Oracle Financial Services Basel Regulatory Compliance for RBI

User Guide

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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 data into the OFSAA Download Specification Format.
- Administrator: The Administrator maintains user accounts and roles, archives data, loads data feeds, and so on. The administrator controls the access rights of users.

1.2 Conventions

The following text conventions are used in this document.

Table 1: Document Conventions

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

1.3 Installing this Major Release

For detailed instructions to install this Major Release, see the Oracle Financial Services Capital Adequacy Installation and Configuration Guide Release 8.1.1.0.0.

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 AAAI Application Pack:**
  - *OFS Advanced Analytical Applications Infrastructure (OFS AAAI) Application Pack Installation and Configuration Guide*
  - *OFS Analytical Applications Infrastructure User Guide*
  - *OFS Analytical Applications Infrastructure Administration Guide*
  - *Oracle Financial Services Analytical Applications Infrastructure Environment Check Utility Guide*
- **Additional documents:**
  - *OFSAA Licensing Information User Manual Release 8.1.1.0.0*
  - *OFS Analytical Applications Infrastructure Security Guide*
  - *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

As part of this release, the Market Risk-Related compliance for Basel III is available. It also adheres to the Large Exposures Framework guideline and Leverage Ratio calculations using the Process Modeling Framework.

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:

- RBI
  - Basel III Compliance and all other regulatory guidelines published after 2015
- 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/modules of OFSAAI.

5 Application Processing

This section provides details on the application processing components.

See Oracle Financial Services Basel User Guide for more information

6 Reserve Bank of India (RBI)

6.1 Overview of Basel III

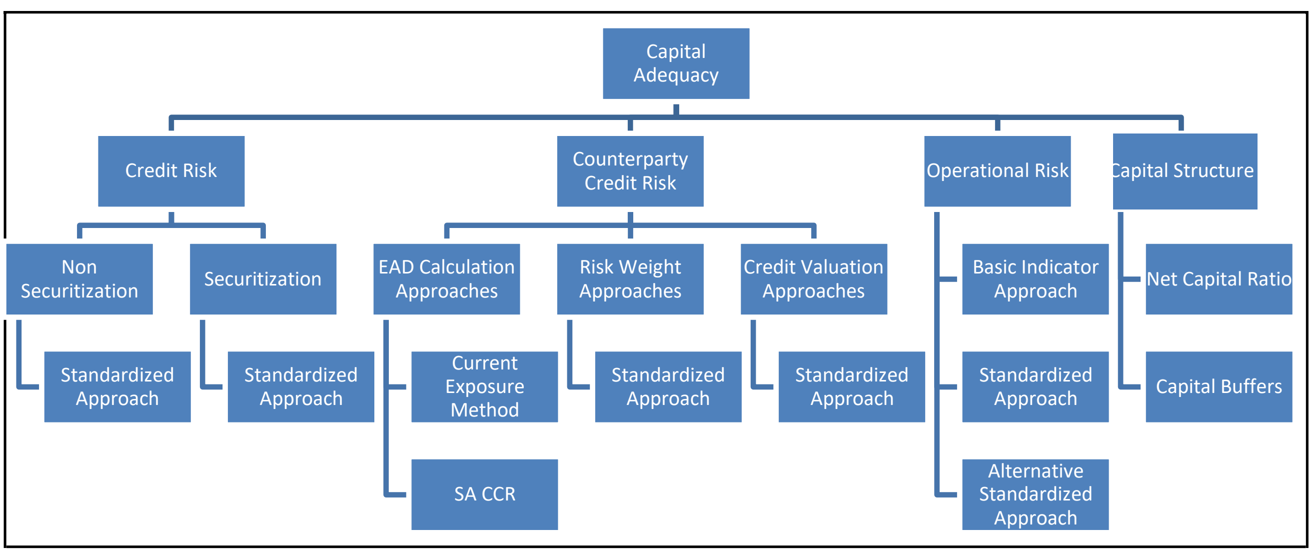
The Reserve Bank of India (RBI) has issued the Basel III guidelines, and also made multiple changes to its guideline to meet the changing needs of the market. These regulations are by and large compliant with the Basel III post-crisis reform changes issued by the Basel Committee (BIS), with respect to the Credit Risk and Counterparty Credit Risk.

