

**Oracle Financial Services Basel
Regulatory Compliance for EBA
User Guide**

Release 8.1.1.1.0

August 2021

F37962-01

ORACLE
Financial Services

OFS Basel Regulatory Compliance for EBA

Copyright © 2022 Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable.

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are “commercial computer software” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

For information on third party licenses, see the [OFSAA Licensing Information User Manual](#).

Document Control

Version Number	Revision Date	Change Log
1.0	May 2021	Updated the sections for the enhancements in OFS CAP Release 8.1.1.0.0 for EU.
1.1	August 2021	Created section for Entity Level Data Output for Group Solvency Reporting for the enhancements added in OFS CAP Release 8.1.1.1.0.

Table of Contents

1	Getting Started	x
1.1	Intended Audience	x
1.2	Conventions	x
1.3	Installing this Major Release	x
1.4	Related Information Sources	xi
2	What's New in this Release	12
3	Introduction to Basel Regulatory Capital	13
3.1	Key Features	14
4	Overview of OFSAA Infrastructure	15
4.1	Components of OFSAAI	15
5	Application Processing	16
5.1	Data Requirements	16
5.2	Data Assumptions	16
5.2.1	<i>Data Loading</i>	17
5.2.2	<i>Reclassification Rules</i>	17
5.3	Processing	18
5.3.1	<i>Batch Processing</i>	18
5.3.2	<i>Basel Configurations</i>	19
5.3.3	<i>Reporting</i>	34
6	European Banking Association (EBA)	36
6.1	Introduction of OFSAA Portfolio Definitions	36
6.1.1	<i>Banking</i>	38
6.1.2	<i>Investment</i>	38
6.1.3	<i>Derivative</i>	39
6.1.4	<i>Securities and Financing Transactions</i>	40
6.1.5	<i>Securitization</i>	41
6.2	Overview of CRR & CRR II	42
6.2.1	<i>Credit RWA</i>	43

6.2.2	Counterparty Credit RWA.....	43
6.2.3	Default Fund Contributions Related Capital Charge.....	44
6.2.4	Operational Risk RWA.....	44
6.2.5	Capital Structure.....	44
6.2.6	Capital Buffers.....	45
6.2.7	Large Exposures	45
7	European Union CRR II Standardized Approach.....	46
7.1	Credit RWA.....	46
7.1.1	Banking Portfolio.....	46
7.1.2	Investment Portfolio.....	56
7.2	Counterparty Credit RWA.....	67
7.2.1	Derivatives Portfolio.....	67
7.2.2	Securities Financing Transactions Portfolio.....	82
7.2.3	Pooling and Optimizer	93
7.3	Securitization - Revised Framework	94
7.3.1	Rating Population.....	94
7.3.2	Data Population.....	95
7.3.3	Shareholding Percent Multiplication.....	96
7.3.4	Common Reclassification Rules.....	96
7.3.5	Asset Reclassification Rules	98
7.3.6	Due Diligence Requirement for Securitization Exposures.....	98
7.3.7	Sec Approach Selection.....	98
7.3.8	Pre-mitigation Calculations.....	99
7.3.9	Risk Weight Assignment.....	100
7.3.10	Re-securitized Exposures	102
7.3.11	STS Transactions (STS Transaction)	102
7.3.12	Credit Risk Mitigation Process.....	102
7.3.13	Mitigant Eligibility Approaches and their Risk Weighting Rules	103
7.4	Pooling and Optimizer	104
7.4.1	Pooling.....	104
7.4.2	Optimizer.....	104
7.4.3	Post CRM RWA Computation	104

7.5	Default Fund Contributions Related Capital Charge.....	105
7.5.1	<i>Capital Charge for Non-QCCP</i>	105
7.5.2	<i>Capital Charge for QCCP</i>	105
7.6	Treatment for Settlement Risk.....	107
7.7	Data Capture and Treatment of Underlying Exposures Related to CIU, Securitization and Covered Bond	108
7.8	Operational Risk Portfolio.....	108
7.8.1	<i>Operational Risk Prerequisites</i>	109
7.8.2	<i>Data Population</i>	112
7.8.3	<i>Shareholding Percent Multiplication</i>	112
7.8.4	<i>Reclassification Rules</i>	113
7.8.5	<i>Capital Charge Approaches</i>	113
7.8.6	<i>Key Data Elements</i>	117
7.9	Capital Structure.....	118
7.9.1	<i>Assumption</i>	119
7.9.2	<i>Data Population</i>	120
7.9.3	<i>Shareholding Percent Multiplication</i>	121
7.9.4	<i>Common Reclassification Rules</i>	121
7.9.5	<i>Gross Capital Calculations</i>	122
7.9.6	<i>Grandfathered Instrument Calculations</i>	122
7.9.7	<i>Minority Interest Calculations</i>	122
7.9.8	<i>Internal Transactions Deduction</i>	123
7.9.9	<i>Regulatory Adjustments & Deductions from Each Tier of Capital</i>	123
7.9.10	<i>Certain Deductions part of Corresponding Deduction Approach</i>	123
7.9.11	<i>Threshold Deduction Treatment</i>	126
7.9.12	<i>Qualifying Holdings outside the Financial Sector</i>	126
7.9.13	<i>Net Capital Calculations</i>	127
7.10	Capital Buffers.....	129
7.10.1	<i>Data Population</i>	130
7.10.2	<i>Buffer Requirements</i>	130
7.10.3	<i>Required Buffers</i>	131
7.10.4	<i>Assumptions</i>	132
7.10.5	<i>Key Data Elements</i>	132
7.11	Large Exposures.....	133

7.11.1	Data Population.....	133
7.11.2	Intra-group Assignment.....	134
7.11.3	Computation of the Direct Exposures.....	135
7.11.4	Computation of Indirect Exposures.....	135
7.11.5	Computation of Synthetic Exposures	135
7.11.6	Exempted Exposures.....	135
7.11.7	Calculation of Total Exposure to a Counterparty.....	136
7.11.8	Identification of Related Parties	136
7.11.9	Total Capital of the Bank.....	136
7.11.10	Identification of Large Exposure Counterparties.....	137
7.11.11	Threshold criteria for Large Exposure Counterparties	137
7.11.12	Large Exposure Breach Calculations	137
7.12	Leverage Ratio.....	137
7.12.1	Assumptions.....	138
7.12.2	Process Flow for Leverage Ratio.....	138
7.12.3	Key Data Elements	146
7.13	Entity Level Data Output for Group Solvency Reporting.....	146
7.13.1	Run Parameters	149

8 Annexure A: Key Concepts.....150

8.1	Slow Changing Dimensions.....	150
8.2	Exhibit 1 - Mitigant Allocation Optimizer	152
8.2.1	Allocation of Mitigants (IRB Approach and Standardized Approach).....	152
8.3	Exhibit 3: Currency Conversion.....	156
8.4	Exhibit 4: FSI_CAPITAL_STANDARD_MAPPING Table Mapping.....	157
8.5	Exhibit 5: Data Expectations for few of the Basel Products	158
8.5.1	Equity Exposures Data Expectations	158
8.5.2	Securitization Exposures Data Expectations.....	158
8.5.3	Securities Financing Transaction Related Exposures Data Expectations.....	159
8.5.4	Account Mitigant Mapping Data Expectations.....	159
8.5.5	Commitment Contract Data Expectations.....	160
8.5.6	Credit Line Issued Data Expectations	160
8.5.7	Forward Contract Data Expectations	160

8.5.8	<i>Asset Sold Data Expectations</i>	160
8.5.9	<i>Spot Forex Data Expectations</i>	161
8.5.10	<i>Underlying Exposures for Derivatives</i>	161
8.5.11	<i>Underlying Exposures for CIU</i>	162
8.6	Exhibit 6: Design Changes	162
8.6.1	<i>Design Changes for Handling Organization Structure</i>	162
8.6.2	<i>Design Changes for Standardization of Asset Class and Rating</i>	163
9	Annexure A	164
9.1	Download Specifications	164
9.2	Using Process Modelling Framework	164
9.2.1	<i>Basel CAP PACK Process Modelling Framework Filters and Decision Rules</i>	164
9.3	Run Parameters Setup for Creating a Run.....	170
9.3.1	<i>Selecting Run Definition For Execution</i>	176
9.3.2	<i>Importing Run Definitions</i>	176
9.3.3	<i>Exporting Optimizer Definitions</i>	177
9.3.4	<i>BackDated Execution - Run Execution Parameter</i>	178
9.4	Data Transformation Details for Portfolio or Module	179
9.4.1	<i>DT Details - Banking</i>	179
9.4.2	<i>DT Details - Investment</i>	179
9.4.3	<i>DT Details – Derivative</i>	179
9.4.4	<i>DT Details - Secured Financial Transactions (SFT)</i>	179
9.4.5	<i>DT Details - Operational Risk</i>	180
9.4.6	<i>DT Details - Capital Structure</i>	180
9.5	Implementing Basel.....	180
9.5.1	<i>Rules List for Configuration</i>	180
9.5.2	<i>Custom Reclassification Rules</i>	181
9.5.3	<i>Seeded Values Used</i>	182
9.6	Basel Analytics Table Population - Reporting T2T.....	183
10	Annexure C: Frequently Asked Questions	184
10.1	Leverage Ratio.....	184
10.2	Capital Buffers.....	184

10.3	Credit Valuation Adjustment.....	186
10.4	Operational Risk.....	186
10.5	Capital Structure (Basel III).....	187
10.6	Securitization.....	187
10.7	Capital Structure (Basel II).....	191
10.8	Market Risk (Basel II).....	192
10.9	Mitigant Eligibility (Basel III).....	192
10.10	Haircut Assignment (Basel III).....	192
10.11	Cleared Transactions.....	193
11	Annexure D: Account Clustering Application Integration.....	194
12	Glossary.....	195

1 Getting Started

1.1 Intended Audience

Welcome to Release 8.1.1.0.0 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.
<i>Italic</i>	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 8.1.1.0.0](#).

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 AAI Application Pack**:
 - *OFS Advanced Analytical Applications Infrastructure (OFS AAI) 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 Release 8.1.1.0.0](#)
 - [OFS Analytical Applications Infrastructure Security Guide](#)
 - [OFSAAI FAQ Document](#)
 - [OFS Analytical Applications 8.1.1.0.0 Technology Matrix](#)
 - [Oracle Financial Services Analytical Applications Infrastructure Cloning Guide](#)

2 What's New in this Release

The percentage contribution by each entity within a consolidated Run across different granularity of calculation like RWA, Capital Line Items, and Capital Buffers are available for each entity. This is useful for Group Solvency-related reporting.

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 skews 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 (OFSAAI) 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 8.1.1 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 8.1 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 8.1.1 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

The screenshot shows a window titled 'Optimizer Models' with a search bar. Below the search bar, there is a table listing three optimization models. Each model entry includes the model name, its configuration (DSMIT013, DSMIT015, or DSMIT016 | Undefined | MSMIT045), and a timestamp (2020-01-22 11:18:00.0). The status for all models is 'NA'.

Model Name	Configuration	Timestamp	Status
Basel III Non Sec Optimization	DSMIT013 Undefined MSMIT045	2020-01-22 11:18:00.0	NA
Basel III Sec Optimization	DSMIT015 Undefined MSMIT045	2020-01-22 11:18:00.0	NA
Basel III Dilution Risk Optimization	DSMIT016 Undefined MSMIT045	2020-01-22 11:18:00.0	NA

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 Modeller**.
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:

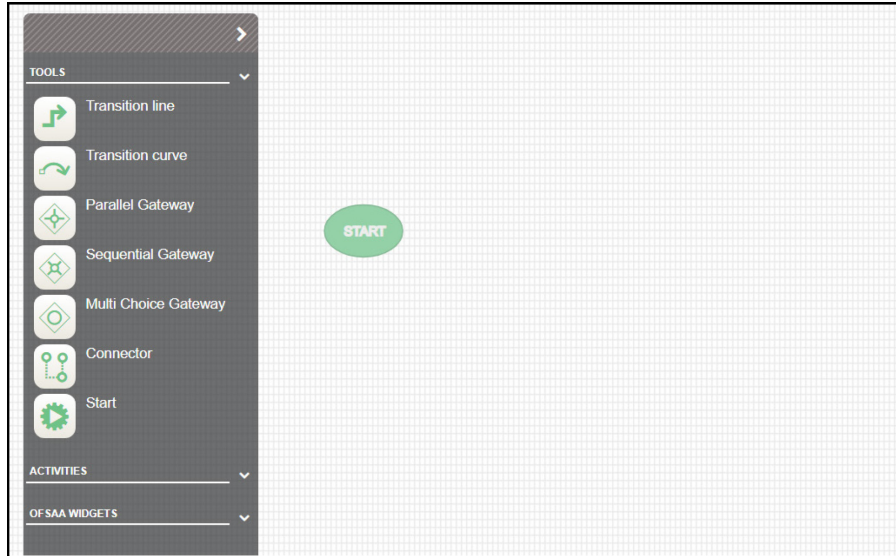
Table 2: The Process Details Form

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.

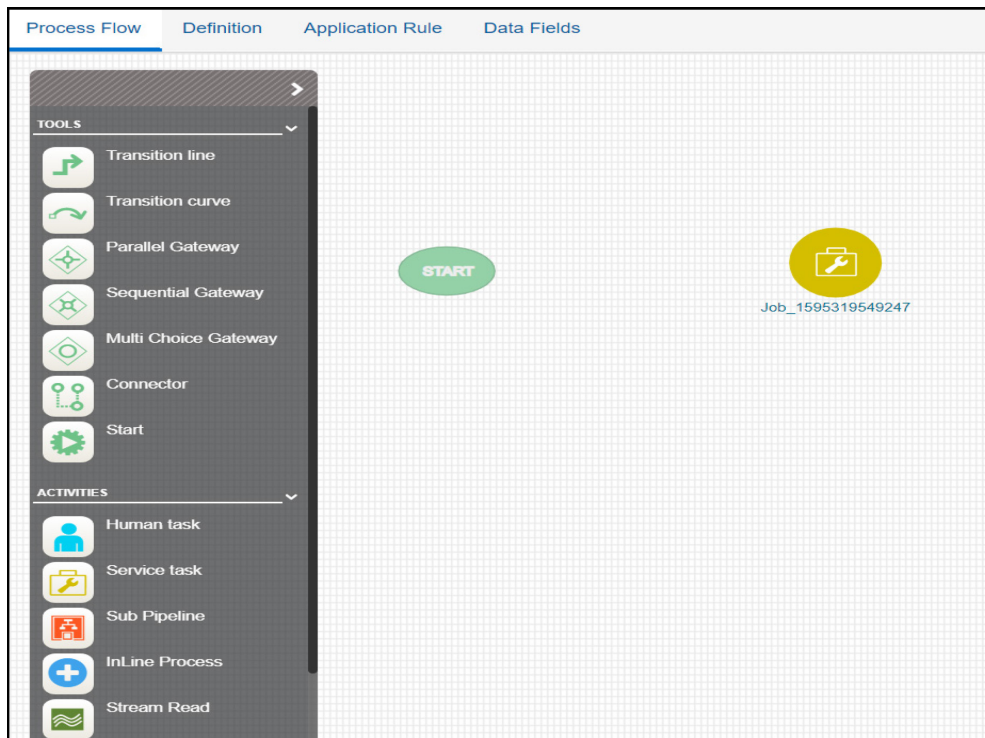
7. Click **Start** and drag the **Start** process in to the canvas.

Figure 3: Start Process Added to the Canvas



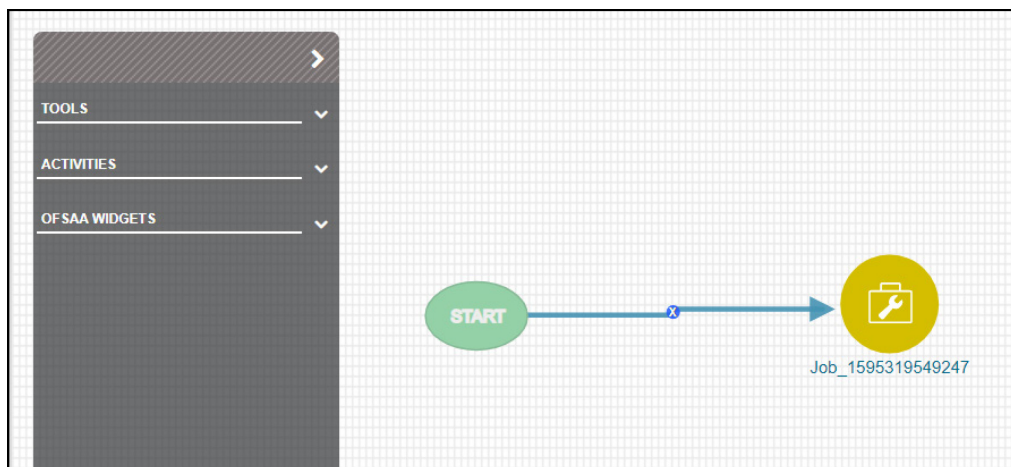
8. Click **ACTIVITIES** to expand it.
9. Click and drag **Service Task** process component into the canvas.

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

The settings window has a toolbar at the top with five icons: a refresh icon, a gear icon, a curved arrow icon, another gear icon, and a warning triangle icon. Below the toolbar are several fields, each with a red question mark icon to its left:

- Activity ID: Job_1595319549247
- Activity Name: Job_1595319549247
- Activity Desc: (empty text box)
- Activity Type: AUTOMATIC (dropdown menu)
- Status: (empty dropdown menu)
- Outcomes: (empty text box)

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

Figure 7: The Settings Tab

The screenshot shows a configuration window with a toolbar at the top containing icons for refresh, settings, undo, redo, and warning. Below the toolbar are three main sections:

- Rule:** Contains 'Infodom' with a dropdown menu set to 'JJUINF03' and 'Execution Rule' with a dropdown menu set to 'Default'.
- Parameters:** Contains an 'Add' button with a plus sign and a document icon.
- Pre/Post Processing:** Contains 'Pre Rule' and 'Post Rule', both with dropdown menus set to 'Default'.


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

Figure 8: The Participant Details Window

The screenshot shows a window titled 'Participant Details' with a close button (X) in the top right corner. It contains a table with the following data:

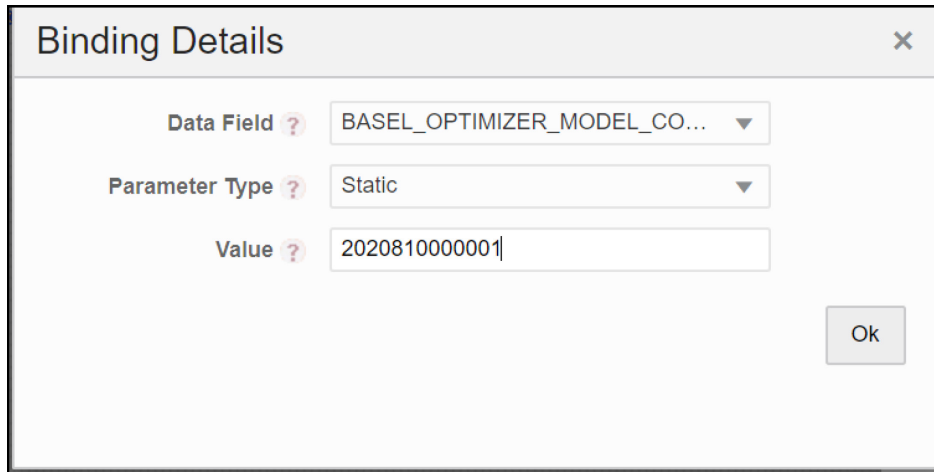
select	ID	Name
<input type="radio"/>	-1	Default
<input type="radio"/>	1583752751365	Basel Execution Parameter
<input type="radio"/>	1587987965211	Basel Run Parameter Population
<input type="radio"/>	1587391742168	Basel Non Sec FIRB Parameter Selection
<input type="radio"/>	1587391808333	Basel Non Sec AIRB Parameter Selection
<input type="radio"/>	1587383054709	Basel Non Sec STD Parameter Selection
<input type="radio"/>	1587750075132	Basel SFT or Derivatives Approach Applica
<input checked="" type="radio"/>	1585310048380	Basel Optimizer Solver for Covered Factor Estimation
<input type="radio"/>	1583935823415	Basel Non Sec STD Run Parameters
<input type="radio"/>	1580115440473	Basel CRM Pool Id Assignment
<input type="radio"/>	1579612670828	Basel CRM Method Assignment
<input type="radio"/>	1587200232087	Basel SACCB EAD Method Assignment

An 'Ok' button is located at the bottom right of the 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



The image shows a 'Binding Details' dialog box with the following fields:

- Data Field**: A dropdown menu showing 'BASEL_OPTIMIZER_MODEL_CO...'.
- Parameter Type**: A dropdown menu showing 'Static'.
- Value**: A text input field containing '2020810000001'.
- Ok**: A button in the bottom right corner.

16. Click **Ok**.

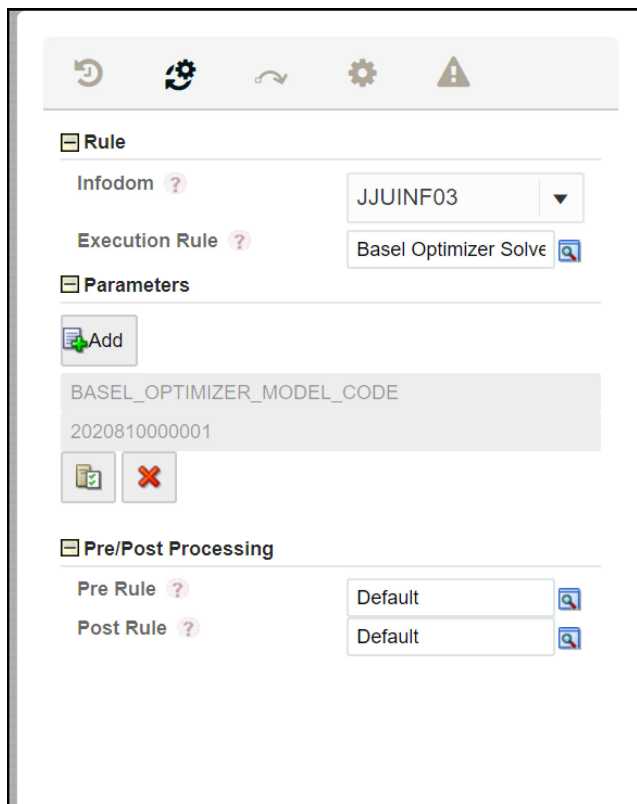
If the model code is not available on the screen, you can retrieve it from the **FSI_BASEL_OPTIMIZER_MODEL_TL** table.

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



The image shows a software interface with a 'Parameters' pane. At the top, there is a toolbar with icons for refresh, settings, undo, redo, and warning. Below the toolbar, the 'Rule' section contains:

- Infodom**: A dropdown menu with 'JJUINF03' selected.
- Execution Rule**: A dropdown menu with 'Basel Optimizer Solve' selected.

The 'Parameters' section contains:

- An **Add** button with a plus icon.
- A table with one row:

BASEL_OPTIMIZER_MODEL_CODE
2020810000001
- Buttons for adding (plus icon) and deleting (minus icon) parameters.

The 'Pre/Post Processing' section contains:

- Pre Rule**: A dropdown menu with 'Default' selected.
- Post Rule**: A dropdown menu with 'Default' selected.

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

Process Modeler					
Home > Process Modeler		Q C		Sort By <i>Select any one option</i>	
	OPTIMIZER_RUN Code: OPTIMIZER_RUN Description: OPTIMIZER_RUN	0 Version	0 Instances	Application: BASEL Type: RUN	Last Modified By: CAPUSER Last Modified Date: 2020-07-21 13:39:48
	Basel III Capital Calculation Code: RNBISPMF001 Description: Basel III Capital Calculation	0 Version	128 Instances	Application: BASEL Type: RUN	Last Modified By: CAPUSER Last Modified Date: 2020-07-14 18:27:43
	INV_PRODUCT_PROCESSOR_U NDERLYING_POP Code: PMFINV004 Description:	0 Version	93 Instances	Application: BASEL Type: PMF	Last Modified By: CAPUSER Last Modified Date: 2020-06-29 12:51:29
	Basel Analytics Data Populatio n Code: PMFBISRPT001 Description: Basel Analytics Data Population	0 Version	26 Instances	Application: BASEL Type: PMF	Last Modified By: SYSADMIN Last Modified Date: 2020-06-18 13:18:17


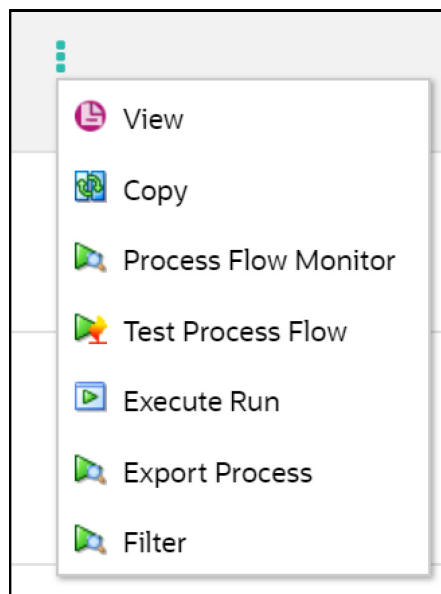
18. Click **More**  to view additional actions.

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

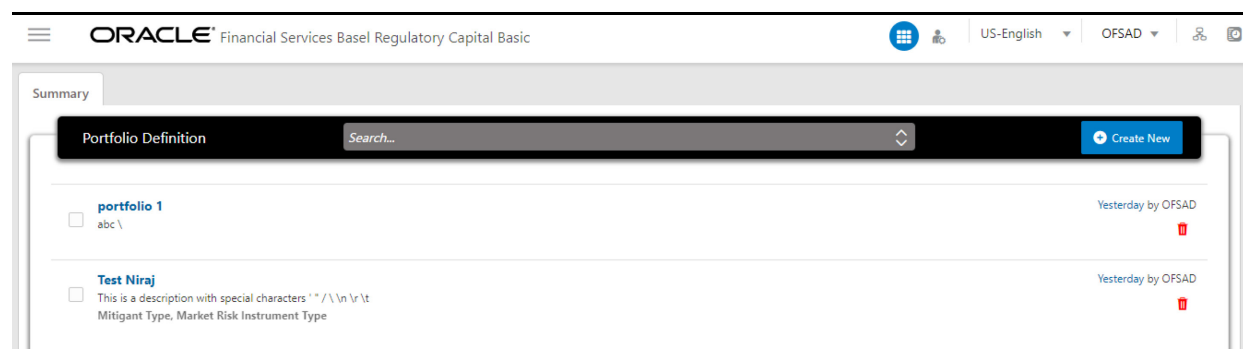
Column	Indicative values
V_HIERARCHY_CODE	Contains hierarchy code of the hierarchy to be added
F_LATEST_RECORD_INDICATOR	To be set to 'Y' for the hierarchies which have to be displayed
D_RECORD_START_DATE	Start date of the hierarchy.
D_RECORD_END_DATE	The end date of the hierarchy.

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

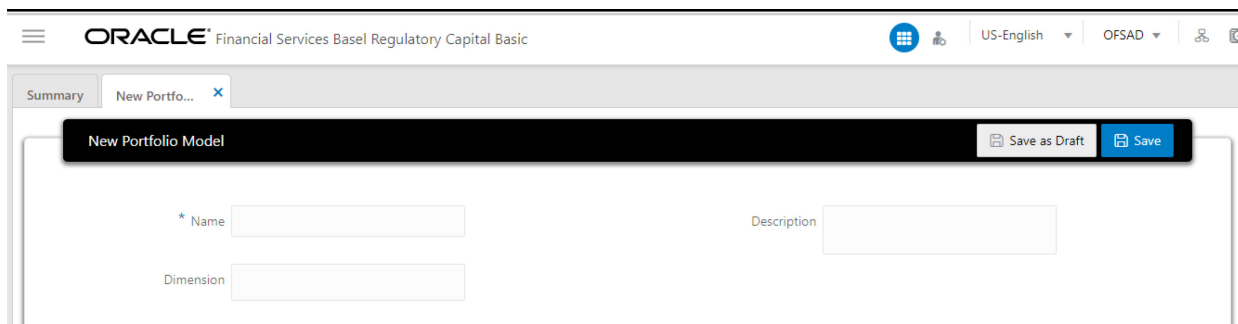


5.3.2.2.3 Create a Portfolio Definition

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: <ul style="list-style-type: none"> • 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** .
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 8.1.1 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.

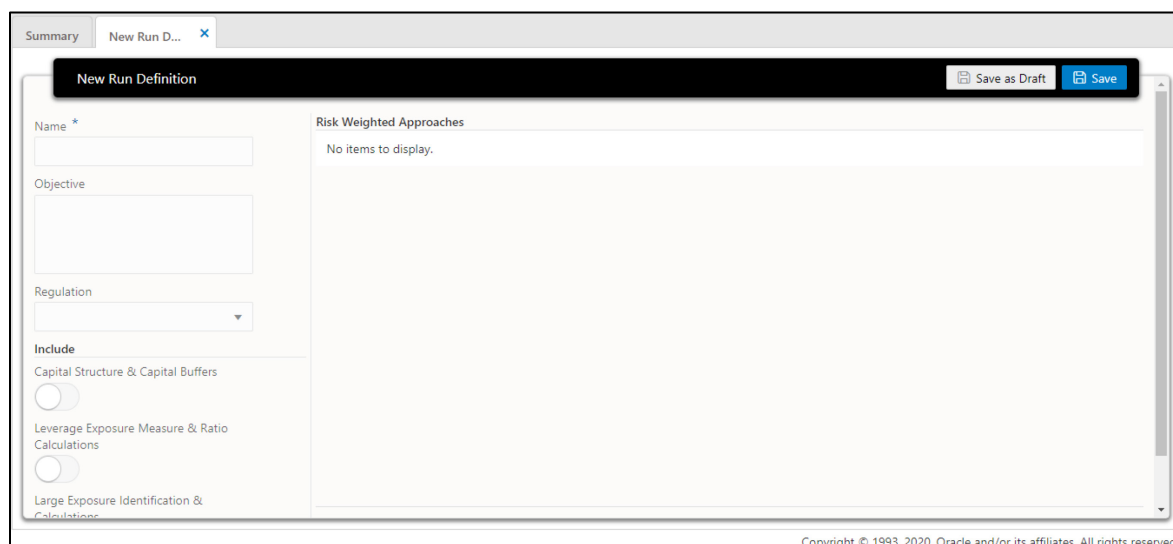
5.3.2.3.2 Create a Run Definition

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.





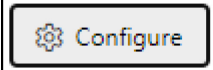

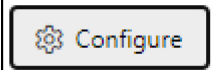
Figure 18: The New Run Definition window

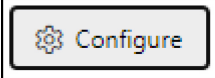
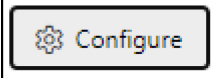

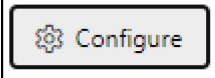
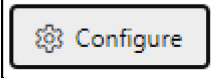
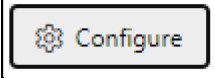


2. Enter the details as per the following table:

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.

Field	Description
Regulation	Select a regulation from the drop-down list. The available options are: <ul style="list-style-type: none"> • 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 <div style="border-left: 2px solid green; padding-left: 10px; margin-left: 20px;"> <p>NOTE:</p> <p>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.</p> </div>	
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.
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.

Field	Description
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

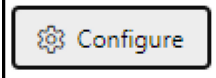
approaches pane, click **Configure**  to open the configuration window and populate the form as per the following table:


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 European Banking Association (EBA)

6.1 Introduction of OFSAA Portfolio Definitions

Every bank has different LOBs and they have different functions. To aid the bank in its efficient management of regulatory calculations, the application has inbuilt portfolio definitions, concerning the banking book and trading book respectively. The different portfolio definitions help in the ease of calculations for the bank, and the parallel processing of the risk-weighted asset calculations. In many of the banks, the ownership of every portfolio might be different, and hence it becomes easier for the maintenance of the ownership for every data point and calculations. The data points concerning every portfolio are different.

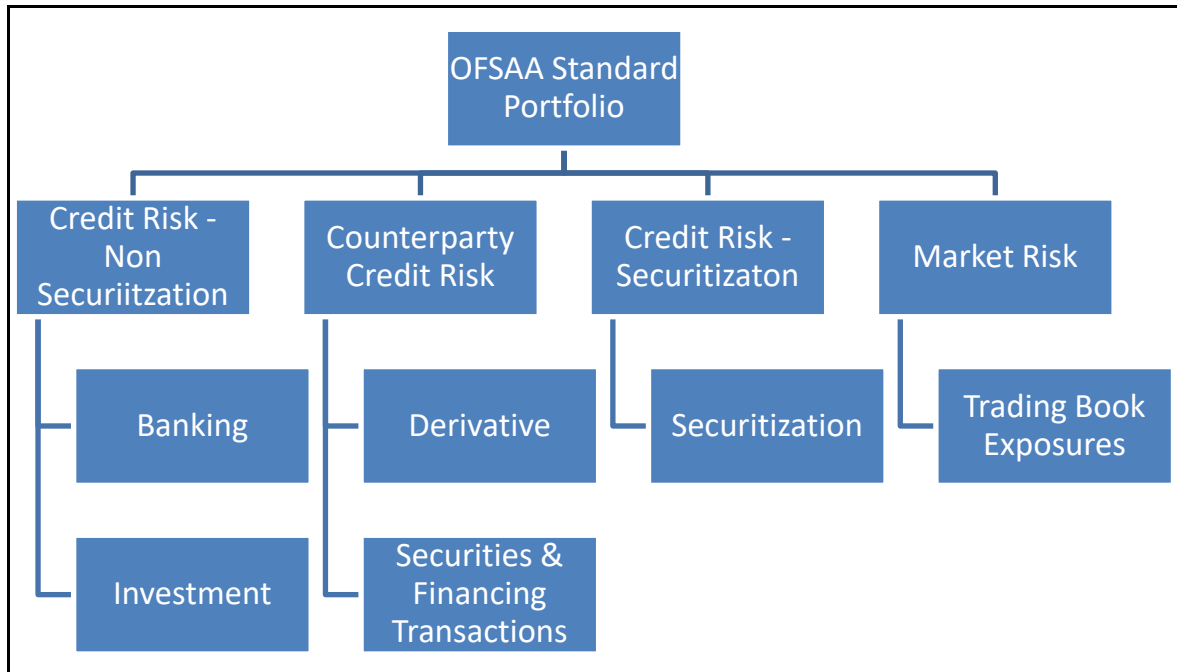
The various portfolios concerning Credit Risk are

- Credit Risk Non-Securitization
 - Banking Related Exposures
 - Investment Related Exposure (only belonging to banking book)
- Counterparty Credit Risk – Non-Securitization
 - Derivative Related Exposures (both banking and trading book exposures)
 - Securities and Financing Transaction Related Exposures (Both banking and trading book exposures)
- Credit Risk Securitization
 - Securitization Related Exposures (only belonging to banking book)

The portfolio of trading book exposures is the portfolio for Market Risk.

