the past) as a parameter for capital calculation.

For example: if the previous 3 years are considered, then assign 3 as a parameter against the task OR_Capital_Std_App. Therefore, in the future, if the previous 4 years have to be considered then change that particular parameter only.

After defining the parameter, the procedure to compute the Operational Risk is as follows:

Operational Risk Data Population

The input data for each of the financial years mapped along with the internal lines of business are populated in the processing table.

Internal LOB to Standard LOB Reclassification

The internal lines of business are reclassified into the Basel standard lines of business.

Annual Gross Income Calculation

For each of the standard lines of business and for each financial year, the annual gross income is calculated.

Capital Charge Calculation

Capital charge is calculated by multiplying the alpha value or the beta value (for basic indicator approach or standardized approach) with the annual income of each year across each standard line of business. The average of 3 years is considered, if the values of all the 3 years are positive. If the values of all the 3 years are not positive, then zero or the negative value from numerator and denominator is excluded.

Risk-Weight Asset Calculation

The capital charge value obtained is converted to the equivalent RWA value by multiplying with the factor 12.5.

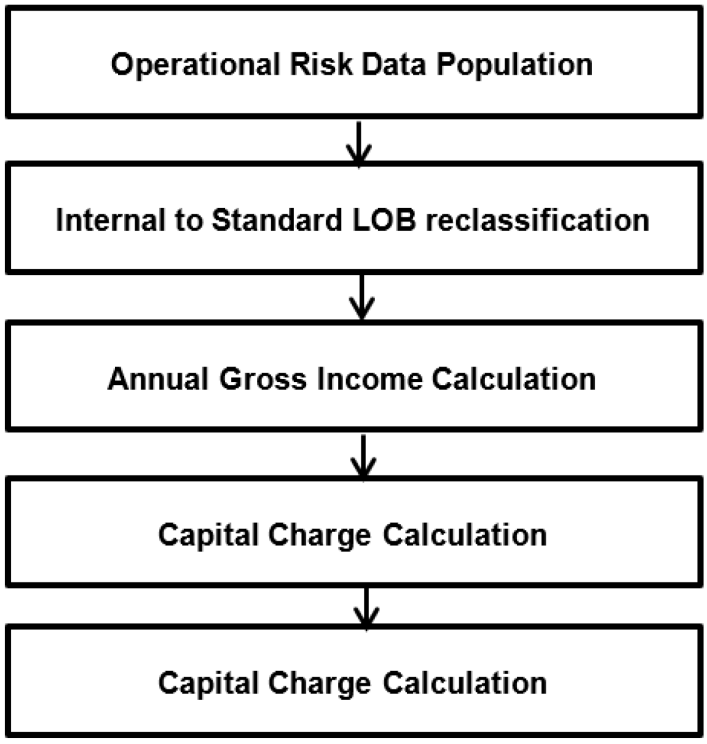
Operational Risk Data Population

Operational Risk inputs are given in the staging table STG_OPS_RISK_DATA. The amount for Net Interest Income, Net Provision Amount, Net Non Interest Income, Operating Expenses, Security Sale Gain or Loss from HTM, Insurance Irregular Loss, Security Sale Gain or Loss from AFS, and Insurance Irregular Gain for each line of business and for each financial year is required and is captured in the staging table.

The capital charge and RWA amount is populated in the fact table FCT_OPS_RISK_DATA. The application converts all the elements in the annual gross income and loan and advance amount reported in their respective national currency to the reporting currency. While calculating annual gross income or loan and advance amount for the subsidiary that are part of regulatory consolidation, the amount is limited to the share-holding percentage.

Process Flow for Operational RWA

Figure 35: Process flow for operational RWA



Operational RWA run is executed with the Capital Consolidation process. For example: LOB Reclassification and Gross Income Calculation sub process are detailed as separate processes under the Operational RWA section of this document.

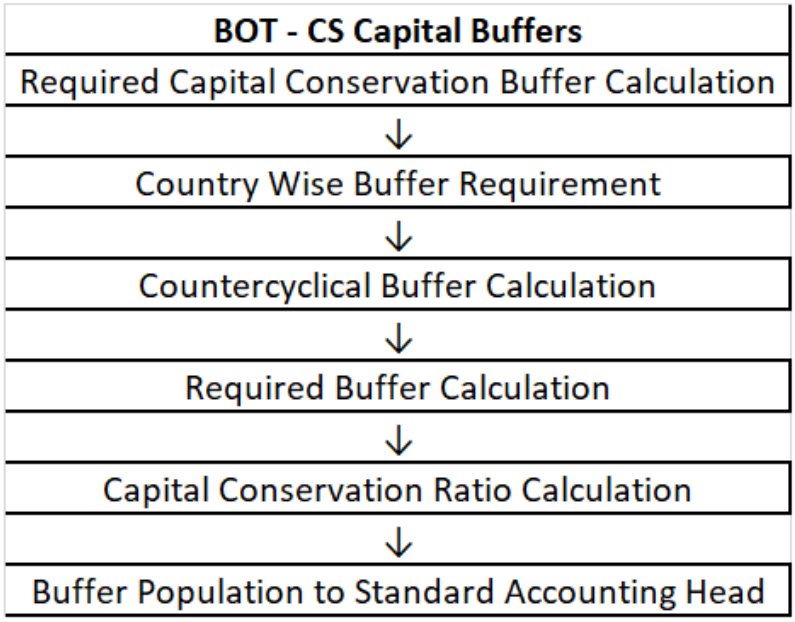
7.2 Capital Buffers

Capital Buffer is calculated after the calculation of Capital Ratios, as they go as an input to Buffer calculation. Each sub-process is explained in detail under Capital Buffer section of the user guide.

For example, Required Capital Conservation Buffer and Required Countercyclical Buffer calculation are detailed in the 'Required Total Buffer' sub-section of the Capital Buffer section in this document. Similarly, Minimum Capital Conservation ratio is detailed in the capital Conservation Ratio' sub section of Capital Buffer section in this document.

The following illustration shows the process flow of Capital Buffers:

Figure 36: Process Flow for Capital Buffers



7.2.1 Data Population

The major input for capital buffers is the total capital ratio and the Net Common Equity Tier 1 Capital Ratio s which gets computed as part of the capital structure process. This is consumed from the fact standard accounting head.

Along with that, the application consumes additional data related to buffers from the Stage Countrywise Risk Summary (STG_COUNTRYWISE_RISK_SUMMARY) which is used to populate country wise risk summary.

FSI Benchmark Capital Conservation Ratio (fsi_benchmark_cap_cons_ratio) and FSI Benchmark Countercyclical Bufffer (fsi_benchmark_cntr_cyc_buffer).

7.2.2 Buffer Requirements

There are different types of Capital which the banks are expected to maintain:

- Capital Conservation Buffer
- Countercyclical Buffer
- Additional Loss Absorbency Capital (for G-SIB)

A detailed description of each of these buffers is provided in the following sections.

7.2.2.1 Capital Conservation buffer

As part of the Basel III compliance, requires banks are required to maintain Capital Conservation Buffer (CCB) out of Common Equity Tier 1 Capital (CET1).

This buffer is used to ensure that any loss should not erode the bank's capital, and hence it is expected to be met over and above the Required CET1 Capital. The actual required ratio for the jurisdiction is being specified in the FSI Setup Capital Head (FSI_SETUP_CAPITAL_HEAD).

7.2.2.2 Countercyclical Buffer

As part of the Basel III compliance, banks are required to maintain Countercyclical Buffer that is prescribed by the respective jurisdiction's regulator through an extension of Capital Conservation buffer.

The application calculates the buffer requirement for internationally active banks as the weighted average of the buffers required across all the jurisdictions to which the bank has exposures, weighted on basis of the exposure amount to different countries of the counterparty of their exposures.

If the guarantor and credit default swap is present for an exposure, then the application considers the domicile country of these mitigants for the covered portion and country of the exposure counterparty for uncovered portion. After calculating the weighted average, the application then computes a single value for Countercyclical Buffer benchmark which is applicable on all exposures of all jurisdictions.

7.2.2.3 Additional Loss Absorbency Buffer (GSIB Buffer)

If a banking organization is categorized a Globally–Systematically Important Banks (G-SIB), then the application identifies all subsidiaries in various jurisdictions as G-SIB as well. Based on this assessment, banks are assigned a GSIB score and the applicable bucket is decided. Identification of this bucket is based on the score as per the guidelines. Loss absorbency is required to be met as an extension of Capital Conservation and Countercyclical for computational buffer for computational purposes.

7.2.3 Required Buffers

Required Total Buffer (CAP825) is the sum of the three required buffers: (CAP829) Required Buffer from CET1 Capital, (CAP830) Required Buffer from Tier 1 Capital, (CAP831) Required Buffer from Capital Adequacy Ratio.

The calculated values (only positive values are considered) are stored against the corresponding Cap IDs as two separate line items of which one is 0.

The Required buffers as a percentage are provided as a download in the FSI Setup Capital Account Head (FSI_SETUP_CAPITAL_ACCCT_HEAD), as per the specific regulatory need. This is being multiplied by the Total RWA to arrive at the Required Buffer as an amount.

7.2.4 Assumptions

Countercyclical Buffer requirement for each country must be provided by the client or the bank as the final percentage applicable for each country and this is dependent on the home regulator. G-SIB status and applicable bucket information for each entity must also be provided by the client/bank.

For Required Weighted Average Countercyclical Buffer calculation, the exposures used in the bank are all accounts exposed to credit risk (Securitized and Non Securitized) and those exposed to Market Risk. However, the application can be restructured to consider only those exposed to Credit Risk.

In Capital Conservation Ratio, for the computation of the quartiles that are used to arrive at Minimum Capital Conservation Ratio, the application is dependent on the required CCB ratio. From 2013 till 2016, CCB requirements keep changing every year as per the transitional arrangement, For the purpose of calculating the quartiles range, the application considers it as per the transitional arrangement. At the same time, the application has the flexibility to have the required CCB constant at 2.5% throughout. Also, the minimum required CET1 Ratio considered for the purpose of building these quartiles is 4.5%.

7.2.5 Key Data Elements

Key data elements are elaborated in this section. For a complete list of tables to be updated, see the Download Specifications document.

Countercyclical Buffer requirement for each country must be provided by the client or the bank as the percentage applicable for each country is dependent on the home regulator's jurisdiction. The home regulator's jurisdiction can prescribe Countercyclical Buffer percentage that is higher than the percentage prescribed by the regulator of exposure country. Hence, the required Countercyclical Buffer percentage for each exposure country provided as input must be the one that the home regulator agrees to.

G-SIB status and applicable bucket information for each entity must be provided by the client or the bank. In case of a consolidated Run, loss absorbency charges applicable to the parent, as required by the regulator of parent, is applicable to the complete Run. This Run output is supposed to be reported to the jurisdictional regulator of the parent. For a Solo Run, loss absorbency charges as required by regulator for a subsidiary entity are applicable. Hence, for Solo and Consolidated Runs, G-SIB status of the reporting bank, and the applicable bucket, is provided by the bank itself.

As the required Capital Conservation Buffer (CCB) must be met as per the transitional arrangement, therefore the required buffer value must be setup in Setup Capital Heads (**FSI_SETUP_CAPITAL_HEAD**) table for different periods against the standard account head ID CAP823. Different CCB requirements specified by the different regulators can be setup by specifying the regulator codes against the same standard account head ID. This regulator code must be the same as the jurisdiction code assigned by the Rule Jurisdiction Code Assignment.

The required benchmark of Countercyclical Buffer for different countries as set by different regulators is expected as download in Stage Benchmark Counter Cyclical Buffer (**STG_BENCHMARK_CNTR_CYC_BUFFER**). This data is populated to Benchmark Counter Cyclical Buffer Ratio (**FSI_BENCHMARK_CNTR_CYC_BUFFER**) using a Slowly Changing Dimension (SCD) process. Buffer requirement given on a date is valid till the next buffer is specified. For a solo Run, the regulator of

subsidiary specified buffer requirements are considered and for consolidation Run, the consolidating entity's regulator specified buffer requirements are considered.

The Additional Loss Absorbency requirement specified by different regulators for different buckets must be setup in the table Benchmark Loss Absorbency Ratio (**FSI_SETUP_BENCHMARK_LOSS_ABS**). For the solo Run, loss absorbency requirement set by the local regulator is considered. For consolidation Run, the consolidating entity's regulator specified loss absorbency requirement is considered.

There is an option to directly input the applicable loss absorbency percentage. This is also useful when the percentage applied is different from the corresponding bucket percentage. This must be provided in the column **N_LOSS_ABS_OVERRIDE** of the table Stage Legal Entity Details (**STG_LEGAL_ENTITY_DETAILS**). If this column has a value, it is given priority over loss absorbency percentage corresponding to the bucket.

The minimum Capital Conservation Ratios requirement for different quartiles (1, 0.8, 0.6, 0.4, 0) is expected as a download in Stage Benchmark Capital Conservation Ratio (**STG_BENCHMARK_CAP_CONS_RATIO**). This data is populated to the semi-static table Benchmark Capital Conservation Ratio (**FSI_BENCHMARK_CAP_CONS_RATIO**) using a SCD process. Conservation ratios specified once are valid till the next revision.

In the **FSI_REQUIRED_CNTR_CYC_BUFFER** table the post-mitigation exposure amount is updated against each country code. This is applicable for Credit Risk (for Non-Securitization and Securitization exposures) and Market Risk.