The OFS Financial Services Basel Regulatory Capital application is compliant with the Standardized approach for RBI Jurisdiction:

- Non-Securitization Exposures – Standardized Approach
- Counterparty Credit Risk Exposures – Standardized Approach, Current Exposure Method
- Settlement Risk Exposures
- Default Fund Contribution – Qualified Central Counterparty and Non-Qualified Central Counterparty
- Securitization Exposures – Standardized Approach
- Operational Risk – Basic Indicator Approach, Standardized Approach, Alternative Standardized Approach
- Capital Structure – Capital Ratios and Buffers

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

Figure 1 Product Hierarchy of OFS Basel Regulatory Product in compliance with RBI guidelines



6.1.1 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 of the credit risk calculations.

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

6.1.2 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 the banking book and trading book.

6.1.3 Default Fund Contributions Related Capital Charge

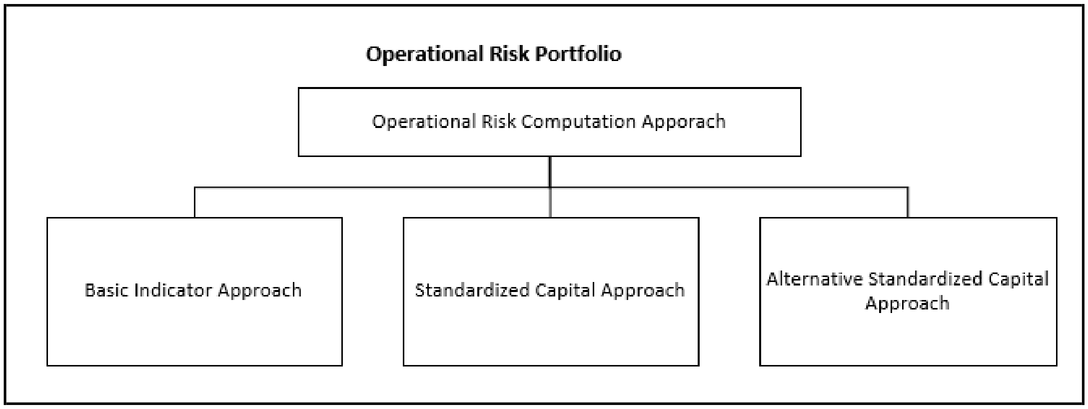
A default fund contribution refers to the funds contributed, or commitments made by a clearing member to a Central Counterparty's (CCP) equalized loss-sharing agreement. The purpose of such default funds is to provide capital, in addition to the collateral posted by participants and in addition to capital 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.

6.1.4 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 2 Process flow for Operational Risk Portfolio



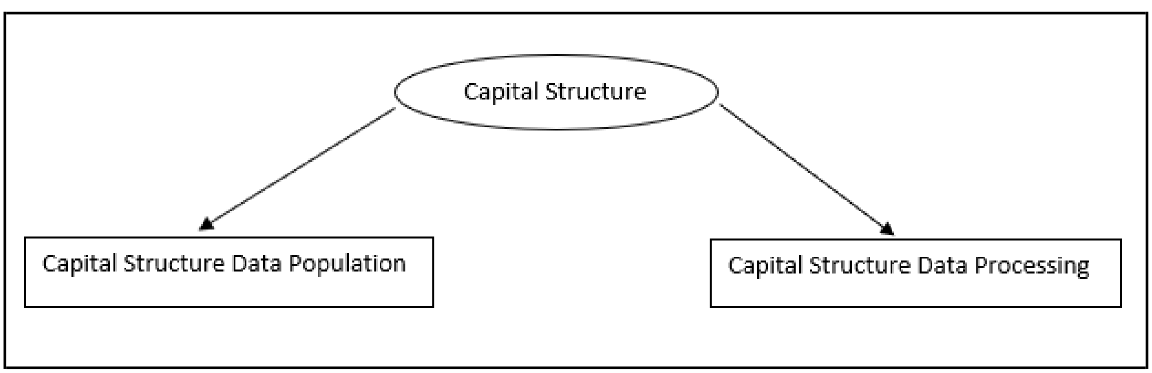
6.1.5 Capital Structure

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 a 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.