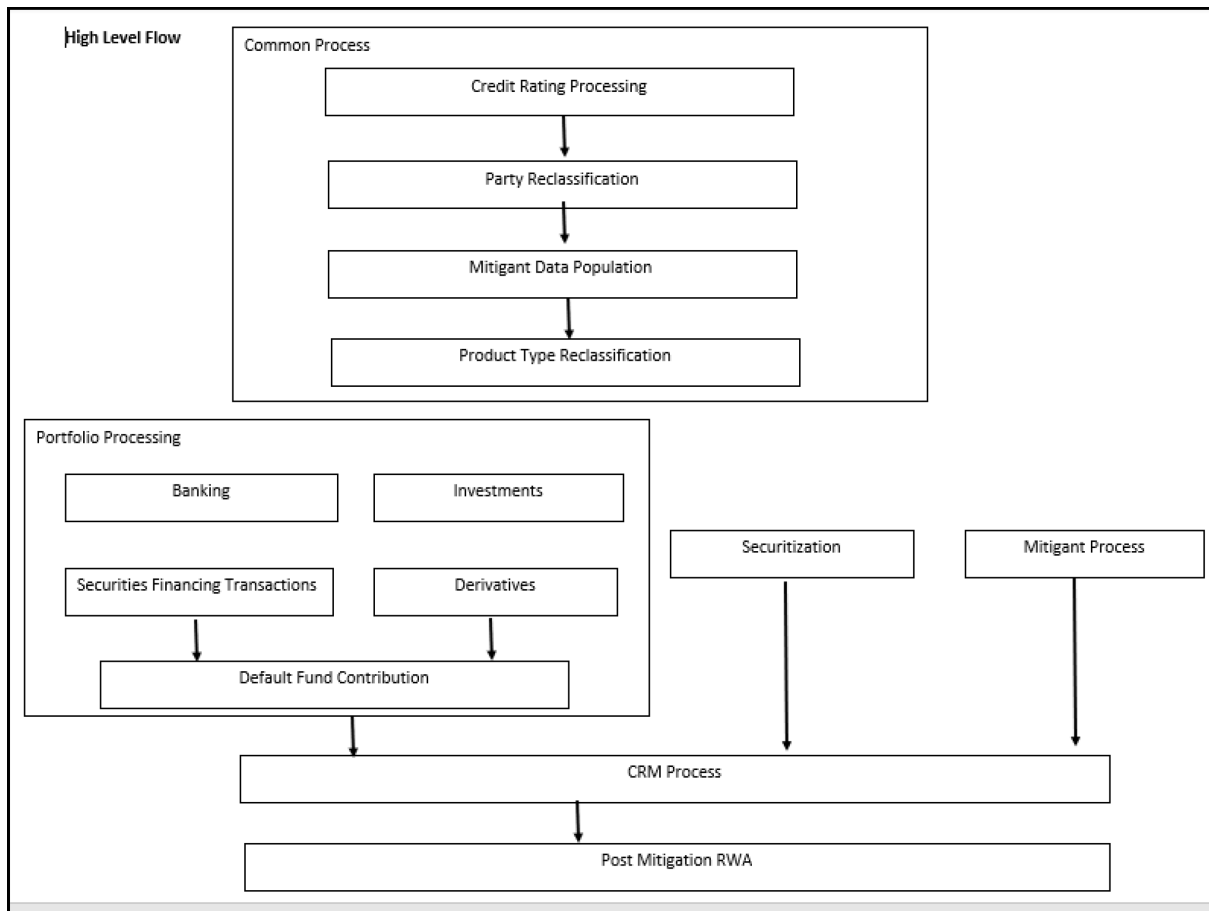
The following chart shows the hierarchy of the OFSAA portfolios:

Figure 19: OFSAA Portfolio Hierarchy



The following illustration displays the high level flow of the processing:

Figure 20: High Level Flow of Processing

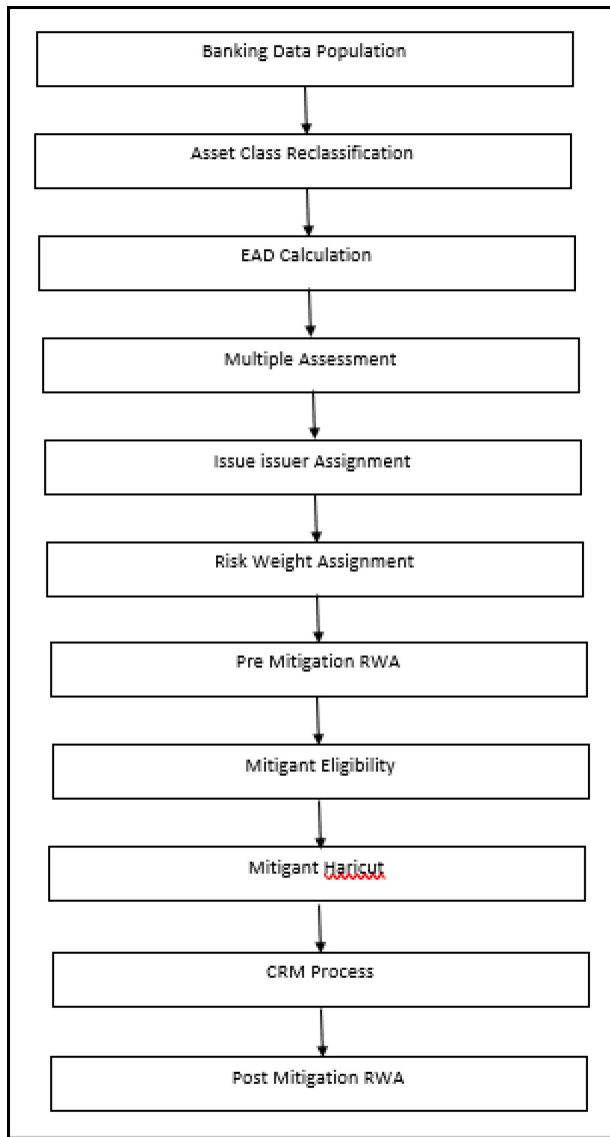


6.1.1 Banking

The Banking portfolio caters to the core banking activities of the bank – be it corporate banking or retail banking. This includes all the various banking activities in the form of loans provided by the bank, cards issued by the bank, commitments issued by the bank, overdraft provided by the bank, and other such core banking specific activities. Since this is a mandatory portfolio for all the banks, this portfolio has its own RWA calculations.

The following illustration shows the high-level flow of banking portfolio:

Figure 21 High Level Flow of Banking Portfolio

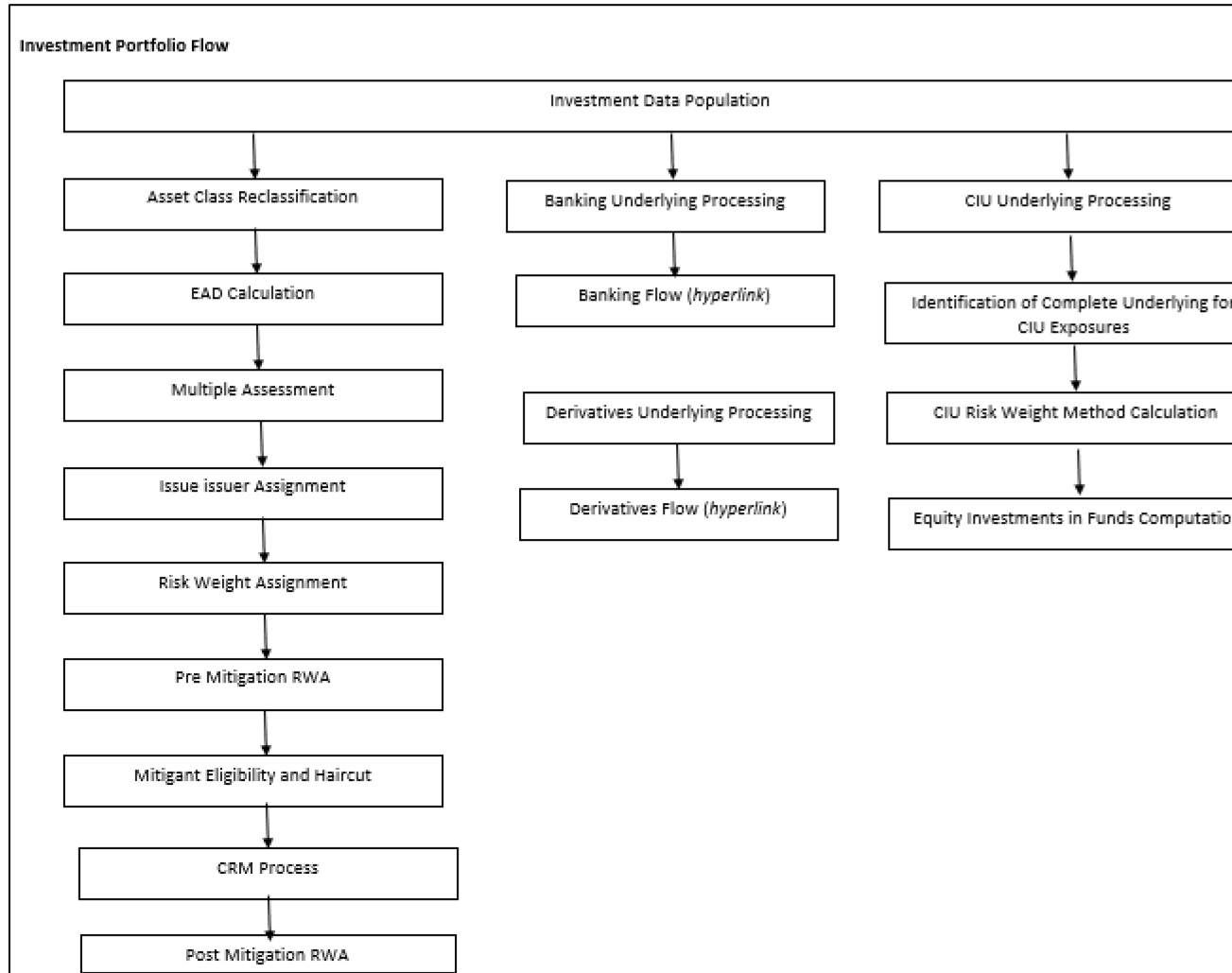


6.1.2 Investment

The Investment portfolio caters to any of the investment activities of the bank, for which the bank holds the assets till maturity. These are the exposures that the bank will portray in the banking book. This includes all the investment in the form of any money market instruments or spot instruments or debt

securities, held by the bank till maturity, and hence considered to be in the banking book. This also includes the bank’s investment in the form of fixed assets as well. This will be applicable only if the bank holds exposures in the form of investment related to the banking book. The following illustration displays the flow for Investments:

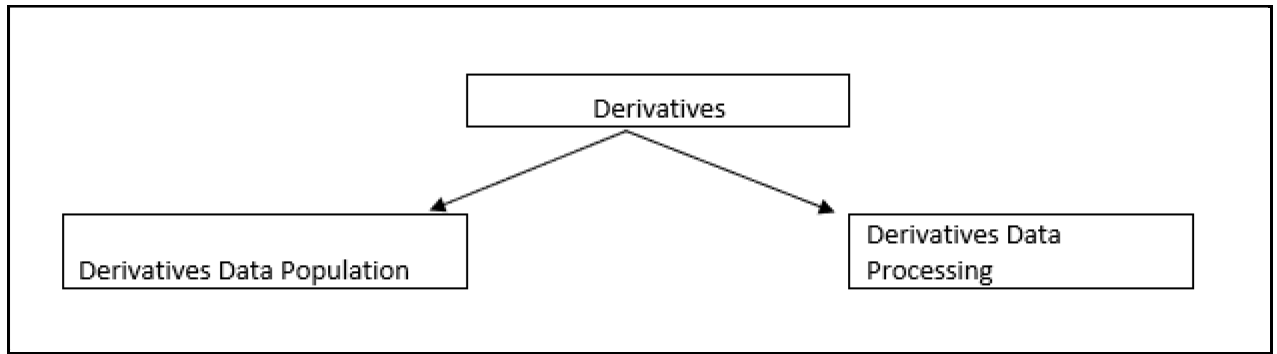
Figure 22 Process Flow for Investment Portfolio



6.1.3 Derivative

The derivative portfolio caters to any of the derivative activities of the bank. These are the derivatives for which the bank is one of the counterparties or the bank acts as a clearing member or clearing member client. This includes derivatives in the form of credit derivatives, forwards, futures, options contracts, and swap contracts. This includes both banking and trading book-related derivative exposures. The following illustration displays the flow for derivatives:

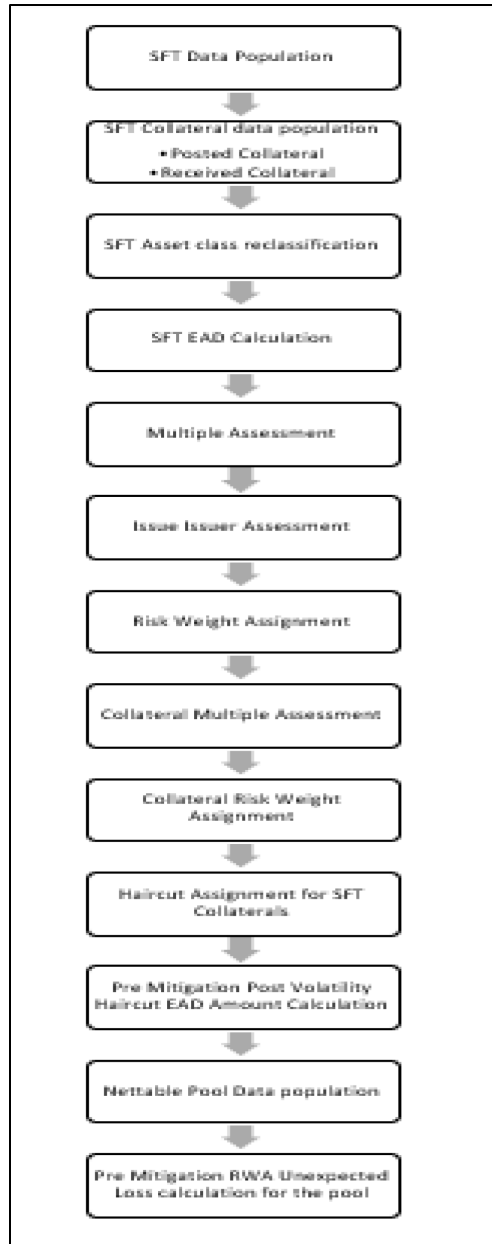
Figure 23 Process Flow for Derivatives



6.1.4 Securities and Financing Transactions

The Securities and Financing Transactions (SFT) portfolio caters to any of the securities financing activities of the bank. These are the SFT which the bank enters into, or the bank acts as a clearing member or clearing member client. This includes SFT in the form of repurchase agreements, reverse repurchase agreements, margin lending transactions, securities lending, and borrowing transactions. This will include both the banking and trading book-related exposures. The following illustration displays the flow for for SFTs:

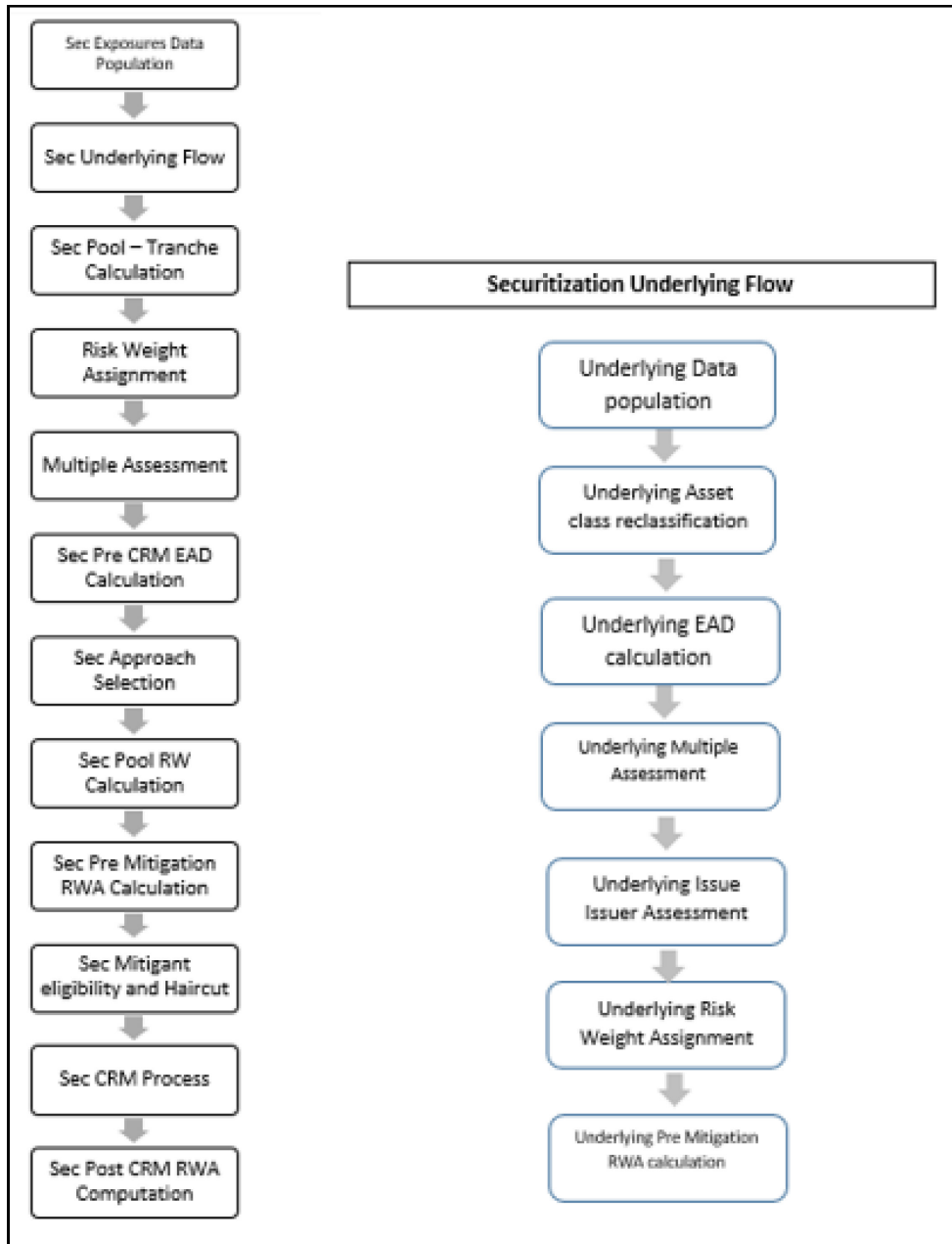
Figure 24: Process Flow for SFT



6.1.5 Securitization

The Securitization portfolio caters to the securitization activities of the bank, wherein the bank either acts as an investor/ originator/ sponsor, or in the form of any other party wherein the bank provides some credit enhancement or commitment to the securitization transaction. This includes banking book-related exposures. The following illustration shows the flow for Securitization:

Figure 25: Process Flow for Securitization



6.2 Overview of CRR & CRR II

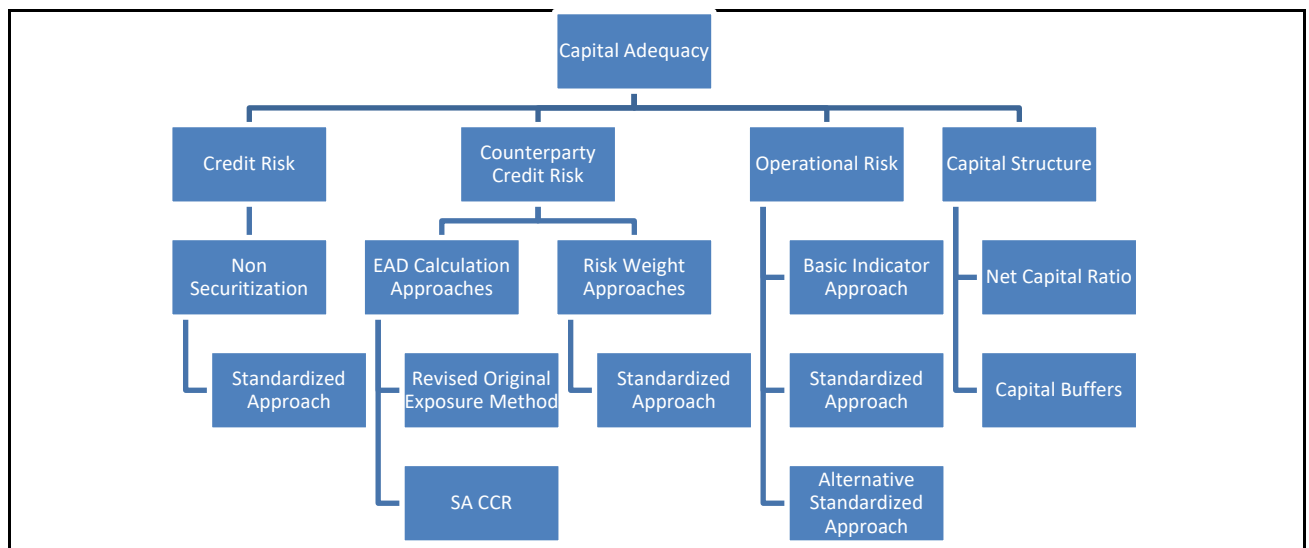
The European Banking Association (EBA) in conjunction with the European Council and the European Parliament has issued the CRR/ CRR II and CRD IV/ CRD V rule which encompasses the entire Regulations to be followed by the Banks. These regulations are by and large compliant with the Basel III post crisis reform changes issued by the Basel Committee (BIS), with respect to the Credit Risk and Counterparty Credit Risk.

The OFS Financial Services Basel Regulatory Capital application incorporates the Capital Requirements Regulation II (CRR II) issued by the European Union on 26th June 2013. The application is compliant with the Standardized approach for European Jurisdiction:

- Non-Securitization Exposures – Standardized Approach
- Counterparty Credit Risk Exposures – Original Exposure Method
- Settlement Risk Exposures
- Default Fund Contribution – Qualified Central Counterparty and Non-Qualified Central Counterparty
- Capital Structure – Capital Ratios and Buffers

The various functions that are encompassed as part of OFS Basel Regulatory Product for complying with the EBA Guidelines are as follows:

Figure 26: Functionalities of Capital Adequacy



6.2.1 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.

6.2.2 Counterparty Credit RWA

Counterparty Credit RWA is the calculation of the counterparty credit risk exposures. This includes the derivative portfolio and the Securities and Financing transaction portfolio. This also includes the exposures in both banking book and trading book.

6.2.3 Default Fund Contributions Related Capital Charge

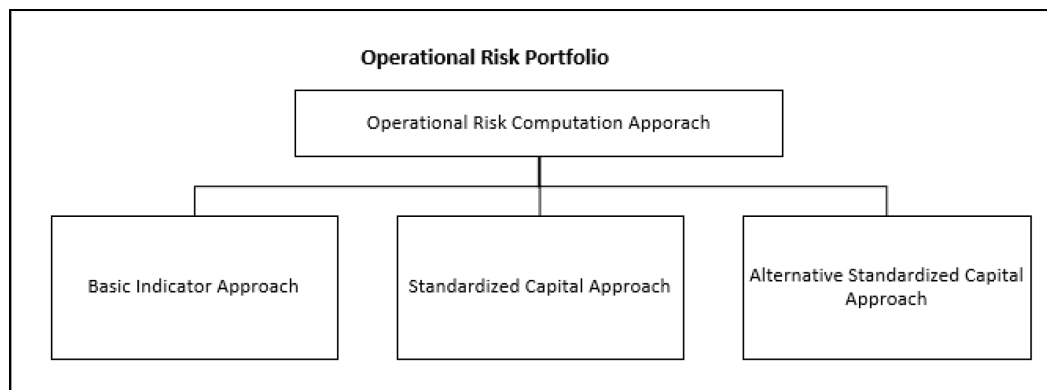
A default fund contribution refers to the funds contributed, or commitments made by a clearing member to a Central Counterparty's (CCP) equalized loss-sharing agreement. The purpose of such default funds is to provide capital, in addition to the collateral posted by participants and in addition to capital provided by the clearinghouse, as a safeguard against extraordinary losses that might occur in connection with. The application also helps in the computation of the default fund related capital charges.

6.2.4 Operational Risk RWA

As per the Basel accord, "Operational Risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or external events". External losses can occur due to theft of information or hacking of systems. The Basel accord has prescribed three methods for calculating Operational Risk capital charges and banks can use any of these methods to calculate capital charge:

- Basic Indicator Approach
- Standardized Approach
- Alternative Standardized Approach

Figure 27 Process Flow for Operational Risk Portfolio



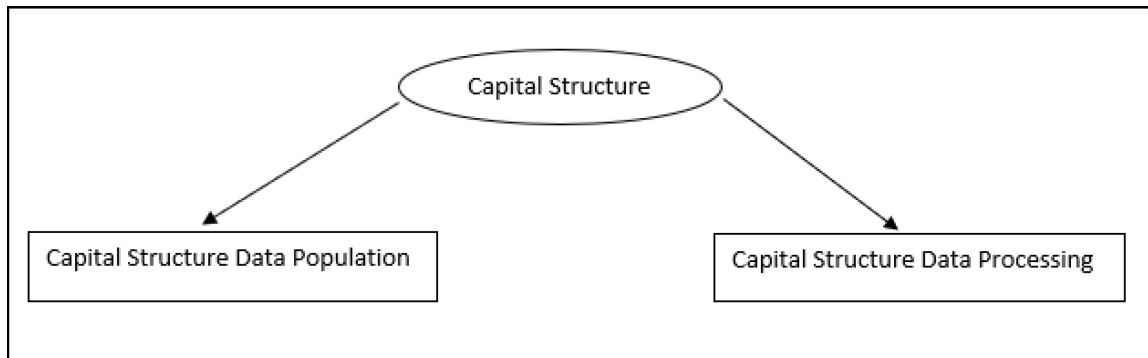
6.2.5 Capital Structure

During the economic crisis, the global banking system had an insufficient level of high-level quality capital. During the crisis, it was identified that there was inconsistency in the definition of capital across jurisdictions and lack of disclosure. To address this issue of inconsistency, the Basel committee has prescribed a new definition of capital to strengthen the global capital framework under Basel III.

As per the new definition in the Basel III accord, total capital consists of some of the following elements:

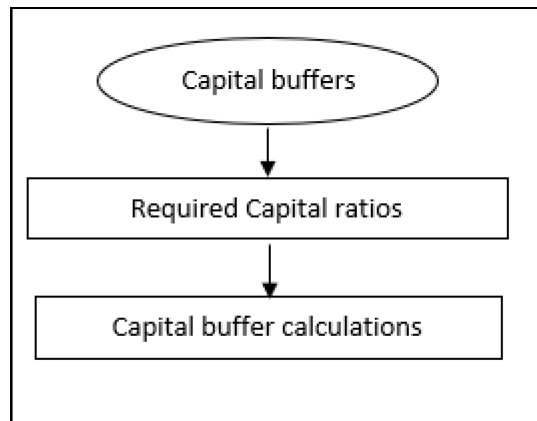
- Tier1 Capital that consists of
 - Common Equity Tier 1
 - Additional Tier 1
- Tier 2 Capital

The following illustration displays the process flow for Capital Structure:

Figure 28 Process Flow for Capital Structure

6.2.6 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:

Figure 29: Process Flow for Capital Buffers

6.2.7 Large Exposures

The large exposure framework is a framework detailing on how the banks have to manage its exposures to various parties both at individual level, as well as to the group of connected clients' level.

The large exposure framework has to be complied with the bank at both solo and consolidated level. As part of the solo execution, the bank has to identify its large exposures, and comply within the required threshold limit.

As part of the consolidation execution, the bank has to identify the total large exposures at the consolidated level, and comply within the required threshold limit.

7 European Union CRR II Standardized Approach

Capital Adequacy guidelines as issued in the following regulations are incorporated in OFS Financial Services Basel Regulatory Capital:

The European Banking Association (EBA) in conjunction with the European Council and the European Parliament has issued the CRD IV and CRR IV rule which encompasses the entire Regulations to be followed by the Banks. These regulations 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 Capital Requirements Regulation IV (CRR IV) issued by the European Union on 26th June 2013. The application is compliant with the Standardized approach for European Jurisdiction.

This approach covers the following topics:

- Credit RWA
- Counterparty Credit RWA
- Default Fund Contributions Related Capital Charge
- Operational Risk RWA
- Capital Structure
- Capital Buffers

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 8 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 9 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 10 Data Population between Exposures and Mitigants

Product	Source Table
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAP

Processing table details

All Credit Risk Banking exposures are loaded into the table, FSI Cap Banking Exposures (**FSI_CAP_BANKING_EXPOSURES**) where further processing happens for this portfolio of exposures till the computation pertaining to Pre-Credit Risk Mitigation process

This is handled in the process **Banking Data Population**.

Banking Retail Data Population

There is a data population for Retail exposures which picks up relevant exposures from above mentioned Product tables and populates the same into **FSI_CAP_BANK_RETAIL_EXP** table. This is handled in the **BANKING_RETAIL_EXPOSURE_DATA_POP** sub-process within the **EU Banking Data Processing – Standardized** process.

7.1.1.4 Shareholding Percent Multiplication

Shareholding percent multiplication for common entity level data is a part of **Common Data Processing** (PMFCOM007) process. In this the application updates the shareholding percentage against each entity is updated with the value of 1 as the shareholding percent and for each child entity, the percentage is based on the parent's holding percentage as specified for each child in fact entity shareholding percent table (FCT_ENTITY_SHR_HLD_PERCENT).

Shareholding percent multiplication for exposure level is part of each portfolio as well. In this process, the application multiplies the entity shareholding percentage for that entity with respect to parent entity against exposure amounts, undrawn amount and provision amount for that exposure and update the same.

This is handled in the sub-process **BNK_SHAREHOLDING_CALCULATION_STD** of the process **EU Banking Data Processing – STD**.

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.

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, Housing Loan is reclassified as Residential Mortgage Exposure.

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

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, an Individual is reclassified as Retail.

This is handled in the **Party Type Reclassification**, which is part of **EU Other Reclassification** process.

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 rule “Credit Rating Reclassification” of the process **EU_OTHER_RECLASSIFICATION**.

The reclassification of these ratings to the Credit quality steps get handled as part of the T2T “T2T_BASEL_CREDIT_RATING_BAND_MAP_DATA_POP”. The ratings get reclassified into Credit Quality Steps as expected for each of the risk type – Credit Risk, Securitization, Sold Credit Protection.

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 Residential Mortgage Exposure, the asset class is Claims Secured by Residential Real Estate.

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

This happens in the **EU_BNK_RECLASSIFICATION_STD** sub-process of the process **EU Banking Data Processing – STD**.

The Asset class gets clubbed under different asset class category as relevant for the asset classes. This is used for the regulatory treatment. This particular reclassification happens in the “**FSI_BASEL_ASSET_CATEGORY_MAP_DATA_POP**” task of the process **OTHER_DATA_POPULATION**.

7.1.1.7 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.

7.1.1.7.1 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), Undrawn Amount of the Exposure (Undrawn Amount) and the Credit Conversion Factor for the Off-Balance sheet Amount (CCF). This is computed for the on-balance sheet products separately, and the off-balance sheet products separately.

This happens in the sub-process **EU_BNK_PRE_CRM_EAD_COMPUTATION_STD** in **EU Banking Data Processing – STD** process.

Credit Conversion Factor (CCF Assignment)

This is an input required for converting the off-balance sheet component of the exposure (undrawn portion associated with an on-balance sheet or off-balance sheet product, or the exposure amount of an off-balance sheet product). This is based on the supervisory provided values and is determined based on the product type and the maturity associated with the exposure.

This populates the Drawn CCF (for the CCF to be assigned to the exposure amount of the off-balance sheet product) and the Undrawn CCF (for the CCF to be assigned to the undrawn portion of the on balance sheet and off balance sheet exposures).

This happens in the process **EU_BNK_CCF_ASSIGNMENT_STD** in **EU Banking Data Processing – STD** process.

Post CRM EAD

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.

7.1.1.7.2 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 **BNK_MULTIPLE_ASSESSMENT_PROCESSING_DATA_POPULATION**, wherein the data for the multiple assessment processing is populated into the FSI table.

MULTIPLE_RATING_ASSESSMENT, wherein the identification of the multiple rating for the exposure happens, and the **EU_BNK_MULTIPLE_ASSESSMENT_BASED_RISK_WEIGHT_ASSIGNMENT** wherein the actual risk weight and final rating assignment happens for the exposures.

All the above fall under in **EU Banking Data Processing – STD** process.

7.1.1.7.3 Issue Issuer Assessment

For all the exposures, which remain unrated after the multiple assessment processes, the issue issuer process is performed. This happens in the Issue Issuer Assessment sub-process (**EU_BNK_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 Banking 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.

7.1.1.7.4 Risk Weight Assignment Rules

Banking Exposures Risk Weight

Risk Weight is assigned based on asset class and the credit rating as per CRR 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.

Risk weight assignment takes place in the sub-processes **EU_BNK_RISK_WEIGHT_ASSIGNMENT_STD** and **EU_BNK_RISK_WEIGHT_POST_ISSUE_ISSUER_ASSESSMNT_STD** in **EU Banking Data Processing – STD** process.

Specific Standard Party treatment

The application has a pre-determined set of Specific Standard Parties. The list of Standard Parties that are covered is detailed in the following table:

Table 11 List of standard parties and its details

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 19 are sample values, and can be changed to meet 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 takes place in **EU-BNK MDB Risk Weight** and Asset Class for Certain Parties process in **EU – Banking Data Processing –STD** process.

7.1.1.7.5 **Treatment of Immovable Property Exposures**

Loan to Value Calculation

The application calculates Loan to Value (LTV) ratio based on either Collateral Market Value or Banking Mortgage Lending Value. The user has the option of selecting which LTV calculation method to use based on run parameter screen.

Loan to value is computed by dividing Pre mitigation Exposure at default value by the available mitigant value. The available mitigant value can be either Collateral Market Value or Banking Mortgage Lending Value depending on choice of run parameter.

Exposures having LTV ratio less than or equal to one are stamped as fully covered by mitigant and the respective flag will be set to Yes. Exposures with LTV ratio greater than one are not fully covered by mitigant and the respective flag will be set to No.

The above calculations can be found in the process **EU_BNK_LOAN_TO_VALUE_RATIO_CALCULATION** in the process **EU Banking Data Processing –STD**.

The exposures to Immovable property will have risk weight assignment and Asset Class stamping based on several conditions including Basel Product type, LTV ratio, Fully Covered by Mitigant Flag.

For example, a fully covered exposure with Basel product RME (Residential Mortgage Exposure), having an LTV ratio of less than 80%, which is Self-Occupied having Mitigant Value dependent on Obligor Indicator as well as Borrower Risk Dependent on Mitigant Indicator flags as No, will have an Asset class as RES (Claims Secured by Residential Property) and a risk weight of 35% will be assigned to the same exposure.

Risk weighting rules for immovable property can be found in the sub-process **EU_BNK_IMMOVABLE_EXP_RISK_WEIGHT_ASSIGNMENT_ST** in **EU Banking Data Processing – STD** process.

High Risk Exposure Treatment

Exposures in Speculative Immovable Property Financing are considered as High-Risk exposures.

These exposures will be assigned a risk weight of 150%.

This is handled in **BNK - High Risk Exposure Risk Weight Assignment** based on High Risk Flag as part of **EU_BNK_RISK_WEIGHT_POST_ISSUE_ISSUER_ASSMNT_STD** sub-process which will be part of **EU Banking Data Processing –STD** process.

7.1.1.7.6 **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

EU_BNK_PRE_CRM_RISK_WEIGHTED_ASSET_CALCULATION_STD in **EU Banking Data Processing – STD** process.

7.1.1.8 **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.

7.1.1.8.1 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 sub-process **EU Mitigant Data Population** under the process **EU Mitigant Data Processing – Standardized**.

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 **EU Mitigant Data Processing –STD Approach**.