8 Account Clustering

For more information, refer to the Account Clustering section, in the Oracle Financial Services Basel Regulatory Compliance User Guide.

9 User Interface For Reclassification and Regulatory Predefined Values

For more information, refer to the User Interface for Reclassification section, in the Oracle Financial Services Basel Regulatory Compliance User Guide.

10 Annexure A: Key Concepts

10.1 Slow Changing Dimensions

This component details how to load data from the stage tables into the slowly changing dimension tables. SCD batches are run usually at fixed intervals, for example at the end of each month. There are certain SCDs which have to be run whenever any new data is required to be added for the bank.

When the SCD batch is executed for the first time it loads all the data in the stage tables for that extraction date and it also inserts two records – Missing and Others.

When the batch is run for the next extraction date, then the new records are inserted. The end dates of the modified records are updated with the extraction date and new records with start date as the extraction records are inserted. The records that are the same for both extraction dates are left untouched.

The SCD component is delivered through an executable.

Type 1 SCD Methodology

The Type 1 methodology overwrites old data with new data, and therefore does not track changes to the data across time. For Example, consider a dimension table, DIM_PRODUCT.

Table 23: Values in the DIM_Product Table

N_Product_Skey	V_Product_Name	D_Start_Date	D_End_Date	F_Latest_Record_Indicator
1	PL	5/31/2010	12/31/9999	Y

The following is a description of the column names in this table:

- N_Product_Skey is the surrogate key column which is a unique key for each record in the dimension table.
- V_Product_Name is the product name.
- D_Start_Date indicates the date from which this product record is valid.
- D_End_Date indicates the date to which this product record is valid.
- F_Latest_Record_Indicator: A value Y indicates this is the latest record in the dimension table for this product and N indicates it is not.

If the V_Product_Name column is set as a Type 1 and if there is a change in the product name from PL to Personal Loan in the earlier example in the next processing period then, when SCD is executed then the record in the earlier example is changed to:

Table 24: Values in the DIM_Product Table

N_Product_Skey	V_Product_Name	D_Start_Date	D_End_Date	D_End_Date F_Latest_Record_Indicator
1	Personal Loan	6/30/2010	12/31/9999	Y

Type 2 SCD Methodology

The Type 2 method tracks historical data by creating multiple records for a given natural key in the dimensional tables with separate surrogate keys. With Type 2, the historical changes in dimensional data are preserved. In the earlier example, for the change in product name from 'PL' to 'Personal Loan' if history is preserved, then the V_Product_Name column is set as Type 2, that is, when SCD is processed for the processing period, it inserts a new record as shown in the following example.

Table 25: Values in the DIM_Product Table

N_Product_Skey	V_Product_Name	D_Start_Date	D_End_Date	F_Latest_Record_Indicator
1	PL	5/31/2010	12/31/9999	Y
1	Personal Loan	6/30/2010	12/31/9999	Y

A new record is inserted to the product dimension table with the new product name and the latest record indicator for this is set as 'Y' indicating this is the latest record for the personal loan product and the same flag for the earlier record is set to 'N'.

Prerequisites

The setup tables accessed by the SCD component, including **SYS_TBL_MASTER**, **SYS_STG_JOIN_MASTER** have the required entries. The tables **SYS_TBL_MASTER** and **SYS_STG_JOIN_MASTER** are seeded. You must only add entries in these tables if you add user defined dimensions.

Tables used by SCD Component

The **Stage Dimension Data Load** tab in the OFS Basel Regulatory Capital Runchart Details BOT IRB Approach or the OFS Basel Regulatory Capital Runchart Details BOT Standardized Approach excel sheet lists out the Slowly changing dimension (SCD) Stage and Dimension that are used in the BASEL Application.

No changes are needed in this table if the standard key dimensions are being used within the Basel Application. If any new dimensions are added, the related column details are to be inserted to this table manually.

STG_<dimensionname>_MASTER - is the database table which SCD uses as the source. This table comes as a part of the Data model.

DIM_<dimensionname> – is the output table to which SCD writes the dimension data.

A sequence is added for every user-defined dimension.

Example:

create sequence SEQ_DIM_<DIM> minvalue 1

max value 999999999999999999999999999

increment by 1

Executing SCD Components

For information on the configuration and execution of SCD components, see the Operations section in the Oracle Financial Services Analytical Applications Infrastructure User Guide.

The Basel batch created for SCDs is the <infodom>_SCD. Infodom refers to the Information Domain name.

When the file is being executed you have the choice to either wait till the execution is complete or proceed with the next task. Click the list box of the field provided for Wait in the Value field and select Yes or No. Clicking Yes confirms that you wish to wait for the execution to be completed. Clicking No indicates that you wish to proceed.

Stage Data

In this section, the stage data can be populated in either the Product Processors or Other Stage tables:

- Product Processor: An entity in the Basel Regulatory Capital application that stores data from the Operational Systems of the Bank. This entity is created based on the various financial products that the bank caters to. Stage tables for Product Processors are categorized as exposures data of Product Processors. The Product Processors of all the jurisdictions are the same, except for the Islamic Banking Jurisdiction.
- Others: Data can be populated into Stage tables, besides using Product Processors, as per the respective jurisdiction.

For more information on the list of columns to be populated within each table, see the Download Specifications document.

The set of sample data to be to be populated for the following tables are listed in the worksheet available in the following location: Sample Data.

- STG_PRODUCT_MASTER
- STG_LOB_MASTER
- STG_MITIGANT_TYPE_MASTER
- STG_PARTY_TYPE_MASTER

Seeded Data

The tables are seeded in the installation as per worksheet available in the following location: Seeded Data.

10.2 Exhibit 1 - Mitigant Allocation Optimizer

The application calculates the RWA based on the allocation of Credit Risk Mitigants (CRM) mapped to each exposure using a linear programming technique to arrive at the least capital. The optimizer engine, also known as the allocation engine, built within the application allocates Credit Risk Mitigants (CRM) to each exposure. The optimizer engine takes into consideration the following functionalities while allocating Credit Risk Mitigants (CRM) to each exposure:

There are certain checks which are specific to IRB, and the others are applicable for both Standardized approach and IRB approach.

10.2.1 Allocation of Mitigants (IRB Approach and Standardized Approach)

The following are the steps for credit risk mitigation irrespective of the approach prescribed in the Basel Accord.

- The mitigant is identified as eligible or not based on the eligibility rules for CRM under simple and comprehensive approach mentioned in Basel accord. This mitigant eligibility is handled in the FSI_CAP_MITIGANTS, and FSI_CAP_EXP_MITIGANT_MAPPING table.
- All mitigants which are eligible and mapped to an exposure are then populated to the processing table where each exposure is broken down by mitigant types, which includes an additional row treating the exposure as uncovered. This is handled in the FSI_CAP_SUB_EXPOSURES table.
- Before feeding the exposures and mitigants into Optimizer Engine, the exposures from FSI_CAP_SUB_EXPOSURES are split into drawn and undrawn exposure and then populated into processing table FSI_OPTIMIZER_PROCESSING. The mapping of actual exposure to split exposures is populated in FSI_OPT_EXPOSURE_MAPPING.The optimizer engine takes the data from FSI_OPTIMIZER_PROCESSING for covered factor calculation.
- Further, RW assignment or Capital computation is performed for each Collateral or Mitigant. For financial collateral, under the BIS Standardized Approach, the RW used is 0. For FIRB approach the LGD used is the LGD* computed as per the Basel guideline. For any other mitigants in the form of Guarantees or Credit Derivative, the RW or PD corresponding to Basel rating or the modeling, as applicable, is used. For Advanced Approach, institutions must give the PD or LGD data either at a mitigant level or at an exposure level, if they are able to model the PD or LGD of the exposure.
- The Pooling is performed to identify the below cases.
  - One or Many Exposure to One Mitigant
  - One Exposures to Many Mitigants
  - Many Exposures to Many Mitigants
  - One Exposure with No Mitigant

The pooling of the exposures and the mitigants are based on the exposures mapped to the mitigants, and the same mitigant mapped to other exposures. For example, in the following table, the exposure IDs and the mitigant IDs are mapped to each other.

Table 26: Pooling of Exposures and Mitigants

Exposure ID	Mitigant ID
EXP01	MIT01
EXP01	MIT02
EXP01	MIT03
EXP02	MIT01
EXP03	MIT04
EXO04	MIT04
EXP05	MIT05

In the preceding table, the exposure IDs and mitigant IDs belong to the same pool ID, as they have the mitigants shared.

The treatment of each of the pooled cases in the optimizer engine is detailed in the following section.

One or Many Exposure to One Mitigant

The case, one or many exposures to one mitigant is treated as follows by the optimizer engine:

- First, the exposures are sorted from highest risk weight to lowest. For advanced approach the sorting is based on the capital.
- EAD amount of each exposure (post credit conversion) is determined.
- The credit risk mitigant is allocated to the exposure with the highest risk weight.
- If there is more than one exposure with the same risk weight, then the exposure with the lowest currency mismatch haircut or maturity mismatch haircut is selected for allocation. In the case of Simple Approach, these haircuts will not be applicable, and hence, the volatility haircut and the currency mismatch haircut will be considered as 0, and the maturity mismatch haircut will be considered as 1.
- Currency haircut (Hfx) is applied to the collateral if there is a currency mismatch between the exposure and collateral. Likewise, for mitigants residual maturity falling short of exposure residual maturity a maturity mismatch haircut (Hm) is applied. These haircuts are assigned based on the Basel guideline.
- The post-haircut mitigant amount is applied to the exposure based on the previous logic. The allocation engine updates the covered factor against each row for all the exposures in a pool. For any exposure the sum of covered factor across rows is equal to 1.
- Finally, the pre-mitigation EAD is broken into post-mitigation EAD net of all haircuts
- Basel rules then calculate the RWA for each row by multiplying the post-mitigation EAD by the RW or capital * 12.5 (in case of advanced approach).

Any remaining collateral amount is applied to the next transaction with the next highest risk weight and so on.

One Exposure to Many Mitigants

The case, one exposure to many mitigants is treated as follows by the optimizer engine:

- First, the EAD amount of each exposure (post credit conversion) is determined.
- The mitigant is sorted from lowest to the highest risk weight for each exposure mapped to it.
- Each mitigant forming a part of Receivables, CRE/RRE, and Other IRB Collateral is adjusted for over collateralization amount while executing foundation IRB.
- In the Foundation IRB approach, Minimum collateralization check is performed for mitigants in the form of CRE/RRE and other eligible IRB Collateral by grouping the mitigant data in the numerator divided by the available EAD amount, minus any allocated mitigant amount.
    - Financial collaterals are allocated first, and then the minimum collateralization check is performed for the other type of mitigants.
    - The result checks whether it is greater than the percentages specified in the Basel Accord.
    - If the result value is less than the check value, none of the CRE or RRE or Other eligible IRB Collaterals mapped to the exposure is eligible for allocation.
    - This check is done only once for the mitigant mapped to each exposure.

- After all the checks are done then the computation starts by calculating the covered factor for the first row which is as follows:

  f1 = (Mitigant_value * Haircut)/ EAD

  Where:

  Haircut = (1 – VolatilityHaircut – FOREXHaircut)*MaturityMismatchHaircut.

  The haircut related to volatility, currency mismatch and maturity mismatch are as mentioned in the One or Many Exposure to One Mitigant Section.

- Then, the allocation logic works out the covered factor for the subsequent rows as follows:

  f(n)= Min ((1- Already allocated covered factor), Max (fn-1,0))

- Total covered factor for an exposure = Covered Factor for the 1st Row + Covered Factor for all the subsequent rows.
- Covered Factor is Sum of all Covered amount + Uncovered Amount of the mitigant upon its total EAD. For any exposure the sum of covered factor across rows is equal to 1.

Many Exposures to Many Mitigants

In the case, many exposures to many mitigants the Optimizer uses a linear programming technique for which you must define the objective functions and a set of constraints for the variables. The objective function and the constraints in the Optimizer are defined as follows:

- Objective Function: Objective Function for CRM is to Minimize RWA
- Bounds for the output:
  - Lower Bound of Covered factor is 0
  - Upper Bound of Covered factor is 1
- Exposure Constraint: Exposure Constraint checks the sum of all the allocated exposure amounts must be equal to the total exposure amount available for allocation:

  (E1*x1) + (E1*x2) + (E1*x3) + (E1*x4) = E1

  Where,

  E1= Exposure amount

  X(n)=Allocation percentages (sum of x1……xn = 1, meaning 100%)

- Mitigant Constraint: Mitigant constraint has two objectives as follows:
  - This Constraint checks whether the total amount of mitigant is used is less than or equal to the total amount of mitigant available.
  - All the mitigant haircuts are applied in this Constraint.

The formula is as follows:

[{ E1 * x1 } / { (1-V-Fx1)*(Mm1) }] + [{ E2 * x2 } / { (1-V-Fx2)*(Mm2) }] + [{ E3 * x3 } / { (1-V-Fx3)*(Mm3) }] <= M1

The Mitigant Constraint Formula is detailed in the following table:

Table 27: Table for Mitigant Constraint formula

Exposure Amount	E1	E2	E3
Mitigant Amount	M1	M1	M1
Volatility Haircut	V	V	V
FOREX Haircut	Fx1	Fx2	Fx3
Maturity Mismatch	Mm1	Mm2	Mm3
Covered Factor	x1	x2	x3

- Minimum Collateralization Constraints are as follows:
  - Mitigants grouped for Deduction for Minimum Collateralization Check > 0
  - Mitigants grouped for Minimum Collateralization Check < 0
- Double Mitigant Constraint: Double Mitigant Constraint is similar to Mitigant Constraint the only difference being that, Mitigant Constraint is performed across one Mitigant ID however Double Mitigant Constraint is performed across the second Mitigant ID that of the Guarantee.
- Allocation engine updates the covered factor for each exposure based on the previous objective function and the constraints defined by you.
- Total covered factor for an exposure = Covered Factor for all the exposure mitigant combination pertaining to that exposure.
- Covered Factor is Sum of all Covered amount + Uncovered amount of the mitigant upon its total EAD. For any exposure the sum of covered factor across rows is equal to 1.