Total capital consists of some of the following elements:

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

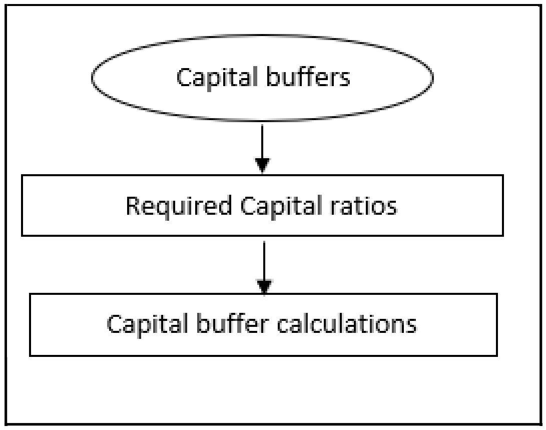
Figure 3 Process flow for Capital Structure



6.1.6 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.

Figure 4 Process flow for Capital Buffers



7 Reserve Bank of India (RBI) Standardized Approach

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

This approach covers the following topics:

- Credit RWA
- Counterparty Credit RWA
- Default Fund Contributions Related Capital Charge
- Credit Valuation Adjustments
- Credit RWA for Securitization
- 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. 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.

The application supports the computation of Credit RWA, as per the guidelines laid out by the RBI. Credit RWA computation is divided into Credit Risk for Non-Securitized exposures process and Credit Risk for Securitized exposures process.

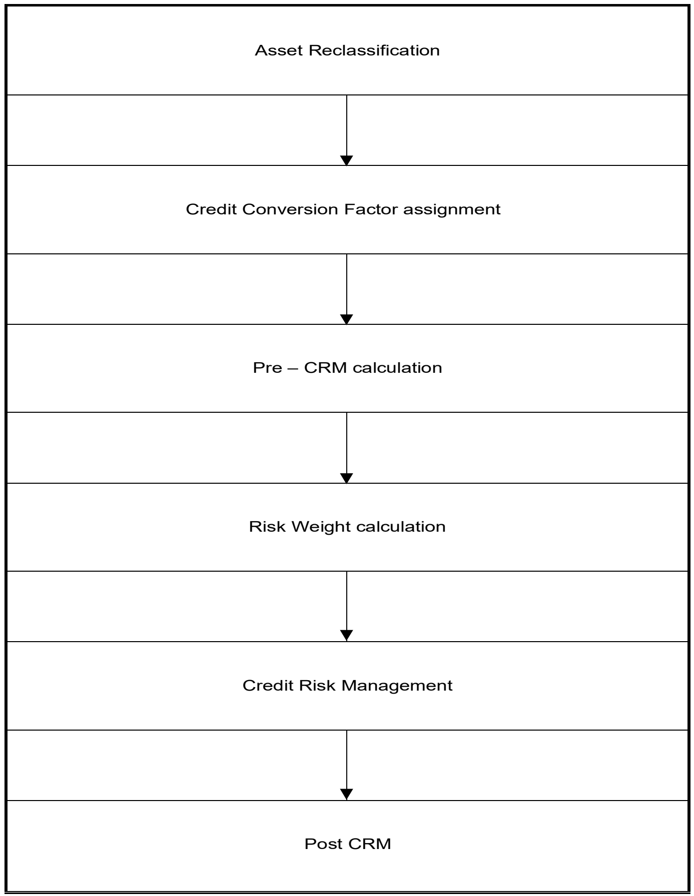
For Credit Risk of Non-Securitized exposures, the application follows the Standardized Approach.

7.1.1 Credit Risk - Non-Securitization - Standardized Approach

Process Flow for Non-Securitization - Standardized Approach

The sub-processes are as follows:

Figure 5 Process Flow for Non-Securitization - Standardized Approach



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**)
  - Credit Rating for all Credit Risk Exposures are captured in this table
- Instrument Rating Table (**STG_INSTRUMENT_RATING_DETAILS**)
  - Credit Rating for all instruments is captured in this table.
- Party Rating Table (**STG_PARTY_RATING_DETAILS)**
  - Credit Ratings 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 **Credit Rating Data Population - IND** in **IND BASEL III CREDIT RATING PROCESSING** 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.

The historical ratings are also expected to be provided, for the check on the exposures being rated earlier, and currently treated as unrated exposures. This gets handled in the subprocess **Credit Rating History Data Population.**

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 a foreign rating. If any other rating is provided, then the exposure is considered as unrated.

7.1.1.3 Data Population

The 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 Non Securitization exposures, along with their respective table names that are used as an input, are as follows: Note – this also includes the counterparty credit risk exposures data population.