The Data Transformation **CAP_MITIGANT_MULTIPLE_ASSESSMENT_DATA_POP** performs this.

7.1.1.8.2 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 **EU Mitigant RW Assignment**.

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.

7.1.1.8.3 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 assigns haircuts for various types 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 **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

Exposures in Default

Defaulted exposures have the Specific Credit Risk Adjustment Ratio or Provision Coverage Ratio Calculated using the below formula:

$$\text{Provision Coverage Ratio} = \text{Provision Amount} / (\text{Pre mitigation EAD} + \text{Instrument Valuation Adjustment Amount} + \text{Instrument Other Valuation Adjustment Amount} + \text{Provision Amount})$$

Based on this ratio, risk weight assignment happens as mentioned below:

When Provision Coverage Ratio is less than 20%, risk weight of 150% is assigned

When Provision Coverage Ratio is greater or equal to 20%, risk weight of 100% is assigned to the exposures

The above calculations take place in the sub-process **Specific Credit Risk Adjustment Ratio and RW Assignment for Defaulted Exposures** in the process **EU CRM Data Processing**.

SME Factor Calculation

Exposures to Small and medium sized enterprises (SME) have the below treatment before arriving at Post CRM RWA.

$$\text{SME Factor} = [\min(\text{Total Group Exposure Amount}, 2,500,000 \text{ Euros}) * 0.7619 + \max(\text{Total Group Exposure Amount} - 2,500,000 \text{ Euros}, 0) * 0.85] / \text{Total Group Exposure Amount}$$

Once SME factor is calculated, RWA Post CRM Post SME Pre Additional Factor is computed by multiplying RWA Unexpected Loss with the SME factor.

Additional Factor Calculation

Adjustment to own funds requirements for credit risk for exposures to entities that operate or finance physical structures or facilities, systems and networks that provide or support essential public services

0.75 will be the Additional SME Factor

Finally, RWA Post SME Post Additional factor RWA is computed by multiplying RWA Post CRM Post SME Pre Additional Factor with the Additional Factor.

The above calculations take place in EU Post CRM Attributes To Banking sub-process in EU CRM Data Processing process.

7.1.2 Investment Portfolio

7.1.2.1 Rating Population

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

- 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.
- Party Rating Table (**STG_PARTY_RATING_DETAILS**)
 - Ratings for the customer 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**)
 - Credit Rating for all external 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 EXPO01, 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.

7.1.2.1.1 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**), 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.

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 12 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

7.1.2.2 Data Population

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.

Table 13 Data Population for Mitigants and Counter-Guarantee

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 14 Data Population for the Mapping between Exposures and Mitigants.

Product	Source Table
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAP

In the case of investments in funds (CIUs), the underlying of the CIU is captured in either of the product type in the following table depending on the data availability:

Table 15 Data Population for CIU

Product Type	Source Product Processor
Underlying composition Details of CIU	STG_FUND_CIS_COMPOSITION
Underlying Exposures of CIU	STG_FUND_UNDERLYNG_COMPOSITION

Processing table details

All Credit Risk Investment exposures are loaded into the table, FSI CAP Investment Exposures, **FSI_CAP_INVESTMENT_EXPOSURES** where further processing happens for this portfolio of exposures till the computation pertaining to Pre Credit Risk Mitigation process

This is handled in the process **Investment Data Population**.

7.1.2.3 Shareholding Percent Multiplication

In this the application updates the shareholding percentage against each entity. The parent entity is updated with the value of 1 as the shareholding percent and for each child entity, the percentage is based on the parent's holding percentage as specified for each child in fact entity shareholding percent table (FCT_ENTITY_SHR_HLD_PERCENT).

Shareholding percent multiplication for exposure level is part of each portfolio as well. In this process, the application multiplies the entity shareholding percentage for that entity with respect to parent entity against exposure amount, undrawn amount and provision amount for that exposure and update the same.

This is handled in the sub-process **INV_SHAREHOLDING_CALCULATION_STD** of the process **EU Investment Data Processing – STD**.

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.

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.

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 **EU Other Reclassification** process.

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 rule “Credit Rating Reclassification” of the process “EU_OTHER_RECLASSIFICATION”.

The reclassification of these ratings to the Credit quality steps get handled as part of the T2T “T2T_BASEL_CREDIT_RATING_BAND_MAP_DATA_POP”. The ratings get reclassified into Credit Quality Steps as expected for each of the risk type – Credit Risk, Securitization, Sold Credit Protection.

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.

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

This happens in the sub-process **EU Investment Reclassification -STD** of the process **EU INV Data Processing - STD**.

The Asset class gets clubbed under different asset class category as relevant for the asset classes. This is used for the regulatory treatment. This particular reclassification happens in the “FSI_BASEL_ASSET_CATEGORY_MAP_DATA_POP” task of the process “OTHER_DATA_POPULATION”

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)

This happens in the process **INV_PRE_CRM_EAD_COMPUTATION_STD** of the process **EU INV Data Processing - STD**.

Post CRM EAD

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 **INV_MULTIPLE_RATING_ASSESSMENT_DATA_POPULATION**, 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

EU_INV_MULTIPLE_ASSESSMENT_BASED_RISK_WEIGHT_ASSIGNMENT wherein the actual risk weight and final rating assignment happens for the exposures.

All the above fall under **EU INV Data Processing – STD**.

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 (**EU Investment 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 sub-process: **EU Investment Risk Weight Assignment -STD** in **EU INV Data Processing – STD** process.

Specific Standard Party treatment

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

Table 16 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

V_STD_PARTY_CODE	V_STD_PARTY_NAME	V_PARTY_ID
EU	European Union	P37
EAEC	European Atomic Energy Community	P38
EFSF	European Financial Stability Facility	P39
ESM	European Stability Mechanism	P40

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%.

For exposures to European Investment Fund having Basel product UPS (Unpaid portion of partly paid securities) will have a risk weight of 20%.

This treatment of Standard Parties is handled in **EU-INV MDB Risk Weight and Asset Class for Certain Parties** process in **EU – INV Data Processing –STD** process.

High Risk Exposure Treatment

Investments in Venture Capital Firms or in Private equity, except those that are part of CIU treatment are considered as High-Risk exposures. These exposures are assigned a risk weight of 150%.

This is handled in **INV - High Risk Exposure Risk Weight Assignment** based on High Risk Flag as part of **EU Investment RW for Missing and Unrated Assets –STD** sub-process which will be part of **EU - INV Data Processing –STD** process.

Risk Weight assignment of Covered Bonds

Covered bonds are debt securities issued by credit institutions and secured by a pool of mortgage loans or credit towards the public sector. These covered bonds qualify for a preferential treatment only if they qualify for the treatment based on the criteria for the underlying exposures. If they do not qualify for the preferential treatment, they will be treated based on the issuer asset class, as any other bond instrument.

The covered bonds issued on or before 31 Dec 2007 will be eligible for this preferential treatment, without any additional criteria.

In the case of covered bonds issued after 31 Dec 2007, they will be eligible for the preferential treatment only if the bank is able to exhibit that they receive the portfolio information periodically, and the underlying of these covered bonds, satisfy all the criteria required by the regulator.

If any of the criteria are not met, then they will not qualify for the preferential treatment.

For example, below is a criteria based on party of the underlying exposure

The underlying of the covered bonds belonging to the below category are eligible for preferential treatment, provided they have a credit quality step of 1 and do not exceed 15% of the nominal amount of the outstanding covered bonds of the issuing institution.

Exposures to Institutions

Below is another criteria based on the product to which the underlying exposure has invested

The underlying of the covered bonds belonging to the below category are eligible for preferential treatment

Loans secured by maritime lien on ships with the threshold value for eligibility equivalent to 60% of the value of the pledged ship less the value of any prior liens on the same ship.

All covered bond exposures for which Preferential Treatment criteria are met will get Asset Class stamping of CB (Covered Bond).

Rated CB exposures will assign risk weight based on the rating while unrated CB exposures will use the rating of the issuer of the financial instrument.

Covered Bonds related tasks are found in the sub-process **EU Investment RW Assignment Covered Bonds – STD** in the process **EU Investment Data Processing – Standardized**.

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. The application supports all the approaches. In the case of CIU, the application follows a hierarchy of approaches:

- Look Through Approach
- Mandate 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), 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, 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 underlying for a CIU, then the MTM value of the derivative is expected to be given as Asset MTM Value (N_ASSET_MTM_VALUE) in Stage Fund CIS Composition (STG_FUND_CIS_COMPOSITION). MTM value of the derivative must also be populated to Composition Value (N_COMPOSITION_VALUE).

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. To validate 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.

The look through approach are handled in the sub-process **CIU - INV – Risk Weight Method Assignment – Look Through Approach** in the process **EU Investment CIU Risk 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, need to have the mandate information required. 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 **EU Investment CIU Risk Weight Assignment**.

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

Other Approaches

The application also checks for other approaches such as Ratings based approach (**INV - CIU Risk Weight Assignment -Rating based Approach**) and Third Party Issued Risk Weight (**INV - CIU Risk Weight Assignment based on Third Party Issued Risk Weight**).

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 EU Investment CIU Risk Weight Assignment**.

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 INV_PRE_CRM_RISK_WEIGHTED_ASSET_CALCULATION_STD under the process EU INV Data 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 sub-process **EU Mitigant Data Population** under the process **EU Mitigant Data Processing – Standardized**.

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 **EU Mitigant Data Processing –STD Approach**.

The Data Transformation “CAP_MITIGANT_MULTIPLE_ASSESSMENT_DATA_POP” performs this.

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 **EU Mitigant RW Assignment**.

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 **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

Exposures in Default

Defaulted exposures have the Specific Credit Risk Adjustment Ratio or Provision Coverage Ratio Calculated using the below formula:

$$\text{Provision Coverage Ratio} = \text{Provision Amount} / (\text{Pre mitigation EAD} + \text{Instrument Valuation Adjustment Amount} + \text{Instrument Other Valuation Adjustment Amount} + \text{Provision Amount})$$

Based on this ratio, risk weight assignment happens as mentioned below:

When Provision Coverage Ratio is less than 20%, risk weight of 150% is assigned

When Provision Coverage Ratio is greater or equal to 20%, risk weight of 100% is assigned to the exposures

The above calculations take place in the sub-process **Specific Credit Risk Adjustment Ratio and RW Assignment for Defaulted Exposures** in the process **EU CRM Data Processing**.

SME factor calculation

Exposures to Small and medium sized enterprises (SME) have the below treatment before arriving at Post CRM RWA.

$$\text{SME Factor} = [\min(\text{Total Group Exposure Amount}, 2,500,000 \text{ Euros}) * 0.7619 + \max(\text{Total Group Exposure Amount} - 2,500,000 \text{ Euros}, 0) * 0.85] / \text{Total Group Exposure Amount}$$

Once SME factor is calculated, RWA Post CRM Post SME Pre Additional Factor is computed by multiplying RWA Unexpected Loss with the SME factor.

Additional factor calculation

Adjustment to own funds requirements for credit risk for exposures to entities that operate or finance physical structures or facilities, systems and networks that provide or support essential public services 0.75 will be the Additional SME Factor.

Finally, RWA Post SME Post Additional factor RWA is computed by multiplying RWA Post CRM Post SME Pre Additional Factor with the Additional Factor.

The above calculations take place in **EU Post CRM Attributes To Investments** sub-process in **EU CRM Data Processing** process.

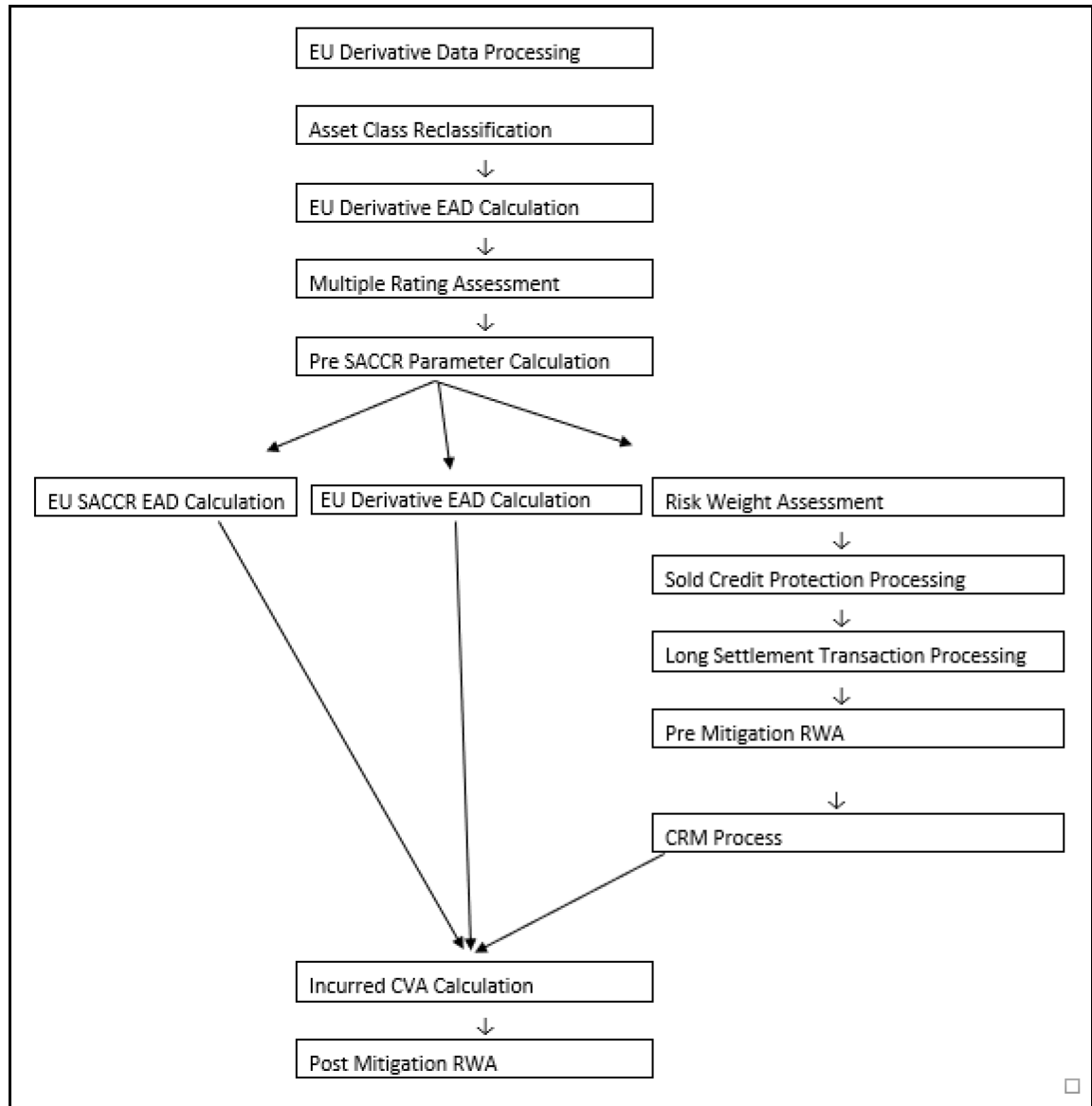
7.2 Counterparty Credit RWA

Counterparty Credit RWA is the calculation of the counterparty credit risk exposures. This includes the derivative portfolio and the Securities and Financing transaction portfolio. This also includes the exposures in both banking book and trading book.

The counterparty credit exposures also undergo additional RWA calculation in the form of Credit Valuation Adjustment (CVA). The mark to market counterparty credit losses or the spread migration risk is captured with CVA, which was not directly capitalized before. CVA is the difference between the risk-free portfolio value and the true portfolio value that considers the possibility of the counterparty's default. In other words, CVA is the market value of counterparty credit risk.

7.2.1 Derivatives Portfolio

Figure 30: Process Flow for Derivatives Portfolio



7.2.1.1 Rating Population

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

- Party Rating Table **STG_PARTY_RATING_DETAILS**
 - Credit rating for all are captured in this table.
- Sovereign Rating Table **STG_SOVEREIGN_RATING_DETAILS**
 - Credit Rating for all countries is captured in this table.
 - Instrument Rating Table **STG_INSTRUMENT_RATING_DETAILS**

Ratings for all instruments are captured in this table. Even the posted collateral (Placed Collateral) and received collateral (Mitigants) related ratings are captured in this table and is handled in the process **EU_DRV_INSTRUMENT_RATING_POPULATION**.

7.2.1.1.1 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 process

EU_RATING_RECLASSIFICATION_POPULATION.

The application re-classifies the rating information to BIS Specific standard ratings. The out-of-box application supports the Fitch / Moody's / S&P and DBRS credit rating reclassification for Long Term and Short-Term ratings. This is handled in the process **Credit Rating Reclassification.**

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 a stage tables such as **STG_PARTY_RATING_DETAILS**) to an FSI table such as **FSI_PARTY_RATING_DETAILS** by using the lookup table **FSI_RATING_CLASSIFICATION** to obtain a reclassified rating.

You must ensure that all the relevant columns as indicated in the download specifications Specs are populated with data. For example, in the Stage Party Rating Details (**STG_PARTY_RATING_DETAILS**) table, the following columns must be populated:

- Rating source code **V_RATING_SRC_CODE**
- Party Code **V_PARTY_CD**
- Purpose **V_PURPOSE**

The purpose code indicates whether the rating is domestic or foreign. If any other rating is provided, then the exposure is considered as unrated.

7.2.1.2 Data Population

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

Table 17 Data Population for Counterparty Credit Risk Exposures

Product	Source Product Processor
Swaps	STG_SWAPS_CONTRACTS
Futures	STG_FUTURES
Options	STG_OPTION_CONTRACTS
Credit Derivatives	STG_CREDIT_DERIVATIVES
Forwards	STG_FORWARDS

There is a data population about the placed collateral and central counterparty details, which are required for the cleared transaction and default fund contribution treatment. These data populations are detailed in the following table:

Table 18 Data population for placed collateral and default fund contribution treatment

Product	Source Product Processor
Placed Collateral	STG_PLACED_COLLATERAL
Default Fund Contribution	STG_CCP_DETAILS

There is a data population about the mitigants, which cater to the applicable mitigant type like collateral received for the derivatives, listed in the following table:

Table 19 Data population for Mitigants

Product	Source Product Processor
Mitigants – Collateral received	STG_MITIGANTS

There is a data population for the mapping between exposures and mitigants, and another mapping between exposures and the placed collateral. These data populations and their table names are listed in the following table:

Table 20 Data population for mapping

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

Processing table details

All Counterparty credit Risk related derivative exposures are loaded into the table, FSI Cap Derivative (FSI_CAP_DERIVATIVES) where further processing happens for this portfolio of exposures till they are moved to the Netting set granularity. This is handled in the process Derivative Data Population process, under sub process;

- DERIVATIVE_SWAPS_EXPOSURE_DATA_POPULATION
- DERIVATIVE_FUT_EXPOSURE_DATA_POPULATION
- DERIVATIVE_OPT_EXPOSURE_DATA_POPULATION
- DERIVATIVE_CREDIT_DERIVATIVES_DATA_POPULATION

All placed collateral that the bank has placed, which are not specific to Securities Financing Transactions exposures, are loaded into the table, FSI_PLACED_COLLATERAL

All the collateral that the bank has received, as part of the Derivative transactions, are loaded into the table, FSI_CAP_MITIGANTS.

7.2.1.3 Shareholding Percent Multiplication

Shareholding percent multiplication for common entity level data is a part of **EU Common Data Processing** process. In this the application updates the shareholding percentage against each entity. The parent entity is updated with the value of 1 as the shareholding percent and for each child entity, the

percentage is based on the parent's holding percentage as specified for each child in fact entity shareholding percent table (FCT_ENTITY_SHR_HLD_PERCENT).

Shareholding percent multiplication for exposure level is part of each portfolio as well. In this process, the application multiplies the entity shareholding percentage for that entity with respect to parent entity against exposure amount, undrawn amount and provision amount for that exposure and update the same.

This is handled in the sub-process **EU_DRV_SHAREHOLDING_CALCULATION_STD** of the process DRV data processing.

7.2.1.4 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.

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, Interest Rate Futures is reclassified as Futures

This is handled in the **Basel Product Type Reclassification** which is part of the EU Other Reclassification process.

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, a Small business entity is reclassified as Corporate SME

This is handled in the **Party Type Reclassification** which is part **EU_COMMON_RECLASSIFICATION** process.

Instrument Type Reclassification

Bank Instrument types used by the reporting bank as input data are reclassified to Instrument types. The instrument types after reclassification are stored as Instrument types. For Example, Interest Rate Future Contract is reclassified as Interest Rate Futures. This happens as part of the process **EU_COMMON_RECLASSIFICATION** process.

Mitigant Reclassification

For mitigants the application reclassifies the mitigant type to the standard mitigant type like the debt securities.

The reclassification tasks are present in the **EU_MITIGANT_TYPE_RECLASSIFICATION**.

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 rule “Credit Rating Reclassification” of the process **EU_OTHER_RECLASSIFICATION**.

The reclassification of these ratings to the Credit quality steps get handled as part of the T2T **T2T_BASEL_CREDIT_RATING_BAND_MAP_DATA_POP**. The ratings get reclassified into Credit Quality Steps as expected for each of the risk type – Credit Risk, Securitization, Sold Credit Protection.

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**.

7.2.1.5 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.

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

This happens in the process **EU_DRV_RECLASSIFICATION_STD**.

The Asset class gets clubbed under different asset class category as relevant for the asset classes. This is used for the regulatory treatment. This particular reclassification happens in the **FSI_BASEL_ASSET_CATEGORY_MAP_DATA_POP** task of the process “OTHER_DATA_POPULATION”

7.2.1.6 Pre-mitigation Calculations - Exposure at Default Amount Calculation

Pre-mitigation Exposure at Default can be calculated using one of the two approaches of EAD – SA CCR, Revised OEM Approach and the IMM methods. This is based on run management selection.

The Standardized Approach for Counterparty Credit Risk (SA-CCR) is an alternative for Standardized Method (SM) and Current Exposure Method (CEM) for Counterparty Credit Risk (CCR) in Credit Risk.

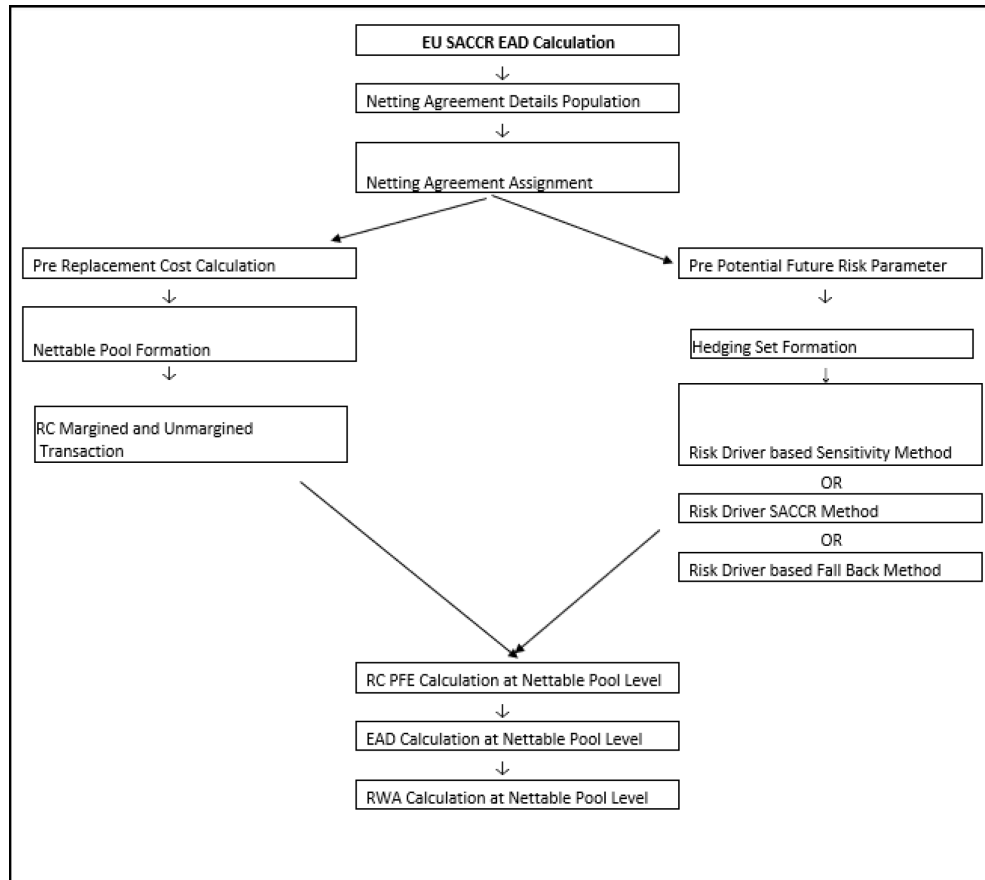
Banks can use the SA-CCR approach or the Revised OEM Approach while they follow Standardized or IRB approaches for credit risk. The SA-CCR approach and the Revised OEM Approach is applicable for Over the Counter (OTC) Derivatives, Exchange.

7.2.1.6.1 SA-CCR Method of EAD Computation

The exposures under the SA-CCR consist of two components: replacement cost (RC) and potential future exposure (PFE). The replacement cost is mostly related to the mark to market of the derivative contract, by considering the collateral and margin agreement as relevant. The potential future exposure consists of a multiplier that allows for the partial recognition of excess collateral and an aggregate add-on.

The following flowchart depicts the process flow of SA-CCR:

Figure 31: Process Flow for SA-CCR



Netting Agreement

For instruments participating in netting set, the notability flag should be set as 'Y'. Instruments with the same agreement code are netted in the same netting set.

The application creates new records for netting agreement and then populates into the FSI Netting Agreement Details (FSI_NETTING_AGREEMENT_DETAILS) table. The netting agreements will be populated in the process NETTING_AGREEMENT_DETAILS_DATA_POP.

Margin Agreement

For both RC and PFE, if one of the netting agreements has multiple margin agreements, then this netting agreement should be divided into sub-netting agreements to align with the margin agreements. This is captured in EU_RC_MARGINED_UNMARGINED_AGREEMENT process Placed Collateral & Mitigant – Eligibility Condition

The mitigant is identified as eligible are not based on the eligibility rules for CRM as mentioned in Basel III accord. Credit rating of the collateral is considered for all mitigants 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 Processing – STD Approach (FSI_CAP_MITIGANTS). 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.

The placed collateral is captured in FSI Cap Placed Collateral (FSI_CAP_PLACED_COLLATERAL) and this also moves to FSI Cap Mitigants (FSI_CAP_MITIGANTS), wherein the placed collateral and the mitigants both undergo the same treatment. This is part of the process FSI_PLACED_COLLATERAL_DATA_POPULATION and FSI_CAP_MITIGANT_DATA_POPULATION.

Placed Collateral & Mitigant – Haircut Assignment

The application assigns three kinds of mitigant haircut, which are 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 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 have an original maturity of more than a year, the maturity mismatch haircut is applied to adjust the value. The application assigns a volatility haircut using Supervisory Haircut method when standardized approach is selected.

This is part of the process FSI_PLACED_COLLATERAL_DATA_POPULATION and FSI_CAP_MITIGANT_DATA_POPULATION

Replacement Cost

The Replacement Cost (RC) is computed differently for margined and unmargined netting agreements.

All the required attributes for replacement cost are populated from the FSI Cap Derivative Exposures (FSI_CAP_DERIVATIVES) Cap Mitigants (FSI_CAP_MITIGANTS) and FSI Placed Collateral (FSI_PLACED_COLLATERAL) to the table FSI_CAP_NETTABLE_POOL wherein the replacement cost (N_REPLACEMENT_COST) calculation happens. Since there are different calculations required for the replacement cost, depending on whether it is a margined transaction or not, and depending on whether the netting set contains only a single margin agreement or multiple margin agreements, it happens in the table FSI_MARGINED_EAD_CALC. This is handled in the RC_MARGINED_UNMARGINED_TRANSACTION process.

In the case of contracts covered by margin agreement, the Initial margin and the Variation margin are expected at the netting agreement level. The minimum transfer amount and threshold amount are also expected at the netting agreement level and expected to be provided as an input in the Stage Net Exposures tables (STG_NET_EXPOSURES).

Methods of identifying various risk categories and risk drivers:

For each exposure, the banks must identify the primary risk driver of the risk factors such as interest rate, foreign exchange, credit, equity, or commodity. This is crucial because the Add-on formula for each risk category is different and it depends on the nature of the risk factors. The risk categories can be identified by defining the primary risk factors of underlying exposures in the derivative contracts.

This is selected by the bank based on the Run Management UI.

Sensitivities Based Method

SA-CCR Based Method

All the Add-ons are computed for the instrument, with respect to all material risk drivers as per the SA CCR calculation. Using this, the material risk categories are identified, as the one with the

maximum absolute value of sensitivity multiplied by the risk weight. This gets handled in the process and the table.

Fall Back Approach

All the Add-ons are computed for the instrument, with respect to all risk drivers. And all the risk categories will be considered as the material risk driver. This gets handled in the process and the table.

Essentially, it will be one instrument that can be mapped to multiple risk categories, with one material risk driver identified for each risk category. And the resultant replacement cost will be summation of the add-on across all the material risk categories.

The data for Risk Drivers and Categories are from the following tables:

- FSI Cap Risk Category Master (FSI_CAP_RISK_CATEGORY_MASTER)
- FSI Cap Risk Driver Master (FSI_CAP_RISK_DRIVER_MASTER)
- FSI Cap Risk Driver Map Master (FSI_CAP_RISK_DRIVER_MAP_MASTER)
- Parameter Calculations for Potential Future Exposure

The parameters to be considered for the Calculation of Potential Future Exposure, which is treated under the process PRE_POTENTIAL_FUTURE_RISK_PARAMETERS,

Multiplier

The multiplier in the PFE formula serves to reduce the add-on for over collateralization as in practice many banks hold excess collateral precisely to offset potential increases in exposure represented by the add-on.

Aggregate Add-on

The asset classes; interest rate, foreign exchange, credit, equity or commodity and a derivatives transaction is assigned to an asset class based on its primary risk driver. The add-ons for each asset class are simply aggregated.

Most derivative transactions have one primary risk driver, defined by its reference to underlying instrument.

Adjusted Notional

For interest rate and credit derivatives, the trade-level adjusted notional is the product of the trade notional amount, converted to the domestic currency, and the supervisory duration (SD).

Supervisory delta adjustments

These parameters are also defined at the trade level and are applied to the adjusted notional amounts to reflect the direction of the transaction. For derivatives that are not options, the value of this parameter is +1 for long (MTM increases when the value of the primary risk factor increases) or -1 for short (MTM decreases when the value of the primary risk factor increases).

Supervisory correlation parameters

These parameters only apply to the PFE add-on calculation for equity, credit and commodity derivatives. For these asset classes, the supervisory correlation parameters are derived from a single-factor model and specify the weight between systematic and idiosyncratic components.

Potential Future Exposure (PFE)

The Potential Future Exposure (PFE) is computed differently for each of the risk categories, and the final value is assigned to the netting set (stored at the FSI Cap Nettable Pool (FSI_CAP_NETTABLE_POOL)).

PFE add-ons are calculated for each asset class within a netting set and then aggregated. Add-ons for an asset class require the use of hedging sets, which are transactions within a single netting set within which partial or full offsetting is recognized in the methodology.

For Interest rate derivatives a hedging set consists of all derivatives Hedging sets are further divided into maturity categories. Long and short positions in the same hedging set are permitted to fully offset each other within maturity categories; across maturity categories, partial offset is recognized.

For the calculation of PFE, it is required to adopt the unmargined methodology. This is because, one margin agreement applies to multiple netting agreements and collaterals are based on the netted MTM values of the derivative contracts.

This is handled in **FSI_POTENTIAL_FUTURE_EXP_CALC**.

Exposure at Default Calculations (EAD)

Through the CRM process, the bank considers the mitigation effect and calculates the post mitigation exposure at default amount. This signifies the maximum loss that the bank can suffer in case of default on this exposure, after considering all the mitigation effects. The application also computes pre-mitigation risk weighted assets in the process

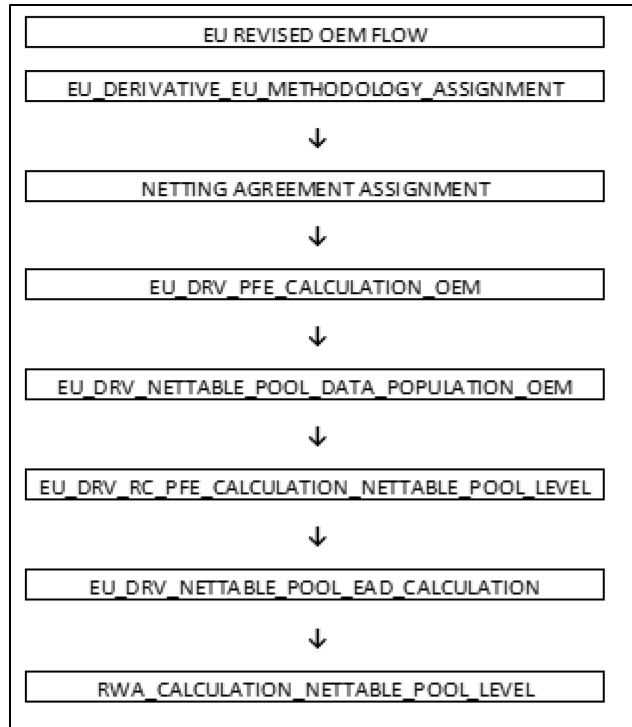
EU_DRV_PRE_CRM_RISK_WEIGHTED_ASSET_CALCULATION and post mitigation risk weighted assets in the process EU_DRV_POST_CRM_RISK_WEIGHTED_ASSET_CALCULATION by multiplying the respective EAD by risk weight. The risk weight in this case is arrived at by analyzing the credit rating of the exposures or mitigants.

The risk weight is arrived at by multiplying pre-mitigation capital charge with 12.5. Through the Credit Risk Mitigation, the bank considers the effects of mitigation. The application checks mitigant eligibility based on the Basel specifications and assigns a haircut to each mitigant based on their currency, residual maturity, and expected volatility in their market value.

7.2.1.6.2 Revised OEM Method

The exposures under Revised OEM Approach which complies with the OEM set of conditions, will be risk weighted, and the EAD will be computed for those exposures. And these exposures will be part of the RWA calculations as well. The exposure value calculated, where the flow is given as follows:

Figure 32: Process Flow for Revised OEM method



Netting Set

For Exposures participating in netting set and meet the required conditions given below as part of Revised OEM Approach;

- The netting agreement belongs to one of the following types of contractual netting;
 - Bilateral contracts between an institution and its counterparty
 - Other bilateral agreements between an institution and its counterparty
 - Contractual cross-product netting agreements
- The netting agreement recognized by competent authorities;
- Institution has to fulfill the following obligations in respect of the netting agreement.
 - Ensure legal validity and enforceability of its contractual netting agreement.
 - Maintain all required documentation relating to its contractual netting.
 - In the case of contractual cross-product netting agreements: verify that any transaction which is to be included in a netting set is covered by a legal opinion.

Exposure which satisfies the above conditions will the DIM_NETTING_AGREEMENT.F_LEGAL_ENFORCEABILITY flag as 'Y'. Those exposures will move to the calculation of the exposure value of a netting set under the standardized approach for counterparty credit risk

The application creates new records for netting agreement and then populates into the FSI Netting Agreement Details (FSI_NETTING_AGREEMENT_DETAILS) table. The netting agreements will be populated in the process NETTING_AGREEMENT_DETAILS_DATA_POP.