In case of exposure and mitigant having the same risk weight, the covered factor might get allocated to either the uncovered standard mitigant type, or the eligible mitigant, based on the highest mitigant value post haircut.

10.3 Exhibit 3: Currency Conversion

SETUP_MASTER table is a setup table, used to provide the setup information of a Run. It can be used to set the default values of Rate Data Source Code or Standard Currency Code. For currency conversion, the rate data source and standard currency are important values. If the rate data source value is missing, then BLOOMBERG is by default considered to determine the Rate Data Source Code from DIM_ORG_STRUCTURE table during currency conversion. If the Standard Currency code values are not provided or are missing, then USD is used as the destination currency code from DIM_ORG_STRUCTURE table during currency conversion. This is column under DIM_ORG_STRUCTURE table mapped to these default values are as follows:

Table 28: Column values for DIM_ORG_STRUCTURE

V_COMPONENT_CODE	V_COMPONENT_DESC	V_COMPONENT_VALUE
DEFAULT_FX_RATE_SRC	Default Rate Data Source Code	BLOOMBERG
STD_CCY_CD	Standard Currency Code	USD

Rule Reporting Currency Code Assignment is set to 'USD' out of box, but can be modified to any other currency. The reporting currency selection can be done in the Run execution windows, if the Run is executed from the Run Execution Window.

Currency conversion is performed on multiple tables to convert the values from its natural currency to reporting currency. The steps which are performed for the currency conversion are as follows:

- The table Stage Forward Exchange Rates (STG_FORWARD_EXCHG_RATES) stores the details about the pair of currencies and the corresponding exchange rate to perform the same with the extraction date for which the forward exchange rate is provided. This table also contains the information about the data source from which the exchange rates are quoted and the tenor which is used to identify the period for which the forward exchange rate is applicable for.
- The data from this table is populated to Exchange Rates fact table through the common batch which is executed in the beginning. The initial data populated hereby contains the default run Skey which is set to minus 1. Only the records with tenor 0 are used for the purpose of currency conversion for which the spot exchange rate is required.
- After populating the data in the table, in each Run, all the exchange rates are updated based on the conditions at the time of execution to account for the increase or decrease in the exchange rates. A Rule is used which updates the exchange rates and populates the corresponding run Skey which is then used for currency conversion in that particular Run. The exchange rates are then moved into the table wherever currency conversion is required. This is performed in the Product Processor data population step.
- Different legal entities can use the exchange rates quoted by different data sources. Hence, the column which contains the information about the data source in the table Exchange Rates is compared with the required data source for a legal entity stored in the Org Structure Dimension (DIM_ORG_STRUCTURE) table.
- After the exchange rate population into the required fact tables, the currency conversion rules are executed which take the values stored in amount columns in natural currency, multiply them with the exchange rate and populate to the reporting currency amount columns.

For mitigants table, the exchange rate that is used for currency conversion is the exchange rate for the entity of the exposure which the mitigant belongs to. The list of tables and corresponding columns where currency conversion is carried out is available in the following OTN Documentation Library location:

Currency Conversion Tables and Columns

10.4 Exhibit 4: FSI_CAPITAL_STANDARD_MAPPING Table Mapping

As a part of Basel Capital Structure, information stored in Capital Standard Mapping (FSI_CAPITAL_STANDARD_MAPPING) table is a mapping of GL capital line items with seeded data in Standard Accounting Head Dimension table (DIM_STD_ACCT_HEAD). This is also required for all the computed fields, so that the computation happens in the application for those standard accounting heads.

For all jurisdictions this mapping must be present which is elaborated in the following worksheet, available in the following OTN Documentation Library location:

FSI CAPITAL STANDARD MAPPING

10.5 Exhibit 5: Data Expectations for few of the Basel Products

10.5.1 Equity Exposures Data Expectations

The Equity Exposures and any other exposures which were expected to be treated under Equity Asset Class of the particular jurisdiction were expected in Stage Equity Exposures (STG_EQUITY_EXPOSURES) till 8.0.3 release of Basel application.

Starting from 8.0.4 release, any exposure which must be treated under Equity Asset Class is expected to be provided in Stage Investments (STG_INVESTMENTS).

For mandate-based approach in equity Investment in funds when there are no entries in STG_FUND_UNDERLYING_COMPOSITION, application assigns Fall Back Approach to the remaining exposures.

All the required attributes pertaining to Equity Exposures are expected to be provided in Stage Investments (STG_INVESTMENTS) and any Instrument Specific attributes in Instrument Contract Dimension table (DIM_INSTRUMENT_CONTRACT).

10.5.2 Securitization Exposures Data Expectations

The Securitization Exposures and any other exposures which were expected to be treated under Securitization framework of the particular jurisdiction were expected in Stage Securitization Exposures (STG_SEC_EXPOSURES) till 8.0.3 release of Basel application.

Starting from 8.0.4 release, any exposure which must be treated under Securitization Framework is expected to be provided in different product processors depending on the product type.

- If the exposure is to a securitization tranche, retained tranche or retained portion of the pool, it is expected in Stage Investments (STG_INVESTMENTS), with details of the pool ID and the tranche ID to which the exposure belongs to.
- If the exposure is a facility like liquidity facility or servicer cash advance facility, it is expected in Stage Commitment Contracts (STG_COMMITMENT_CONTRACTS), with the pool ID to which the facility is provided to. For any particular tranche level calculations required for SFA/ SSFA process, this must be created as a dummy tranche, and provided with details based on the seniority in the cash flows. In case of the commitment contract, which is issued under a credit line facility, the corresponding entry in Credit Line Dimension table (DIM_CREDIT_LINE) is required, with the mapping of the commitment contract to the credit line.

- If the exposure is a credit protection in the form of guarantee, it is expected in Stage Guarantees (STG_GUARANTEES), with the pool ID and the tranche ID to which the credit protection is provided to.
- If the exposure is a credit protection in the form of credit derivatives, it is expected in Stage Credit Derivatives (STG_CREDIT_DERIVATIVES), with the pool ID to which the credit protection is being provided to. For any particular tranche level calculations required for SFA/ SSFA process, this must be created as a dummy tranche, and provided with details based on the seniority in the cash flows.

The pool level aggregate information data capture (Securitization Pool table - STG_SECURITIZATION_POOL)) and the tranche level information data capture (Securitization Tranche table – STG_SECURITIZATION_TRANCHE)) remain the same as in previous releases. The pool's detailed underlying information are captured in the Stage Underlying Exposures table (STG_UNDERLYING_EXPOSURES) for an investor.

In the case of underlying exposures data capture (STG_UNDERLYING_EXPOSURES), it is currently expected that for each exposure, the pool underlying has to be provided by creating a dummy exposure in the Underlying Exposures table with the Pool ID as the Exposure ID, and the Parent Account ID as the Exposure ID to which this pool detail belongs to. And further pool underlying exposures is created by having the Parent Account ID as the Dummy Pool Exposure ID.

Any Instrument Specific attributes are expected in Instrument Contract Dimension table (DIM_INSTRUMENT_CONTRACT).

10.5.3 Re-securitization Exposures

The Data expectation for Re-Securitization Exposures is provided in the ReSec Exposures - Data Flow file.

10.5.4 Securities Financing Transaction Related Exposures Data Expectations

The Securities Financing Transaction (SFT) related exposures were expected in Stage Repo Contracts (STG_REPO_CONTRACTS), and all their related collateral were expected in Stage Underlying Exposures (STG_UNDERLYING_EXPOSURES) till 8.0.3 release of Basel application.

Starting from 8.0.4 release, there are changes to the capture of the collateral related to the SFT.

- The collateral which the bank has received with respect to the SFT transactions are captured in the Stage Mitigants (STG_MITIGANTS) table, with the SFT Exposure mapped to the collateral received using the Stage Account Mitigant Map (STG_ACCOUNT_MITIGANT_MAP) table.
- The collateral which the bank has placed with respect to the SFT transactions are captured in the Stage Placed collateral (STG_PLACED_COLLATERAL) with the SFT Exposure mapped to the collateral placed using the Stage Account Placed Collateral Map (STG_ACCT_PLACED_COLL_MAP) table.

Any Instrument Specific attributes are expected in Instrument Contract Dimension table (DIM_INSTRUMENT_CONTRACT)

10.5.5 Account Mitigant Mapping Data Expectations

Any account in the product processors, mapped to the various mitigants received were captured in the Stage Exposure Mitigant Mapping (STG_EXP_MITIGANT_MAPPINGS) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, this is expected to be provided in the Stage Account Mitigant Map (STG_ACCOUNT_MITIGANT_MAP) table

10.5.6 Commitment Contract Data Expectations

Any commitment contracts issued by the bank were initially expected in Stage LC Contracts (STG_LC_CONTRACTS) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, any exposure which a commitment contract is issued by the bank, is expected to be provided in the Stage Commitment Contracts (STG_COMMITMENT_CONTRACTS).

In the case of the commitment contracts issued under a credit line facility, then, the linkage of the credit line to the contract is required to be provided. The credit line is expected to be populated into the Dimension Credit Line (DIM_CREDIT_LINE) table.

10.5.7 Credit Line Issued Data Expectations

Any credit line, issued by the bank were initially expected in Stage LC Contracts (STG_LC_CONTRACTS) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, any exposure which is a line of credit issued by the bank, is expected to be provided in the Stage Credit Line Details (STG_CREDIT_LINE_DETAILS) along with entries in the Dimension Credit Line (DIM_CREDIT_LINE) table.

The credit line table will hold information with respect to all the lines of credit issued by the bank. The lines of credit can be drawn for various products like Credit Card (corporate credit card issued to various employees under a credit line for that corporate), Loan commitments (loan issued to the customer as part of a credit line issued to that customer) and so on. This table will hold all the information related to the credit line, and any undrawn portion related to that credit line.

The drawn portion of the credit line, or the portion which has been earmarked for a specific product like credit card, will be part of the corresponding product processor (STG_CARDS, in this example), with the credit line code populated. And under that particular product, there can be both the drawn and undrawn portion, which will be captured in the same product processor (STG_CARDS, in this example).

The undrawn portion of the credit line will be the one which will be treated as line of credit, and will receive the corresponding Basel guideline specific treatment.,

10.5.8 Forward Contract Data Expectations

Any forward agreement or contract were initially expected in Stage Futures (STG_FUTURES) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, any exposure which is a forward agreement, is expected to be provided in the Stage Forwards (STG_FORWARDS).

10.5.9 Asset Sold Data Expectations

Any assets sold with recourse were initially expected in Stage Loan contracts (STG_LOAN_CONTRACTS) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, any exposure which is an asset sold, is expected to be provided in the Stage Assets sold (STG_ASSETS_SOLD). This will include all the assets sold by the bank. And the assets sold, for

which the bank is retaining recourse will be part of the regulatory capital calculations, and that will be taken up for the Basel related processing.

10.5.10 Spot Forex Data Expectations

Any forex transaction, which is a spot were initially expected in Stage Investments (STG_INVESTMENTS) till 8.0.4 release of Basel application.

Starting from 8.0.5 release, any forex transaction which is a spot contract, is expected to be provided in the Stage Forex Contracts (STG_FX_CONTRACTS).

Note: All other forex transactions are expected to be populated in their respective derivative tables (Currency Swap in STG_SWAPS_CONTRACTS and so on).

10.5.11 Underlying Exposures for Derivatives

The underlying exposures for derivatives are now being captured through STG_UNDERLYING_MASTER.

The Data expectation for the underlying relationship for the derivatives is as follows:

- Case 1 – Both Parent derivative contract and underlying of the derivative are instruments:
  - This will involve usage of the two tables for capture of the underlying information – STG_UNDERLYING_MASTER/ DIM_UNDERLYING and STG_UNDERLYING_DTL
  - The parent account will be in one of the derivative contract, and the relationship between the parent and the underlying will be captured in the derivative tables as Underlying Instrument Code or the Underlying code
  - DIM_UNDERLYING will be used to store the static information about the underlying instruments, and STG_UNDERLYING_DTL will be used to store any variable information about the underlying instruments.
  - Data for STG_UNDERLYING_DTL
    - The STG_UNDERLYING_DTL can support the relationship reference of 1 parent to 1 underlying or multiple underlying instruments.
    - In this, the underlying instrument code will be provided as v_instrument_code and the parent's instrument code will be provided as v_contract_instrument_code
    - Both these instrument codes will have reference in dim_instrument_contract.
- Case 2 – If Parent derivative contract or underlying of the derivative are not instruments but instead are accounts or exposure:
  - This will involve usage of a single table for capture of the underlying information – STG_UNDERLYING_EXPOSURES.
  - The parent account will be in one of the derivative contract, and the relationship between the parent and the underlying will be captured in the underlying table as the parent exposure ID.
  - Data for STG_UNDERLYING_EXPOSURES.
    - The STG_UNDERLYING_EXPOSURES can support the relationship reference of 1 parent to 1 underlying or multiple underlying instruments.