Table 2: Credit Risk Non Securitization exposures and tables

Product	Source Product Processor
Bills	STG_BILLS_CONTRACTS
Credit Cards	STG_CARDS
Swaps	STG_SWAPS_CONTRACTS
Futures	STG_FUTURES
Guarantees	STG_GUARANTEES
Investments	STG_INVESTMENTS
Lease Contracts	STG_LEASE_CONTRACTS
Letters of Credit	STG_LC_CONTRACTS
Line of Credit	STG_CREDIT_LINE_DETAILS
Commitment Contracts	STG_COMMITMENT_CONTRACTS
Loans	STG_LOAN_CONTRACTS
Money market instruments	STG_MM_CONTRACTS
Overdraft	STG_OD_ACCOUNTS

Product	Source Product Processor
Options	STG_OPTION_CONTRACTS
Re purchase contracts	STG_REPO_CONTRACTS
Equity Exposures	STG_INVESTMENTS
Underlying exposures for Securitization Exposures	STG_UNDERLYING_EXPOSURES
Underlying Exposures for Repo contracts	STG_PLACED_COLLATERAL / STG_MITIGANTS
Credit Derivatives	STG_CREDIT_DERIVATIVES
Fixed Assets	STG_FIXED_ASSETS_DETAILS

NOTE Table 2 also includes the counterparty credit risk exposures data population.

This gets handled in the process IND BASELIII NON SEC DATA POPULATION.

There is a data population pertaining to the placed collateral and central counterparty details, which are required for the cleared transaction and default fund contribution treatment. See the following table to view the product type and its table names:

Table 3 Data population for placed collateral and central counterparty details

Product	Source Product Processor
Placed Collateral	STG_PLACED_COLLATERAL
Default Fund Contribution	STG_CCP_DETAILS

This gets handled as part of the process IND BASELIII PLACED COLLATERAL DATA POPULATION

There is a data population pertaining to the mitigants, which cater to all the types of mitigants like collateral, guarantee, and credit derivatives. There is one data population pertaining to the counter-guarantee for the guarantor. There is also mapping data population of Exposure to Mitigant Data and the Guarantor to Counter guarantee data population. See the following table to view the product type and its table names:

Table 4 Data population for mitigants and counter guarantee

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

This gets handled as part of the IND BASELIII MITIGANT DATA POPULATION.

There is a data population pertaining to the mapping between the exposures and the mitigants. And one data population pertaining to the mapping between the exposures and the placed collateral. There is also a data population pertaining to the mapping between the guarantee and the counter-guarantee. See the following table to view the product type and its table names:

Table 5 Data population for mapping between exposures and mitigants

Product	Source Product Processor
Mapping for Exposures and Mitigants	STG_ACCOUNT_MITIGANT_MAPPINGS
Mapping for Exposures and Placed Collateral	STG_ACCT_PLACED_COLL_MAP
Mapping for Guarantee and Counter Guarantee	STG_MITIGANT_CNTR_GUAR_MAPPING

This gets handled as part of the process **“NON SEC EXP MITIGANT MAPPING POP”**

Processing table details

Stage data from the Product Processors or other stage tables are populated in the respective processing tables. Information from all Product Processors data is populated in a common Fact table for all non-sec exposures (**FCT_NON_SEC_EXPOSURES**), except equity data which is first populated in the respective equity table (**FCT_EQUITY_EXPOSURES**) and is then (after risk weighing) populated in the common Fact table for all Non-Securitized exposures. For more information on the list of columns to be populated within each table, see the *Download Specifications* document in MOS.

7.1.1.4 Shareholding Percent Multiplication

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

Exposure Amount x Share Holding Percent = Updated Exposure Amount

Where:

The shareholding percent is allotted a value by the Rule **Cap Consl Effective Shareholding Percent for an Entity** in the process – Europe **Capital Consolidation**.

This assignment uses the Rule **<Attribute > Shareholding Percent Multiplication** Shareholding percent multiplication is computed for the following attributes:

- Outstanding Principal
- Current Exposure Amount
- Undrawn Amount
- Exposure Market Value
- Exposure Accrued Interest

- Provision Amount
- Write Off Amount
- Notional Principal and Contract Amount for OTC products
- Any other amounts

This is handled in the sub-process **Ind Shareholding Percent Multiplication** of the process **IND BASELIII NON SEC DATA POPULATION**.

7.1.1.5 Common Reclassification Rules

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

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

1. **Product Type Reclassification**

   Product types used by the reporting bank as input data are reclassified to standard product types as recommended in the Accord. The product types after reclassification are stored as Basel product types. For Example, Housing Loan is reclassified as Residential Mortgage Exposure.