Replacement Cost

The Replacement Cost (RC) is computed differently; For the RC calculation, the netting set of transactions is split into two. For netting sets of transactions: that are traded on a recognized exchange or centrally cleared by a central counterparty authorized or for which collateral is exchanged bilaterally and For other netting sets or individual transactions, when there is no mitigant associated, this is captured in EU - Derivative Nettable Pool RC Calculation – OEM.

NOTE

Replacement Cost is calculated for Nettable Pool level using Netting Agreement attributes. In this, the initial RC is for entire Netting Agreement

Since the RC values are at Netting Agreement and each Netting Agreement can have more than one Nettable Pool, hence the RC is prorated and distributed among all the Nettable Pool. Hence, the sum of all RCs will be stored within the Netting Agreement and this value is not stored currently and it will be taken up in the next release.

All the required attributes for replacement cost are populated from the Fsi Cap Derivative Exposures (FSI_CAP_DERIVATIVES) Cap Mitigants (FSI_CAP_MITIGANTS) and FSI Placed Collateral (FSI_PLACED_COLLATERAL) to the table FSI_CAP_NETTABLE_POOL wherein the replacement cost (N_REPLACEMENT_COST) calculation happens. Since there are different calculations required for the replacement cost, depending on whether mitigant is associated with or not, and depending on whether the netting set contains only a single margin agreement or multiple margin agreements. This is handled in the Replacement Cost process.

In the case of contracts covered by margin agreement, the Initial margin and the Variation margin are expected at the netting agreement level. The minimum transfer amount and threshold amount are also expected at the netting agreement level and expected to be provided as an input in the Stage Net Exposures tables (STG_NET_EXPOSURES).

Aggregate Add-on

The asset classes; interest rate, foreign exchange, credit, equity, commodity or other risk and a derivatives transaction is assigned to an asset class based on its primary risk driver. The add-ons for each asset class are simply aggregated. Each risk category is assigned percentage based on various asset classes.

Most derivative transactions have one primary risk driver, defined by its reference to underlying instrument.

Adjusted Notional

For interest rate and credit derivatives, the trade-level adjusted notional is the product of the trade notional amount, converted to the domestic currency, and the supervisory duration (SD).

Under OEM, the interest rate swaps have the option of choosing one of the following maturities for assigning the add-on:

- Residual Maturity
- Original Maturity

The Commodity derivative risk rate is divided into gold- commodity and electricity. The solution computes the add-on and EAD using the run management option selected EAD Approach.

Supervisory delta adjustments

These parameters are also defined at the trade level and are applied to the adjusted notional amounts to reflect the direction of the transaction. For derivatives that are not options, the value of this parameter is

+1 for long (MTM increases when the value of the primary risk factor increases) or -1 for short (MTM decreases when the value of the primary risk factor increases).

Supervisory duration calculation

These parameters apply to the calculation of Adjusted Notional Amount calculation which is part of PFE calculation. The adjusted notional amount is calculated with a supervisory factor of 0.5 which is constant. Also it check the difference between the start date and the end date.

Potential Future Exposure (PFE)

The Potential Future Exposure (PFE) is computed differently for each of the risk categories, and the final value is assigned to the netting set (stored at the FSI Cap Nettable Pool (FSI_CAP_NETTABLE_POOL)).

PFE add-ons are calculated for each asset class within a netting set and then aggregated. Add-ons for an asset class require the use of hedging sets, which are transactions within a single netting set within which partial or full offsetting is recognized in the methodology.

For the calculation of PFE, it is required to adopt the unmargined methodology. This is because, one margin agreement applies to multiple netting agreements and collaterals are based on the netted values of the derivative contracts.

This is handled in EU_DERV_PFE_CALCULATION_OEM.

NOTE

The PFE values are at Netting Agreement and each Netting Agreement can have more than one Nettable Pool, hence the PFE is prorated and distributed among all the Nettable Pool. Hence, the sum of all PFE will be stored within the Netting Agreement and this value is not stored currently and it will be taken up in the next release.

Exposure at Default Calculations (EAD)

Through the CRM process, the bank takes into account the mitigation effect and calculates the post mitigation exposure at default amount. This signifies the maximum loss that the bank can suffer in case of default on this exposure, after considering all the mitigation effects. The application also computes pre-mitigation risk weighted assets in the process EU_DRV_EAD_CALCULATION and RWA_CALCULATION_NETTABLE_POOL.

7.2.1.7 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 **DRV_MULTIPLE_ASSESSMENT_PROCESSING_DATA_POP**, wherein the data for the multiple assessment processing gets populated into the FSI table.

EU_MULTIPLE_RATING_ASSESSMENT, wherein the identification of the multiple rating for the exposure happens, and the DRV_MULTIPLE_ASSESSMENT_BASED_RISK_WEIGHT wherein the actual risk weight and final rating assignment happens for the exposures.

7.2.1.8 Issue Issuer Assessment

For all the exposures which remain unrated after the multiple assessment processes, the issue issuer process is performed. This happens in the Issue Issuer Assessment sub-process (**DRV_ISSUE_ISSUER_ASSIGNMET**). 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 Derivatives, 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.

7.2.1.9 Risk Weight Assignment Rules

Risk Weight Assignment to all Exposures

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.

Risk weight assignment takes place in the sub-process:

EU_DRV_RISK_WEIGHT_ASSIGNMENT_STD.

Risk Weight Assignment to Sold Credit Protection Exposures

The sold credit protection data is specific to sold credit derivatives. This data is available in the product processor table **STG_CREDIT_DERIVATIVES**. The sold credit protection data is processed under **SOLID_PROTECTION_CREDIT_DATA_PROCESSING**. The underlying data are required for all the sold credit protection.

The risk weight assignment for the sold credit protection is based on the asset type of the underlying exposure captured in **EU Non-Sec Pre-Mitigation RW Assignment for Rated SCP - STD**

- The risk weight for the underlying exposure is calculated and this is updated to the sold credit protection exposure under the sub process **Derivative Pre-Mitigation RW UL for SCP based on Revised Sec Framework**
- 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.

The underlying data for sold credit protection data is provided in the STG_UNDERLYING_EXPOSURES table. The underlying for the sold credit protection have V_UNDERLYING_DATA_IDENTIFIER where the underlying of the sold credit protection have the “V_UNDERLYING_DATA_IDENTIFIER” as “SCP”, to recognize this for the Sold credit protection treatment captured in sub process for EU Derivative_SCP_underlying.

Risk Weight Assignment to Cleared Transaction Exposures

Where a bank acts as a clearing member of a CCP for its own purposes, a risk weight of 2% must be applied to the bank’s trade exposure to the CCP in respect of OTC derivatives, exchange traded derivative transactions and SFTs. Where the clearing member offers clearing services to clients, the 2% risk weight also applies to the clearing member’s trade exposure to the CCP that arises when the clearing member is obligated to reimburse the client for any losses suffered due to changes in the value of its transactions in the event that the CCP defaults. This captured in process DRV_RISK_WEIGHT_ASSIGNMENT in sub process Derivative Basel III - RW Assignment for Cleared Transactions - Exposures - Revised Approach.

Risk Weight Assignment to Specific Wrong Way Risk Exposures

Specific Wrong Way Risk: Wrong-way risk is defined as the risk that occurs when exposure to counterparty is adversely correlated with the credit quality of that counterparty. It arises when default risk and credit exposure increase together. For all the transactions which are identified as Specific wrong way risk, Risk weight is assigned in process EU_DRV_RISK_WEIGHT_ASSIGNMENT.

7.2.1.10 RWA Calculations

The RWA is calculated as the Pre-mitigation EAD multiplied by the Pre-Mitigation Risk Weight in Nettable Pool Pre-Mitigation RWA UL

In the case of sold credit protection exposures, the Pre-Mitigation EAD and the Post-mitigation EAD is the same since there are no mitigants for these exposures.

7.2.1.11 Post CRM RWA Calculations

In the case of derivatives, there are no additional mitigants, and hence both pre-CRM RWA calculations and post CRM RWA calculations are one and the same.

Specific Standard Party Treatment

The application has a pre-determined set of Specific Standard Parties (see Annexure). 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%.

The list of standard parties covered are as follows:

The application has a pre-determined set of Specific Standard Parties. The list of Standard Parties covered are detailed in the following table:

Table 21 List of Standard Parties

V_STD_PARTY_CODE	V_STD_PARTY_NAME	V_PARTY_ID
EIB	European Investment Bank	P17
ECB	European Central Bank	P29

7.2.1.12 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:

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

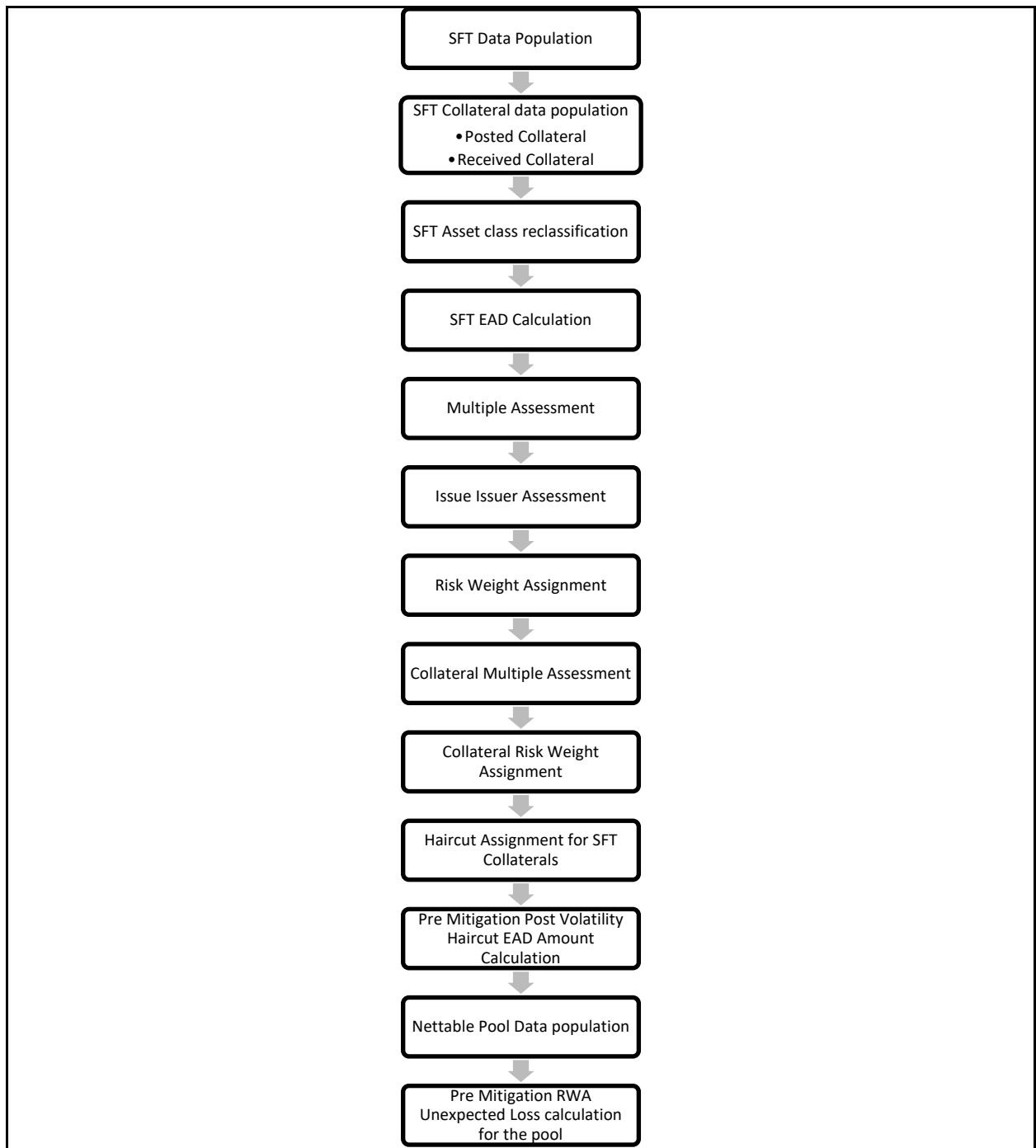
7.2.2 Securities Financing Transactions Portfolio

Securities Financing Transactions (SFT) include Repo Style transactions, Margin Lending, Security Financing Borrowing, and so on. Under Standardized method we have two approaches -1. Simple approach – this is the approach wherein the collateral is being substituted for the covered portion of the exposure, and the risk weights as applicable for the standard mitigant type and issuer type are assigned to the collateral. and 2. Comprehensive approach – this is the approach wherein the collateral undergoes haircut treatment and the exposure value gets reduced from this portion

For all SFT contracts which have a placed collateral or mitigant mapped to it, the application computes CRM based on the RWA approach undertaken by the bank.

Process Flow for Credit Risk Securities Financing Transactions

Figure 33: Process Flow for Credit Risk Securities Financing Transactions



7.2.2.1 Rating Population

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

- Party Rating Table (**STG_PARTY_RATING_DETAILS**)
 - Credit Rating for all customers and issuers are captured in this table.
- Instrument Rating Table (STG_INSTRUMENT_RATING_DETAILS)

- Credit Rating for all instruments which are in the form of collateral either placed or received, are captured in this table
- Sovereign Rating Table (**STG_SOVEREIGN_RATING_DETAILS**)
 - Credit Rating for all countries is captured in this table.

7.2.2.1.1 Processing Steps

the application through the rating tables mentioned in the preceding list.

This is handled in the process **RATING_RECLASSIFICATION_POPULATION** in **EU_OTHER_RECLASSIFICATION**

The application re-classifies the rating information to BIS 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 process **Credit Rating Reclassification** in **EU_OTHER_RECLASSIFICATION**

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 relevant 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.

7.2.2.2 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 Counterparty Credit Risk exposures, along with their respective table names that are used as an input, are as follows:

Figure 34: Data Population - Counterparty Credit Risk Exposures

Product	Source Product Processor
Margin Lending Transactions	STG_LOAN_CONTRACTS
Re purchase contracts	STG_REPO_CONTRACTS

There is a data population about the placed collateral that have been placed with respect to the SFT transaction.

Figure 35: Data Population - Placed Collateral

Product	Source Product Processor
Placed Collateral	STG_PLACED_COLLATERAL

There is a data population about the mitigants, which cater to the mitigants that have been received with respect to the SFT transaction.

Figure 36: Data Population - Mitigants

Product	Source Product Processor
Mitigants – Collateral Received	STG_MITIGANTS

There is a data population about the mapping between the exposures and the mitigants. And one data population about the mapping between the exposures and the placed collateral.

Figure 37: Data Population - 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

Processing table details

All Counterparty Credit Risk SFT exposures are loaded into the table, FSI Cap SFT Exposures (**FSI_CAP_SFT_EXPOSURES**) where further processing happens for this portfolio of exposures.

This is handled in the process **SFT_Data_Population**.

7.2.2.3 Shareholding Percent Multiplication

Shareholding percent multiplication for common entity level data is a part of **Common Data Processing** (PMFCOM020) process. In this the application updates the shareholding percentage against each entity. The parent entity is updated with the value of 1 as the shareholding percent and for each child entity, the percentage is based on the parent's holding percentage as specified for each child in fact entity shareholding percent table (FCT_ENTITY_SHR_HLD_PCT).

Shareholding percent multiplication for exposure level is part of each portfolio as well. In this process, the application multiplies the entity shareholding percentage for that entity with respect to parent entity against exposure amount, undrawn amount and provision amount for that exposure and update the same.

This process is handled in the sub process **SFT_SHAREHOLDING_CALCULATION_STD** of the process **EU_SFT_DATA_PROCESSING_STD**.

7.2.2.4 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.

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, any security lending product is reclassified as Security lending and borrowing product type.

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

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, any central bank is reclassified as Sovereign.

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

Mitigant Reclassification

For mitigants the application reclassifies the mitigant type to the standard mitigant type like the debt securities, cash, and so on.

The reclassification tasks are present in the COMMON_RECLASSIFICATION.

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.

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 rule “Credit Rating Reclassification” of the process **EU_OTHER_RECLASSIFICATION**.

The reclassification of these ratings to the Credit quality steps get handled as part of the T2T “T2T_BASEL_CREDIT_RATING_BAND_MAP_DATA_POP”. The ratings get reclassified into Credit Quality Steps as expected for each of the risk type – Credit Risk, Securitization, Sold Credit Protection.

7.2.2.5 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.

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

This happens in the sub process EU_SFT_RECLASSIFICATION_STD and in the process EU_SFT_DATA_PROCESSING_STD.

The Asset class gets clubbed under different asset class category as relevant for the asset classes. This is used for the regulatory treatment. This particular reclassification happens in the **FSI_BASEL_ASSET_CATEGORY_MAP_DATA_POP** task of the process **OTHER_DATA_POPULATION**.

7.2.2.6 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.

In the case of SFT Exposures, the exposures are hedged against credit risk through various collateral. These collaterals 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.

7.2.2.6.1 Exposure at Default Amount Calculation

Pre-mitigation Exposure at Default can be calculated using one of the two approaches of EAD – Simple Approach and Comprehensive Approach. This is based on run management selection.

Calculation of EAD – Comprehensive Approach

As per the Comprehensive Approach, the EAD is computed by considering the Exposure amount post haircut, and the collateral amount post haircut.

Exposure Amount Calculations for the Exposures

The exposure amount from the product processor tables **STG_REPO_CONTRACTS** and **STG_LOAN_CONTRACTS** for the respective products are based on their EOP balance i.e nothing but the End of period balance, which will be populated in to the processing table (**FSI_CAP_SFT_EXPOSURES**) for further calculations.

This is part of the process **SFT DATA POPULATION**.

Placed Collateral & Mitigant – Eligibility

The mitigant is identified as eligible are not based on the eligibility rules for CRM as mentioned in Basel III accord. Credit rating of the collateral is considered for all mitigants 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 – EU Mitigant Processing – STD Approach (**FSI_CAP_MITIGANTS**). 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.

The placed collateral is captured in FSI Cap Placed Collateral (**FSI_CAP_PLACED_COLLATERAL**) and this also moves to FSI Cap Mitigants (**FSI_CAP_MITIGANTS**), wherein the placed collateral and the mitigants both undergo the same treatment.

This is part of the process **EU_SFT_PLACED_COLLATERAL_DATA_PROCESSING_STD**.

Placed Collateral & Mitigant – Haircut Assignment

The application assigns three kinds of mitigant haircut, which are 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. The application assigns a volatility haircut using Supervisory Haircut method when standardized approach is selected.

When the exposure and collateral are in different currencies, the application makes an adjustment by applying 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 have an original maturity of more than a year, the maturity mismatch haircut is applied to adjust the value.

This is part of the sub process SFT_COMPREHENSIVE_APPROACH_HAIRCUT_in the process **EU_SFT_PLACED_COLLATERAL_DATA_PROCESSING_STD**

For SFT transaction, the application calculates EAD for the parent exposure, based on the underlying information. The underlying exposures (which are the mitigants received and the collateral placed) are moved to **FSI_SFT_UNDERLYING** table from **FSI_CAP_MITIGANTS**.

FOREX haircut is applied if the underlying and the parent contract are in a different currency. Each SFT underlying exposure adjusted for a haircut (EAD + haircut value) is added as EAD to the parent contract.

This is part of the process **EU_SFT_EXP_AND_PLACED_COLLATERAL_PROCESSING_STD**.

Also for the Mitigants which is cash , the zero percent volatility is applied irrespective of the Issuer.

For the mitigants which is Debt securities based on the Issuer type is Central banks and central governments and also the Central institutions which are part of the Core market participant and with **F_CORE_MKT_PARTICIPANT_FLAG** as Y , the highly rated also with remargin frequency on daily basis , its assigned with Zero percent volatility haircut.

These specific processes handled under the process **EU Volatility Haircut for SFT Transactions**.

Placed Collateral & Mitigant – Risk Weight Assignment

The application assigns risk weight to mitigants on the basis of credit rating (CAP Mitigant Basel Rating and Risk Weight Assignment), and original maturity (CAP Mitigant RW Assignment based on Original Maturity). These fall under the process **EU Mitigant RW Assignment**.

This is part of the sub process Mitigant Processing in the process **EU Mitigant Processing – STD Approach**

EAD Calculation for Exposures that are not part of netting agreement

For SFT transaction, the application calculates EAD for the parent exposure, based on the underlying information.

The underlying exposures (which are the mitigants received and the collateral placed) are moved to **FSI_SFT_UNDERLYING** table from **FSI_CAP_MITIGANTS**.

This is part of the process **EU_SFT_EXP_AND_PLACED_COLLATERAL_PROCESSING_STD**. The SFT exposures EAD by considering the collateral placed and received are handled as part of the credit risk mitigation process. This is in the PMF process CRM Data Processing.

EAD Calculation for Exposures that are part of netting agreement

The application nets SFT contracts based on the same customer, common netting agreement identifier, the transaction of Repo, Re-Repo or Margin Lending, Trading or Banking book, and so on. Margin lending transaction being SFT also follows the same EAD calculation methodology, however Repo or Reverse Repo and margin lending are not netted together.

The calculation happens in the table FSI Cap Nettable pool (**FSI_CAP_NETTABLE_POOL**). This is handled in the process **SFT_NETTING_CALCULATION**.

Calculation of EAD – Simple Approach

As per the Simple Approach, the EAD is computed by considering the Exposure amount and the mitigants assigned being sent under Credit Risk Mitigation process and assigning based on the Risk Weight of the Mitigants and the Exposures.

Exposure Amount Calculations for the Exposures

The exposure amount from the product processor tables **STG_REPO_CONTRACTS** and **STG_LOAN_CONTRACTS** for the respective products are based on their EOP balance i.e nothing but the End of period balance which will be populated in to the processing table (**FSI_CAP_SFT_EXPOSURES**) for further calculations. This is part of the process **SFT_DATA_POPULATION**.

Placed Collateral & Mitigant – Eligibility

The mitigant is identified as eligible are not based on the eligibility rules for CRM as mentioned in Basel III accord. Credit rating of the collateral is considered for all mitigants 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 – EU Mitigant Processing – STD Approach (**FSI_CAP_MITIGANTS**). 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.

The placed collateral is captured in FSI Cap Placed Collateral (**FSI_CAP_PLACED_COLLATERAL**) and this also moves to FSI Cap Mitigants (**FSI_CAP_MITIGANTS**), wherein the placed collateral and the mitigants both undergo the same treatment. This is part of the sub process Mitigant Processing – STD Approach – BIS in the process **EU_SFT_PLACED_COLLATERAL_DATA_PROCESSING_STD**.

Placed Collateral & Mitigant – Risk Weight Assignment

- The application assigns risk weight to mitigants on the basis of credit rating (CAP Mitigant Basel Rating and Risk Weight Assignment), and original maturity (CAP Mitigant RW Assignment based on Original Maturity). These fall under the process **EU Mitigant RW Assignment**.

- This is part of the sub process Mitigant Processing in the process **EU Mitigant Processing – STD Approach.**

EAD Calculation for Exposures that are not part of netting agreement

For SFT transaction, the application calculates EAD for the parent exposure, based on the underlying information.

The underlying exposures (which are the mitigants received and the collateral placed) are moved to **FSI_SFT_UNDERLYING** table from **FSI_CAP_MITIGANTS**.

This is part of the process EU_SFT_EXP_AND_PLACED_COLLATERAL_PROCESSING_STD The SFT exposures EAD by considering the collateral placed and received are handled as part of the credit risk mitigation process. This is in the PMF process CRM Data Processing.

EAD Calculation for Exposures that are part of netting agreement

The application nets SFT contracts based on the same customer, common netting agreement identifier, the transaction of Repo, Re-Repo or Margin Lending, Trading or Banking book, and so on. Margin lending transaction being SFT also follows the same EAD calculation methodology, however Repo or Reverse Repo and margin lending are not netted together.

The netted exposure of the SFT gets computed without the effects of the collateral received and placed in the FSI Cap Nettable Pool (FSI_CAP_NETTABLE_POOL). This gets handled in the process SFT_NETTING_CALCULATION.

The SFT exposures EAD by considering the collateral placed and received are handled as part of the credit risk mitigation process. This is in the PMF process CRM Data Processing.

EAD Calculation for Cleared Transaction

For the exposures of a bank when it's a cleared transaction when the transaction/ exposure settles through the qualified CCP and or through the financial intermediary and also when the clearing member obliged to reimburse the client for the losses , the exposure towards those transactions are considered as zero .

This is handled under the process **EU_SFT_CLEAR_TRANSACTION_EAD_ASSIGNMENT**.

7.2.2.6.2 Risk Weight Assignment

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.

Below are the related sub-processes:

SFT_MULTIPLE_RATING_ASSESSMENT_POPULATION_STD, 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

EU_SFT_MULTIPLE_ASSESSMENT_BASEL_RISK_WEIGHT_ASSIGNMENT, wherein the actual risk weight and final rating assignment happens for the exposures.

Issue Issuer Assessment

For all the exposures which remain unrated after the multiple assessment processes, the issue issuer process is performed. This happens in the Issue Issuer Assessment sub-process

(SFT_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 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.

Risk Weight Assignment

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 information on the options, see the [Run Management](#) section.

Risk Weight Assignment to Cleared Transaction Exposures

Where a bank acts as a clearing member of a CCP for its own purposes, a risk weight of 2% must be applied to the bank's trade exposure to the CCP in respect of SFT Exposures. Where the clearing member offers clearing services to clients, the 2% risk weight also applies to the clearing member's trade exposure to the CCP that arises when the clearing member is obligated to reimburse the client for any losses suffered due to changes in the value of its transactions in the event that the CCP defaults.

Risk weight Assignment to ECB – Specific Standard Party Treatment

The application has a pre-determined set of Specific Standard Parties. The list of Standard Parties covered are as follows, and the party id mentioned are just samples, that can be changed to meet bank's logic for the Party ID:

Figure 38: Specific Standard Party

V_STD_PARTY_CODE	V_STD_PARTY_NAME	V_PARTY_ID
IBRD	International Bank for Reconstruction and Development	P11

V_STD_PARTY_CODE	V_STD_PARTY_NAME	V_PARTY_ID
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

Any exposure to these entities are assigned a risk weight of 0%, based on the regulatory requirements.

All the above mentioned Risk Weight Assignment happens in the sub process **EU_SFT_RISK_WEIGHT_ASSIGNMENT STD** for the SFT Exposures under the **EU_SFT_DATA_PROCESSING STD**.

7.2.2.6.3 RWA Calculations

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

7.2.2.7 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 (for simple approach) or guarantees that are being provided by the bank. This lists 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.

7.2.2.8 Post CRM RWA Calculations

In the case of SFT, there are no additional mitigants, and hence both pre-CRM RWA calculations and post CRM RWA calculations are one and the same, except for the scenario detailed as part of the Pooling and Optimizer section below

7.2.2.9 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:

$$\text{RWA at Exposure Level} = \text{Total CCR RWA at netting set level} * \frac{\text{Pre-Mitigation EAD for Exposure}}{\text{Sum of Pre-Mitigation EAD for all Exposures part of CCR RWA at netting pool level}}$$

This is handled in the sub process **Post CRM Attributes Assignment To SFT** under the **EU CRM Data Processing**.

7.2.3 Pooling and Optimizer

This is applicable for the Credit Risk and Counterparty Credit Risk exposures. With respect to Derivatives, there will not Credit Risk Mitigation impact, as the collateral gets considered in the EAD Calculations. Also, the SFT Transactions do not have Credit Risk Mitigation, if the bank is following Comprehensive Approach. It is applicable only when banks follow the Simple Approach, or wherein the SFT transaction has a third-party guarantee.

7.2.3.1 Pooling

Pooling is one of the pre-requisites for the optimized allocation of the exposures.

Pooling pulls out an exposure, and identifies all the relevant mitigants mapped to it, and the corresponding exposures mapped to these mitigants, and again the corresponding newer mitigants mapped to these exposures. This pooling assigns the cardinality to the exposures based on the mitigant combination.

This happens in the FSI Cap Sub Exposures (FSI_CAP_SUB_EXPOSURES), and the pooling is part of the sub process

The relevant cardinalities that get assigned to the exposures, as part of this pooling process are as follows:

- 1-0 → One exposure not mapped to any mitigant
- 1-1 → One exposure mapped to one mitigant
- 1-N → One exposure mapped to multiple mitigants
- N-1 → Multiple exposures mapped to a single mitigant
- N-N → Multiple exposures mapped to Multiple mitigants

7.2.3.2 Optimizer

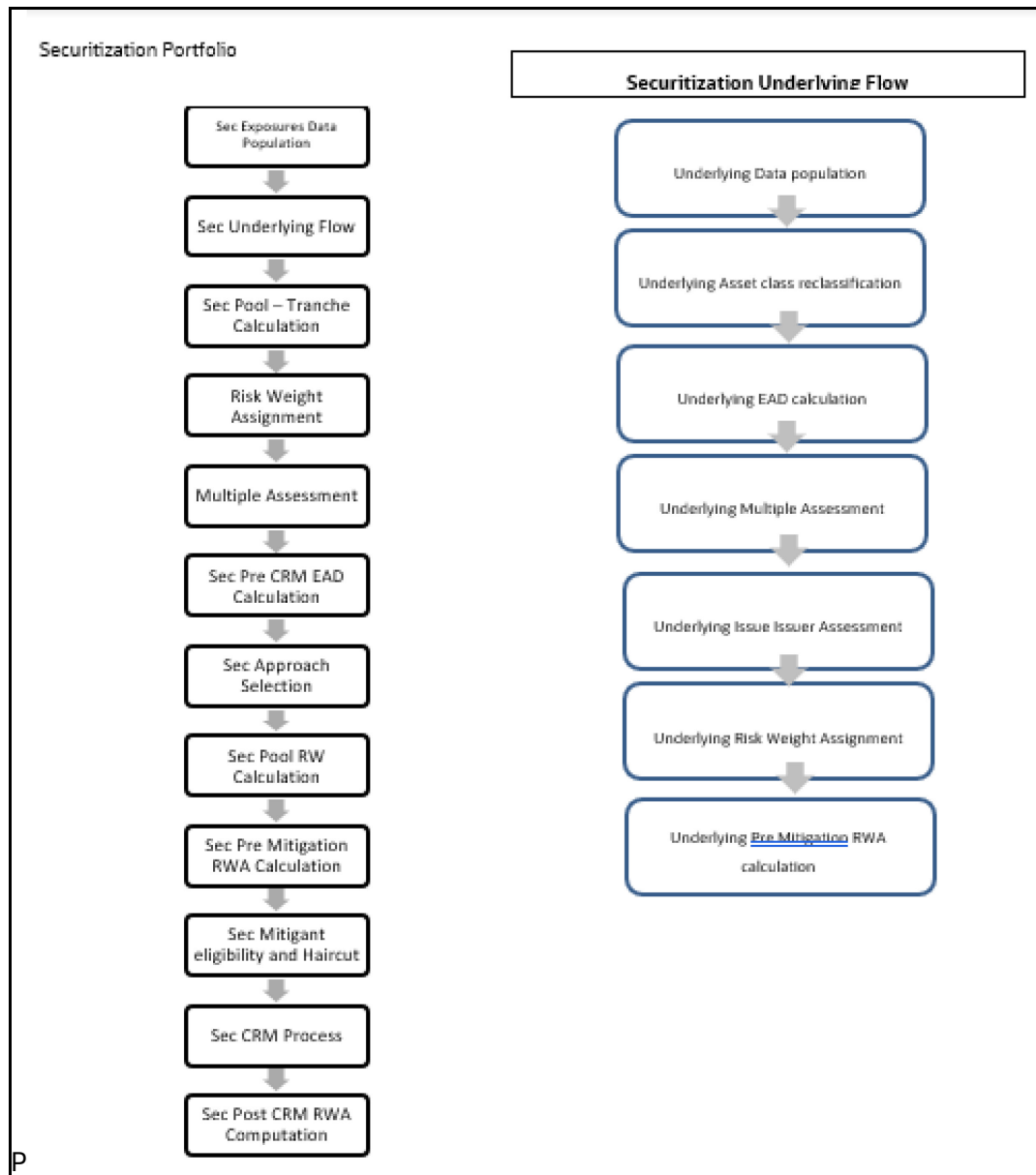
The optimizer is the process of allocation of the mitigants to the exposures, based on the different logic applicable for the various granularity. The details of this is available in the Annexure.

Both Pooling and Optimizer is handled under the process **EU CRM Sub Exposure Pooling and Optimizer Processing**.

7.3 Securitization - Revised Framework

The procedure by which the application handles the advanced approach of Securitization exposures is as follows:

Figure 39: Process Flow of Advanced Approach of Securitization Exposures



7.3.1 Rating Population

Credit Rating Process

The entire rating information of the exposures and the mitigants are populated from the staging tables to the processing tables. The exposure and the tranche rating information are captured in the account rating (**STG_ACCOUNT_RATING_DETAILS**) and the instrument rating (**STG_INSTRUMENT_RATING_DETAILS**)

tables, respectively, and the mitigant rating information is captured in the instrument rating details (**STG_INSTRUMENT_RATING_DETAILS**) table.

- Account Rating Table (**STG_ACCOUNT_RATING_DETAILS**)
 - Credit Rating for all exposures.
- Instrument Rating Table (**STG_INSTRUMENT_RATING_DETAILS**)
 - Credit Rating for all Tranche and mitigants.
- Party Rating Table (**STG_PARTY_RATING_DETAILS**)
 - Credit Rating for all issuers is captured in this table.
- Sovereign Rating Table (**STG_SOVEREIGN_RATING_DETAILS**)
 - Credit Rating for all countries is captured in this table.

Processing steps

Banks obtain credit ratings from different sources and these are provided as input in the application through the rating tables mentioned in the preceding list. This is handled in the process Rating Reclassification Population **RATING_RECLASSIFICATION_POPULATION** in EU Other reclassification process **EU_OTHER_RECLASSIFICATION**.

The application re-classifies the rating information to BIS 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 process **Credit Rating Reclassification**.

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 an FSI table such as **FSI_PARTY_RATING_DETAILS** using the lookup table **FSI_RATING_CLASSIFICATION** to obtain a reclassified rating.

You must ensure that all the relevant 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, the following are to be populated:

- Rating source code **V_RATING_SRC_CODE**
- Party Code **V_PARTY_CD**
- Purpose **V_PURPOSE**

The purpose code is to indicate whether the rating is a domestic rating or a foreign rating. If any other rating is provided, then the exposure is considered unrated.

7.3.2 Data Population

Pre Processing Steps

Securitization and Mitigant Data Population with Mitigant Mapping

For an investing bank, 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 PP tables. For an originator, the data is expected in the same manner as the Investor.

For a credit protection exposure 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 a liquidity facility exposure, or servicer cash advance, the exposures are expected in the Stage Commitment Contracts table **STG_COMMITMENT_CONTRACTS**. For the Securitization hedges done through swaps, the exposures are expected in the stage swaps contracts table **STG_SWAPS_CONTRACTS**. This is handled in the process **Securitization Data Population**.

For Securitization, the underlying exposures that are not Securitization Exposures, follow the process for Non-Securitization Exposures. The underlying exposures that are Securitization Exposures, follow the process for Securitization Exposures.

The mitigants data are populated from the staging table to the processing table. The exposures which are mapped to the mitigants are captured and populated from the staging table to the processing table.

Mitigant data population is handled by the process Mitigant Data Population **Mitigant Data Population** in BIS Post Crisis Common Data Processing.

Exposure Mitigant Mapping Population is handled in the process Account Mitigant Mapping Population **ACCT_MITIGANT_MAPPING_POP** in the **Other Data Population**.