- In this, the underlying exposure will be provided as v_exposure_id and parent's exposure ID in v_parent_exposure_ID.
- Both these exposure ID's will have reference in dim_exposure.

10.5.12 Underlying Exposures for CIU

The underlying exposures for CIU are now being captured through STG_UNDERLYING_MASTER.

The following is the data flow of underlying exposure of CIU:

- Case of Invested Mutual Fund
  - Invested portion will be in STG_INVESTMENTS
  - Any Fund related information which do not change will be in STG_INSTRUMENT_CONTRACT_MASTER
  - Any Fund related information which changes frequently will be in STG_INTRUMENT_CONTRACT_DTL
  - The composition of the underlying of the fund will be in STG_FUND_UNDERLYNG_COMPOSITION
  - The assets of the fund will be in STG_FUND_CIS_COMPOSITION

10.6 Exhibit 6: Design Changes

10.6.1 Design Changes for Handling Organization Structure

From Release 8.1.0.0 onwards, for a selected Org Entity and the mode of execution either Solo or Consolidation, the application flattens the Org entries from DIM_ORG_STRUCTURE into a structure as follows.

The following table lists the sample values for for Dim Org Structure Data:

Table 29: Sample Values for DIM_ORG_STRCUCTURE Table

Dim Org Account	Dim Org Parent
A1	A2
A2	A3
A3	A4

If you select, A3 as the Entity and Consolidation as execution type, the following data is populated in the flattened table:

Table 30: List of data populated in the flattened table

Entity	Parent Entity	Consolidation Parent	Heir Level
A3	A3	A3	0
A3	A2	A3	1

Entity	Parent Entity	Consolidation Parent	Heir Level
A2	A1	A3	2

All the entities from Entity column from Consolidation Parent = A3 is picked up and populated into FCT_ENTITY_INFO table.

This step is done to avoid population of all unnecessary org structure data into FCT_ENTITY_INFO and later it is deleted once they are unused.

10.6.2 Design Changes for Standardization of Asset Class and Rating

It has been seen that across jurisdictions, functionally the treatment of asset class mapped to a specific rating are same, but the regulatory requirement to keep up with the reporting needs are more granular. Though functionally same, the way both the data are expected by each of the regulators are slightly different, and the nomenclature used are different. Due to this, there was a need for standardization of the Basel Credit Rating and the Basel Asset Class.

The base premise of this standardization is to have the intermediate mapping of the standard values (as referred to by BIS) to the actual values referred to by the regulator.

Asset Class Standardization:

Jurisdiction specific asset classes are converted into standardized asset class categories which are in turn used for all computation purposes in the application. These asset classes are mapped to the asset class categories based on the specific treatment expected by the jurisdiction.

- DIM_BASEL_ASSET_CLASS_CATEGORY table holds the list of all standardized asset class categories used across jurisdictions.
- FSI_BASEL_ASSET_CAT_MAP_MASTER table is the mapping master table which holds all the asset classes being mapped to its respective asset categories per jurisdictions.
- FSI_BASEL_ASSET_CATEGRY_MAP table holds the run based snapshot per jurisdiction requirement

For example, a regulator can expect a treatment for all Corporate Exposures, whereas another regulator can indicate that the treatment is same, but reporting have to be differentiated into Corporate and Corporate SME Exposures. Both will be mapped to the same category of Corporate.

Rating Standardization:

The standardized ratings are converted into the jurisdiction specific rating requirement, in the form of any band or the actual rating. The standardized ratings are used for the calculation, whereas these rating bands are used for the reporting as per jurisdictional requirement.

DIM_CAP_REG_RATING holds all the standardized bands that are applicable across jurisdictions.

FSI_BASEL_RATING_MAP_MASTER is a master table that stores the standardized bands for a process type of SEC, NON-SEC, Market Risk Non Sec, Market Risk Sec and Sold Credit protection.

FSI_BASEL_RATING_BAND_MAP table is a run based snapshot of FSI_BASEL_RATING_MAP_MASTER loaded for a jurisdiction.

For example, a regulator can expect a treatment for all AAA to AA- of Corporate Exposures to be risk weighted at 20%. Another regulator can expect the same treatment, but they might be calling it as Credit Quality Step 1, and all exposures of corporate with Credit quality step 1 rating to be risk weighted at 20%. In

this scenario, AAA to AA- and Credit Quality Step 1 are both signifying the same. The rating band will indicate it to be AAA to AA-, and the regulatory rating will be Credit Quality Step 1 as stored in the table FSI_BASEL_RATING_BAND_MAP.

11 Annexure B

11.1 Download Specifications

For information, see Download Specifications.

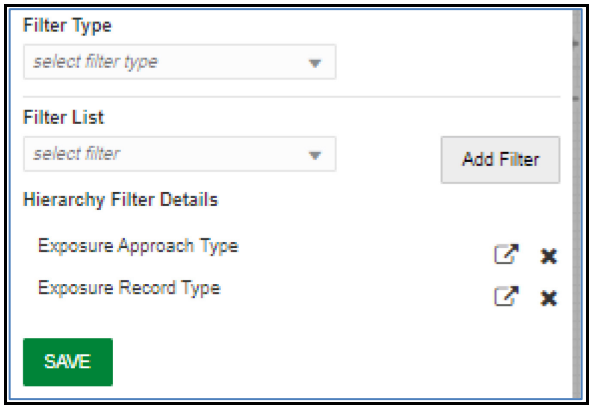
11.2 Using Process Modelling Framework

11.2.1 Basel CAP PACK Process Modelling Framework Filters and Decision Rules

PMF provides an option to apply filter hierarchies at the Run and/or Business Pipeline level. These filters are similar to the regular filter hierarchies used in rules. They get appended to each task in that business pipeline or Basel Run at run-time based on the applicability of the filter to that task.

In 8.1.2, CAP PACK makes use of two filter hierarchies, which apply through PMF. The filter hierarchies used are follows:

Figure 37: Filter Hierarchies



11.2.1.1 Exposure Approach Type

This hierarchy is based on the underlying seeded table FSI_CAP_APPROACH_TYPE_MASTER.

Used mainly to filter data in processing based on the approach selected by the user in the Advanced Run. Approach types are Standardized, Foundation IRB and Advanced IRB. Further, the approach is broken into the matrix provided in the following table:

Table 31: Exposure Approach Type

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
OTH	Others
NSSTD	Non Securitization Standardized
NSFIRB	Non Securitization FIRB
NSAIRB	Non Securitization AIRB

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
SECSTD	Securitization Standardized
SECIRB	Securitization - Internal Rating Based Approach
MRSA	Market Risk Standardized Approach
MRIMM	Internal Models Approach
ORBIA	Basic Indicator Approach (BIA)
ORSA	Standardized Approach (SA)
ORASA	Alternative Standardized Approach (ASA)

For a task, if this table is part of the used tables list, then the filter chosen in the calling business pipeline or run pipeline is applicable to it. Used tables can be either part of the Dataset (for Rules) or Mapped/NonMapped Column (for T2Ts).

11.2.1.2 Exposure Record Type

This hierarchy is based on the underlying seeded table FSI_CAP_RECORD_TYPE_MASTER. Used mainly to filter data of each portfolio for processing within or across portfolios. Depending upon the portfolio(s) the user picks as part of the Run, the record type decides the type of data to be processed by each task in each portfolio. Record types that are supported is detailed in the following table:

Table 32: Type of Exposure Records

V_RECORD_TYPE	V_RECORD_TYPE_DESC
INV_NON_SEC_EXP	Investment Non Sec Exposure
INV_NON_SEC_ULY	Investment Non Sec Underlying
INV_SEC_ULY	Investment Sec Underlying
BNK_NON_SEC_EXP	Banking Non Sec Exposure
BNK_NON_SEC_ULY	Banking Non Sec Underlying
BNK_SEC_ULY	Banking Sec Underlying
DRV_NON_SEC_EXP	Derivatives Non Sec Exposure
DRV_NON_SEC_ULY	Derivatives Non Sec Underlying
DRV_SEC_ULY	Derivatives Sec Underlying
SFT_NON_SEC_EXP	SFT Non Sec Exposure
SFT_NON_SEC_ULY	SFT Non Sec Underlying
SFT_SEC_ULY	SFT Sec Underlying
OTH_PLACED_COLL_EXP	Other Placed Collateral Exposure
SFT_PLACED_COLL_EXP	SFT Placed Collateral Exposure

V_RECORD_TYPE	V_RECORD_TYPE_DESC
MITIGANT	Mitigant
SFT_MITIGANT	SFT Mitigant
OTH	Others

A simplified example of such a case can be Investment portfolio and Banking Portfolio for which data sources, besides other sources, are as follows:

- Securitization:
  - Product Processor Tables [main exposures]
  - From PP tables to FSI_CAP_INVESTMENT_EXPOSURES.
  - STG_UNDERLYING_EXPOSURES [Investment underlying exposures which are banking products and investment products]
  - From STG_UNDERLYING_EXPOSURES to FSI_CAP_BANKING_EXPOSURES.
- Banking Portfolio:
  - Product processor Tables [main exposures]
  - From PP tables to FSI_CAP_BANKING_EXPOSURES.

If the user chooses banking and investment portfolios together in a run, the data movement is as per the following tables:

Table 33: Data Movement for Banking in a Run

Banking				
MAIN EXPOSURE TYPE	SOURCE	ULY EXPSOURE TYPE	TARGET	V_RECOR
BANKING	PP TABLES		FSI_CAP_BANKING_EXPOSURES	BNK_NON

Table 34: Data Movement for Investment Portfolios in a Run

Investments				
MAIN EXPOSURE TYPE	SOURCE	ULY EXPSOURE TYPE	TARGET	V_RECOR
INVESTMENT	PP TABLES		FSI_CAP_INVESTMENT_EXPOSURES	INV_NON
INVESTMENT	STG_UNDERLYING_EXPOSURES	BANKING	FSI_CAP_BANKING_EXPOSURES	INV_NON
INVESTMENT	STG_UNDERLYING_EXPOSURES	INVESTMENT	FSI_CAP_INVESTMENT_EXPOSURES	INV_NON

When banking and investments both execute, the record type filter helps processing exposures as follows:

1. **Banking Portfolio**:

   Only those exposures, which have record type as BNK_NON_SEC_EXP in FSI_CAP_BANKING_EXPOSURES.

2. **Investment Portfolio**:

a. Exposures, which have record type as INV_NON_SEC_EXP and INV_NON_SEC_ULY in FSI_CAP_INVESTMENT_EXPOSURES.

b. Exposures, which have record type as INV_NON_SEC_ULY in FSI_CAP_BANKING_EXPOSURES.

The steps to apply filters at Run and Business Pipeline levels are detailed in OFS Analytical Applications Infrastructure User Guide.

11.2.1.3 Execution and Decision Rules

PMF has a capability to allow the flow of execution to follow a certain path while running a batch. The decision to include/exclude components in a user-defined run is based upon the Run Management Options. This allows the user to manage and report data for only those components, which the user has opted through the Basel Configuration > Run Management screen.

Based upon the selections made in the configuration screen, a table FSI_CAP_RUN_EXE_PAREMETERS is updated with the answers to the questionnaire.

A simple example can be of which portfolios the user has opted. If the user wishes to execute banking and investments only, then a Basel configuration is created through run management with this questionnaire. This configuration is selected during run execution.

11.2.1.4 Evaluation of Execution Rule

The questionnaire data is captured and pushed into the table FSI_CAP_RUN_EXE_PAREMETERS.

The execution rule 'Basel Execution Approach Assignment' reads the data from this table and assigns the values to respective PMF variables. The following image shows the rule Basel Execution Approach Assignment:

Figure 38: Execution Rule - Basel Execution Approach Assignment

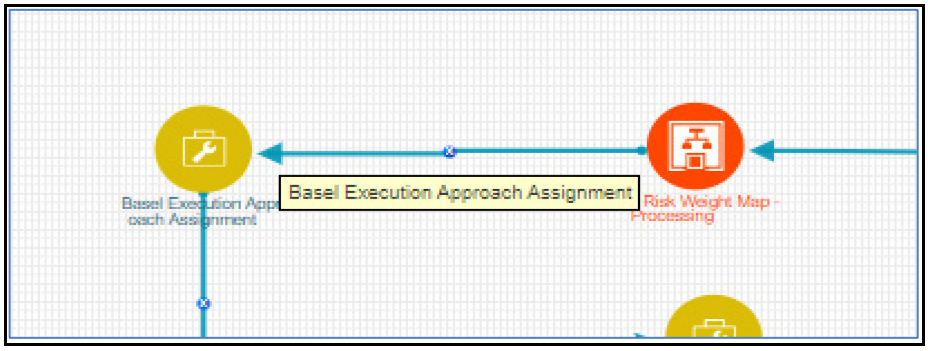
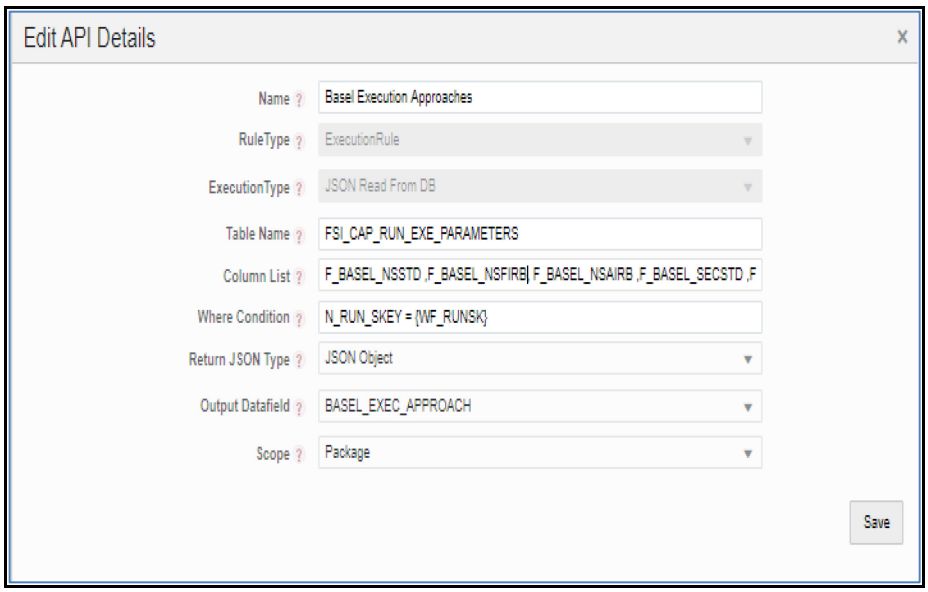


Figure 39: Edit API Details Window



11.2.1.5 Evaluation of Decision Rule

The variables which are values are assigned in the execution rule, are evaluated in the respective transition lines for each applicable component. If the value matches with expected value in the transition line, then that path is taken.