   This is handled in the **IND BASELIII PRODUCT TYPE RECLASSIFICATION STD** process.

2. **Party Type Reclassification**

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

   Party type reclassification Rules handle reclassification for customer types. For Example, an Individual is reclassified as Retail.

   This is handled in the **IND BASELIII PARTY RECLASSIFICATION** process.

3. **Rating Reclassification**

   As part of the Rating Reclassification, it is expected that the bank will reclassify the ratings into the different Basel credit ratings of AAA Equivalent, AA Equivalent, and soon. This gets handled in the rule "**IND - Basel III Credit Rating Reclassification**" of the process "IND BASELIII CREDIT RATING PROCESSING".

4. **Other Reclassification**

   As part of the reclassification rules, any other data which is being brought inside the application like seniority, transaction type, and so on also gets 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 sub process **Non Sec Reclassification** of the process **IND BASELIII NON SEC STD**.

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, the 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.

- Initially, the rule assigns asset class based on standard counterparty type alone. This is because, the majority of asset classes are based on party type alone like Sovereign, MDB, and so on. Example: IND - Basel III Non Sec Asset Class Reclassification is based on Standard Counterparty Type – STD.
- The rule then assigns asset classes based on a combination of standard party types and standard product types. Only relevant combinations are selected. This is done to keep the rule size manageable. Example: IND - Basel III Non Sec Asset Class Reclassification – STD.

  For example: When the standard counterparty is corporate, the asset class is corporate, except when exposure has specific product types like mortgages where the asset class can be Claims secured by commercial mortgages and so on.
- A set of rules assigns asset class for a specific scenario where any additional information other than standard party type or standard product types is also needed. Example: IND - Basel III Non Sec Asset Class Reclassification - Loans and Advances to Staff, IND Asset Class reclassification - Domestic Sovereign Exposures for CGTMSE, CRGFTLIH, and so on.

This happens as part of the sub process **Non Sec Reclassification** of the process **IND BASELIII NON SEC STD**.

In addition to the above asset class reclassification process for exposures, to ensure it follows the regulatory retail portfolio definition as specified in the Master Circular the following process:

This gets handled in the sub process **Regulatory Retail Portfolio** of the process **IND BASELIII NON SEC STD**

The Data transformation **MAP_RET_EXP** works based on the fct_non_sec_exposures table; particularly on columns like Basel Asset Class, Customer/Issuer, Standard Counterparty type, Basel Product Type, and so on.

This DT checks the Qualifying Criteria requirement of para 5.9.3 of Master Circular – Basel III Capital Regulations in terms of Orientation Criterion, Low value of individual exposures, and Granularity Criterion. Product Criterion and customer as Individual is addressed through reclassification. It assigns Regulatory Retail Portfolio asset class for exposure to bank's staff not backed by Superannuation adjustment benefits and as defined in para 5.14.2 of Master Circular – Basel III Capital Regulations.

Post that, it checks the orientation criteria for average turnover of the party against 50 cr and accordingly updates asset class. It, then, checks whether the aggregated exposure to one counterparty exceeds the threshold limit of Rs 5 cr and 7.5 crores (as per the latest guideline). Based on customer type it updates asset class to either Corporate, Regulatory Retail, or others. A granularity check is performed at the end to check whether total exposure to one counterparty is greater than the Granularity threshold (0.2%) of the total Regulatory Retail Portfolio. In that case, based on customer type it updates asset class to either Corporate, Regulatory Retail, or others. It excludes NPAs from the overall regulatory retail portfolio.

The asset class for all mitigants is reclassified based on their standard mitigant types and standard issuer type. The rule assigns the effective asset class as part of CRM for unfunded protections. This rule is similar to the first set, except that exposures guaranteed by State Government and Central Government are classified into the separate asset class and not under 'Domestic Sovereign'. Example: IND - Basel III CRM Effective Asset Class Reclassification – STD.

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 **Non Sec Pre CRM EAD Computation** in **IND BASELIII NON SEC STD** process.

Pre-CRM Exposure at Default (EAD): Exposure at Default is calculated for all asset classes based on:

- Current Exposure Amount
- Off-Balance Sheet Drawn CCF Percent
- Provision Amount
- Undrawn Amount
- CCF Percent
- Exposure Accrued Interest
- Write Off Amount

If the reporting bank has exposure to one of its subsidiaries, then that exposure is classified as internal exposure. Each of the internal transactions, that is, a transaction between the parent and its subsidiary is marked as a deduction line item. The deduction is processed as part of the capital structure processing and all the internal transactions are eliminated from any RWA calculation.