7.3.3 Shareholding Percent Multiplication

Shareholding Percent Multiplication for common entity-level data is a part of Common Data Processing **PMFCOM020** process. In this the application updates the shareholding percentage against each entity. The parent entity is updated with the value of 1 as the Shareholding Percent and for each Child entity, the percentage is based on the parent's holding percentage as specified for each Child in fact entity shareholding percent table **FCT_ENTITY_SHR_HLD_PCT**.

Shareholding Percent Multiplication for exposure level is part of each portfolio as well. In this process, the application multiplies the entity shareholding percentage for that entity with respect to Parent entity against exposure amount, undrawn amount and provision amount for that exposure and updates the same. This is handled in the process **Securitization Data Population**.

7.3.4 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, it forms an 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.

You must ensure that all products, party types, and mitigants that are bank-specific are reclassified as part of the setup activity. If they are not reclassified, the treatment may not happen as expected by the regulator.

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, any security lending product is reclassified as Security lending and borrowing product type. This is handled in the **Basel Product Type Reclassification** which is part of the Common Reclassification **COMMON_RECLASSIFICATION** process.

Party Type Reclassification

Similar to the product type, the customer type that are stored as counterparty type are also Reclassified as Standard Counterparty types. 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, any central bank is reclassified as Sovereign. This is handled in the **Party Type Reclassification** which is part of **EU Other Reclassification** process **EU_OTHER_RECLASSIFICATION**.

Mitigant Reclassification

For mitigants, the application reclassifies the mitigant type to the standard mitigant type like the debt securities, cash, and so on.

The reclassification tasks Mitigant Type to Standard Mitigant Type Reclassification present in the Common Reclassification **COMMON_RECLASSIFICATION** process.

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 as data is not available for processing as required by the regulator. This happens as part of the **COMMON_RECLASSIFICATION** process.

Rating Reclassification

As part of the Rating Reclassification, it is expected that the bank reclassifies the ratings into the different Basel Credit Rating of AAA Equivalent, AA Equivalent, and so on. This gets handled in the rule “Credit Rating Reclassification” of the process **EU_OTHER_RECLASSIFICATION**.

The Reclassification of these ratings to the Credit quality steps gets handled as part of the T2T **T2T_BASEL_CREDIT_RATING_BAND_MAP_DATA_POP**. The ratings get reclassified into Credit Quality Steps as expected for each of the following risk types:

- Credit Risk
- Securitization
- Sold Credit Protection

7.3.5 Asset Reclassification Rules

This is applicable only for the underlying exposures. Refer to the Banking and Investment process in Non-Securitization process.

7.3.6 Due Diligence Requirement for Securitization Exposures

If a banking organization can meet Due Diligence Requirements, a bank can follow any risk weight approach under Securitization, to all its Securitized Exposures, as per the revised hierarchy of approaches. If the bank does not meet the Due Diligence requirements, then all the exposures are risk-weighted at 1250%.

The application assigns the appropriate approach to the exposures based on the criteria specified in the Revised Accord.

This occurs in the process EU Securitization Data Processing Standardized **EU Securitization Data Processing-Standardized**.

7.3.7 Sec Approach Selection

In the case of banks which follow the Standardized approach for their Credit Risk, the hierarchy of approaches followed by the product is as follows:

- Standardized Approach

- External Ratings Based Approach
- Internal assessment Approach
- 1250% Risk Weight Approach

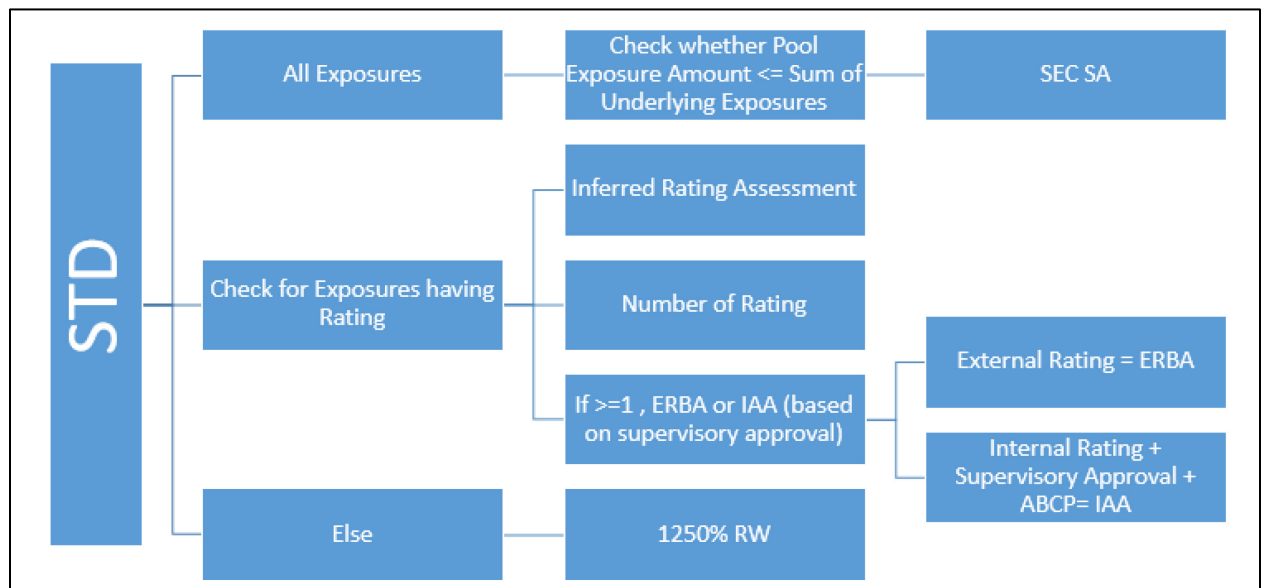
These approaches are in sync with the regulatory hierarchy. The selection of this is based on the data availability. If the bank has provided the complete underlying information, then the Standardized approach will be followed by the Bank. This is done by also ensuring the Pool Exposure Amount and the data provided for the Individual Pool components are the same.

If the complete underlying information is unavailable, then the External Ratings Based Approach is applied. The basis for this is the availability of ratings for the exposures.

In case of the external rating not being available for the exposures, the exposures undergo the Internal Assessment Approach, based on supervisory approval. This applies only to ABCP exposures.

If none of the approaches are applicable, then the exposures are assigned a risk weight of 1250%. The following illustration shows the detail of the approach selection:

Figure 40 Process flow for Approach Selection



This happens part of the sub-process EU- Securitization Risk Weight Methodology Assignment under the process Securitization Exposures Data Processing.

7.3.8 Pre-mitigation Calculations

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 if there is a default on this exposure before considering any mitigation effects.

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 calculated by using the hierarchy of approaches as suggested above.

7.3.8.1 Exposure at Default Amount Calculation

Exposure at Default (EAD) is calculated using the Exposure Amount (EOP Balance of the Exposure), Undrawn Amount of the Exposure (Undrawn Amount), and the Credit Conversion Factor for the Off-Balance sheet Amount (CCF). This is computed for the on-balance sheet products separately, and the off-balance sheet products are computed separately.

This is handled in the sub-process Securitization Pre Mitigation EAD Calculations **Sec Pre CRM EAD Calculation** under the process **Securitization Exposures Data Processing**.

7.3.8.2 Multiple Assessment

For exposures with multiple ratings, risk weight assignment is based on multiple assessment processes. 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** where the ranking and final selection of which rating to use takes place.

This happens in the process of **SEC_MULTIPLE_ASSESSMENT** under that sub-process the application has data transformation separately for exposures and its tranches.

7.3.9 Risk Weight Assignment

7.3.9.1 Sec-Standardized Approach (SEC-STD)

- For exposures following the sec-standardized approach, the application calculates the underlying weighted average capital requirement of the Securitization Pool (KSA). This is handled at sub-process Securitization Pool Capital Charge Calculation using STD Approach.
- Other parameters needed for SEC-STD are calculated by the application based on underlying data. This is handled as part of the sub-process Securitization Tranche Parameter Calculation **Sec Tranche Parameter Calculation** and the pool level data calculation happens as part of the sub-process Securitized Pool Delinquent Balance Calculation **Securitization Pool Non Performing Balance Calculation**.
- After all the parameters are calculated, the application computes SSFA (Simplified Supervisory formula approach) capital and uses the following logic for risk weight computation:
- The exposures for which are detachment point (D) less than that of the KA, the exposures are deducted (it will be risk-weighted at 1250%). The exposures for which the credit enhancement level is more than that of the KA, the exposures have the KSSFA (SSFA capital charge) computed. The exposures for which the credit enhancement level is less than that of the KA but the sum of the credit enhancement level and the Tranche thickness are more than the KA, the exposures are straddled, and that is, the tranche to which the exposure belongs to is split into a position below KA and a position above KA. All the exposures mapped to the straddled Tranche are also split by the application in the same proportion as the split Tranche. Post-straddling risk weight is computed using the computation logic mentioned by the Accord.
- For the calculation of Risk weight under standardized approach **SEC_STD**, the application calculates the respective values for each exposure in the sub-process **Sec Risk_Weight_Calculation** under the process **Securitization Exposures Data Processing**.

7.3.9.2 Sec-External Ratings Based Approach (SEC-ERBA)

For exposures that follow the external ratings-based approach, the Risk Weight Assignment is based on the criteria used for risk weighting. This is handled as part of the sub-process Securitization Risk Weight Assignment for Rated Exposures.

The application uses the seniority position of the exposure, maturity, thickness of the exposure and the credit rating to assign the risk weight to the exposure. To ensure that the exposures have the risk weight assigned based on their maturity term, the application supports interpolation of the risk weight to accommodate the varying maturity of the exposures.

The DT which is used for interpolation is “Sec_Interpolated_RW” which updates interpolated risk weights for each exposures in **FCT_SEC_EXPOSURES** table. Exposures updated include both “STC condition met” exposures and “STC condition not met” exposures. This occurs in the sub-process **Securitization Interpolated Risk weight at Tranche level** under process **Securitization Exposures Data Processing**.

After the Risk weights are assigned based on the above-mentioned process the application calculates the Risk weight under the process **Securitization Exposures Data Processing**.

7.3.9.3 SEC-IAA

Sec IAA is followed in the application based on the Internal Assessment on the exposures that is also based on the ABCP Indicator. The exposures with that flag enabled F_ABCP_IND undergoes the SEC_IAA approach. The Sec IAA is also to be followed based on the supervisory approval. This SEC-IAA methodology is assigned on the sub-process Eu- Securitization Risk Weight Methodology Assignment.

After the Approach Assignment, the application calculates the Risk weight as part of the sub-process **Securitization Risk Weight Assignment for Rated Exposures** under the process **Securitization Exposures Data Processing**.

7.3.9.4 Maximum RW for Exposures

Maximum Risk-Weight Requirements for senior exposures for all the pools is handled by the application as per the logic given in the accord. For Maximum capital requirement, to apply a maximum capital charge to a bank’s securitization exposure, the following inputs are required: The largest proportion of interest that the bank holds for each Tranche of a given pool (P).

For a bank that has one or more securitization exposure(s) that reside in a single tranche of a given pool, P equals the proportion (expressed as a percentage) of securitization exposure(s) that the bank holds in that given tranche (calculated as the total nominal amount of the bank’s Securitization exposure(s) in the Tranche) divided by the nominal amount of the Tranche.

For a bank that has Securitization exposures that reside in different Tranches of a given securitization, P equals the maximum proportion of interest across tranches, where the proportion of interest for each of the different Tranches must be calculated as described in the preceding section.

This happens in the sub-process **Securitization Parameter Update to Exposures** under the process Securitization Data Processing Standard **Securitization Exposures Data Processing**.

If no approach is applicable for the exposures, then 1250% Risk Weight is applicable. This approach assignment happens part of the sub-process **Securitization Risk Weight Methodology Assignment** under the process Securitization Data Processing Standard **Securitization Exposures Data Processing**. After the above sub-process, the risk weight calculation happens based on the Sec 1250% risk weight in

the sub-process Securitization Risk Weight Calculation under the Securitization Data Processing Standard **Securitization Exposures Data Processing**.

7.3.10 Re-securitized Exposures

Re-Securitized Exposures are the exposures that are issued out of a pool of underlying exposures which constitutes Non-Securitized Exposures and some portion of Securitized Exposures. Application is capable of handling both Securitized Exposures and Re-Securitized Exposures.

The Securitized underlying of the Re-Securitization pool is captured in Stage underlying Exposures **STG_UNDERLYING_EXPOSURES**. As per the revised framework, the approach that should be used for risk weight calculation is a standardized approach only as other approaches are not applicable. The application assigns the same approach based on the re-securitization flag. For these exposures, parameters that are used in the standardized approach are calculated for both Non-Securitized and Securitized exposures by using the logic mentioned in the revised Accord.

This occurs in the sub process **ReSEC RW Capital Charge Calculations** under the process Securitization Data Processing Standard **Securitization Exposures Data Processing**.

The Data expectation for Re-Securitization Exposures is provided in [Annexure A](#).

7.3.11 STS Transactions (STS Transaction)

As per the revised EBA guidelines the transactions with simplicity means the homogeneity of the underlying assets belong to the same products or characteristics and simple that has the transparency of the underlying assets, the details of the transactions are with sufficient information also they are easily comparable against the equivalent transactions. The eligibility of these conditions is checked for the transactions and these transactions are handled separately by the application.

This is in the sub-process **Securitization Eligibility for STS Transactions under the process** Securitization Data Processing Standard **Securitization Exposures Data Processing**. When the eligibility conditions are checked for the exposures based on the above sub-process, then the respective exposures are handled in the downstream sub-process in the application which is stated in the various approaches.

Sec Pre-CRM RWA Computation

The application calculates the Pre-CRM RWA for the exposures by multiplying the Pre-CRM EAD with the risk weight of the exposures. Pre-CRM RWA is computed in the **Sec Pre-CRM RWA Computation** sub-process.

7.3.12 Credit Risk Mitigation Process

To calculate the post-CRM RWA, the application needs to account for mitigants that may be in the form of collaterals, guarantees, credit derivatives. Not all mitigants are eligible for RWA computation. All the mitigants that get populated into the system are made ineligible, and then the regulatory approved mitigant types and the issuer type combination are made eligible in 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 and Data Population for Counter guarantees occurs. This occurs under the sub-process EU Mitigant Data Population under the process EU Mitigant Data Processing – Standardized.

Mitigant Multiple Assessment

Similar to exposures with multiple ratings, mitigants with multiple ratings are also subjected to Multiple Rating Assessment. This is handled under the sub-process Mitigant Multiple Rating Assignment under the process EU Mitigant Data Processing –STD Approach. This is performed by the Data Transformation CAP Mitigant Multiple Assessment Data Pop **CAP_MITIGANT_MULTIPLE_ASSESSMENT_DATA_POP**.

7.3.13 Mitigant Eligibility Approaches and their Risk Weighting Rules

Mitigant Risk Weight

For simple and comprehensive approaches, the application assigns risk weight to mitigants based on the credit rating **CAP Mitigant Basel Rating and Risk Weight Assignment**. Then the risk weight is assigned based on the 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 EU Mitigant RW Assignment.

Mitigant Eligibility

The application will make all mitigants 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 that are part of the collateral. The application identifies the eligibility of the financial collateral for both the Simple and the Comprehensive approaches. The eligibility of the collateral mitigants are based on the party type of 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 application UI.

Mitigant Haircut Assignment

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

Only eligible mitigants are considered for Haircut Assignment and 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 performs computations for volatility, FOREX, and Maturity Mismatch Haircuts.

- **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 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 adjusts 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.

7.4 Pooling and Optimizer

7.4.1 Pooling

Pooling is one of the prerequisites for the optimized allocation of the exposures.

Pooling pulls out exposure and identifies all the relevant mitigants that are mapped to it, and the corresponding exposures mapped to these mitigants, and their corresponding newer mitigants mapped to these exposures. Pooling assigns the cardinality to the exposures based on the mitigant combination.

This occurs in the FSI Cap Sub Exposures **FSI_CAP_SUB_EXPOSURES**, and the Pooling is part of the sub-process **CRM Sub Exposure Pooling and Optimizer Processing**.

The relevant cardinalities that are assigned to the exposures as part of this Pooling process are the following:

- 1-0 → One exposure not mapped to any mitigant
- 1-1 → One exposure mapped to one mitigant
- 1-N → One exposure mapped to multiple mitigants
- N-1 → Multiple exposures mapped to a single mitigant
- N-N → Multiple exposures mapped to multiple mitigants

7.4.2 Optimizer

Optimizer is the process of allocation of the mitigants to the exposures based on different logic applicable for the various granularity. The details of this process are available in the Annexure.

Both Pooling and Optimizer are handled under the process **EU CRM Sub Exposure Pooling and Optimizer Processing**.

7.4.3 Post CRM RWA Computation

The application computes the Covered Amount and the Uncovered Amount for the exposures. The Covered Amount is computed by multiplying the Covered Factor with the Exposure Amount. To this Covered Amount, the application assigns the Mitigant Risk Weight. The product of the Covered Amount and the Mitigant Risk Weight is the covered RWA. The Uncovered Amount is computed by multiplying the Uncovered Factor (which is 1 – sum of all Covered Factors for that exposure) with the Exposure Amount. This Uncovered Amount is multiplied by the Exposure Risk Weight to get the Uncovered RWA. The sum of the Covered RWA and the Uncovered RWA is the Post CRM RWA of the exposure.

7.5 Default Fund Contributions Related Capital Charge

A default fund contribution refers to the funds contributed, or commitments made by a clearing member to a Central Counterparty's (CCP) equalized loss-sharing agreement. The purpose of such default funds is to provide capital, in addition to the collateral posted by participants and in addition to capital provided by the clearinghouse, as a safeguard against extraordinary losses that might occur in connection with.

For example, a financial crisis in the market or the simultaneous defaults of several large members. The clearing members contribute to such default funds kept with the central counterparty (clearing house) in the proportion of their exposure to the central counterparty.

The default fund contributions by the clearing members contribute toward the central counterparty's regulatory capital along with CCP's contributions to the default fund. These contributions act as collaterals to mutually share in the losses incurred by the clearing members due to counterparty defaults. The Default Fund Contribution (DFC) enables the banks to compute the Risk Weighted Assets for default fund contributions to a central counterparty.

For each clearing member, a contribution is made to the central counterparty's default fund.

This contribution acts as a relief against the defaults by any clearing member of the central counterparty.

CRR explains the methods that the banking organization playing the part of a clearing member of the CCP, must adopt and compute risk-weighted assets (RWA) for a non-qualifying and a qualifying CCP.

The application handles the treatment of exposures to a QCCP and a Non-QCCP.

7.5.1 Capital Charge for Non-QCCP

If the CCP is not qualified (Non-QCCP), then the risk-weighted asset amount for the banking organization's default fund contribution is calculated using the Own fund's requirements for pre-funded contributions to the default fund of a non-qualifying CCP approach, as suggested in the accord.

7.5.2 Capital Charge for QCCP

If the CCP is a qualified CCP (QCCP), then the RWA amount is computed using one of the following two approaches stated below. Both are handled in the same Sub-process - RWA For Default Fund Contribution With QCCP. This is based on the run management option selected.

- Own funds requirements for pre-funded contributions to the default fund of a QCCP.
- An alternative calculation of own funds requirement for exposures to a QCCP.

The approach to the use of either the own fund requirements for QCCP or the alternative approach of the own fund requirements for QCCP is based on the run management option.

Approach 1

To compute the clearing member's capital requirement, which is the reporting bank's capital requirement for the contributions made to the CCP's default fund, the hypothetical capital requirement of the central counterparty for the default fund must be known. This must be computed by the central counterparty based on the exposures of all the clearing members to the default fund. After this figure is calculated by the CCP, it is shared with all the clearing members to enable them and to compute their respective capital requirements against the default fund.

When the reporting bank gets the hypothetical capital requirement from the QCCP, the next step is to compute the capital requirement of the reporting bank by finding out the proportion of the reporting bank's contribution in the total default fund contribution.

- The parameters considered for this purpose include the following QCCPs:
- Net potential exposure to the two largest clearing members,
- The total net potential exposure to all the clearing members,
- Total default fund contribution by all the clearing members,
- QCCP's contribution to the default fund, and
- The total number of clearing members for the default fund.

The last step is to compute the risk-weighted assets of the reporting bank corresponding to the default fund contribution to the QCCP by using the capital computed in the previous step.

These steps and the calculation involved are the following:

Step 1:

It requires the QCCP to calculate its hypothetical capital requirement (KCCP) for the default fund. This is done by the QCCP and is published to the clearing members for them to use for their respective capital calculations.

Step 2:

Compare KCCP with the funded portion of the default fund of a QCCP and calculate the capital requirement of the bank (KCM) by using the total of all the clearing members' capital requirements (K*CM). This capital requirement is considered on the contribution that the clearing members make to the default fund of the QCCP.

Approach 2

Capital Charge for the default fund contribution is calculated as follows:

Capital charge (Ki) = 8% * minimum (2% of Trade exposures to the QCCP + 1250% * default fund contribution to the QCCP, 20% * Trade Exposure Amount to the QCCP).

The application also supports the treatment of a CCP stopping to calculate its fund requirement to the CCP. The flag to indicate that the CCP has stopped calculating the own fund requirement is captured in the party table (**STG_PARTY_MASTER**). And based on the supervisory approval provided, in the run management option, the capital will be calculated using the Alternative approach. Else, it is treated as a normal Credit Risk Exposure, part of the Corporate Asset class.

The flag to indicate that the CCP has stopped calculating the capital requirement is expected as part of the Party Master Table (**STG_PARTY_MASTER**). In the case of this flag being null, it is expected that the CCP is calculating the Total Capital and normal processing of QCCP or Non-QCCP happens.

Key Data Elements

Key data elements to be noted are listed in this section. To view the complete list of tables used, see the Download Specification document in [MOS](#).

- Default fund contributions and related data are expected at the Default fund – Central Counterparty level in the entity Stage Central Counterparty Details (STG_CCP_DETAILS).

- Hypothetical Capital Requirement of CCP, Maximum Net Potential Exposure of clearing member of CCP, 2nd Maximum Net Potential Exposure of clearing member of CCP, Total Net Potential Exposure of clearing member of CCP, Number of Clearing Members to the CCP, Total funded Default Fund Contribution of all clearing members to the CCP, Total unfunded Default Fund Contribution of all clearing members to the CCP and Default fund contribution of CCP from its funds for each central counterparty level required.
- The application supports only the capital requirement of the bank (KCM) based on Funded/Unfunded default contributions from all clearing members not by Initial Margin. But the data model supports place holders to capture Total Initial Margin by all clearing members to CCP and Bank's initial margin posted to CCP.

7.6 Treatment for Settlement Risk

There are unsettled transactions or failed trades in the security trading system. From the time, the failed trade happens till four business days after the settlement date, this is treated as a regular exposure. And post that, this is treated under the failed trade transaction related capital calculations. The EAD for these exposures is the difference between the Exposure Amount and the market value, which is computed by the solution.

Whenever there is a Delivery vs payment, and the trade remains unsettled even after the settlement date, then, it has the following capital charge assigned to the exposure, and on this basis, the RWA for the exposure is calculated.

NOTE

Failed Trade transactions have settlement risk calculated under DvP or PvP and Non-DvP / Non-PvP.

If there is a failed trade, and it is not a DvP or a PvP, then, it is treated as a free delivery. It will be treated as a normal exposure till 4 business days. From 5 business days and later, this is risk weighted at 1250% if there is a material transaction, and for an immaterial transaction apply a risk weight of 100%. The bank has an option to deduct the failed trade transactions related to free deliveries, based on the run management option. If the run management option of deduction is selected, then, this is deducted from CET1 capital.

NOTE

There is a run management option for the bank to select whether they want to deduct the failed trade transactions from the CET1 capital, or want to risk weight at 1250%.

In the case of system wide failure of settlement systems, the settlement risk is not considered for these failed trade transactions, based on supervisory approval. This is a run management option, and when this option is selected, none of the exposures are risk weighted as per the settlement risk calculations.

NOTE

There is a run management option for the bank to select whether they have a supervisory approval to treat failed trade transactions as not a failed trade, if it is based on system wide failure of settlement system. The run management selection is done for the entire failed trade exposures, and not for few of the exposures.

7.7 Data Capture and Treatment of Underlying Exposures Related to CIU, Securitization and Covered Bond

Underlying Exposures Treatment

Underlying Exposures Data Flow and Treatment Related to Covered Bond

The application also supports Underlying exposures that are received as input through Stage Underlying Exposures table (**STG_UNDERLYING_EXPOSURES**). This is relevant for the covered bond exposures,

Banking Underlying Exposures

For these exposures, the parent exposures are covered bond exposures, mapped via the parent instrument code, but the underlying are Banking exposures.

In such cases, exposures will have a record type as **INV_NON_SEC_ULY** (Investment Underlying) and will be populated and processed in the Banking table **FSI_CAP_BANKING_EXPOSURES**. This is handled in the process **Bank Underlying Data Processing –STD**.

Investment Underlying Exposures

For these exposures, the parent exposures as well as the underlying exposures are both investment exposures. Such exposures will have record type as **INV_NON_SEC_ULY** (Investment Underlying) and will be populated and processed in the Investments table, **FSI_CAP_INVESTMENT_EXPOSURES**.

This is handled in the similar way as a normal investment exposure in the process **Investment Data Processing – STD**.

Underlying Flow Related to CIU

The application also supports Underlying exposures that are received as input through Stage Fund Underlying Composition table (**STG_FUND_UNDERLYING_COMPOSITION**). This is relevant for the CIU exposures. The application also supports the underlying composition received as input through the Stage Fund CIS Composition table (**STG_FUND_CIS_COMPOSITION**)

Investment Underlying Exposures

For these exposures, the parent exposures as well as the underlying exposures are both investment exposures. Such exposures will have record type as **INV_NON_SEC_ULY** (Investment Underlying) and will be populated and processed in the Investments table, **FSI_CAP_INVESTMENT_EXPOSURES**.

Derivatives Underlying Exposures

For these exposures, the parent exposures are investment exposures, but the underlying are Derivatives exposures. Such exposures will have record type as **INV_NON_SEC_ULY** (Investment Underlying) and will be populated and processed in the Derivatives table **FSI_CAP_DERIVATIVES**.

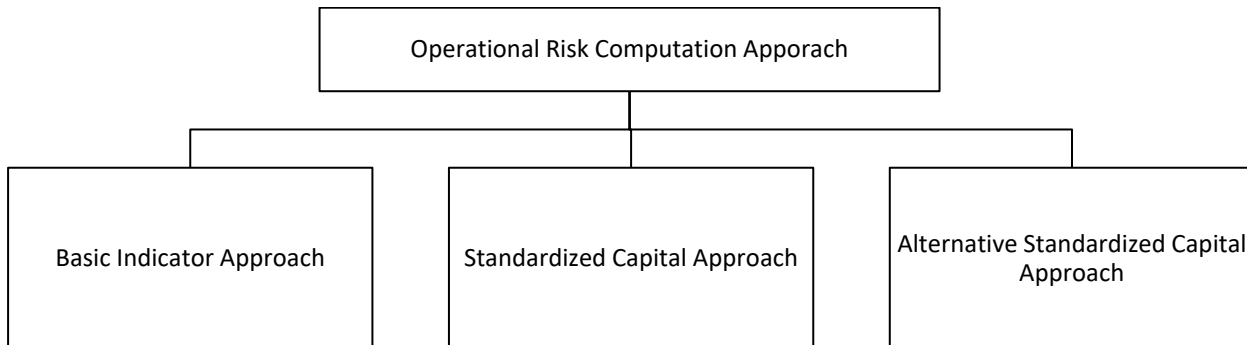
This is handled in the process **Derivatives Underlying Data Processing -STD**.

7.8 Operational Risk Portfolio

Operational risk is a risk of loss resulting from inadequate or failed internal processes, people and systems, or external events". External Losses can occur due to Misappropriation of Assets, Tax Evasion, Theft of information, hacking damage or Third party theft or forgery. The Capital Adequacy guidelines prescribed by EBA has prescribed three methods for calculating Operational Risk capital charges and

banks can use any of these methods to calculate capital charge. The following illustration displays the various methods in Operational Risk Computation Approach:

Figure 41 Process flow of methods for calculating Operational Risk capital charges



When executing Solo Run for computing Operational Risk, the parent entity data is processed. However, for a Consolidated Run the parent entity and the subsidiary data are processed.

The bank can choose the approaches based on run management option. As the approach option of Standardized Approach and Alternative Standardized Approach is based on supervisory approval, it is expected that the bank chooses the appropriate run management option based on the supervisory approval obtained.

NOTE

It is expected that the bank is aware of which process it has an approval to and selects the approach accordingly in the run management option.

7.8.1 Operational Risk Prerequisites

The banking activities are divided into eight lines of business for operational risk. This is the basis on which the bank is expected to reclassify their lines of business into the Basel application specific lines of business. The business lines and its activities are detailed on the following table:

Table 22 List of Bank Businesses for Operational Risk

Business line	List of activities
Corporate finance	Underwriting of financial instruments or placing of financial instruments on a firm commitment basis Services related to underwriting Investment advice Advice to undertakings on capital structure, industrial strategy and related matters and advice and services relating to the mergers and the purchase of undertakings Investment research and financial analysis and other forms of general recommendation relating to transactions in financial instruments
Trading and sales	Dealing on own account Money broking Reception and transmission of orders in relation to one or more financial instruments Execution of orders on behalf of clients Placing of financial instruments without a firm commitment basis

Business line	List of activities
	Operation of Multilateral Trading Facilities
Retail brokerage	Reception and transmission of orders in relation to one or more financial instruments Execution of orders on behalf of clients Placing of financial instruments without a firm commitment basis
Commercial banking	Acceptance of deposits and other repayable funds Lending Financial leasing Guarantees and commitments
Retail banking	Acceptance of deposits and other repayable funds Lending Financial leasing Guarantees and commitments
Payment and settlement	Money transmission services Issuing and administering means of payment
Agency services	Safekeeping and administration of financial instruments for the account of clients, including custodianship and related services such as cash/collateral management
Corporate finance	Underwriting of financial instruments or placing of financial instruments on a firm commitment basis Services related to underwriting Investment advice Advice to undertakings on capital structure, industrial strategy and related matters and advice and services relating to the mergers and the purchase of undertakings Investment research and financial analysis and other forms of general recommendation relating to transactions in financial instruments
Trading and sales	Dealing on own account Money broking Reception and transmission of orders in relation to one or more financial instruments Execution of orders on behalf of clients Placing of financial instruments without a firm commitment basis Operation of Multilateral Trading Facilities
Commercial banking	Acceptance of deposits and other repayable funds Lending Financial leasing Guarantees and commitments
Payment and settlement	Money transmission services Issuing and administering means of payment

Business line	List of activities
Retail brokerage	Reception and transmission of orders in relation to one or more financial instruments Execution of orders on behalf of clients Placing of financial instruments without a firm commitment basis
Agency services	Safekeeping and administration of financial instruments for the account of clients, including custodianship and related services such as cash/collateral management
Asset management	Portfolio management Managing of UCITS Other forms of asset management

Before calculating the capital charge for Operational Risk, the following is 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.

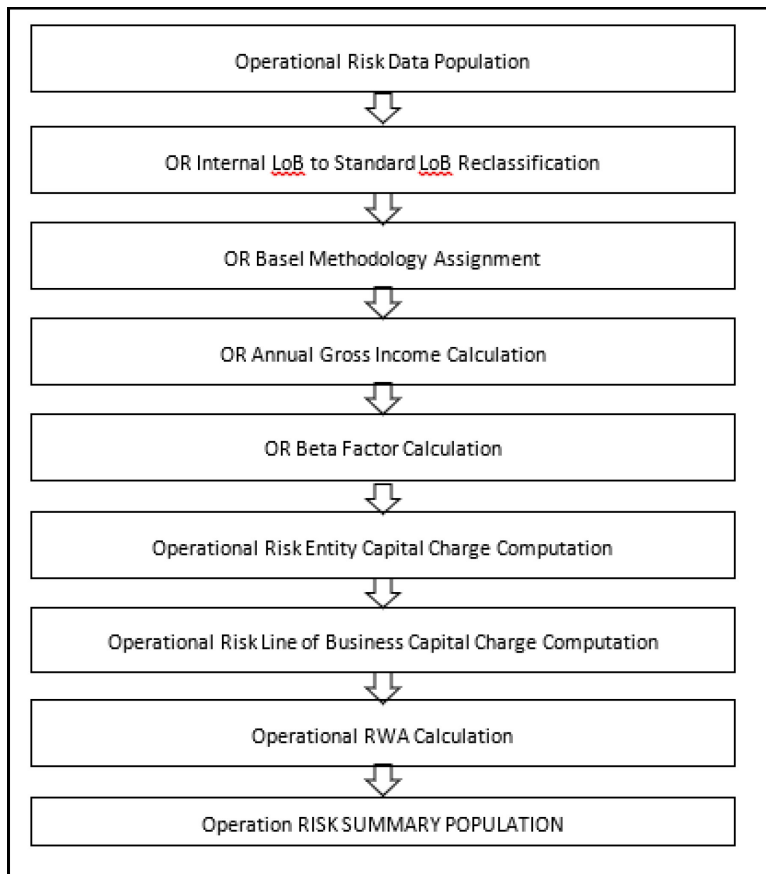
For example: if the previous 3 years are considered, then assign 3 as a parameter against the task **OR_Capital_Std_App**. Therefore, in the future, if the previous 4 years have to be considered then change that particular parameter only.

After defining the parameter, compute the Operational Risk procedure as mentioned below.

Process Flow for Operation Risk RWA

The following illustration displays the process for Operation Risk RWA:

Figure 42: Process Flow for Operational Risk RWA



7.8.2 Data Population

The data required for the Operational Risk RWA calculations are part of the Stage Operational Risk Data (STG_OPS_RISK_DATA). This is the entity level information for various operational attributes related to the entities and the Lines of business.

All the other data related to entities, as detailed in the Capital Structure and Common section will have to be provided, to help in the identification of whether the entities are part of consolidation or not.

This is handled in the rule OPS_RISK_DATA_POPULATION

7.8.3 Shareholding Percent Multiplication

For all the entities, which are part of regulatory consolidation and parent shareholding percentage is required is getting updates the shareholding percentage against each entity data. These details are captured in the Stage Entity Shareholding Details (STG_ENTITY_SHR_HLD_PERCENT) table. And using the shareholding percentage applicable for the entity, based on the solo or consolidation level, all the amount columns are multiplied by the corresponding shareholding percent.

This is handled in the following Rules:

- OR Operating Income and Expense shareholding Percent Multiplication
- Shareholding Percent Multiplication of Balance sheet Attribute for Operational Risk
- OR Non Operating Income and Expense shareholding Percent Multiplication

- OR Other Income and Expense shareholding Percent Multiplication
- OR Other Income and Expense shareholding Percent Multiplication

7.8.4 Reclassification Rules

In the case of Operational Risk, the key reclassification rules are with respect to the entity type, which is based on the party type reclassification as detailed in the Credit risk section. The other relevant reclassification rules are the ones for the LOB Reclassification.

7.8.4.1 Line of Business Reclassification

- The internal lines of business, as maintained by the bank, are reclassified into Basel standard lines of business, as provided by the regulator for calculation of the operational risk..
- This is handled in the rule OR Internal LoB to Standard LoB Reclassification

7.8.5 Capital Charge Approaches

As part of the approaches suggested by the regulator for Operational Risk, the bank can follow one of the approaches, based on the supervisory approval, and bank meeting the operational requirements to comply with these guidelines.