Figure 40: Evaluation of Decision Rule

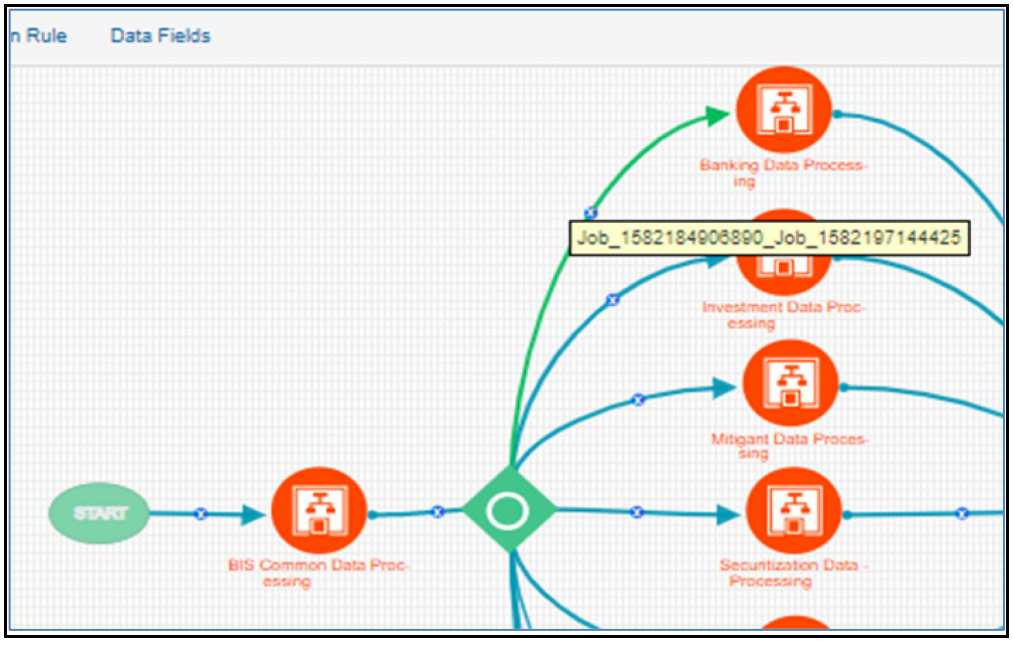


Figure 41: Edit Transition

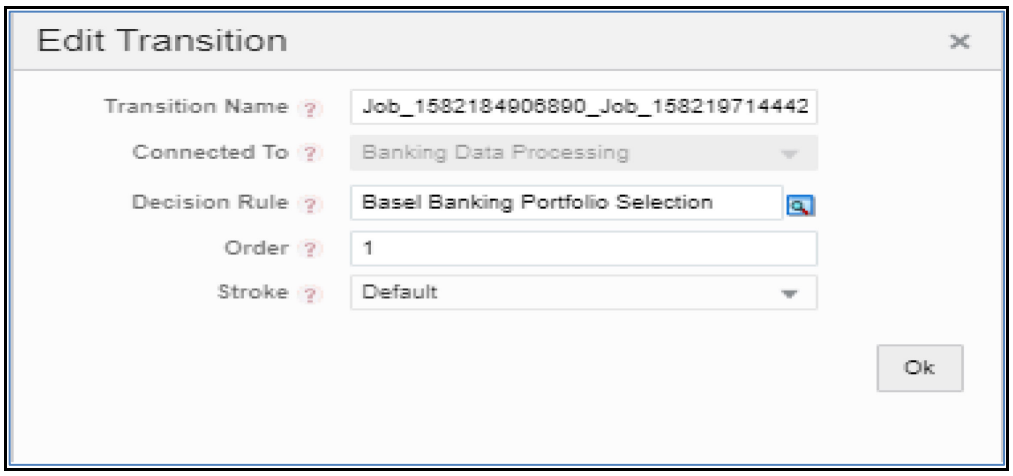
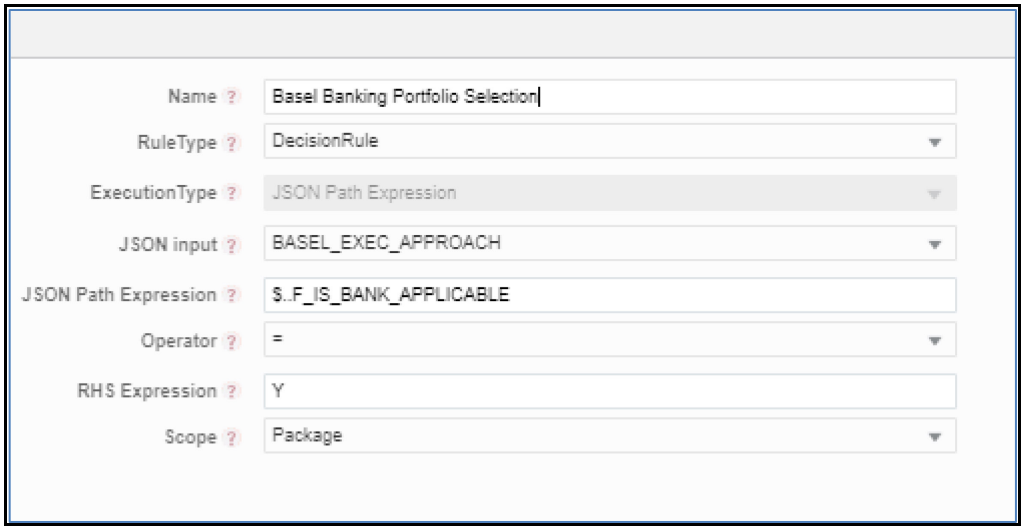


Figure 42: Edit Decision Rule



11.2.1.6 Deprecation of Uncovered Record Creation DT and New Logic

The DT,Pop_Uncovered_Mitigant that creates uncovered exposure records in FCT_SUB_EXPOSURE table is deprecated and is replaced with three T2Ts as mentioned as follows:

For the effective optimization of the mitigants, the application used to create a replica of the exposures, with the standard mitigant type as Uncovered. This used to happen with the DT POP_UNCOVERED_MITIGANT.

To handle the revised data flow of processing, this is replaced by three T2Ts as follows:

1. **T2T_FSI_CAP_NET_POOL_UNCOV_SUB_EXPOSURES**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each nettable pool account from FSI_CAP_NETTABLE_POOL.

2. **SUB_EXPOSURES_BANKING_UNCOV_DATA_POP**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each exposure from FSI_CAP_BANKING_EXPOSURES.

3. **SUB_EXPOSURES_INVESTMENT_UNCOV_DATA_POP**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each exposure from FSI_CAP_INVESTMENT_EXPOSURES.

11.2.1.7 Reuse of PMF Process for Underlying or Placed Collateral Data Processing

Investment portfolio requires banking and derivative underlying for its processing and calculations apart from investment exposures.

The banking and derivative underlying exposures must get the respective portfolio treatment (Risk weighting, AD and so on) while being processed under investment portfolio.

To achieve the above, investment portfolio pipeline calls banking portfolio and derivative portfolio pipeline to process the respective underlying and then use the processed or calculated attributes of these underlying to complete investment processing.

Hence investment portfolio reuses the complete Banking and Derivative pipeline (PMF process).

These pipelines are called only for the respective underlying by applying proper process filter on record type for underlying. The record type values can be found in FSI_CAP_RECORD_TYPE_MASTER. The process filter will allow only underlying records to be processed when called from the investment pipeline.

The record type process filter used are as follows:

- BNK_NON_SEC_ULY in Banking pipeline.
- DRV_NON_SEC_ULY in Derivative pipeline

Securitization Portfolio calls Banking portfolio pipeline from within to process non securitized banking underlying exposures which are part of securitized pool and are required for overall processing of the securitization portfolio. The banking pipeline is called with appropriate record type process filter to process only banking underlying exposures.

The record type process filter used is BNK_SEC_ULY in Banking Pipeline.

Derivative portfolio and SFT portfolio pipelines call Mitigant Pipeline from within to provide mitigant treatment (eligibility, mitigant risk weight and haircut) to their placed collaterals. The Mitigant Pipeline is called with appropriate record type process filter to process only placed collaterals.

The record type process filter used are follows:

- OTH_PLACED_COLL_EXP in Mitigant Pipeline called in Derivative Portfolio Pipeline.
- SFT_PLACED_COLL_EXP in Mitigant pipeline called in SFT Portfolio Pipeline.

11.3 Run Parameters Setup for Creating a Run

If the Run Definition has not been created through the Run Management UI, then the USER_DEFINED_RUN_PARAMETERS table must be set up manually for the selected options/approaches for particular regulation and segment. This table contains the setup codes for different options. However, if you want to add more options, then you can add a record (new setup codes with options) by using information from that are updated for the selected option are given in the following tables:

Regulation: Basel III

Jurisdiction: THAI

The values for BASEL III with jurisdiction as THAI and Credit Risk Non-Securitization Approaches

Item Description	Available Options	Applicable Column Name	Applicable Approaches	Default Option
Credit Risk Mitigation Approach	Simple Approach for Collateral Recognition	Crm Method	Advanced IRB Approach, Foundation IRB Approach, Standardized Approach	Simple Approach for Collateral Recognition
	Comprehensive Approach for Collateral Recognition			
Supervisory approval to treat exposures not as failed trade due to system wide failure of settlement system?	No	Failed Trade Waiver	Advanced IRB Approach, Foundation IRB Approach, Standardized Approach	Yes
	Yes			
Does the Regulator Allow Sovereign and Bank Assets funded and denominated in same currency to be Risk Weighted ?	No	Liability Ratio	Standardized Approach	No
	Yes			
LTV Calculation to be based on	Mitigant Market Value	Option For Loan Amount For Ltv Ratio	Advanced IRB Approach, Foundation IRB Approach	Mitigant Market Value
	Mitigant Mortgage Lending Value			
Supervisory Approval to apply one year maturity for Corporate receivable, in Dilution risk calculations	No	Non Sec Irb - One-Year Maturit	Advanced IRB Approach, Foundation IRB Approach	Yes
	Yes			
Default Risk Approach for Calculations	Bottom Up	Non Sec Irb - Default Risk App	Advanced IRB Approach, Foundation IRB Approach	Top Down
	Top Down			
Equity Exposures - Capital Calculation Approach	Internal Model Method	Non Sec Irb - Equity Approach	Advanced IRB Approach, Foundation IRB Approach	Internal Model Method
	PD - LGD Approach			
	Simple Risk Weight Approach			
	No			Yes

Supervisory Approval to assign preferential risk weights to specialized lending exposures, which fall into Strong and Good category?	Yes	Non Sec Irb - Preferential Ris	Advanced IRB Approach, Foundation IRB Approach	
Supervisory Approval to RW all Corporate Exposures at 100%?	No	Non Sec Std - 100 Percent Rw For Corporate	Standardized Approach	Yes
	Yes			
Volatility and Forex Haircut Estimates	Supervisory Parameters	Non Sec - Haircut Method	Advanced IRB Approach, Foundation IRB Approach, Standardized Approach	Supervisory Parameters
	Own Estimated Parameters		Advanced IRB Approach	

The values for BASEL III with jurisdiction as THAI and Counterparty Credit Risk

Item Description	Available Options	Applicable Column Name	Applicable Approaches	Default Option
Derivative Transactions - EAD Calculation Approach	Current Exposure Method	Non Sec - Otc Approach	Counterparty Credit Risk	Internal Model Method
	Internal Model Method			
	Original Exposure Method			
Securities Financing Transactions - EAD Calculation Approach	Comprehensive Approach for Collateral Recognition	Non Sec - Sft Approach	Counterparty Credit Risk	Comprehensive Approach for Collateral Recognition
	Internal Model Method			

The values for BASEL III with jurisdiction as THAI and Rating Assessment

Item Description	Available Options	Applicable Column Name	Applicable Approaches	Default Option
Basis for eligible rating in multiple assessment	Rating Rank	Multiple Assessment Rating Eligibility Basis	Rating Assessment	Risk Weight Rank
	Risk Weight Rank			

The values for BASEL III with jurisdiction as THAI and Capital Structure and Capital Buffers

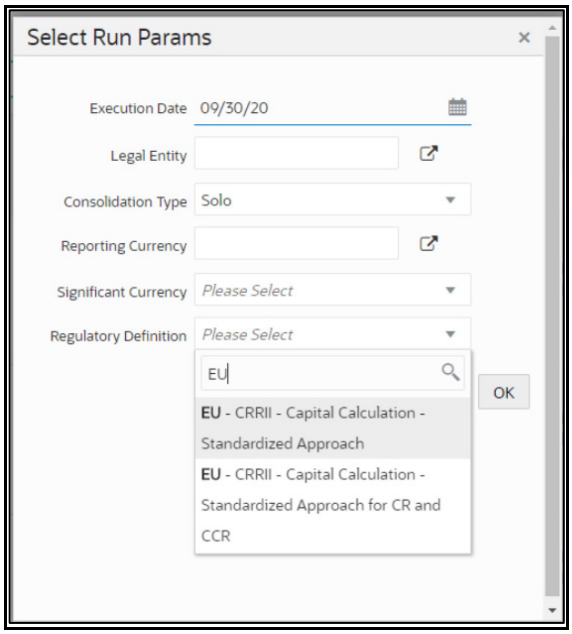
Item Description	Available Options	Applicable Column Name	Applicable Approaches	Default Option
Buffer Allocation Priority	Capital Conservation > Countercyclical > Systemic Risk	Buffer Allocation Priority Option	Capital Structure and Capital Buffers	Capital Conservation > Systemic Risk > Countercyclical
	Capital Conservation > Systemic Risk > Countercyclical			
Calculation Option for Flooring of RWA in IRB Approach	Basel I Approach	RWA Flooring Approach	Capital Structure and Capital Buffers	Standardized Approach
	No Floor Requirement			
	Standardized Approach			

Column details from the Fsi Run Parameter table for the physical column name and the physical code used for the RMO options are available in this sheet.