- Basic Indicator Approach
- Standardized Approach
- Alternative Standardized Approach

7.8.5.1 Basic Indicator Approach

7.8.5.1.1 Capital Charge Calculation

Capital charge is calculated by multiplying the alpha value with the annual gross income of each year across each standard line of business. The average of 3 years is considered by the application, in sync with the regulatory ask. If the values of all the 3 years are not positive, then zero or the negative value from numerator and denominator is excluded.

In this approach, the alpha value is a fixed value set by the regulator.

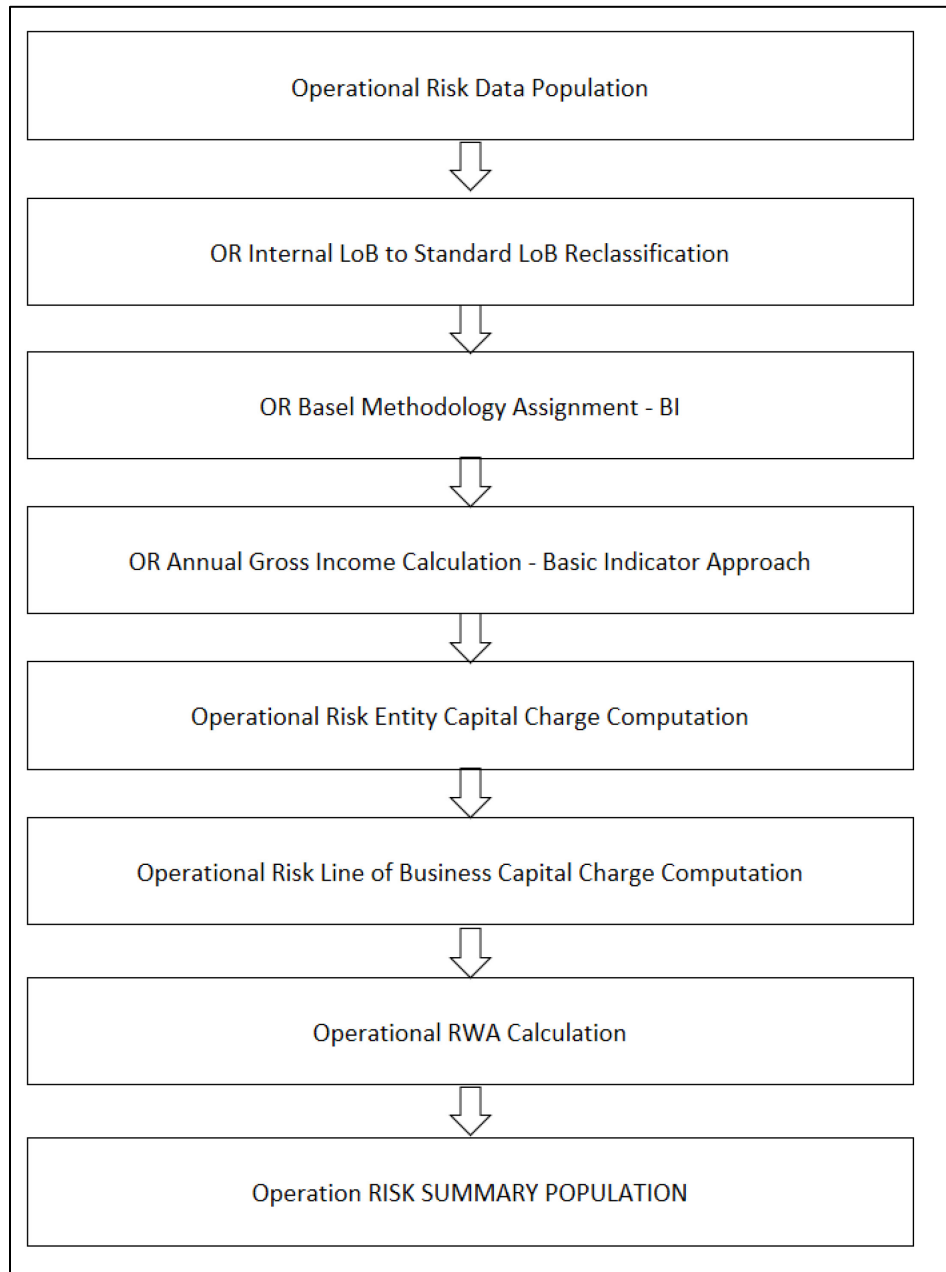
This is handled in the rules Opr_Risk_Capital_Charge

7.8.5.1.2 Risk-Weight Asset Calculation

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

Operational Risk-Basic Indicator Approach - Data Population

Figure 43: Operational Risk-Basic Indicator Approach - Data Population



7.8.5.2 Standardized Approach

In this approach, the LOB reclassification is expected to reflect the relevant LOB provided by the regulator.

7.8.5.2.1 Capital Charge Calculation

Capital charge is calculated by multiplying the beta value with the annual gross income of each year across each standard line of business. The average of 3 years is considered by the application, in sync with the

regulatory ask. If the values of all the 3 years are not positive, then zero or the negative value from numerator and denominator is excluded.

In this approach, the beta value is a fixed value set by the regulator, for each of the individual Lines of business.

This is handled in the in rule

Operational Risk Entity Capital Charge Computation

Operational Risk Line of Business Capital Charge Computation

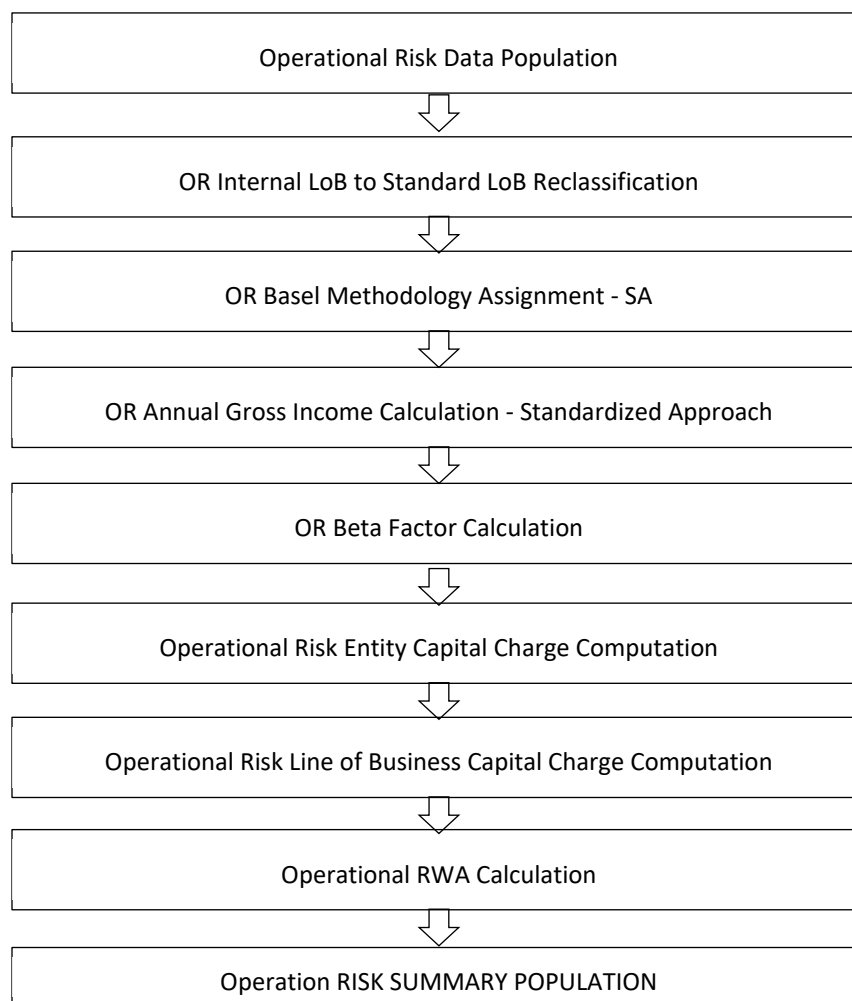
7.8.5.2.2 Risk-Weight Asset Calculation

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

Operational Risk-Standardized Approach - Data Population

The following illustration displays the process flow for Operational Risk - Standardized Approach for Data Population

Figure 44: Process Flow for Operational Risk-Standardized Approach - Data Population



7.8.5.3 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.

7.8.5.3.1 Capital Charge Calculation

Capital charge is calculated by multiplying the beta value with the gross income specified for each of the LOB, for each year across each standard line of business. The average of 3 years is considered by the application, in sync with the regulatory ask. If the values of all the 3 years are not positive, then zero or the negative value from numerator and denominator is excluded.

In this approach, the beta value is a fixed value set by the regulator, for each of the individual Lines of business, and they are also being multiplied by the fixed factor of m.

This is handled in the rule OR_Capital_Std_App.

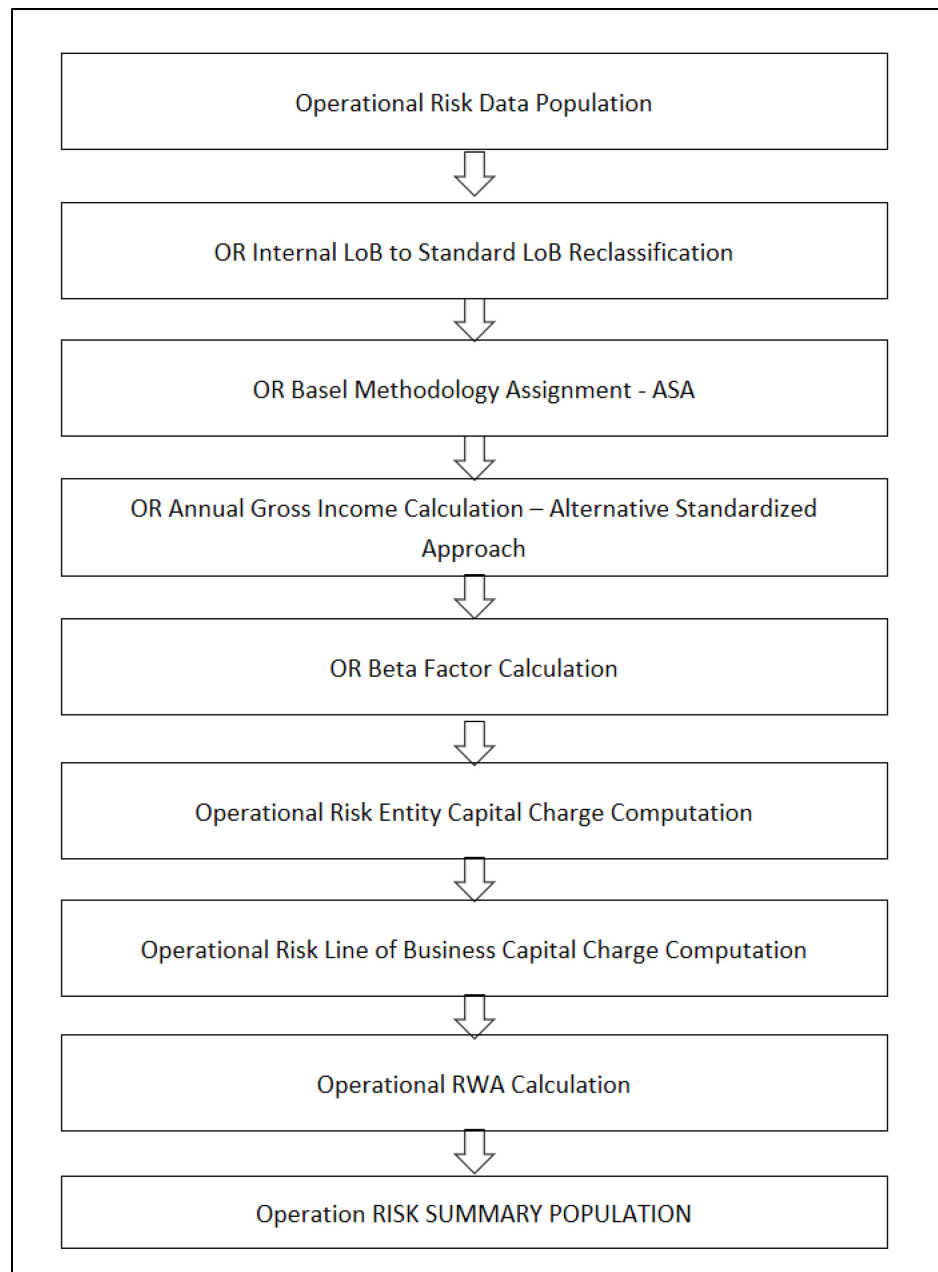
7.8.5.3.2 Risk-Weight Asset Calculation

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

Operational Risk – Alternative Standardized Approach - Data Population

The following illustration displays the process flow for Operational Risk – Alternative Standardized Approach in Data Population:

Process flow for Operational Risk – Alternative Standardized Approach in Data Population

Figure 45: Operational Risk – Alternative Standardized Approach in Data Population

7.8.6 Key Data Elements

Key data elements that noted while calculating the capital charge for OR for the consolidated entity.

To view the complete list of tables used for Operational Risk computation, see the Download Specification document.

Entity details, which are part of regulatory consolidation and parent entity shareholding percent is required. These details are captured in the Stage Entity Shareholding Details (STG_ENTITY_SHR_HLD_PERCENT) table.

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.

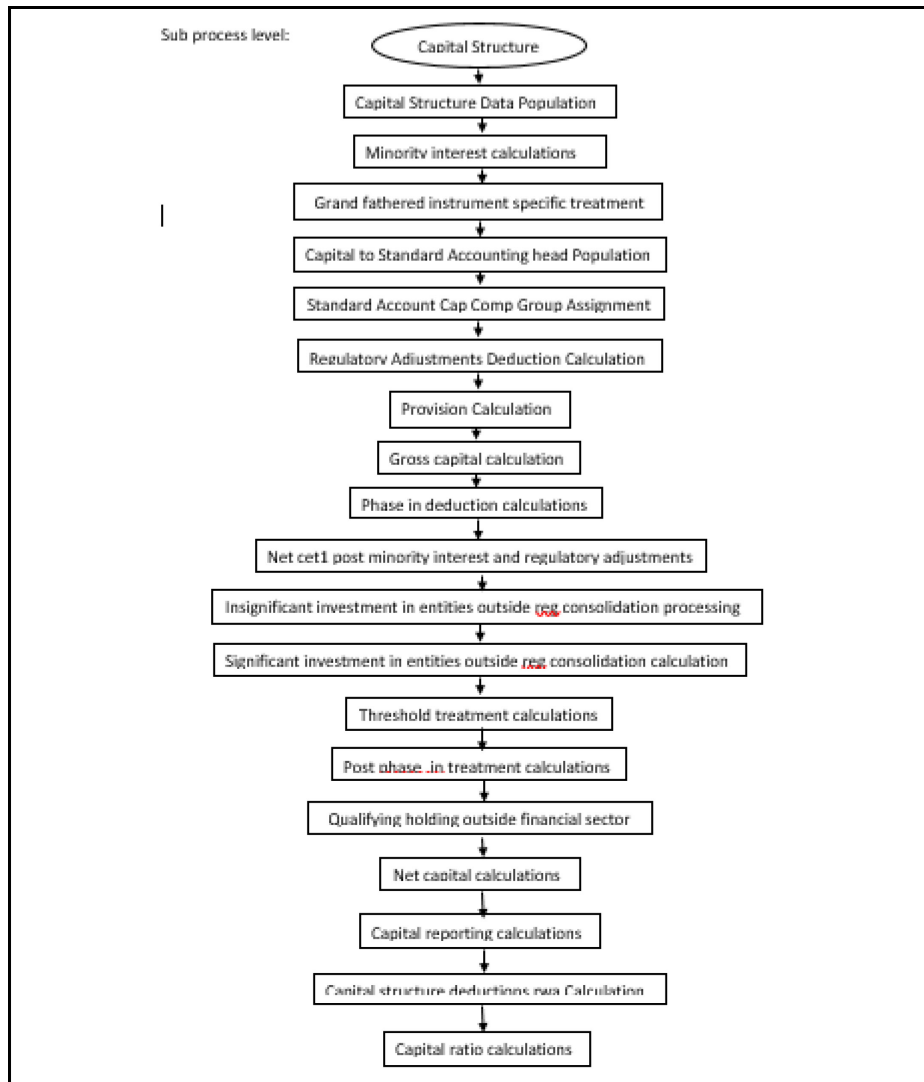
7.9 Capital Structure

The European Banking Association (EBA) in conjunction with the European Council and the European Parliament has issued the CRR IV regulations and the CRD IV directive which encompasses the entire Regulations to be followed by the Banks. The capital structure of this rule is by and large compliant with the Basel III changes issued by the Basel Committee.

Under the CRR IV, compliant with the Basel III Regulations, the Tier 1 capital has become the main constituent of the Capital Structure. The entire capital structure of the European Union as was existent due to CRR II and CRR III has undergone changes to be compliant with the BIS Basel III Regulations.

The total capital requirement of 8% remains the same as in CRD II and CRD III. But total capital will increase after addition of the capital conservation buffer, countercyclical buffer, and systemic buffers.

Figure 46: Sub-process Levels of Capital Structure



Total capital consists of sum of the following elements:

- Tier1 Capital, which comprises of the following components,
 - Common Equity Tier 1
 - Additional Tier 1
- Tier 2 Capital

Each component of capital is subject to restrictions where CET1 must be at least 4.5% of total risk-weighted asset. Tier 1 capital must be at least 6.0% of total risk-weighted asset. Total capital must be 8.0% of total risk-weighted asset. Each component of capital undergoes minority interest and regulatory adjustments. The minority interest is applicable for a consolidated entity only, during the consolidation run. Most of the regulatory adjustment line items are to be deducted from CET1.

All the regulatory adjustment line items follow a phase-in arrangement from the beginning of 2014 till 2017.

In particular, the regulatory adjustments begin at 20% of the required adjustments to Common Equity Tier 1 on 1 January 2014, 40% on 1 January 2015, 60% on 1 January 2016, 80% on 1 January 2017, and reaches 100% on 1 January 2018. The same transition approach applies for all deductions from additional Tier 1 and Tier 2 capital.

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

While executing Consolidation Run, the parent entity and the subsidiary data is considered.

7.9.1 Assumption

Credit Risk Mitigation for Capital Instruments

Investments in capital instruments are generally long-term investments. These investments are not processed for Credit Risk Mitigation, as generally capital instruments are not mitigated by eligible mitigants.

Treatment of the Transition Percentages

As per Accord:

All the transitions are mentioned as a range of percentage, for example, 20% to 100%, and this has to be updated for the national specific transition percentage.

Interpretation in the application:

Since the solution cannot use an entire range to calculate, the solution has used the lower limit of the percentage, as the default value. The same can be updated based on the national specific transition percentage, in the Setup table.

Treatment of Special Purpose Entity Subsidiary in Minority Interest Calculation

As per Accord

Additional Tier 1 and Tier 2 instruments issued by special purpose entity, and the related share premium accounts are included in qualifying Additional Tier 1, Tier 1 or Tier 2 capital or qualifying own funds. In these cases, the special purpose entity issuing those instruments is included fully in the consolidation.

Interpretation in the application

The Special Purpose Entity (SPE) is treated as any other Banking subsidiary and hence the value of the CET1, AT1 and T2 capital, Capital Ratio for each tier of capital, total RWA and the percentage of shareholding in each of the component of capital is required.

Calculation of Qualifying Holding Deduction**As per Accord**

A qualifying holding, the amount of which exceeds 15 % of the eligible capital of the institution, in an undertaking is subject to various computations.

‘eligible capital’ means the sum of the following:

Tier 1 capital as determined in Article 23.

Tier 2 capital as determined in Article 68 that is equal to or less than one third of Tier 1 capital.

Interpretation in the application

The qualifying holding depends on the eligible capital, which is the sum of Net tier 1 capital and Net tier 2 capital. And the net common equity tier 1 is inclusive of the deduction of the qualifying holdings. This will result in circular reference.

Hence it is proposed to use the same treatment specified by the CRR IV Accord for the threshold treatment, wherein the entire amount applicable for the threshold items is deducted in full, and then the 15% is applied on the remaining 85%, which is $15\% \div 85\% = 17.65\%$

Hence in the solution, the qualifying holdings amount is deducted in full from the Net CET1 after all the regulatory adjustments and the Significant and Insignificant Investments.

And this Net CET1, after deducting qualifying holdings in full, is used for the calculation of the eligible capital, used in the comparison.

And the 15% will instead be $15\% \div (100\% - 15\%) = 15\% \div 85\% = 17.65\%$

And the 60% will instead be $60\% \div (100\% - 60\%) = 60\% \div 40\% = 150\%$

Treatment of Grandfathered Capital Instruments**As per Accord**

The grandfathered capital instruments’ treatment is based on the first call date.

Interpretation in the application:

It is expected that the call date captured in the application is the first call date.

GL Codes

The GL codes are expected to be unique across entities in Stage General Ledger Data (STG_GL_DATA) and Capital Accounting Head Dimension (DIM_CAPITAL_ACCT_HEAD).

7.9.2 Data Population

Exposure level input for the capital structure will flow from different stage portfolio tables.

Along with the portfolio level stage tables, the application uses the following tables:

- Stage GL DATA (STG_GL_DATA)

- Stage GI master(STG_GL_MASTER)
- Stage Party Share Holding Percentage (STG_PARTY_SHR_HLD_PERCENT)
- Stage Entity Share Holding Percentage (STG_ENTITY_SHR_HLD_PERCENT)
- Dim Organization Structure (DIM_ORG_STRUCTURE)
- Stage Standard Accounting Head (STG_STANDARD_ACCT_HEAD)
- Stage Legal Entity Details (STG_LEGAL_ENTITY_DETAILS)
- FSI_SETUP_CAPITAL_SOURCE (In this table application stores the CAPID details for example the capital component group or if it is eligible for transition)
- FSI_SETUP_CAPITAL_HEAD (In this table application stores all the seeded ratios as per regulatory guidelines)

7.9.3 Shareholding Percent Multiplication

Based on the share-holding percentage of the parent bank in the subsidiary and the consolidation approach to be followed for each of the entity, the Basel approach is selected.

For example: if the share-holding for an entity is 35% and is part of the consolidation process, then the approach selected for this entity is pro-rata consolidation. The reclassification is performed in task – ‘Basel III Capital Consolidation Basel Approach Type Reclassification for an Entity’ in the process ‘**CAPITAL_CONSOLIDATION AND PARAMETER ASSIGNMENT**’.

The entity level population is part of EU Common Data Processing (PMFCOM007) process. The application updates the shareholding percentage against each entity common data in the fact capital accounting head from the fact entity shareholding percent table and update the capital accounting head amount multiplying with the shareholding percent of that particular entity. 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 shareholding percent table.

7.9.4 Common Reclassification Rules

There are certain reclassification which are specific to the capital structure process – standard accounting head reclassification, and entity type reclassification.

Capital to Standard Accounting Head Reclassification

This is the reclassification of the Capital accounting head to standard accounting head. In this, all the Capital accounting heads of the bank need to be reclassified into the Standard Accounting Head, as that is the one which is being consumed in the application. This happens in the COMMON_RECLASSIFICATION (PMFCOM005) sub-process process in Common Data Processing (PMFCOM006).

Entity Type Reclassification

The entity type reclassification is also handled as part of the Party Type reclassification since there cannot be difference in the party type and entity type.

This happens in the BIS Other Reclassification (PMFCOM010) process.

Product to Capital Component Group Reclassification

This reclassification of of the product to the capital component group is based on the Basel Product type, and this is handled at the individual portfolio tables of Investments and Derivatives. For investments this happens in the process INV_CAPITAL_STRUCTURE_RECLASSIFICATION_STD (PMFINV005) and for derivatives this happens in the DRV_RECLASSIFICATION_STD (PMFDRV012) in the process.

7.9.5 Gross Capital Calculations

For Gross Capital calculation all the components are classified into their respective tiers (CET1, AT1, and T2) based on the standard accounting head, and the specifications as mentioned by the regulator. The total gross capital for each tier of capital (CET1, AT1, and T2) is calculated as per the definition of CET1, AT1, and T2 by adding the relevant financial instrument in each tier of capital. This is processed using EU_GROSS_CAPITAL_CALCULATION (PMFEUCS006) sub processes **EU Capital Structure Data Processing (PMFEUCS021)** process.

7.9.6 Grandfathered Instrument Calculations

Capital instruments which no longer qualify as non-common equity Tier 1 Capital or Tier 2 Capital are considered as ineligible capital instruments. They are subject to grandfathering requirement, wherein they have limited recognition as capital instruments for a specific period of time. The phase-in is based on the balance of the instruments as of December 31, 2012. Their recognition is capped at 80% from January 1, 2014, with the cap reducing by 10 percentage points in each subsequent year. This cap is applied to each of the tier separately.

The data for all the grandfathered capital instruments are expected in the Stage Issued Instrument Positions (STG_ISSUED_INSTR_POSITIONS) and the Stage Instrument Contract Master (STG_INSTRUMENT_CONTRACT_MASTER). Based on the processing, it moves to the respective fact and dimension tables – Fact Issued Instrument Positions (FCT_ISSUED_INSTR_POSITIONS) and Instrument Contracts Dimension (DIM_INSTRUMENT_CONTRACT). The Phase-in Base amount is captured, and stored in the table.

The instruments are reclassified from the bank specific instrument type to basel instrument type. This instrument type is being reclassified into the various tiers of capital. All these instruments are being summed up and the amount gets split into two – Phase-in Amount and Balance Phase-in Amount.

The split happens based on the specified transition percentage present in the Setup Capital Head table (FSI_SETUP_CAPITAL_HEAD).

The split CAP IDs with different Capital component group are again moved back to the Fact Standard Accounting Head table (FCT_STANDARD_ACCT_HEAD).

The sub process name is EU_GRANDFATHERED_INSTRUMENT_ASSIGNMENT (PMFEUCS024) in EU Capital Structure Data Processing (PMFEUCS021).

7.9.7 Minority Interest Calculations

Surplus of Minority Interest

Minority Interests are calculated and the surplus amount in each tier of capital, which is attributed to third parties, are deducted from the gross capital of each tier of capital.

Minority interest is the amount that is attributable to any other party, which is not part of the bank's entities, and have shareholding in the entity. The surplus of 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 Minority Interest Capital (**FSI_MINORITY_INTEREST**) table which is the processing table for minority interest calculations.
- The sub process – EU_MINORITY_INTEREST_CALCULATIONS (PMFEUCS001) in EU Capital Structure Data Processing (PMFEUCS021) process covers this processing.
- The minority interest is deducted from the gross capital of each tier of the capital.

7.9.8 Internal Transactions Deduction

The deduction also includes internal transactions in each tier of capital among the various entities which are part of the regulatory consolidation. This is to ensure that there are no double counting of exposures. This is handled in the process EU_CAPITAL_STANDARD_ACCOUNTING_POPULATION (PMFEUCS002).

7.9.9 Regulatory Adjustments & Deductions from Each Tier of Capital

All the regulatory adjustment line items are expected as download in the Stage General Ledger Data table (STG_GL_DATA). Some of these line items are Good will, Other Intangibles, Deferred Tax Assets, Cash flow hedge reserve etc. The related deferred tax liabilities are also expected to be provided as a download. The application calculates the values net of DTL and then processes it for the Regulatory Adjustments. The detailed list of these line items are part of the FSI Setup Capital Source (FSI_SETUP_CAPITAL_SOURCE) table.

The sub process – EU_REGULATORY_ADJUSTMENTS_DEDUCTION_CALCULATION (PMFEUCS004) and EU_PROVISION_CALCULATION (PMFEUCS005) in EU Capital Structure Data Processing (PMFEUCS021) process handle this requirement.

7.9.10 Certain Deductions part of Corresponding Deduction Approach

There are certain deductions which are expected to be part of each of the tier of capital. And they follow the corresponding deduction approach, wherein the deduction of the line item happens in the same tier of capital to which the exposure belongs to. This is being mostly pulled from the relevant

7.9.10.1 Investment in Own Shares

The investment in own shares are calculated as the sum of the pre-mitigation EAD (EAD Pre-mitigation Measure Value (**N_EAD_PRE_MITIGATION**)). The source for investment in own share is the individual portfolio table.

The source for Non-Sec exposures is FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES), and FSI Cap Derivative Exposures (FSI_CAP_DERIVATIVES). The process where this is being handled is in EU Capital Structure Data Processing (PMFEUCS021).

This populates into the Fact Calc accounting head (fct_calc_acct_head). This is being populated for each of the respective tier of capital.

The Investment in own shares is being calculated in the task INV_DRV_DEDUCTION_CALC_ACCT_HEAD_DATA_POP in Capital Structure Data Population (PMFBISCS019) process.

This also goes for phase in calculations, which is being handled in the PHASE_IN_DEDUCTION_CALCULATIONS (PMFBISCS008) process.

7.9.10.2 Reciprocal Cross-holdings

The Investment in reciprocal cross-holdings are calculated as the sum of the pre-mitigation EAD (EAD Pre-mitigation Measure Value) (N_EAD_PRE_MITIGATION) in FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES), and FSI Cap Derivative Exposures (fsi_cap_derivative) 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 uses this INV_DRV_DEDUCTION_CALC_ACCT_HEAD_DATA_POP task in Capital Structure Data Population (PMFBISCS019) process to populate into the Fact Calc accounting head (fct_calc_acct_head). This is being populated for each of the respective tier of capital.

This also goes for phase in calculations, which is being handled in the PHASE_IN_DEDUCTION_CALCULATIONS (PMFBISCS007) process.

And finally the adjusted amount after deductions it goes back to the exposure level,

Which is being handled in the CAPITAL_STRUCTURE_DEDUCTIONS_RWA_EXPOSURES (PMFBISCS022) from the process EU Capital Structure Data Processing (PMFEUCS021).

The exposure that meets the reciprocal cross-holding amount is stamped with the reciprocal cross-holding indicator (F_RECIPROCAL_CROSS_HLDG_IND) as ‘Y’. This will be reduced in all the amount columns in FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES), and FSI Cap Derivative Exposures (FSI_CAP_DERIVATIVES) as per the reciprocal cross-holding ratio and store the actual amounts in FSI CAP DEDUCTION EXPOSURE table (fsi_cap_deduction_exposures).

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.

7.9.10.3 Insignificant Investment

Investment in all financial entities, which are outside the scope of regulatory consolidation, is identified for significant and insignificant investments.

The shareholding percent for these parties are expected as download in Stage Party Shareholding Percent table (STG_PARTY_SHR_HLD_PERCENT). Any party which is part of the Org Structure, but is not part of the regulatory consolidation, can also qualify for this treatment, if it is financial entity. If the entity is part of the Org structure, the shareholding percent is expected in the Stage Entity Shareholding percent table (STG_ENTITY_SHR_HLD_PERCENT).

The parties are identified as significant when the shareholding percentage is greater than or equal to 10%. And the others are identified as insignificant investment. This processing happens in the PARTY_SHAREHOLDING_PERCENT process.

The total investment amount in insignificant entities is computed by summing up the Pre-mitigation EAD (EAD Pre-mitigation Measure Value (N_EAD_PRE_MITIGATION)) from the portfolio tables FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES), and FSI Cap Derivative Exposures (FSI_CAP_DERIVATIVES). And also the tier wise computation of investment amount happens. The total

amount is compared with the 10% of the CET1 amount of the parent bank amount post regulatory adjustments. The amount above 10% limit is processed for deduction.

This summing up includes the direct, indirect and synthetic investments. The Indirect investments are investments in Investment funds, and which are invested in capital instruments. The synthetic investments are the investments in synthetic transactions on capital instruments. For all these exposures, the net long position amount, updated in **N_EAD_PRE_MITIGATION** is considered.

This is expected for all capital positions, and not for specific capital position.

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 is deducted from each tier of Capital.

The investment amount below the 10% limit is treated as per banking book rule for the instrument.

The application computes as follows:

Parties are marked as insignificant investment parties by updating the flag: Significant Entity Indicator (**F_SIGNIFICANT_INVESTMENT_IND**) in Fact Party Shareholding Percent (**FCT_PARTY_SHR_HLD_PCT**) with value N, and **F_SIGNIFICANT_INVESTMENT_IND** in Fact Entity Info (**FCT_ENTITY_INFO**) with value N.

- The exposure amount of banking book and trading book exposures (any counterparty credit risk exposures) to these entities are summed by grouping their component of capital and compared against 10% of parent bank's CET1 capital. The portion of amount which exceeds the 10% limit is deducted.
- This is computed by calculating 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 Non Regulatory Consolidation Entity Investment (**FSI_NON_REG_CONSL_ENTITY_INVST**) table which is the processing table for insignificant and significant investment deductions.
- The sub process –
EU_INSIGNIFICANT_INVESTMENT_IN_ENTITIES_OUTSIDE_REG_CONSOLIDATION_PROCESSING (PMFEUCS010) in EU Capital Structure Data Processing (PMFEUCS021) covers the processing.
- After the application of this treatment, the Insignificant Investments line item also follow phase-in arrangement which is similar to the phase-in arrangement for Regulatory Adjustments.

7.9.10.4 Significant Investment

The total investment amount is checked against the set limit of 10% of CET1 amount of the parent bank, post insignificant investment amount adjustment. The CET1 amount above 10% is deducted from the CET1 post insignificant investment amount deduction. The CET1 amount below 10% follows threshold deduction. The investment amount in AT1 and T2 is fully deducted from its respective AT1 and T2 tier of capital. The application computes as follows:

Entities are marked as significant investment entities by updating the flag – Significant Entity Indicator (**F_SIGNIFICANT_INVESTMENT_IND**) in Fact Party Shareholding Percent (**FCT_PARTY_SHR_HLD_PCT**) with value Y and Significant Entity Indicator (**F_SIGNIFICANT_INVESTMENT_IND**) in Fact Entity Information (**FCT_ENTITY_INFO**) with value 'Y'.

- The exposure amount of banking book and trading book exposures (any counterparty credit risk exposures) to these entities are summed by grouping their component of capital and compared

against 10% of parent bank's CET1 capital. The portion of amount which exceeds the 10% limit is deducted from CET1. The exposures of AT1 and T2 are fully deducted from respective tier of capital. This is done by calculating deduction percentage for CET1 and by multiplying this percentage with the CET1 exposure's exposure amount to arrive at the amount to be deducted from CET1 capital.

- The sub process – EU_SIGNIFICANT_INVESTMENT_IN_ENTITIES_OUTSIDE_REG_CONSOLIDATION_PROCESSING (PMFEUCS011) in EU Capital Structure Data Processing (PMFEUCS021) covers the processing.
- After the application of this treatment, the Significant Investments line item also follow phase-in arrangement which is similar to the phase-in arrangement for Regulatory Adjustments.

7.9.11 Threshold Deduction Treatment

Threshold Deduction is populated in the **FSI_THRESHOLD_TREATMENT** table and the threshold calculations are processed in this table.

The line items, (Significant and insignificant Investment in the Common Shares of Accounting entities are populated from the FSI NON REGULATORY CONSOL ENTITY INVESTMENT table (FSI_NON_REG_CONSL_ENTITY_INVST), Mortgage Servicing Rights net of Deferred Tax Liabilities are populated from the Fact Standard Accounting head (FCT_STANDARD_ACCT_HEAD) table, and DTAs that arises from temporary differences are populated from the Fact Capital Accounting Head (FCT_CAPITAL_ACCT_HEAD)

The three line items' significant investment in the common shares of BFSI where the bank owns more than 10%, Mortgage Servicing Rights (MSR), and DTAs that arises from temporary differences is processed for threshold deduction are populated in the Capital Threshold Treatment (**FSI_THRESHOLD_TREATMENT**) table and the threshold calculations are processed in this table.. These three line items are individually compared with the 10% of CET1 calculated Post Regulatory Adjustments, Insignificant Investments, and Significant Investment. The amounts which are above 10% CET1 limit are deducted from CET1 following the phase-in arrangements. During the transition period, any amount of these three line items, which is not deducted as per the 10% mentioned earlier, is summed up for the aggregate 15% limit check. During the transition period, the check of 15% is against the CET1 post all regulatory adjustments and adjustments to insignificant investments and significant investments and the individual threshold deduction. In the post transition period, instead of 15%, the aggregate check is 17.65% of CET1, post all regulatory adjustments and adjustments to insignificant investments, less 100% of the sum of the line items which goes for threshold deduction.

The amount which is not deducted due to this 10% and 15% check is risk-weighted 250% during the transition period and is risk-weighted 250% post the transition period.. The entire processing is done in the sub process – 'THRESHOLD_TREATMENT_CALCULATIONS (PMFBISCS012) in EU Capital Structure Data Processing (PMFEUCS021).

7.9.12 Qualifying Holdings outside the Financial Sector

Any significant capital investment in a non-financial party will qualify for this treatment. The qualifying holdings are the holdings which are outside the financial sector and wherein the bank has more than 10% holdings. The application identifies these based on the significant party identification, and the party attribute of whether they are a financial entity or not.

The sub process – EU_TREATMENT_OF_QUALIFYING_HOLDINGS_OUTSIDE_FINANCIAL_SECTOR (PMFEUCS018) in EU Capital Structure Data Processing (PMFEUCS021) covers the above processing.

Threshold Check for the Qualifying Holdings

The Investment Amount (N_EAD_PRE_MITIGATION) is summed up for all the entities which have the F_SIGNIFICANT_INVESTMENT_IND = Y, and the financial entity indicator flag (F_FINANCIAL_ENTITY_IND) is N. This is populated into the table FSI_HOLDING_OUTSIDE_FIN_SECTOR.

These holdings are individually checked at party level with 15% of the eligible capital. And they are checked using aggregate value at the total level with 60% of the eligible capital. The greater of these two amounts will go for deduction from capital, or Risk weighting at 1250%, based on the run management option selected.

If the bank opts for deduction from capital, this is deducted from CET1 capital, and the Net CET1 Capital is calculated.

And the deducted adjusted amount will be transferred back to exposure level

In this EU_QUALIFYING_HOLDINGS_EXPOSURE_PROCESSING (PMFEUCS019) in EU Capital Structure Data Processing (PMFEUCS021) process.

7.9.13 Net Capital Calculations

The net CET1, net AT1, and net T2 capital amount are calculated post all regulatory adjustments. Any shortfall in T2 capital amount is adjusted against Net AT1 amount and any shortfall of AT1 capital amount is adjusted against Net CET1 amount.

This is done in these sub process – EU_NET_CAPITAL_CALCULATIONS (PMFEUCS014)

And EU_NET_CAPITAL_CALCULATION_POST_DEDUCTION (PMFEUCS020) in EU Capital Structure Data Processing (PMFEUCS021).

7.9.13.1 Total RWA Calculations

The RWA amount for Credit Risk - Non Securitization, Counterparty Credit Risk, Credit Valuation Adjustment Risk Weighted Asset, Credit Risk - Securitization, Market Risk, and Operational Risk and Regulatory Capital Phase In Related RWA are calculated by summing up the RWA amount.

The Phase-In RWA captures the capital instrument investments that goes for deduction from Capital but because of Phase-In arrangement are to be risk-weighted such as – Reciprocal Cross-holding, Treasury Stock, Insignificant Investment amount, Significant Investment amount and Threshold deduction amount.

These are reported under different Capital accounting heads such as ‘Risk-weighted Asset amount for Standardized Portfolios/IRB portfolio’ for Non Securitization, “Sec Std RWA” for Securitization portfolio, “Market RWA” for Market Risk and “Operational RWA” for Operational Risk.

This is part of the EU_RWA_POPULATIONS (PMFEUCS016) in EU Capital Structure Data Processing (PMFEUCS021).

7.9.13.2 Capital Ratio Calculations

Tier 1 capital ratio and capital adequacy ratio are calculated using the total RWA amount, net Tier 1 capital, and Total capital amount.

For capital ratio, the process is EU_CAPITAL_RATIO_CALCULATIONS (PMFEUCS017) in EU Capital Structure Data Processing (PMFEUCS021).

7.9.13.3 Required Capital ratio

This process is handled in EU_CAPITAL_RATIO_CALCULATIONS (PMFEUCS017)

In this the application calculates CET1 capital ratio, T1 capital ratio, T2 capital ratio and a total capital ratio summing all of them.

And the same is being compared with the required capital ratio provided as an input for the specific regulator. The required capital ratio is being provided as an input in the Fsi Setup Capital Accounting Head (FSI_SETUP_CAPITAL_HEAD).

7.9.13.4 Deficit or Excess Capital

The shortfall is handled in the sub process EU_NET_CAPITAL_CALCULATIONS (PMFEUCS014),

Here the application calculates CET1, AT1 and T2 capital shortfall amounts.

7.9.13.5 Key Data Elements

Key data elements to process the Capital Structure for the consolidated entity is as follows. For a complete list of tables and columns to be updated, see the Download Specifications document.

- Entity details which are part of regulatory consolidation and parent entity shareholding percent. This data is captured in Stage Entity Shareholding Details (STG_ENTITY_SHR_HLD_PERCENT) table.
- The capital structure component for each tier of capital for all entities involved in regulatory consolidation.
- The total RWA, total CET1, AT1, and T2 amount and third party percentage of holdings in each tier of capital for minority interest calculation.
- The regulatory adjustment amount like goodwill, DTA, other intangible assets, cash flow hedge reserve, and defined pension fund asset, MSR, and so on.
- The transaction of the investment amount for accounting entity which is outside the scope of regulatory consolidation.
- The CET1, AT1, and T2 capital of the entity which has third party minority holdings in it are expected as a download in legal entity details (STG_LEGAL_ENTITY_DETAILS) table. Similarly, the third party investment in each tier of capital is also expected as a download in legal entity details table.
- The minimum required capital for each tier for each capital adequacy regulator (for the entity that has third party minority holding in it) is expected in the setup table - Setup Capital Heads (FSI_SETUP_CAPITAL_HEAD).
- The Total RWA (CAP838) for the entity that has third party minority holding in it is a download value in Stage Standard Accounting Head (STG_STANDARD_ACCT_HEAD).

7.9.13.6 7.8.10.6 Limitations

The limitations in the release of OFSCAP 8.1.1.0 is as follows:

Investment in Own Shares Treatment

The investment in own shares which goes for capital treatment, has a phase-in treatment, wherein during phase-in a portion of the exposure goes for deduction from capital, and the remaining portion of the

exposure goes for 100% RW. This is handled in the processing by the Phase-In treatment table, and this RW gets added into the Regulatory RWA Accounting Head.

But for reporting, the reporting happens from an account level granularity, and not at a higher granularity of the accounting head. As the current application does not split the exposures into two in the processing portfolio tables, the account level and the Phase-In treatment table values do not reconcile with each other. Currently, this has to be specifically addressed in the reporting layer, and is not part of the OOB product.

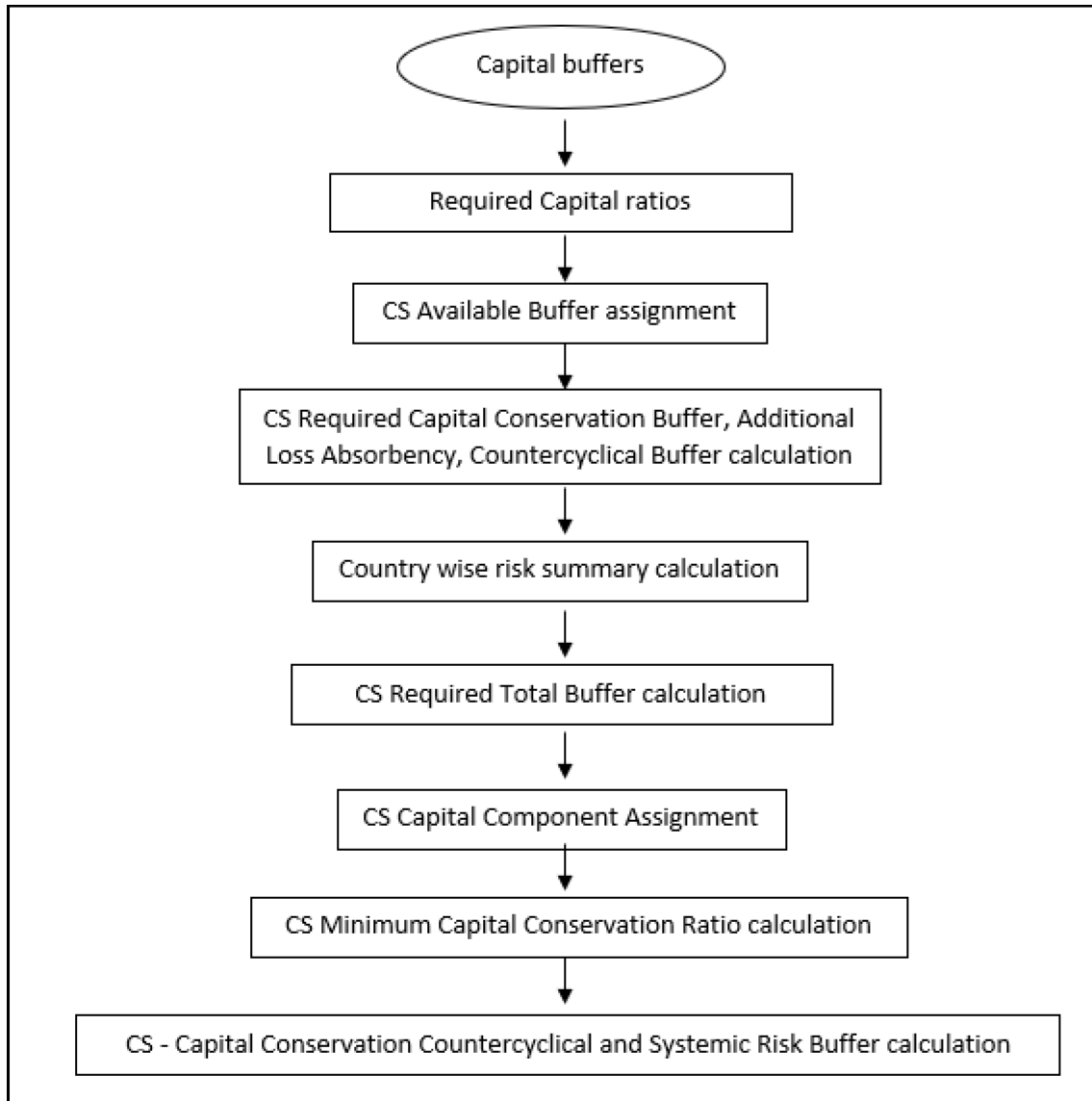
7.10 Capital Buffers

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 47: Process Flow for Capital Buffers



7.10.1 Data Population

The major input for capital buffers is the total capital ratio and the Net Common Equity Tier 1 Capital Ratio 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 Buffer (fsi_benchmark_cntr_cyc_buffer).

7.10.2 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.

7.10.2.1 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).

7.10.2.2 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.

7.10.2.3 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.

7.10.3 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.

7.10.4 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%.

7.10.5 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.

7.11 Large Exposures

The large exposure framework is a framework detailing how the banks have to manage exposures to various parties both at individual level and the group of connected clients' level.

The large exposure framework has to comply with the bank at both solo and consolidated levels. As part of the solo execution, the bank has to identify its large exposures and comply within the required threshold limit.

As part of the consolidation execution, the bank has to identify the total large exposures at the consolidated level and comply with the required threshold limit.

The solo and consolidation executions are as per the regulatory definitions and same as the executions which are used for the regular capital adequacy.

The large exposures are identified based on comparing the total individual party's exposures to the Tier 1 Capital, which changes based on whether it is a solo execution or consolidation execution.

7.11.1 Data Population

The large exposure computations require data related to the various portfolios; banking, investment, derivatives, securities and financing transactions, and trading book exposures.

Non Securitization Data Population

Data must be loaded in the application for all the product types and is the same as Capital Adequacy related data expectation.

See the individual portfolio for the data elements:

- [Banking](#)
- [Investment](#)
- [Derivatives](#)
- [Securities Financing transactions](#)

Data is loaded from the required portfolio tables into the table **FSI_LARGE_EXPOSURE_ACCT_DETAIL**. This table is used for Large Exposure calculations.

Mitigant Data Population

The data related to the mitigants associated with the exposures are captured in this process. This is also the same as the regular capital adequacy run related data.

For more information about Mitigant Data Population, see [Mitigant Processing](#) section.

Securitization Data Population

Data must be loaded in the application for all the relevant Securitization tables and is same as capital adequacy related data expectation.

For more information about the securitization data population, see [Securitization Data Population](#) section.

Trading book Data Population

Data must be loaded in the application for all the trading book exposures and is the same as capital adequacy related data expectation.

For more details, refer [Market Risk Data Population](#).

This data populates into the processing table of **FSI_LARGE_EXPOSURE_ACCT_DETAIL**.

Large exposure data population is handled in the sub-process **LARGE_EXPOSURE_DATA_POPULATION**.

7.11.2 Intra-group Assignment

This process identifies the group-exempted parties in investments and derivatives. The process handling is **LARGE_EXPOSURE_INTRA_GROUP_ASSIGNMENT**.

7.11.2.1 Party Relationship Reclassification

All the relationships at party level are expected in the stage party-party relationship table (**STG_PARTY_PARTY_RELATIONSHIP**).

The Large Exposures computation requires the details of the party's relationship to one another, since there are different limitations to the group exposure (a group of connected counterparties based on various relationship types) and to individual counterparties (without considering any other related counterparties).

From a definition perspective, connected counterparties are individual entities that are considered as a group due to the direct or indirect control established between entities. This direct or indirect control is being identified based on the party-party relationship table, wherein every related party's information are provided, and the relationship type is also defined.

This is reclassified into the standard relationship type that is used for further processing and reporting. The party relationship type reclassification takes place in the sub-process **COMMON_RECLASSIFICATION** of the rule **Party Relationship Type Reclassification**.

COMMON_RECLASSIFICATION is a sub-process that is part of the **EU Common Data Processing** process.

7.11.3 Computation of the Direct Exposures

The direct exposures are the actual exposures that are in the bank's portfolio in the form of banking, derivatives and SFT exposures. In the case of investment portfolio, the direct exposures are investments in the form of debt securities or equity, and which do not have any underlying dependencies. This is handled for individual counterparties.

This gets handled as part of the sub process **LARGE_EXP_PARTY_GROUP_EXP_POPULATION** which is part of the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.11.4 Computation of Indirect Exposures

The indirect exposures are the mitigants that have been provided to the exposures in the bank's portfolio in the form of banking, derivatives, investment, and SFT exposures. This is handled for individual counterparties.

This gets handled as part of the sub process **LARGE_EXP_PARTY_GROUP_EXP_POPULATION** under the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.11.5 Computation of Synthetic Exposures

The synthetic exposures are related to Securitization and CIU in which there are synthetic exposures to the underlying of these transactions.

In this scenario, these exposures are computed by assigning them to the unknown clients or the actual counterparty to which the underlying belongs to, depending on data availability.

This is handled for individual counterparties.

The computation of gross credit exposure for CIU/SPV is handled in the process **LARGE_EXP_SPV_UNDERLYING_PROCESSING**.

7.11.6 Exempted Exposures

There are certain exposures that are exempted from the large exposure calculations. These exemptions are as specified by the regulator and include the cleared transactions and other exposures deducted from capital as it does not make sense to consider them in the large exposure calculations.

This is handled for individual counterparties.

Exemptions are classified into full exemptions and partial exemptions. Full exemptions have the exemption source as 'CRD' and an exemption percentage of 100% is assigned to it.

Partial or supervisory exemptions have the exemption source as 'SUP' and exemption percentage of 0% is assigned to it.

Each exposure that exempts has an exemption code stamped to it. The following table lists the various exemption codes and their descriptions:

Table 23 Exposure exemption codes

Exemption Criteria Code	Exemption Criteria Description
EXMPT011	Exposures Guaranteed by Government Agency

Exemption Criteria Code	Exemption Criteria Description
EXMPT012	Exempted Trade Exposures of Qualifying Central Counterparty
EXMPT013	Exposures towards International Agencies with Strong Creditworthiness
EXMPT014	Other Specific Exemptions Defined by the Regulator
EXMPT015	Exempted Exposures of Intra Group

7.11.7 Calculation of Total Exposure to a Counterparty

Calculation of gross credit exposure depends on the specific product category of the on-balance sheet, off-balance sheet exposures, derivative products, secured lending and borrowings, exposures arising from CIU, exposures arising from SPVs along with the exposures to third parties of the SPVs and trade exposures. Calculation also covers indirect exposures of the counterparty arising out of the mitigant exposures of the bank.

This is applicable for all the counterparties for which the bank has exposures in the form of either direct, indirect or synthetic exposures. This is handled in the sub-process **Large Exposures Counterparty Gross and Net Exposure Amount Calculation** in the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.11.8 Identification of Related Parties

It is expected that the party ID is the one for which it is considered as a related party. For example, if Bank A is related to party B, and party B is related to party C, it is expected that the data is provided for Bank A to party B, and Bank A to party C. This ensures that every mapping is being considered.

The solution sums up the exposures for all the counterparties belonging to the same parent, along with the parent, and populates the FSI Large Exposure Account Detail Table (**FSI_LARGE_EXPOSURE_ACCT_DETAIL**).

The expectation is that all the parties that are related to each other have the same Parent ID of the Party table, or are part of the related party. Based on the related parties identified, and the parent id in **DIM_PARTY**, the related parties are identified, and are considered in the same group.

This is handled in the sub-processes **LARGE_EXP_PARTY_GROUP_MEMBER_MAPPING** and **LARGE_EXP_PARTY_GROUP_EXP_POPULATION** in the process **LARGE_EXPOSURE_DATA_PROCESSING**.

On the party group, the threshold limit check is applied, and the large exposures are identified.

7.11.9 Total Capital of the Bank

This is used to calculate the total capital of the bank. This is computed as per the [Capital Structure](#) related calculations.

This is handled in the sub-process **LARGE EXPOSURE CAPITAL AMOUNTS POPULATION** in the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.11.10 Identification of Large Exposure Counterparties

The large exposures are identified based on whether the group exposure of the counterparties exceeds the required threshold using the pre mitigation value. For EU, all exposures having Gross exposure amount greater than 10% of Tier 1 capital are considered as large exposures.

This is handled in the rule **Large Exposure Flag Assignment** in the sub-process **EU LARGE EXPOSURE PARTY PARTY GROUP CALCULATION** of the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.11.11 Threshold criteria for Large Exposure Counterparties

The regulator indicates the threshold criterion below which the large exposures can be maintained by the bank. This threshold percent is assigned based on the standard party type of the counterparty, as specified by the regulator.

This is handled in the sub-process **Large Exposures Counterparty Threshold Amount Calculation** in the process **LARGE_EXPOSURE_COUNTERPARTY_PROCESSING**.

7.11.12 Large Exposure Breach Calculations

The application identifies whether there has been any breach to the large exposure threshold as specified by the regulator and is stamped a flag which indicates that the counterparty as a group have breached it.

This is handled in the sub-process **Large Exposure Threshold Limit Breach Flag Assignment** in the sub-process **EU LARGE EXPOSURE PARTY PARTY GROUP CALCULATION** in the process **LARGE_EXPOSURE_DATA_PROCESSING**.

The breach amount is also calculated. This calculation is handled in the sub-process **EU - Large exposure threshold limit breach amount** in the sub-process **EU LARGE EXPOSURE PARTY PARTY GROUP CALCULATION** in the process **LARGE_EXPOSURE_DATA_PROCESSING**.

7.12 Leverage Ratio

During the financial crisis, banking institutions built-up excessive on-balance sheet and off-balance sheet leverage, which forced the banking sector to reduce its leverage. To prevent building of excessive leverage on the institutions' balance sheet, the EBA has introduced a non-risk based leverage ratio which is a new regulatory tool supplementing risk-based capital requirement. The leverage ratio guidelines were revised and published on 10th October 2014. The guidelines are mostly aligned to the revised leverage ratio guidelines issued in 2014 by BIS.

The solution supports this revised approach in the calculation. The application calculates the leverage ratio for a reporting bank. The minimum required leverage ratio is 3%.

The leverage ratio is calculated by dividing an institution's Tier 1 capital measure by the total leverage exposure measure.

$$\text{Leverage Ratio} = \frac{\text{Tier 1 Capital}}{\text{Leverage Exposure Measure}}$$

The Run CRD IV Leverage Ratio Calculation is used for computing the leverage ratio, as per the revised guidelines.

Net Tier 1 capital is the summation of Net CET1 and Net AT1 capital amount post regulatory adjustment. Exposure measure is the summation of on-balance sheet items, off-balance sheet items, Derivative

Exposures and Structured Financial Transactions (SFT). The on-balance sheet items include the Non-Securitization exposures' amount. The off-balance sheet items include the Non-Securitization exposures' amount Mitigation is not considered when calculating exposure amount.

The Adjusted Leverage Ratio is calculated as below:

$$aLR = 3\% * \frac{EM_{LR}}{EM_{LR} - CB}$$

- **EMLR** = The exposure measure calculated for Leverage Ratio, excluding all the exempted exposures except "Central government exposures in the form of cash and reserves"
- **CB** = Central bank's exposure which meet the exemption criterion as specified above

The leverage calculation occurs at the consolidated parent entity level. The market risk data are not captured for the EU Jurisdiction, and hence it is expected as a download. This is expected in Stage Standard Account Head (**STG_STANDARD_ACCT_HEAD**) for the CAP843 (Leverage Ratio).

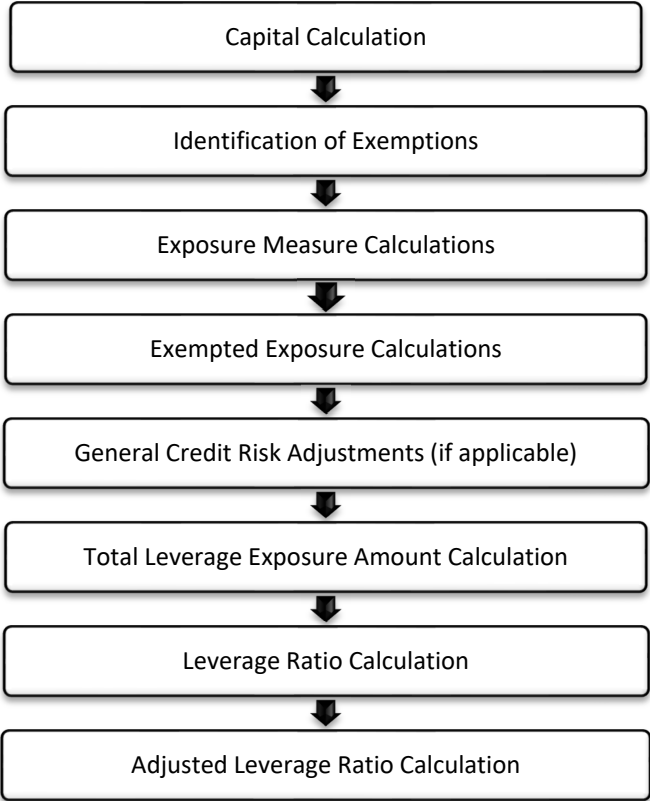
7.12.1 Assumptions

The accord is not explicit on the inclusion of Securitization and market related transactions in the exposure measure calculations. However, the application has considered Securitization and the market-related transactions in the calculation of total leverage exposure measure.

As the application does not support market related capital calculations pertaining to the EU jurisdiction, the application expects the MR related Exposure measure as a download.

7.12.2 Process Flow for Leverage Ratio

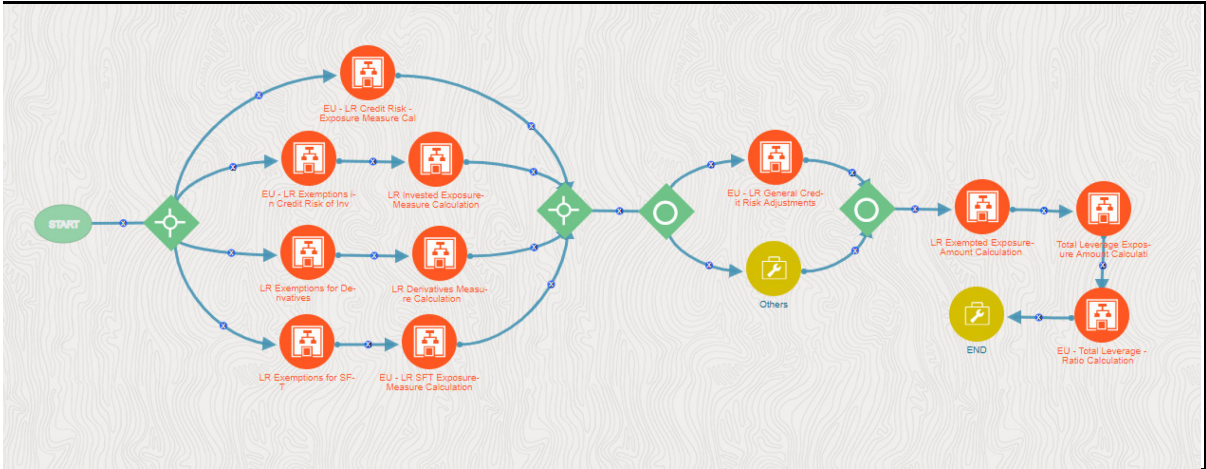
The following illustration shows the process flow for Leverage Ratio:



Leverage Ratio is calculated by executing the Run CRD IV Leverage Ratio Calculation.

The following image details the process flow for Leverage Ratio:

Figure 48: Process Flow for Leverage Ratio



Capital Calculation process

The capital calculation process remains the same as exists in the capital calculation run.

LEVERAGE RATIO DATA PROCESSING

The Leverage Ratio computation considers the following portfolio of data elements:

- Banking
- Investment
- Derivatives
- Securities Financing Transactions

Identification of Exemptions

The exemptions for Leverage Ratio are identified by the solution in the Regulatory Capital Exemption Criteria in the Non Sec Exposures processing tables. These exempted criteria are part of the dimension table of Regulatory Capital Exemption Criteria Dimension **DIM_REG_CAP_EXEMPTION_CRITERIA**.

Table 24 Exemption Criteria Codes

EXEMPTION CRITERIA CODE	EXEMPTION CRITERIA DESCRIPTION
EXMPT001	Fiduciary Assets That Are Derecognized Or Deconsolidated On The Balance Sheet As Per Ifrs Or Ias Guidelines
EXMPT002	Assets That Are Used For Funding General Interest Investments
EXMPT003	Eligible Cash Variation Margin Posted, Used To Offset Derivatives Market Value
EXMPT005	Exempted Ccp Leg Of Trade Exposures Of Clearing Member
EXMPT006	Written Credit Derivative, Not Offset By The Purchased Credit Derivatives
EXMPT007	Eligible Purchased Credit Derivative, Used to Offset Written Credit Derivatives
EXMPT016	Promotional loans granted by a public development credit institution
EXMPT017	Central Bank and Central Government Exposures that are in the form of Cash and Reserves in the same currency
EXMPT018	Exposure amount guaranteed under export credits scheme

Exposure Measure Calculations

The Exposure measure is the sum of the Pre Mitigation EAD amount of the exposures that are not marked for Exemption in Leverage Ratio.

Details on the calculation of these exposure measures are mentioned in the following sections. All the exposure measures are computed and populated into the Leverage Exposure amount **N_LEVERAGE_EXPOSURE_AMOUNT** column.

The mitigants are not considered in the exposure measure calculation for On balance sheet and Off balance sheet exposures. In the case of SFT and Derivatives, the collateral is considered based on the run management options.

On-Balance Sheet Exposures

The accounting value of the on-balance sheet exposures net of specific provisions and valuation adjustments are considered for the exposure measure. The valuation adjustments are captured at an instrument level in the FSI setup table for Instrument Valuation Details

FSI_SETUP_INSTR_VALUATION_DTLS.

The exposure measure considered is the Pre-Mitigation amount, and does not consider the benefit of the mitigation.

Some of the exempted exposures are detailed in the following sections:

Fiduciary Assets

If the bank considers the assets of the fiduciary assets, as the bank's own assets, then, these assets are exempted from the calculation. The fiduciary assets are identified based on the exposures having the Parent Fiduciary Account Number (**V_PARENT_FIDUCIARY_ACCT_NUMBER**) in the product processor (PP) staging tables.

The bank has to select the run management option to select if the exposures are derecognized in the balance sheet. If the run management option of Y is selected, all the fiduciary assets with the parent fiduciary account are exempted from the Leverage Exposure Measure calculations. If the run management option of N is selected, specific fiduciary assets can be exempted from the Leverage Exposure Measure calculations. These specific fiduciary assets are expected to be provided in the FSI Fiduciary Assets setup table **FSI_SETUP_DEREC_FIDUCIARY_ASST.**

Internal Transactions

The internal transactions which are risk weighted at 0%, are exempted from the exposure measure. The bank has to select the run management option of whether the bank has supervisory approval to risk weight the internal transactions at 0%. Based on the run management option selected for risk weighting, these exposures are exempted.

General Fund Investments

The general fund investments in PSE which are treated as sovereign are exempted from the exposure measure. The bank has to select the run management option of whether the bank has supervisory approval to exempt these exposures. Based on the run management option that you select, the basel product type being General Fund Investments, and the standard party type being PSE Treated as sovereign, these exposures are exempted.

Off-Balance Sheet Exposures

The exposure amount for off-balance sheet exposures is the undrawn amount of the exposure multiplied by the CCF. The CCF of the exposures remain the same as in the Capital Calculation Run except that the CCF is floored at 10%. The flooring of the CCF to 10% is handled by the rule Non Sec Off Balance Sheet Exposures CCF Percent Flooring in the Non Sec CCF Assignment sub process.

SFT Exposures

The exposure amount of the SFT Exposures to be considered for the leverage measure is post the effect of the collateral. The SFT Exposures data provided in the staging must not consider the accounting netting.

The data capture for the SFT exposures remain the same as in the Capital calculation run. The bank role in the SFT transaction is also captured in the staging table.

The Gross amount and the Add-on amount that is expected in the accord are computed by the application. The Gross amount is the actual transaction amount of the SFT exposures, as provided in the

Repo contracts staging table. The Add-on amount is the difference between the fair value of the repo exposures and the fair value of the collateral placed or received.

The fair value of the exposures, including the placed collateral are captured at an instrument level, in the FSI setup table for Exposure Fair Value Details (**FSI_SETUP_INSTR_VALUATION_DTLS**), and the fair value of the mitigants are captured in the FSI setup table for Mitigant Fair Value (**FSI_SETUP_MTGNT_VALUATION_DTLS**).

The mitigants that are used to offset the fair value of the repo exposures are stamped accounting heads to ensure that it is tracked.

The exposure amount calculations are different for the bank acting as a principal in the SFT transactions, and an agent in the SFT transactions. The solution supports both the treatments.

For bank acting as an agent, the solution handles all the treatment mentioned in the accord. The data expectation for them are the following:

- **Case 1: Bank is an agent and does not get involved in any other role with the SFT Exposure**

In this case, the data is not expected in the Repo contracts staging table.

- **Case 2: Bank is an agent provides a guarantee equal to the difference between the SFT Exposure, and the collateral amount**

In this case, the data is expected in the Repo contracts staging table, with the bank role as an agent, and the indemnity indicator (**F_INDEMNITY_IND**) as 'Y'. There is no requirement for a guarantee contract to be separately reported, as the guarantee amount is the difference between the SFT transaction, and the related collateral amount.

The application computes only the Add-on amount for this SFT transaction inline with the guidelines. And this Add-on amount is populated into the Add-on column of the processing table. This Add-on amount is calculated in the data transformation **LR_Add_On_Amount_Calculation_for_SFT**.

- **Case 3: Bank is an agent, and provides a guarantee more than the difference between the SFT Exposure and the collateral amount**

In this case, the data is expected in the Repo contracts staging table with the bank role as an agent, and the indemnity indicator **F_INDEMNITY_IND** as Y. A separate guarantee transaction is expected to be recorded in the guarantee staging table. This guarantee transaction is also provided as a mitigant with the mitigant table also storing the guarantee contract ID **V_GUARANTEE_ACCOUNT_ID**. The exposure and the mitigant must be mapped to each other in the account mitigant mapping table **STG_ACCOUNT_MITIGANT_MAP**.

This guarantee is not for a mitigant treatment, and hence, this is expected with the mitigant eligibility flag as 'N'. This identified guarantee is populated in the Non Securitized Exposures processing table in the column related to the Repo Contract surrogate key **N_REPO_CONTRACT_SKEY**.

The application computes both the gross exposure amount and the add-on amount for this SFT transaction, inline with the guidelines. This Add-on amount is calculated in the data transformation **LR_Add_On_Amount_Calculation_for_SFT**

Derivative Exposures

Derivative transactions (OTC Derivatives) exposure measure are calculated using the Mark to Market Method. The add-on assignment is same as what is mentioned in the Capital Calculation Run. The exposure measure is the sum of market value, and the notional amount multiplied by the add-on percent.

The derivative exposure measure has few specific treatments in terms of the Leverage Exposure Measure calculations. They are detailed in the following sections:

Collateral of Derivative

The collateral received regarding the derivatives cannot be used in netting, and reducing the exposure amount of the derivatives. Whether or not the operative accounting framework allows for netting of the collateral, the solution updates the exposure measure. The solution expects a run management selection to identify whether the bank considers netting of the collateral outside the application, and provides the netted amount as input to the product processor staging tables.

The collateral of the derivative is given in the mitigant table. There is a run management option to capture whether the operative accounting framework allows for netting of the collateral as per the master netting agreement or not.

If 'Yes' is selected, assuming that the bank has provided the MTM value based on already considering the collateral amount, the collateral amount is added to the MTM of the exposure. And if 'No' is selected, there is no change to the MTM value.

This is handled in the sub process **LR Collateral Related Exemptions for Derivatives** of the process **LR Exemptions for Derivatives**.

Data Expectations

Collateral for the derivatives, which is already considered in the MTM calculation, are provided in the Stage Mitigants **STG_MITIGANTS** table with the eligibility flag as 'N' and the corresponding entry is added into the Exposure Mitigant Mapping staging table **STG_ACCOUNT_MITIGANT_MAP**.

The Collateral for the derivatives, that is not considered in the MTM calculation are provided in the Stage Mitigants table **STG_MITIGANTS** with the eligibility flag as 'Y'. The corresponding entry is added into the Exposure Mitigant Mapping staging table **STG_ACCOUNT_MITIGANT_MAP**. But this does not undergo any treatment in the Leverage Ratio run, and is part of only the regular Capital calculation run CRM process.

The MTM must be provided for the derivatives' instruments after following the corresponding operational accounting framework.

Cash Variation Margin

As per the guideline, the Replacement cost of the derivatives can be reduced by cash variation margin if certain conditions are satisfied. This is handled in the solution by using the above run management option, wherein it mentions whether the exposure is being offset with the collateral or not.

In the run management, if the option of 'N' is selected, the cash variation margin is used to offset the exposure measure. If all the conditions are satisfied, the flag to indicate that the Variation Margin has satisfied the conditions is updated. And if this flag is 'Y', then, the cash variation margin is used to reduce the replacement cost of the derivative.