11.3.1 Selecting Run Definition For Execution

The Run Definition can be selected by searching or scrolling in the “Regulatory Definition” field while triggering a Run Execution.

Figure 43: Select Run Parameters



11.3.2 Importing Run Definitions

To import the DMP file, perform the following steps:

1. Rename or delete the existing OOB definitions in the setup.
2. Navigate to the directory path `$FIC_HOME/utility/Migration/conf/`.
3. Create a copy of the file `OBJECTMIGRATION_template.xml` as `OBJECTMIGRATION.xml` and provide appropriate values for the parameters as per the following table:

Table 44: Parameters for the OBJECTMIGRATION.xml File

Parameter	Value
$USERID$	Application User ID
$LOCALE$	Locale Information
$INFODOM$	Information Domain
$FOLDER$	Folder or Segment where you wish to import the definition
MODE	IMPORT
$FILE_NAME$	Name of the file to be imported without the .dmp extension
MIGRATION_CODE$	11

4. Place as many unique codes as per the number of definitions available in the dump.

   For example: `<OBJECT Code="1000" Type="4003" />`

   To find the object codes, you must perform the following steps:

   i. Execute the following query in the atomic schema to check the existing `N_RUN_PARAM_DEFN_ID` that are in use.

   ```
   SELECT * FROM FSI_RUN_PARAM_DEFINITION_TL;
   ```

   ii. Use the Object Code in OBJECTMIGRATION.xml which does not exist in N_RUN_PARAM_DEFN_ID column.

   > **NOTE**
   >
   > The type must have the value 4003 which represents Regulatory Calculation Definitions.

5. Create the following folder structure in the path `$FIC_HOME/utility/Migration:`

   `metadata/restore`

6. Copy the dump file from the installer and place it in the directory path `$FIC_HOME/utility/Migration/metadata/restore`
7. Execute the following script located in the directory path `$FIC_HOME/utility/Migration/bin/:`
8. `./ObjectMigration.sh`

   Check the availability of definitions in the UI. Migration logs are available in the directory path `$FIC_HOME/utility/Migration/logs/migration.log`.

11.3.3 Exporting Optimizer Definitions

1. Navigate to the directory path $FIC_HOME/utility/Migration/conf/.
2. Create a copy of the file OBJECTMIGRATION_template.xml as OBJECTMIGRATION.xml and provide appropriate values for the parameters as per the following table:

Table 45: Parameters for the OBJECTMIGRATION.xml File

Parameter	Value
$USERID$	Application User ID
$LOCALE$	Locale Information
$INFODOM$	Information Domain
$FOLDER$	Folder or Segment of the existing definition
MODE	EXPORT
$FILE_NAME$	Name of the file to be exported without the .dmp extension
MIGRATION_CODE$	11

1. Place as many unique codes as per the number of definitions available in the dump.

2. For example, <OBJECT Code="1000" Type="4003" />

To find the object codes, perform the following steps:

i. Execute the following query in the atomic schema for run definitions:

```
SELECT * FROM FSI_RUN_PARAM_DEFINITION_TL;
```

N_RUN_PARAM_DEFN_ID is the object code and value of Type is 4003.

ii. Execute the following query in the atomic schema for portfolio definitions:

```
SELECT * FROM FSI_PORTFOLIO_MASTER;
```

N_PPORTFOLIO_ID is the object code and value of Type is 4002.

iii. Execute the following query in the atomic schema for optimizer definitions:

```
SELECT * FROM FSI_BASEL_OPTIMIZER_MODEL_TL;
```

N_MODEL_ID is the object code and the value of Type is 4001.

3. Execute the following script in the directory path $FIC_HOME/utility/Migration/bin:

i. ./ObjectMigration.sh

ii. The Dump is available in the directory path $FIC_HOME/utility/Migration/metadata/archive.

iii. The migration logs are available in file migration.log in the directory path $FIC_HOME/utility/Migration/logs.

11.3.4 BackDated Execution - Run Execution Parameter

In the previous releases of the application, when you execute a Capital Calculation Run, the application considered only the dimensions that have the Latest Record Indicator (LRI) as Y.

You can use the BackDated Execution Feature to provide BackDated Reporting Date as a Run Execution Parameter. Then the application considers only those dimensions for execution that were active during that particular period. You can use backdated execution for Capital Calculation and Post Crisis Reforms Runs.

You must complete a set of configurations to enable the BackDated Execution Feature. For more information, see Oracle Financial Services Analytical Applications Infrastructure User Guide.

You must also update the SCD mode in the DMT Configurations Window to enable backdated execution for these Runs. For more information on the SCD Mode for DMT Configurations, refer to the Oracle Financial Services Analytical Applications Infrastructure User Guide.

11.4 Data Transformation Details for Portfolio or Module

This section lists the Data Transformation (DT) details for each Portfolio or Module.

See Oracle Financial Services Basel Data Transformation Details document for more details.

11.4.1 DT Details - Banking

Table 46: List of data transformations for banking

DT TASK NAME	PROCESS CODE	PROCESS NAME
Bnk_Map_Ret_Exp	PMFBNK006	BNK_REGULATORY_RETAIL_PORTFOLIO
Bnk_Unrated_Exp_RW_Rat_Asses	PMFBNK013	BNK_ISSUE_ISSUER_ASSESSMENT
Bnk_Issue_Issuer_Assessment	PMFBNK013	BNK_ISSUE_ISSUER_ASSESSMENT

11.4.2 DT Details - Investment

Table 47: List of Data Transformations for Investments

DT TASK NAME	PROCESS CODE	PROCESS NAME
Inv_Ind_Mat_Chk_CE_CR_STD	PMFINV011	INV_PRE_CRM_EAD_COMPUTATION_STD
Inv_Unrated_Exp_RW_Rat_Asse	PMFINV017	INV_INV_ISSUE_ISSUER_ASSESSMENT
Inv_Issue_Issuer_Assessment	PMFINV017	INV_INV_ISSUE_ISSUER_ASSESSMENT

11.4.3 DT Details – Derivative

The following table details the data transformation for derivatives and its details:

Figure 48: Data Transformation Details for Derivatives

DT TASK NAME	PROCESS CODE	PROCESS NAME
Drv_Unrated_Exp_RW_Rat_Asses	PMFDRV021	DRV_ISSUE_ISSUER_ASSESSMENT
Drv_Issue_Issuer_Assessment	PMFDRV021	DRV_ISSUE_ISSUER_ASSESSMENT

DT TASK NAME	PROCESS CODE	PROCESS NAME
Drv_Mult_Assessment_SCP	PMFDRV043	SOLD_CREDIT_PROTECTION_DATA_PROCE
Drv_Mult_Assessment_SCP	PMFDRV056	SOLD_CREDIT_PROTECTION_DATA_PROCE
SCP_BCP_Offset_Mapping_for_Derivatives	PMFDRV105	LR Written Credit Derivatives Related Exemp

11.4.4 DT Details - Secured Financial Transactions (SFT)

The following table lists the data transformations for SFT and its details:

Table 49: Data transformation details for SFT

DT TASK NAME	PROCESS CODE	PROCESS NAME
Sft_Issue_Issuer_Assessment	PMFSFT013	SFT_ISSUE_ISSUER_ASSESSMENT
Sft_Unrated_Exp_RW_Rat_Asses	PMFSFT013	SFT_ISSUE_ISSUER_ASSESSMENT
LR_Add_On_Amount_Calculation_for_SFT	PMFSFT068	EU - LR SFT Exposure Measure Calcu

11.4.5 DT Details - Operational Risk

The following table lists the data transformations for Operational Risk and its details:

Table 50: Data Transformations for Operational Risk

DT TASK NAME	PROCESS CODE	PROCESS NAME
Opr_Risk_Capital_Charge	PMFBISOR002	Operational Risk-Basic Indicator Approach
OR_Capital_Std_App	PMFBISOR003	Operational Risk Alternative Std Approach

11.4.6 DT Details - Capital Structure

The following table lists the data transformations for Capital Structures and its details:

Table 51: Data Transformations for Capital Structures

DT TASK NAME	PROCESS CODE	PROCESS NAME
Deduction_RWA_Cap_Struct	PMFBISCS022	CAPITAL_STRUCTURE_DEDUCTIONS_RWA_EXPOSU

11.5 Implementing Basel

11.5.1 Rules List for Configuration

The list of rules which customer needs to reconfigure at their site are as follows.

Table 52: Rules List for Configuration

Functionality	Reclassification Rule Name
Capital Structure	Capital Accounting Head To Standard Accounting Head Reclassification
Capital Structure	GL Account To Standard Accounting Head Reclassification
Capital Structure	Capital Consolidation Basel Entity Type Reclassification
Common	Basel III Capital Consolidation Approach Type Reclassification for an Entity
Common	Basel III Instrument Type Reclassification
Common	Credit Rating Reclassification
Common	Party Type Reclassification – STD
Common	Seniority Reclassification
Common	Mitigant Type To Standard Mitigant Reclassification
Common	Bank Role To Basel Bank Role Reclassification
Common	Account Purpose Reclassification
Common	EU - Cap Consl Basel Entity Type Reclassification
Common	BIS - Basel Party Type Classification
Credit Risk - Securitization	Bank Pool Type To Basel Pool Type Reclassification
Credit Risk - Non-Securitization	Basel III Equity Product Type Reclassification - STD
Credit Risk - Non Securitization	Basel Product Type Reclassification
Credit Risk - Non-Securitization	Non-Sec Basel II Product Type Reclassification - STD
Credit Risk - Non Securitization	Fixed Assets to Basel Product Type Reclassification
Credit Risk - Non Securitization	Guarantee Scheme To Regulatory Guarantee Scheme Reclassification
Counterparty Credit Risk	Netting Agreement Mitigant Type Reclassification - SA - CCR
Counterparty Credit Risk, Market Risk	Basel III Instrument Type Reclassification
Credit Risk - Securitization	Basel III Sec Product Type Reclassification - STD
FRTB	Commodity Type Classification
Market Risk	MR PC Instrument Type Reclassification - Convertible Bond
Market Risk	MR PC Instrument Type Reclassification - Credit Derivatives
Market Risk	MR PC Instrument Type Reclassification - Exotic Instruments
Market Risk	MR PC Instrument Type Reclassification - Forwards and Futures
Market Risk	MR PC Instrument Type Reclassification - Hybrid Instruments
Market Risk	MR PC Instrument Type Reclassification - Options
Market Risk	MR PC Instrument Type Reclassification - Swaps
Operational Risk	OR Internal LoB to Standard LoB Reclassification
Large Exposures	Party Relationship Type Reclassification

11.5.2 Custom Reclassification Rules

See Configure Rule with Target Members for more information on Custom Reclassification Rules.

11.5.3 Seeded Values Used

To view the seeded values for the following Seeded tables, see Seeded_Tables_Data.

11.6 Basel Analytics Table Population - Reporting T2T

This section provides information on the target and the granularity of tables. See Oracle Financial Services Basel Analytics User Guide for more information

12 Annexure C: Frequently Asked Questions

This section addresses some of the frequently asked questions which are as follows:

12.1 Leverage Ratio

Does the application require a different set of input data to execute the Leverage Ratio?

No. Leverage Ratio can be executed on the same set of input data required for normal processing to execute the Basel III Run. The input for leverage ratio is the subset of the data provided for Basel III executions. However, an additional set of data is required (total consolidated asset) for accounting entity which is outside the scope of the consolidation process. As per the Basel III Accord, total consolidated asset value must add up to the Total Exposure Measure calculation for Leverage Ratio.

Can we execute Leverage Ratio if the bank has installed the application for the first time?

Yes, we can compute Leverage Ratio. The application calculates the current month Leverage Ratio and the Leverage Ratio of the previous two months, which is provided as a download by the client or the bank. This information is considered as an input to calculate Regulatory Leverage Ratio. If the previous month's data is not available, then the application considers the value as 0 and computes the Regulatory Leverage Ratio. Also, you have the flexibility to use the current month Leverage Ratio as input for previous two months' leverage ratio, if required.

Can Leverage ratio be calculated on any day during a particular month?

There is no restriction on the execution date for computing Leverage Ratio. Leverage Ratio can be calculated on any given day. However, Leverage Ratio is to be executed based on the month-end data.

As per Basel III requirement, the Leverage Ratio is to be calculated on Tier 1 capital. However, if a particular jurisdiction prescribes to calculate the Leverage Ratio based on Total capital, then can the application support such modifications?

Yes, the application has the flexibility to change the input criteria by adding or deleting the Rule related to capital. To achieve this, modify the Business Processor's BP-Leverage Ratio expression by modifying one of the used measures. Instead of measure CS Net Tier1 capital, add another measure created on Total capital by deleting the existing one. The data model is not affected by such changes.

12.2 Capital Buffers

As per the Basel III Accord, Capital Buffers are required to be maintained from 2016 only. However, if for internal purposes the bank wants to start computing it from 2013 itself, then does the application support such modifications? If yes, then will it consider the required capital ratios as per the transitional arrangement?

Yes, the application supports the calculation of capital buffers from 2013 and it considers the transitional arrangement for the calculations before 2016.

For Example: The application considers the required Tier 1 Ratio in 2013 as 4.5%. For this calculation, no changes are required in the input data as the calculation in the application begins from 2013.

Likewise, the application selects the required values for CET1, Tier 1, and CAR as per the transitional arrangements for years 2013, 2014 and 2015.

While building quartiles, how much Required CET1 is considered for computing Capital Conservation Ratio?

Required CET1 ratio is used for computing the four quartiles or intervals for Capital Conservation Ratio. Since Required CET1 is phased out through a transitional arrangement, the value used in the calculation of quartiles is a maximum of 4.5% or the CET1 required by that specific jurisdiction in that specific year.

The computed value for Available Buffer from CET1 capital is considered for all three buffers. Is there any priority of one buffer over the other?

As per the Basel III Accord, there is no priority given to one buffer over the other. Required Buffer from CET1 capital is compared against the Available Buffer from CET1 capital. Any shortfall or excess is reported at an aggregate level. It cannot be reported for one specific type of buffer. This approach in the application is built as per our interpretation of the Basel guidelines. As per the Basel III Accord, the other two buffers are met through an extension of Capital Conservation Buffer and the accord does not explicitly mention about its priority. The Capital Conservation Ratio for a shortfall is also calculated at an aggregate level and not at individual buffer level.

Can the regulator of the parent jurisdiction prescribe countercyclical buffer requirement different from the one prescribed by the home country's regulator to which the exposure relates to?

As per our interpretation of the Basel III accord, the countercyclical buffer requirements can be different. By default, the requirement that is prescribed by the parent regulator must be used as input data which in turn is used for further calculations.

If one of the exposure countries has not implemented Basel III and the country's regulator have not recommended any buffer, must countercyclical buffer requirement be taken as 0% for the exposures of that country?

No, the countercyclical buffer requirement cannot be taken as 0% as the parent company's regulator has exposure to this country. For a consolidated Run, it depends on the buffer requirement required for all the exposure countries by the parent regulator.

By default, the buffer requirement specified by the parent regulator for each exposure country is included in the input data. Therefore, data is not required to be modified.

As per Basel requirements, all three buffers are calculated from CET1. However, in the future as per guidelines of the Basel Committee on banking supervision, it may be required to be calculated from Tier 1 or CAR. Does the application have a provision for that?

Yes. The application is flexible to compute such changes. It can be modified to compute buffer from Tier 1 capital and CAR. The logic for computing this buffer is similar to the one used for buffer from CET1 capital. The application can calculate buffers form Tier 1 capital, by taking remainder of following:

Excess of Tier1 Capital Ratio over benchmark (6.0 %), after catering to the shortfall, if any, in Tier 2 capital to its respective benchmark level, which is 2%, minus Required Benchmark Buffer from CET1 capital. Hence, Capital Conservation Buffer excludes any additional CET1 needed to 8% Total Capital Ratio.

To calculate buffer form Total Capital, remainder of following is taken:

Excess of Total Capital Ratio over benchmark (8.0%), minus Required Benchmark Buffer from Tier 1 capital.

12.3 Credit Valuation Adjustment

How will the application handle Index Decomposition, if data for index is not provided and index decomposition is selected?

In this case, the application calculates CVA charge without decomposition. The Run can be successfully executed and Index Hedge position is treated without decomposition.

How does the application handle an Index Hedge position marked to the counterparty wherein multiple counterparties which are part of Index and Index decomposition are selected?

The application creates a single name CDS hedge for all the counterparties with which the bank has exposures and is a part of the index. Index position mapped to a counterparty is used only to allocate CVA charge to the counterparty while using Standardized Approach for CVA calculation.

Can IMM approach be selected for Capital Conservation Ratio calculation and standardized approach for CVA Calculation?

No, IMM approach cannot be selected for Capital Conservation Ratio. The application requires CEM method output for computing CVA Charge using Standardized approach.

Can the discount factor be changed which is currently proposed as 5% as per the Basel guideline?

Yes, risk free rate can be changed by modifying Rules. For more information on modifying Rules, see **Error! Reference source not found.**.

How is CVA RWA used in the application?

The application calculates CVA RWA and sums it to Credit RWA. CVA RWA is not multiplied by the factor 1.06.

Will the application create a duplicate hedge record from Index Decomposition, if the Run is executed twice?

No, the application does not create a duplicate hedge record. The application checks whether the record already exists and it uses the same. If the record does not exist, then the application creates a hedge record.

12.4 Operational Risk

If the input parameter to calculate the Annual Gross Income is different for other jurisdictions, then can the input parameters be changed?

Yes, you can change the input parameters by adding or deleting the Rule related to Annual Gross Income. To achieve this, modify the BP expression - Ops Risk Annual Gross Income by adding the newly defined measure or deleting the used measure. The data model can undergo changes if the newly added parameter is not captured. The data model changes affect the staging table and the processing table.

Can reclassification rule for mapping of internal LOB to standard LOB be modified?

Yes, you can change Reclassification Rule as per jurisdiction requirement. You must add the mapping in the Rule OR Internal LOB to Standard LOB Reclassification and make an entry into DIM_LOB and DIM_STANDARD_LOB.

12.5 Capital Structure (Basel III)

Are the list of instruments provided for each component of capital that is, CET1, AT1, and T2 fixed or can the list of instrument be extended or reduced to accommodate as per the requirement?

The list of instruments mapped to different components of capital is a bare minimum list. You can add or delete as per their definition of capital by adding or deleting a mapping in the Rule – Non-Sec Standard Product type to capital Comp Group Reclassification for banking book (non securitization) exposures and in Rule – Mkt Risk Instrument type to Capital Comp Group Reclassification for trading book exposures. No data model changes are required.

The criteria to calculate the surplus capital in CET1 for Minority Interest is Minimum CET1 plus the Capital Conservation Buffer. If the criteria changes in the future to include the countercyclical buffer along with CET1 and CCB, then can the application handle such modifications?

The application has the flexibility to include any parameter or delete any parameters to calculate the Minority Interest. In such a case, the Rule can be modified to include additional parameters or delete if required.

Is there any flexibility in the Rule to add or delete any regulatory adjustment line item during the calculation of CET1?

Yes, the application has the capability to add or delete any regulatory adjustment line item. This is handled in the Rule by adding or deleting any regulatory adjustment line item.

Considering that the phase-in treatment criteria specified as per the accord changes in the future where the deduction values and risk-weighting values change, then can this scenario be handled by the application without affecting other sections?

The application is flexible to accommodate any scenario for phase-in treatment. For example: if in the future the phase-in criteria changes from 20%, 40%,60%,80% to 25%, 45%,65%, 85%, then the application has the capability to change the value as well during the phase-in. The deduction amount that is not deducted is to be risk-weighted with some different percentage.

The values in the capital component column of the Setup Capital Heads (FSI_SETUP_CAPITAL_HEAD) must be changed to accommodate this phase-in treatment.

What if the Bank doesn't calculate CR RWA, MR RWA, and OR RWA and directly provides a value against each of this line item?

The application supports such direct download values for RWA in table – STG_STANDARD_ACCT_HEAD against appropriate Standard Account Head identifiers (CAP169 for Credit RWA, CAP090 for Market RWA, and CAP170 for Operational RWA).

12.6 Securitization

The Reporting Bank wants to implement the Securitization aspect of the Credit Risk. The Bank currently does not have the Credit Risk module. How can the Reporting Bank implement only the Securitization module?

If the bank wants to implement Securitization Standardized approach, then data relevant to the exposures, tranche, pool, rating, and mitigant details are expected. If the IRB approach is implemented, then the complete underlying exposure details are expected apart from the previous mentioned details.

The reporting bank has the underlying data and has provided the pool, tranche, and exposures data. Additionally, the reporting bank has also provided the pool and tranche information in the exposures table. In this case, will the application use the data from the pool and tranche table or from the exposures table?

The application expects the data only in either of the following tables:

Pool, tranche, and exposures table with all the pool, tranche, and exposures attribute data only in their respective tables.

Exposures table with the entire exposures attribute and few of the attributes of the pool and tranche.

The application gives a preference to the pool and tranche attributes in the exposures table, compared to the attributes given in the pool and tranche table. In this case, all the computations is based out of the data given in the exposures table.

How does the bank select particular Securitization approach?

As per regulator's guidelines, banks are expected to follow the hierarchy of approaches while implementing IRB approach as follows:

Supervisory Formula Approach (SFA)

Simplified Supervisory Formula Approach (SSFA)

Risk Weight at 1250%

The application supports this hierarchy of approaches. As stated in the accord, the SFA/SSFA approaches are data driven approaches and availability of data drives the approach selection. In case the bank has relevant data of underlying exposures that is required for SFA calculations, it needs to follow SFA approach. Most of banks that are originators and sponsors of deal have this data and some of the investor banks may have it and hence they naturally follow SFA. However, in case the bank does not have this underlying data, it cannot follow SFA approach; such banks can follow SSFA approach by providing parameters that are applicable only to SSFA as direct input to the application.

The reporting bank, who is an investor in securitization transaction, has an unrated securitization exposure. How will this unrated exposure be treated by the application?

The application treats the unrated exposure based on the approach being followed for that exposure. The approach followed is the same for the originator and the investor.

Standardized Approach

In this case, the application calculates the weighted average risk weight of the underlying exposures and assigns this to the exposure.

If the details regarding the underlying exposures are not available, then the unrated exposures are deducted.

Ratings Based Approach

In this case, the application tries to infer the rating based on the presence of the rated subordinate tranche information, belonging to the same pool.

The application tries to identify whether there are any rated subordinate tranche belonging to the same pool, and which has the credit enhancement level less than that of the unrated exposure and which has the residual maturity more than that of the unrated exposure and which has the seniority less than that of the unrated exposure. The seniority is a number denoting the seniority of the cash flows to that tranche and it starts from the value of 1 which is the senior most tranche.

If the ratings are inferred, then the application assigns the rating to the exposure and hence assigns the corresponding risk weight.

All other processing are the same as other rated exposures.

If the rating cannot be inferred, then the unrated exposures are deducted.

Supervisory Formula Approach

In this case, there is no dependency on the ratings. Hence, it proceeds without any difference in the treatment.

The reporting bank, which is an investor in Securitization Transaction, is provided protection on its securitization exposure with the help of an Nth to Default credit derivative mitigant. How will the application recognize the benefit for this exposure?

The application identifies the nth to default credit derivative protection based on the comparison of the tranche attachment point, initial pool amount, and the cumulative loss amount of the pool. Using this, the application calculates whether the tranche is in default or not. Further, the application counts the number of tranches in default and then compares this number with the defaulted position covered by the mitigant. Hence for this, the entire tranche information of the pool is required, regardless of whether the Bank has an exposure in all those tranches or not.

For example: the exposure held by the bank belongs to tranche T1 and this belongs to the pool P1. Assume that there are a total of 10 tranches being issued out of that pool. (T1 to T10). The mitigant provided is 7th to default credit derivative. Hence, the application recognizes this mitigant only if there are 6 defaults in the basket of exposures (T1 to T10) or else there is an eligible 6th to default credit derivative for the same pool. Assume that the following are the calculations:

The application takes the tranche attachment point and multiplies this with the initial pool amount. This amount is compared by the application with the cumulative loss of the pool. If the amount is less than or equal to the cumulative loss of the pool, then that tranche is in default. Further, the application takes the count of all the tranches which are in default. In the following case, there are 6 defaults in the exposures. This is compared with the defaulted position of the mitigant. Since there are n-1 defaults (7-1 = 6) in the exposure, the mitigant is recognized for this pool. The exposure with the least risk weight and highest seniority is allocated the mitigant and all other exposure combinations mapped to this mitigant is ineligible.