This is handled in the sub process **LR Cash Variation Margin Exemptions for Derivatives** of the process **LR Exemptions for Derivatives**.

Clearing Member of a QCCP

For clearing member of a QCCP, the exposures where Bank acts as a clearing member, and the trade exposures, wherein the bank is not obligated to reimburse the losses suffered by the client, for CCP default are exempted, from the leverage ratio calculation.

This is handled in the sub process **LR QCCP Related Exemptions for Derivatives** of the process **LR Exemptions for Derivatives**.

Written Credit Derivatives or Sold Credit Derivatives

The effective notional amount of the credit derivative transactions are reduced by any change in the fair value of derivative liabilities. The fair value of the exposures are captured in the FSI setup table for Fair Value (**FSI_SETUP_INSTR_VALUATION_DTLS**), at an instrument level. And the difference between the Fair value and the MTM value of these exposures result in the unrealized gain and loss of the derivative exposures.

This is subtracted from the notional principal of these derivatives to arrive at the effect notional principal before offsetting.

The sold credit protection is offset against the bought credit protection based on the conditions mentioned in the guidelines. This offset happens in the data transformation **SCP_BCP_Offset_Mapping_for_Derivatives**.

All the other written credit derivative treatment is handled in the sub process **LR Written Credit Derivatives Related Exemptions** of the process **LR Exemptions for Derivatives**.

General Credit Risk Adjustments

The General Credit Risk Adjustments are considered only when defined for the following run parameter:

Supervisory Approval to consider General Provisions / Credit Risk Adjustment in the Exposure Measure Calculation instead of Deduction from Capital

- Yes [OPT-YES]
- No [OPT-NO] – Default Selection

The value selected for the above question in the definition is stored in **V_GEN_CR_ADJ_EXP_MEASURE_CALC** column of **FSI_RUN_PARAMETER** table.

The General Provision (CAP051) is aggregated for off and on-balance sheet exposures and is populated to the table FCT_STANDARD_ACCT_HEAD against the Standard Account Head as detailed in the following table:

Table 25 General Provision Aggregated for Off and On-Balance Sheet Exposures

Standard Account Head ID	Standard Account Head Description
CAP1852	General Provision over Credit Risk Exposure Amount

In this scenario the Expected Loss Greater than Total Eligible Provision (CAP139) is set to 0.

These computations are carried out in the process EU - LR General Credit Risk Adjustments in Exposure Measure Calculation).

Exempted Exposure Calculations

The Exemption Exposure Amount is the sum of the Pre Mitigation EAD amount of the exposures that are marked for Exemption in Leverage Ratio.

All the exposure measures are computed and populated into the Leverage Ratio Exempted Exposure Amount column **N_LEV_RATIO_EXEMPT_EXP_AMT**.

These computations are carried out in the process (LR Exempted Exposure Amount Calculation).

Total Leverage Exposure Amount Calculation

The leverage exposure amount is aggregated for each portfolio and populated to the table FCT_STANDARD_ACCT_HEAD. The Standard Account Heads are detailed in the following table:

Table 26: Leverage Exposure Amount for each Portfolio

Standard Account Head ID	Standard Account Head Description
CAP1812	Total Leverage Exposure Amount for Credit Risk of Invested Exposures
CAP1813	Total Leverage Exposure Amount for Credit Risk Exposures
CAP1814	Total Leverage Exposure Amount for SFT
CAP1815	Total Leverage Exposure Amount for Derivatives

The leverage exposure amounts are summed up and populated against “Total Leverage Exposure Amount” [CAP1807] in the table FCT_STANDARD_ACCT_HEAD.

These computations are carried out in the process Total Leverage Exposure Amount Calculation. Leverage Ratio Calculations

Leverage Ratio (CAP843) is calculated as per the following:

$$\text{Leverage Ratio} = [\text{Tier 1 Capital}] / [\text{Total Leverage Exposure Measure}]$$

The Central government exposures that are in the form of cash and reserves (EXMPT017) are aggregated and populated in FCT_STANDARD_ACCT_HEAD against “Central Government Exposures in the form of Cash and Reserves” (CAP1819). This is based on the supervisory approval for on-balance sheet in Run Management.

- Does the Supervisor allow bank to exempt central government exposures in the form of cash and reserves, from the Exposure Measure calculations?
 - Yes [OPT-YES]
 - No [OPT-NO] – Default Option

The value that you select for the above question in the definition is stored in the column V_EXEMPT_CENT_GOV_CASH_RESERVE column of **the table FSI_RUN_PARAMETER**.

The Adjusted Leverage Ratio (CAP1816) is calculated as follows:

$$\text{Adjusted Leverage Ratio} = [\text{Minimum Leverage Ratio}] * ([\text{Total Leverage Exposure Amount}] + [\text{Central Government Exposures in the form of Cash and Reserves}]) / [\text{Total Leverage Exposure Amount}]$$

This is computed in the process **EU - Total Leverage Ratio Calculation**.

7.12.3 Key Data Elements

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

To calculate the leverage ratio, exposure amount for all product types and the total capital are required.

The key data elements for exposure measure calculation of the various product types are the following:

On-Balance Sheet Exposures: For on-balance sheet items, End of Period (EOP) balance amount, write-off, and accrued interest amount is required.

SFT Exposures: For repo products, exposure amount and instrument rating are required.

Derivative Exposures: For derivative products, exposure mark to market value, notional principal amount, and underlying instrument types are required.

Off-Balance Sheet Exposures: For off-balance sheet items, undrawn amount is required.

Securitization Transaction: For securitization transactions, exposure amount is required.

Capital Calculation: See Capital Structure for more details.

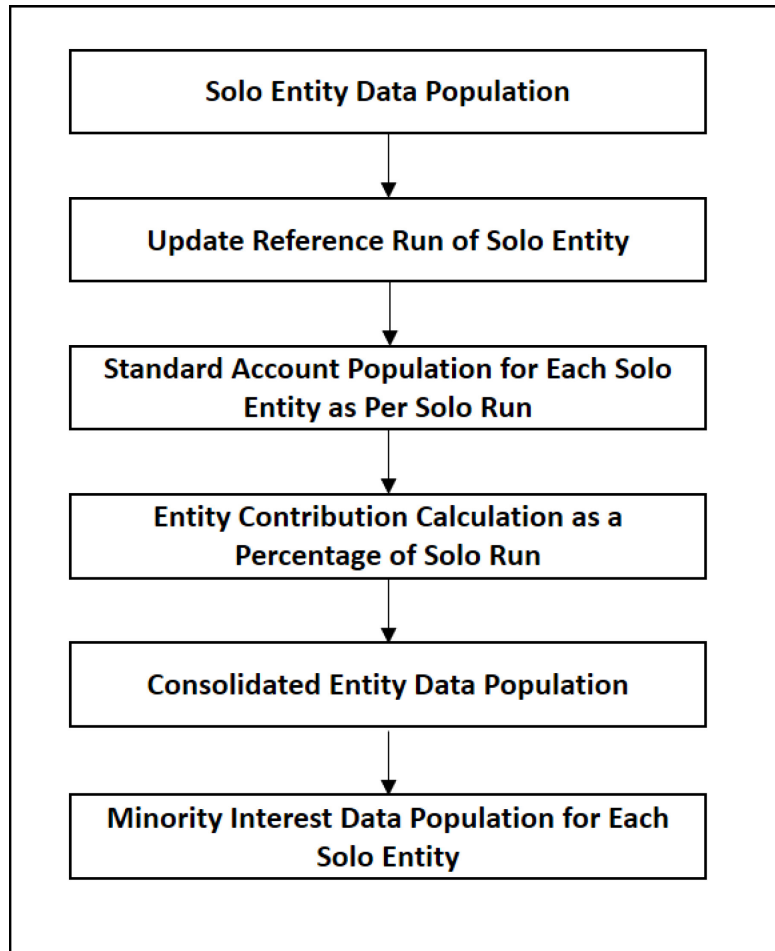
Cash Variation Margin: The collateral segregated flag, exchange traded flag, and netting agreement code is required.

Netting Agreement: The margin threshold and the minimum transfer amount are required, captured in the Stage Net Exposures table (STG_NET_EXPOSURES).

7.13 Entity Level Data Output for Group Solvency Reporting

In the case of any solvency-related reporting, the bank must report the capital and risk-weighted asset numbers as an individual entity (solo). The bank must also report the contribution of this entity in the overall consolidated capital, and risk-weighted asset numbers (consolidated). For ease of this reporting, and to help with the regulatory requirement required in the COREP Group Solvency templates, the entity level calculations are recalculated. The data movement to support this capability is provided in the following flow diagram:

Figure 49: Entity Level Data Output for Group Solvency Reporting



The solo runs are executed based on the child entity nodes and then the consolidated runs are executed based on the parent entity. The data for identification of the solo and the consolidated entity is considered based on the Org Structure.

In case of any consolidated run, the final values for Total RWA (also across different risk types) along with the capital line items, large exposures, and leverage ratio are populated at the bank holding company level for which the consolidated calculation has been performed. This is available in the **Fact Standard Accounting head** table. This gets populated into the FSI Entity Standard Accounting Head Details **FSI_ENTITY_STD_ACCT_HEAD_DTLS** for both solo and consolidated runs.

All solo runs must be completed before the consolidated run. The solo data is populated for each entity into the FSI Entity Standard Accounting Head Details using the T2T **SOLO_ENTITY_STD_ACCT_HEAD_DTLS_DATA_POP**.

The consolidated run data is populated into the FSI Entity Standard Accounting Head Details using the T2T **CONSL_ENTITY_STD_ACCT_HEAD_DTLS_DATA_POP**.

The minority interest-related calculations are specific to the consolidated run, and this is calculated in the FSI Minority Interest **FSI_MINORITY_INTEREST** for each entity. The same values are populated into the FSI Entity Standard Accounting Head Details using the T2T **MINORITY_INTEREST_STD_ACCT_HEAD_DTLS_DATA_POP**.

The application has the flexibility to allow banks to choose the relevant CAP IDs that are required for reporting at the entity level. This can be updated by using the FSI Setup Capital Source

FSI_SETUP_CAPITAL_SOURCE. The application comes pre-built with the CAP IDs that are required for any typical Group Solvency report like COREP template C06, and the bank can enable this for any additional CAP IDs that are required.

The specific CAP IDs that are required for Entity Level Data Output for Group Solvency Reporting are listed in the following table:

Table 27: CAP Specific IDs for Entity Level Data Output for Group Solvency Reporting

CAP ID	Description
CAP505	Minority Interest - Capital attributable to Third Party included in Common Equity Tier 1 Capital
CAP513	Minority Interest - Capital attributable to Third Party included in Tier 1 Capital
CAP514	Minority Interest - Capital attributable to Third Party included in Additional Tier 1 Capital
CAP520	Minority Interest - Capital attributable to Third Party included in Total Capital
CAP521	Minority Interest - Capital attributable to Third Party included in Tier 2 Capital
CAP058	Net Tier 1 Capital
CAP064	Gross Tier 2 Capital
CAP730	Other Institution Specific Capital Buffer Amount
CAP736	Total Tier 2 capital admissible for regulatory capital purposes
CAP825	Required Total Buffer
CAP838	Total RWA
CAP841	Net Common Equity Tier 1 Capital
CAP908	Net Additional Tier 1 Capital
CAP090	Market Risk RWA
CAP947	Gross Common Equity Tier 1 Capital
CAP953	Gross Additional Tier 1 Capital
CAP954	Credit Valuation Adjustments RWA
CAP971	Goodwill net of DTL
CAP1512	Profit and loss for the current period
CAP1593	Unaudited Profit and Loss for the current financial year - without considering interim dividend payments
CAP1602	Other Regulatory RWA
CAP1612	Countercyclical Buffer
CAP1613	Systemic Risk Buffer
CAP1611	Capital Conservation Buffer

CAP ID	Description
CAP169	Credit RWA
CAP170	Operational RWA
CAP210	Total eligible capital
CAP1286	GSIB Surcharge Amount

7.13.1 Run Parameters

For Group Solvency, the user can consider either the latest solo run on the same date for the entity or the latest solo run on the same date for the entity marked for Regulatory Reporting (DIM_RUN.F_REPORTING_FLAG = 'Y'). This selection is available in **Supervisory Approved Option Selection** under the **Group Consolidation Calculations** approach.

- Solo Run Considered for solvency calculation is based on the following:
 - Latest Reporting Run [OPTLATREP] – Default Option
 - Latest Run [OPTLATRUN]

The value selected for the above question in the definition is stored in the column **V_SOLO_RUN_INPUT_OPTION** of the table **FSI_RUN_PARAMETER**.

8 Annexure A: Key Concepts

8.1 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 28: 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 29: Values in the DIM_Product Table

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

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 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.

8.2 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.

8.2.1 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 31 Pooling of Exposures and Mitigants

Exposure ID	Mitigant ID
EXP01	MIT01
EXP01	MIT02
EXP01	MIT03
EXP02	MIT01
EXP03	MIT04
EX004	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:

$$f1 = (\text{Mitigant_value} * \text{Haircut}) / \text{EAD}$$

Where:

$$\text{Haircut} = (1 - \text{volatilityHaircut} - \text{FOREXHaircut}) * \text{MaturityMismatchHaircut}$$

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:

$$f(n) = \text{Min} ((1 - \text{Already allocated covered factor}), \text{Max} (fn - 1, 0))$$

- 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:

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

The Mitigant Constraint Formula is detailed in the following table:

Table 32 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.

8.3 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 33 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](#)

8.4 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](#)

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

8.5.1 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).

8.5.2 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).

Re-securitization Exposures

The Data expectation for Re-Securitization Exposures is provided in the [ReSec Exposures - Data Flow](#) file.

8.5.3 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)

8.5.4 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

8.5.5 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.

8.5.6 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.,

8.5.7 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).

8.5.8 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.

8.5.9 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.

NOTE:

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

8.5.10 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.

8.5.11 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 fund will be in STG_FUND_UNDERLYNG_COMPOSITION
 - The assets of the fund will be in STG_FUND_CIS_COMPOSITION

8.6 Exhibit 6: Design Changes

8.6.1 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 34: 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 35 List of data populated in the flattened table

Entity	Parent Entity	Consolidation Parent	Heir Level
A3	A3	A3	0
A3	A2	A3	1
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.

8.6.2 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.

9 Annexure A

9.1 Download Specifications

For information, see [Download Specifications](#).

9.2 Using Process Modelling Framework

9.2.1 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, CAP PACK makes use of two filter hierarchies, which apply through PMF. The filter hierarchies used are follows:

Figure 50: Filter Hierarchies

9.2.1.1 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 36: Exposure Approach Type

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
OTH	Others
NSSTD	Non Securitisation Standardized
NSFIRB	Non Securitisation FIRB
NSAIRB	Non Securitisation AIRB

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
SECSTD	Securitisation Standardized
SECIRB	Securitisation - Internal Rating Based Approach
MRSA	Market Risk Standardised Approach
MRIMM	Internal Models Approach
ORBIA	Basic Indicator Approach (BIA)
ORSA	Standardised Approach (SA)
ORASA	Alternative Standardised 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).

9.2.1.2 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 37: 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 38 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 39 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:

- Banking Portfolio:

- Only those exposures, which have record type as BNK_NON_SEC_EXP in FSI_CAP_BANKING_EXPOSURES.
- Investment Portfolio:
 - Exposures, which have record type as INV_NON_SEC_EXP and INV_NON_SEC_ULY in FSI_CAP_INVESTMENT_EXPOSURES.
 - 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](#).

9.2.1.3 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.

9.2.1.4 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 51: Execution Rule - Basel Execution Approach Assignment

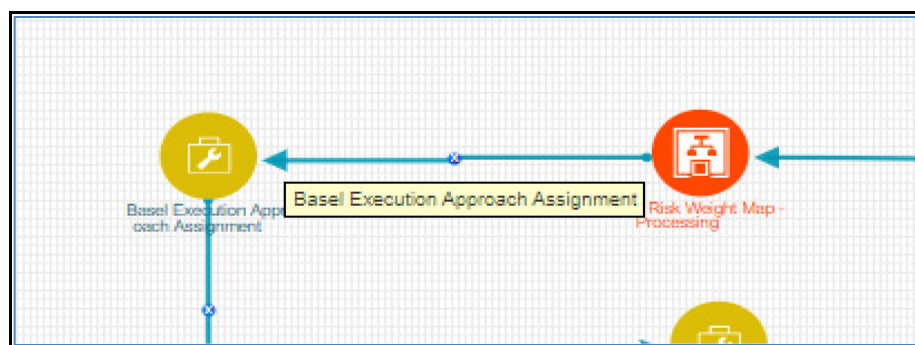


Figure 52: Edit API Details Window

Edit API Details X

Name ? Basel Execution Approaches

RuleType ? ExecutionRule

ExecutionType ? JSON Read From DB

Table Name ? FSI_CAP_RUN_EXE_PARAMETERS

Column List ? F_BASEL_NSSTD , F_BASEL_NSFIRB| F_BASEL_NSAIRB , F_BASEL_SECSTD , F

Where Condition ? N_RUN_SKEY = (WF_RUNSK)

Return JSON Type ? JSON Object

Output Datafield ? BASEL_EXEC_APPROACH

Scope ? Package

Save

9.2.1.5 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 53: Evaluation of Decision Rule

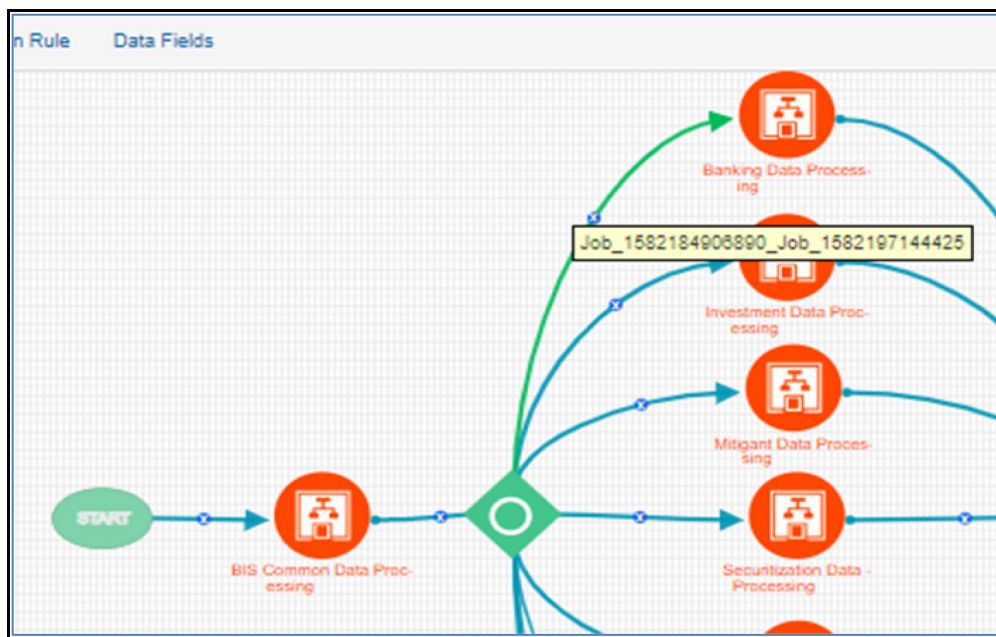


Figure 54: Edit Transition

Figure 55: Edit Decision Rule

9.2.1.6 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:

- **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.

- **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.

- **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.

9.2.1.7 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.

9.3 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 or 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**Segment: EU****Table 40: The Values for the BASEL III Regulation with the Segment as EU and Approach as Securitization**

RUN_PARAMETER S column name	Approach for Securitization	Selected Option	RUN_PARAMETER S column value
v_sec_approach	Standardized	N/A	OPT0500
v_sec_approach	Rating Based Approach	N/A	OPT0601
v_sec_approach	Internal Assessment Approach	N/A	OPT0604
v_sec_approach	Internal Rating Based Approach	N/A	OPT0608
v_ssf_simple_n_lgd	Supervisory Formula Approach Usage of the Simplified Method for computing N and LGD	Yes	OPT0611
		No	OPT0612
v_ssf_simple_n_lgd	Internal Rating Based Approach Usage of the Simplified Method for computing N and LGD	Yes	OPT0614
		No	OPT0615

Table 41: The Values for the BASEL III regulation with the Segment as EU with the Approach as Market Risk Standardized Approach

RUN_PARAMETER S column name	Approach for Market Risk Standardized Approach	Selected Option	RUN_PARAMETER S column value
v_mrs_options_method	Options	Simplified Approach	OPT1013
		Delta Plus Approach	OPT1014
v_mrs_interest_rate_method	Interest Rate Risk	General Market Risk-Duration Method	OPT1003
		General Market Risk-Maturity Method	OPT1004
v_mrs_commodity_risk_method	Commodity Risk	Simplified Approach	OPT1008

Table 42: The values for the BASEL III regulation with the segment as EU with the Approach as Non-Securitization Standardized

RUN_PARAMETER S column name	Approach for Non Securitization Standardized	Selected Option	RUN_PARAMETER S column value
		Yes	OPT0004

RUN_PARAMETER S column name	Approach for Non Securitization Standardized	Selected Option	RUN_PARAMETER S column value
v_nss_eca_for_ove rign	Use ECA Country Scores for risk- weighting claims on Sovereign	No	OPT0005
v_nss_rw_option_d pse	Option used for claims on domestic PSEs	Option I	OPT0008
		Option II	OPT0009
v_nss_rw_option_b ank	Option for risk-weighting claims on Banks	Option I	OPT0012
		Option II	OPT0013
v_nss_100pct_rw_c orp	Supervisor permission to risk weight all corporate claims at 100% without regard to external rating	Yes	OPT0016
		No	OPT0017
v_nss_lower_rw_cre	Has the national supervisor permitted a lower RW for certain commercial real estate?	Yes	OPT0020
		No	OPT0021
v_nss_pastdue_for_ nonpastdue	Past due treatment for non-past due loans to counterparties subject to a 150% RW	Yes	OPT0024
		No	OPT0025
v_nss_0_rw_for_gol d	Use of 0% RW for Gold Bullion held in own vaults or on an allocated basis	Yes	OPT0027
		No	OPT0028
v_nss_borrower_cc y_rat_mdb	Use of borrower's domestic currency rating for exposure in foreign exchange transactions	Yes	OPT0030
		No	OPT0031
v_ns_sft_method	Approach for Securities Financing Transactions	Simple Approach	OPT0037
		IMM	OPT0038
		VaR Model	OPT0039
v_ns_otc_method	Approach for Over the Counter Products	CEM	OPT0041
		IMM	OPT0042
		Standard Approach	OPT0043
v_ns_lst_approach	Approach for Long Settlement Transactions	CEM	OPT0045
		IMM	OPT0046
		Standard Approach	OPT0047
v_ns_haircut_meth od	Applying Haircut	Supervisory Haircut	OPT0056
		Own Estimate	OPT0057
v_cva_method	CVA Standardized Approach	N/A	OPT0060
v_cva_include_sft		Yes	OPT0062

RUN_PARAMETER S column name	Approach for Non Securitization Standardized	Selected Option	RUN_PARAMETER S column value
	CVA Standardized Approach which includes SFTs for CVA calculation	No	OPT0063
V_EXP_ADJ_PROVISIONS	Applicable for both STD and IRB approaches	Yes	OPTLE0003
		No	OPTLE0004
V_PARAMETER_GROUP_DESC	Large Exposure Calculations	Yes	OPTLE0003
		No	OPTLE0004
V_PARAMETER_DESC	Option to consider Provision Amount for EAD Calculations	Yes	OPTLE0003
		No	OPTLE0004

Table 43: The values for the BASEL III regulation with the segment as EU with the Approach as Non-Securitization Standardized (FIRB)

RUN_PARAMETER S column name	Approach for Non Securitization Standardized (FIRB)	Selected Option	RUN_PARAMETER S column value
v_cva_cds_index_decomposition	CDS Index must be decomposed	Yes	OPT0267
		No	OPT0268

Table 44: The values for the BASEL III regulation with the segment as EU with the Approach as Non-Securitization FIRB

RUN_PARAMETER S column name	Approach for Non Securitization FIRB	Selected Option	RUN_PARAMETER S column value
v_nfir_explicit_maturity_adj	Use of Explicit Maturity Adjustment	Yes	OPT0203
		No	OPT0204
v_nir_default_risk_approach	Purchase Receivables for Default Risk Approach	Top Down	OPT0207
		Bottom-Up	OPT0208
v_nir_dilution_risk_immaterial	Is Dilution Risk immaterial for Purchase Receivables?	Yes	OPT0210
		No	OPT0211
v_nir_1yr_maturity_corporate	Use of one-year maturity for Dilution Risk of Purchased Corporate Receivables:	Yes	OPT0213
		No	OPT0214
v_ns_haircut_method	Applying Haircut	Supervisory Haircut	OPT0216
		Own Estimate	OPT0217
v_ns_sft_method	Approach for Securities Financing Transactions	Simple Approach	OPT0224
		IMM	OPT0225

RUN_PARAMETER S column name	Approach for Non Securitization FIRB	Selected Option	RUN_PARAMETER S column value
		VaR Model	OPT0226
v_ns_otc_method	Approach for Over the Counter Products	CEM	OPT0228
		IMM	OPT0229
		Standard Approach	OPT0230
v_ns_lst_approach	Approach for Long Settlement Transactions	CEM	OPT0232
		IMM	OPT0233
		Standard Approach	OPT0234
v_nir_sl_pref_rw	Specialized Lending-Slotting Criteria Approach. Use of preferential risk weights for specialized lending sub- classes in Strong and Good	Yes	OPT0241
		No	OPT0242
v_nir_equity_approach	Approach for Equity	IMM Approach	OPT0245
		Simple Risk Weight Approach	OPT0246
		PD - LGD Approach	OPT0247
v_cva_method	Approach for Credit Value Adjustments	CVA Standardized Approach	OPT0261
		CVA Internal Model Method Approach	OPT0262
v_cva_include_sft	Include SFTs for CVA calculation	Yes	OPT0264
		No	OPT0265
v_cva_cds_index_decomposition	CDS Index must be decomposed	Yes	OPT0267
		No	OPT0268

Table 45: The values for the BASEL III regulation with the segment as EU with the Approach as Non-Securitization Standardized (AIRB)

RUN_PARAMETER S column name	Approach for Non Securitization Standardized (AIRB)	Selected Option	RUN_PARAMETER S column value
v_nir_default_risk_app	Default Risk Approach for Purchase Receivables	Top Down	OPT0303
		Bottom-Up	OPT0304
		Yes	OPT0306

RUN_PARAMETER S column name	Approach for Non Securitization Standardized (AIRB)	Selected Option	RUN_PARAMETER S column value
v_nir_dil_risk_imm aterial	For purchase, receivables are Dilution Risk immaterial?	No	OPT0307
v_nir_1yr_mat_corp _pr	Use of one-year maturity for Dilution Risk of Purchased Corporate Receivables	Yes	OPT0309
		No	OPT0310
v_ns_haircut_meth od	Applying Haircut	Supervisory Haircut	OPT0312
		Own Estimate	OPT0313
v_ns_sft_method	Approach for Securities Financing Transactions	Simple Approach	OPT0320
		IMM	OPT0321
		VaR Model	OPT0322
v_ns_otc_method	Approach for Over the Counter Products	CEM	OPT0324
		IMM	OPT0325
		Standard Approach	OPT0326
v_ns_lst_approach	Approach for Long Settlement Transactions	CEM	OPT0328
		IMM	OPT0329
		Standard Approach	OPT0330
v_nir_sl_pref_rw	Specialized Lending-Slotting Criteria Approach. Use of preferential risk weights for specialized lending sub-classes in Strong and Good	Yes	OPT0337
		No	OPT0338
v_nir_equity_appro ach	Approach for Equity	IMM Approach	OPT0341
		Simple Risk Weight Approach	OPT0342
		PD - LGD Approach	OPT0343
v_cva_method	Approach for Credit Value Adjustments	CVA Standardized Approach	OPT0361
		CVA Internal Model Method Approach	OPT0362
v_cva_include_sft	To include SFTs for CVA calculation?	Yes	OPT0364
		No	OPT0365

RUN_PARAMETER S column name	Approach for Non Securitization Standardized (AIRB)	Selected Option	RUN_PARAMETER S column value
v_cva_cds_index_d ecomposition	CDS Index must be decomposed	Yes	OPT0367
		No	OPT0368

9.3.1 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 56 Select Run Parameters

9.3.2 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:

Figure 57: Parameters for the OBJECTMIGRATION.xml File

Parameter	Value
<code>\$USERID\$</code>	Application User ID
<code>\$LOCALE\$</code>	Locale Information
<code>\$INFODOM\$</code>	Information Domain

Parameter	Value
\$FOLDER\$	Folder or Segment where you wish to import the definition
MODE	IMPORT
\$FILE_NAME\$	Name of the dump file without the .dmp extension.
MIGRATION_CODE\$	11

- 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:

- 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;
```
- 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

- Create the following folder structure in the path `$FIC_HOME/utility/Migration:`

```
metadata/restore
```

- Copy the dump file from the installer and place it in the directory path `$FIC_HOME/utility/Migration/metadata/restore`
- Execute the following script located in the directory path `$FIC_HOME/utility/Migration/bin/:`

```
./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`.

9.3.3 Exporting Optimizer Definitions

- Navigate to the directory path `$FIC_HOME/utility/Migration/conf/`.
- Create a copy of the file `OBJECTMIGRATION_template.xml` as `OBJECTMIGRATION.xml` and provide appropriate values for the parameters as per the following table:

Figure 58 Parameters for the `OBJECTMIGRATION.xml` File

Parameter	Value
\$USERID\$	Application User ID
\$LOCALE\$	Locale Information
\$INFODOM\$	Information Domain

Parameter	Value
\$FOLDER\$	Folder or Segment of the existing definition
MODE	EXPORT
\$FILE_NAMES\$	Name of the file to be exported without the .dmp extension
MIGRATION_CODE\$	11

3. 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, perform the following steps:

- a. 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.

- b. 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.

- c. 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.

4. Execute the following script in the directory path `$FIC_HOME/utility/Migration/bin:`

```
./ObjectMigration.sh
```

The Dump is available in the directory path

```
$FIC_HOME/utility/Migration/metadata/archive.
```

The migration logs are available in file `migration.log` in the directory path

```
$FIC_HOME/utility/Migration/logs.
```

9.3.4 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](#).

9.4 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.

9.4.1 DT Details - Banking

Figure 59: 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

9.4.2 DT Details - Investment

Figure 60: 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

9.4.3 DT Details – Derivative

The following table details the data transformation for derivatives and its details:

Figure 61: 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
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

9.4.4 DT Details - Secured Financial Transactions (SFT)

The following table lists the data transformations for SFT and its details:

Figure 62: 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 Calcul

9.4.5 DT Details - Operational Risk

The following table lists the data transformations for Operational Risk and its details:

Figure 63: 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

9.4.6 DT Details - Capital Structure

The following table lists the data transformations for Capital Structures and its details:

Figure 64 Data Transformations for Capital Structures

DT TASK NAME	PROCESS CODE	PROCESS NAME
Deduction_RWA_Cap_Struct	PMFBISCS022	CAPITAL_STRUCTURE_DEDUCTIONS_RWA_EXPOSURE

9.5 Implementing Basel

9.5.1 Rules List for Configuration

The list of rules which customer needs to reconfigure at their site are as follows.

Figure 65: 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

Functionality	Reclassification Rule Name
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

9.5.2 Custom Reclassification Rules

See [Configure Rule with Target Members](#) for more information on Custom Reclassification Rules.

9.5.3 Seeded Values Used

To view the seeded values for the following Seeded tables, see [Seeded Tables Data 1](#) and [Seeded Tables Data 2](#).

- DIM_BANDS
- DIM_BASEL_ASSET_CLASS
- DIM_BASEL_BANK_ROLE
- DIM_BASEL_CAP_CONSL_APPR
- DIM_BASEL_CONSL_OPTION_TYPE
- DIM_BASEL_CREDIT_RATING
- DIM_BASEL_EXPOSURE_CLASS
- DIM_BASEL_ISSUER_TYPE
- DIM_BASEL_METHODODOLOGY
- DIM_BASEL_POOL_TYPE
- DIM_BASEL_PRODUCT_TYPE
- DIM_BASEL_TRANSACTION_TYPE
- DIM_CAPITAL_COMP_GROUP
- DIM_CLEARED_TXN_BANK_ROLE
- DIM_COUNTRY
- DIM_CREDIT_RATING
- DIM_CREDIT_STATUS
- DIM_CURRENCY
- DIM_EXPOSURE_UNDERLYING_TYPE
- DIM_GAAP
- DIM_INSTRUMENT_TYPE
- DIM_INTEREST_TYPE
- DIM_MARKET_RISK_CHARGE_TYPE
- DIM_MARKET_RISK_POSITION
- DIM_MARKET_RISK_REP_LINE
- DIM_METHODODOLOGIES
- DIM_MITIGANT_TREATMENT_TYPE
- DIM_MR_ASSET_CLASS
- DIM_MR_COUNTER_PARTY

- DIM_MR_RISK_CLASS
- DIM_MR_TIME_VERTEX
- DIM_PRODUCT_BOOK
- DIM_REG_CAP_ACCT_PURPOSE
- DIM_REG_CAP_EXEMPTION_CRITERIA
- DIM_REG_CAP_GUARANTEE_SCHEME
- DIM_REG_PARTY_RELATIONSHIP_TYPE
- DIM_RISK_TYPE
- DIM_RUN_TYPE
- DIM_SEC_FACILITY_TYPE
- DIM_SECURITIZATION_TYPE
- DIM_STANDARD_ACCT_HEAD
- DIM_STANDARD_COMMODITY
- DIM_STANDARD_COMMODITY_GRADE
- DIM_STANDARD_EVENT_TYPE
- DIM_STANDARD_LOB
- DIM_STANDARD_PARTY_TYPE
- DIM_STANDARD_SENIORITY
- DIM_STD_MITIGANT_TYPE
- REVELEUS_PARAMETER_MASTER

9.6 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

10 Annexure C: Frequently Asked Questions

This section addresses some of the frequently asked questions which are as follows:

10.1 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.

10.2 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 from 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 from Total Capital, remainder of following is taken:

Excess of Total Capital Ratio over benchmark (8.0%), minus Required Benchmark Buffer from Tier 1 capital.

10.3 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.

10.4 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.

10.5 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).

10.6 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.

Figure 66: Calculation of Tranche 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.

Figure 67: 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:

Figure 68: 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 time in Optimizer_Config.xml in <PROCESSEDPOOLSIZES> 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.

10.7 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.

10.8 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.

10.9 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.

10.10 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%.

10.11 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.

11 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**.

12 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
OFSA	Oracle Financial Services Analytical Application
OFSAI	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)	<p>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.</p> <p>This is subject to the provision that the CCP is based and prudentially supervised in a jurisdiction where the relevant</p>

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

OFSAA Support

Raise a Service Request (SR) in [My Oracle Support \(MOS\)](#) for queries related to the OFSAA applications.

Send Us Your Comments

Oracle welcomes your comments and suggestions on the quality and usefulness of this publication. Your input is an important part of the information used for revision.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where?
- Are the examples correct? Do you need more examples?
- What features did you like most about this manual?

If you find any errors or have any other suggestions for improvement, indicate the title and part number of the documentation along with the chapter/section/page number (if available) and contact the My Oracle Support.

Before sending us your comments, you might like to ensure that you have the latest version of the document wherein any of your concerns have already been addressed. You can access My Oracle Support site that has all the revised or recently released documents.