Table 53: Calculation of Trance Attachment Point and Initial Pool Amount

Tranche ID	Tranche Attachment Point	Associated Pool ID	Initial Pool Amount	Attachment * Pool	Cumulative Loss of the Pool	Defaulted?
T1	0.75	P1	1,000,000.00	750,000.00	300,000.00	N
T2	0.58	P1	1,000,000.00	580,000.00	300,000.00	N
T3	0.45	P1	1,000,000.00	450,000.00	300,000.00	N
T4	0.34	P1	1,000,000.00	340,000.00	300,000.00	N
T5	0.29	P1	1,000,000.00	290,000.00	300,000.00	Y
T6	0.22	P1	1,000,000.00	220,000.00	300,000.00	Y
T7	0.18	P1	1,000,000.00	180,000.00	300,000.00	Y

Tranche ID	Tranche Attachment Point	Associated Pool ID	Initial Pool Amount	Attachment * Pool	Cumulative Loss of the Pool	Defaulted?
T8	0.15	P1	1,000,000.00	150,000.00	300,000.00	Y
T9	0.05	P1	1,000,000.00	50,000.00	300,000.00	Y
T10	0	P1	1,000,000.00	-	300,000.00	Y

The Reporting Bank has multiple exposures mapped to multiple mitigants. How will the application allocate the mitigants to the exposures?

The application uses the optimizer to allocate the mitigants to the exposures. The optimizer constraints in the case of securitization are dependent on the seniority of the exposures, risk weight of the exposures, and the mitigant value assigned to the exposure post the haircut. Assume the following case of exposures and mitigants mapped to each other along with the seniority, risk weight, and the haircut factor.

Table 54: Allocation of Mitigants to Exposures

Exposure ID	Exposure amount	Exposure Seniority	Exposure RW	Mitigant ID	Mitigant Amount	Mitigant RW	Haircut Factor
E1	5,000.00	1	0.5	M1	10,000.00	0.2	0.2
E2	3,000.00	2	0.5	M1	10,000.00	0.2	0.4
E3	2,000.00	2	0.5	M1	10,000.00	0.2	0.15
E4	1,500.00	3	1	M1	10,000.00	0.2	0.1
E1	5,000.00	1	0.5	M2	5,000.00	0	0.4
E2	3,000.00	2	0.5	M2	5,000.00	0	0.87
E3	2,000.00	2	0.5	M2	5,000.00	0	0.37
E4	1,500.00	3	1	M2	5,000.00	0	0.64
E1	5,000.00	1	0.5	M3	3,500.00	0.2	0.05
E2	3,000.00	2	0.5	M3	3,500.00	0.2	1
E3	2,000.00	2	0.5	M3	3,500.00	0.2	0.18
E4	1,500.00	3	1	M3	3,500.00	0.2	0.27

The mitigants are assigned to the exposures based on the seniority of the exposures. The mitigants with the least risk weight are assigned first to the exposures. The following table details the order in which the mitigants are allocated:

Table 55: Allocation of Mitigants

Exposure ID	Mitigant ID
E1	M2
E2	M2

Exposure ID	Mitigant ID
E3	M2
E4	M2
E1	M1
E2	M1
E3	M1
E4	M1
E1	M3
E2	M3
E3	M3
E4	M3

The application assigns the exposures to the mitigants based on this order and computes the Post-CRM RWA of the exposures.

Does optimizer work on pool-by-pool basis? Can the user explicitly mention how many pools can be processed at a time?

Yes, the optimizer works on pool-by-pool basis. However, you can specify the number of pools to be processed at a single fand so onh in Optimizer_Config.xml in <PROCESSEDPOOLSIZE> tag.

Is it possible that few of the exposure-mitigant combination can have no pool ids? If so, what happens to those records?

All the records are expected to have pool IDs based on the exposure mitigant combination. If few records do not satisfy the join/filter condition present in pooling definition, then the pool IDs are not assigned. Such records are not considered for optimizer and covered factor is not calculated for those exposures.

12.7 Capital Structure (Basel II)

Are the list of instruments provided for each component of capital that is, T1, T2, and T3 fixed or can the list of instrument be extended or reduced to accommodate as per the requirement?

The list of instrument mapping to different components of capital is a bare minimum list. You can add or delete as per their definition of capital in the Rules – 'Bank capital Group Components Reclassification' and 'STD to Capital Group Components Reclassification'

Is there any flexibility in the Rule to add or delete any regulatory adjustment line item during the calculation of T1 and T2?

Yes, the application has the capability to add or delete any regulatory adjustment line item. This is handled in the rule by adding or deleting any regulatory adjustment line item.

What if the Bank does not calculate any of the CR RWA, MR RWA and OR RWA and directly provides a value against each of these line items?

The application supports and has taken into account for such direct download values for RWA in the table – STG_STANDARD_ACCT_HEAD against appropriate Standard Account Head identifiers (CAP169 for

Credit RWA, CAP090 for Market RWA and CAP170 for Operational RWA) for entities for which the bank does not calculate RWA using our application.

12.8 Market Risk (Basel II)

Does the Greeks Engine calculate Greeks parameters for all kind of Options?

Currently, the Greeks Engine calculates parameters only for normal options. The exotic options are not covered by Greeks Engine.

12.9 Mitigant Eligibility (Basel III)

The Reporting Bank has a wholesale exposure and for that guarantee from an issuer is present which can be reclassified under the "Other Entities". The current rating of the guarantor is B-. How does the application handle this in Basel II and Basel III runs?

The application handles the mitigant eligibility of Basel II and Basel III using separate rules. The application using the Basel III Rule, checks for the presence of a rating for this kind of issuer type and if there is a rating available, then this mitigant becomes eligible. The application under the Basel II rule checks for the rating to be A- or better and if the rating is below A-, then this mitigant becomes ineligible.

12.10 Haircut Assignment (Basel III)

The Reporting Bank has a securitized exposure and for that two financial collaterals are present - a debt instrument from an issuer which can be reclassified under the "Non-Sovereign" issuer type and a debt instrument which is part of a securitization transaction. For the first instrument, the current ratings of the instrument by 2 agencies are AAA and A+ and its residual maturity is 4.5 years. For the second instrument which is a securitized debt exposure, the current rating of the instrument by 2 agencies are A and BBB+, and its residual maturity is 8 years. What is the volatility haircut applied for this mitigant by the application under Basel II and Basel III rules?

The application handles the volatility haircut assignment for debt securities of Basel II and Basel III using separate rules. The application requires a single rating for the debt securities. Since there are multiple ratings, the application applies multiple assessment and calculates the final current rating. In this case, the first mitigant is rated A+ and second mitigant is rated BBB+, post multiple assessment. The application under the Basel III rule checks for the current rating of the debt instrument, its residual maturity, whether the debt security is a securitized exposure or not, and the issuer of the debt security.

For the first mitigant, the current final rating is A+ and it is a debt security issued by a non-sovereign with a residual maturity of 4.5 years. The haircut assigned is 6%.

For the second mitigant, the current final rating is BBB+ and it is a debt security which is a securitized exposure with a residual maturity of 8 years, the haircut assigned is 24%.

The application using the Basel II Rule, checks the current rating of the debt instrument, its residual maturity, and the issuer of the debt security.

For the first mitigant, the current final rating is A+ and it is a debt security issued by a non-sovereign with a residual maturity of 4.5 years. The haircut assigned is 6%.

For the second mitigant, the current final rating is BBB+ and it is a debt security issued by a non-sovereign with a residual maturity of 8 years, the haircut assigned is 12%.

12.11 Cleared Transactions

What is the treatment for the transaction between clearing member and client which arises due to clearing member acting as intermediary for the transaction and reporting bank act as clearing member?

Currently the treatment assigned in the accord is of bilateral trade and application expects user not to identify the previous trades as cleared transaction.

Will the netting agreement be changed for cleared transaction?

No. Trade marked for the Netting agreement is the trading input and risk calculation does not change previous logic.

Since the each collateral is treated separately is there a chance that separate risk weight is assigned to different collateral?

No. Risk Weight assigns changes only when the reporting bank is clearing member client and have not posted the collateral and due diligence is not conducted. Application expects the previous condition to be uniform for all the collateral posted, that is, if collateral is cash and securities will either cover all losses or not cover all losses. Data consistency is expected from the user. Moreover the reporting bank to get the transaction cleared from CCP, previous two conditions are mandatory to meet, so the application expects very less trade to go with 4% risk weight.

Will the transaction with non-qualifying CCP have CVA Charge?

No. CVA charge is excluded for the transaction with CCP. Qualifying CCP transactions are given preferential treatment for RW and non-qualifying CCP is treated as bilateral trades. Both trades do not qualify for CVA Charge.

How does the application distinguish between qualifying and non qualifying CCP?

Application expects the user to identify the CCP as qualifying and non-qualifying. Application expects this information as counterparty information. For collateral posted with non-qualifying CCP the application expects other inputs for calculating RWA like, collateral type, pd, lgd, and maturity. Also counterparty type is assumed to be Central Counterparty for the calculation.

Why do application expects the role of the reporting bank with CCP for each transaction?

As per the example in BIS, a CCP also plays a role of Clearing Member for reporting bank transaction with another CCP. This case makes it difficult for the risk system to capture the role of reporting bank at party level and hence is required for each transaction.

12.12 Investment Portfolio

What are the different approaches for assignment of Risk Weight for Investment in Equity Funds held in Banking Book ? How are they assigned by the application?

There are three types of approaches for assignment of Risk weights for Investment in Equity Funds which are mentioned in the relevant subheading under Investment Portfolio. Application expects the user to provide the data as per the criteria specified by the Accord which are further processed for assignment of Approach and resultant Risk Weight. For cases where operational criteria are not met or no information is provided for the underlyings of the Fund, the application assign Fall Back Approach which attract Risk Weight of 1250%.

13 Annexure D: Account Clustering Application Integration

In the previous releases, **V_ACCOUNT_POOL_ID** for exposures was being provided as a download in the setup table **FSI_SETUP_ACCT_MODELING_INFO.V_RETAIL_POOL_ID**. This Retail Pool ID same was used in processing.

Starting from this release, a module of Basel IRB Application - Retail Pooling (RP) - computes the Retail Pool ID. The Retail Pool ID is stored in **FSI_CAP_RETAIL_EXPOSURES.N_K_MEANS_CLUST_ID.** If this module is installed and available in the same setup as that of the Basel Application, then the Capital Calculation Run consumes the Retail Pool ID that is computed and populated by the RP module for its processing. If not, it continues to download this attribute from **FSI_SETUP_ACCT_MODELING_INFO**.

Information regarding the availability and usage of the Retail Pooling Module has to be provided in the **SETUP_MASTER** table as a Y/N flag against the V_COMPONENT_CODE **BASEL_RTL_POOL_APP_AVL.**

PMF processes are introduced in the Data Population Pipelines of Non-Securitization exposures for the Account Pool ID assignment.

Based on the value that you provide in the **SETUP_MASTER** table against **BASEL_RTL_POOL_APP_AVL**, **V_ACCOUNT_POOL_ID** for exposures is either selected from **FSI_CAP_RETAIL_EXPOSURES** or **FSI_SETUP_ACCT_MODELING_INFO**.

14 Glossary

BCBS	Basel Committee on Banking Supervision
Bankruptcy Remote	In case of liquidation of the company, if the collateral is bankruptcy remote then legal proceeding will not have the right to liquidate the collateral.
BIS	Bank of International Settlements
CAR	Capital Adequacy Ratio
Central Counterparty (CCP)	Central Counterparty (CCP) is a clearing house that interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the future performance of open contracts.
CCB	Capital Conservation Buffer
CCF	Credit Conversion Factor
CCR	Counterparty Credit Risk
CET1 Ratio	Common Equity Tier 1 Ratio
Clearing Member (CM)	Clearing Member (CM) is a member of, or a direct participant in, a CCP that is entitled to enter into a transaction with the CCP, regardless of whether it enters into trades with a CCP for its own hedging, investment or Capitalization of exposures to central counterparties.
Clearing Member Client (CMC)	Clearing Member Client (CMC) is the client of the Clearing Member and trades are done through clearing member for the client.
CRE	Commercial Real Estate
CRM	Credit Risk Mitigants
CVA	Credit Valuation Adjustment

EAD	Exposure At Default
GL	General Ledger
IRB	Internal Rating Based
LGD	Loss Given Default
OFSAA	Oracle Financial Services Analytical Application
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OTC	Over the Counter
Non Securitization Exposure	The exposures that are not securitized by the bank which include, loans, investments, Bonds, Facilities Purchase Receivables and so on are known as Non Securitized Exposures.
PD	Probability of Default
Private Sector Credit Exposure	A private sector credit exposure is defined as an exposure to a company or an individual that is included in credit risk-weighted assets (excluding an exposure to a sovereign, the Bank for International Settlements, the European Central Bank, the European Commission, the International Monetary Fund, a multilateral development bank (MDB), a public sector entity (PSE), or a government sponsored entity (GSE). The geographic location of a private sector credit exposure is the national jurisdiction of the place the borrower is located in.
Qualifying Central Counterparty (QCCP)	A qualifying central counterparty (QCCP) is an entity that is licensed to operate as a CCP (including a license granted by way of confirming an exemption), and is permitted by the appropriate regulator/overseer to operate as such with respect to the products offered. This is subject to the provision that the CCP is based and prudentially supervised in a jurisdiction where the relevant

	regulator/overseer has established, and publicly indicated that it applies to the CCP on an ongoing basis, domestic rules and regulations that are consistent with the CPSS-IOSCO Principles for Financial Market Infrastructures.
RRE	Residential Real Estate
RWA	Risk-weighted Assets
SCD	Slowly Changing Dimension
SFT	Securities Financing Transactions
T2T	Table to Table

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