Of the total exposure amount, the exposures may have drawn amount and undrawn amount. The drawn amount is the direct credit exposure and the undrawn amount can become a future exposure when that amount is drawn. Therefore, EAD related to the undrawn amount is calculated by multiplying the CCF percent with the undrawn amount. The application calculates the EAD related to the drawn amount using:

- Exposure Accrued Interest
- Off-Balance Sheet Drawn CCF Percent
- Write Off Amount
- Provision Amount
- Current Exposure Amount

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 on the balance sheet and off-balance sheet exposures).

CCF is applied to all the off-balance sheet exposures. The CCF applied values are 0, 0.2, 0.5, and 1. The various factors based on which the CCF is applied are product type, type of facility (whether it is cancellable or not), and the maturity of the exposure.

As per the RBI Basel III guidelines for Standardized Approach, the following table lists the CCF assigned to off-balance sheet items:

Table 6 Credit Conversion Factors – Non-market related Off-Balance Sheet Items

Instruments	Credit Conversion Factor (%)
Direct credit substitutes	100
Certain transaction-related contingent items	50
Short-term self-liquidating trade letters of credit arising from the movement of goods	20
Sale and repurchase agreement and asset sales with recourse	100
Forward asset purchases	100
Unpaid part of partly paid shares and securities	100
forward deposits	100
Note issuance facilities	50
Revolving / non-revolving underwriting facilities	50
Unconditional take-out finance	100
Conditional take-out finance	50
Lending of banks' securities or posting of securities as collateral by banks	100
Commitments with certain drawdown	100
Commitments unconditionally cancellable	0
Other commitments Maturity up to 1 year	20
Other commitments Maturity more than 1 year	50

This happens in the sub process **Non Sec CCF Assignment** in **IND BASELIII NON SEC 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 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 assessments 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 **Multiple Assessment.**

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 (**Non Sec Issuer Issue 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

Sovereign

The RBI guidelines, under Claims on Domestic Sovereigns, have listed out the different Risk Weights applicable for different domestic sovereign claims of a Bank.

- Any claim of the Bank to Central Government gets zero percent risk weight. A bank that invests in State Government or any loan, credit, or overdraft exposure to the State Government gets a zero percent Risk Weight.
- Any Claims on Reserve Bank of India (RBI), Deposit Insurance and Credit Guarantee Corporation (DICGC), Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), Credit Risk Guarantee Fund Trust for Low Income Housing (CRGFTLIH) are regarded as claims on Central government and gets a zero percent Risk Weight. Any claim on Export Credit Guarantee Corporation of India Ltd. (ECGC) attracts a 20 percent Risk Weight.
- Any claim on Central Government or State Government has a Risk Weights applicable only if the asset is identified as Standard or Performing, If the Asset is recognized as Non-Performing Asset (NPA), they get the Risk Weight as detailed under the section 'Non-Performing Assets' in RBI guidelines.
- All outstanding amounts covered under any Debt Waiver Schemes announced by the government of India, such as the Agricultural Debt Waiver Scheme is treated as outstanding debt and get a zero percent Risk Weight.
- The Claims guaranteed by State Government get a 20 Percent Risk weight.
- Central Government guaranteed claims attract a zero risk weight.

Claims on Foreign Sovereigns

The International Rating Agencies S&P, Fitch & Moody's, assign Risk Weights of the Foreign Sovereign claims. Irrespective of the currency in which these are funded gets Risk Weights as determined by the Rating agencies.

If a claim on a foreign sovereign is funded in the same currency as the sovereign then it gets zero percent Risk Weight irrespective of its Ratings.

The requirements prescribed by Host Country supervisors are applicable to claims in the books of the foreign branches of the Indian banks for computing capital adequacy.

If the Indian Bank has claims to the Foreign Sovereigns in the books of the foreign branches where the supervisor requires more conservative treatment then they should adopt the requirements prescribed by the Foreign Country Supervisor.

As per the revised guidelines by RBI, claims on foreign central banks are risk-weighted like claims on the foreign sovereign. Foreign central bank attracts risk weight as per the rating assigned to those central banks claims by the international credit rating agencies as follows:

Table 7 Claims on Foreign Sovereign/Central banks – Risk Weights

Standard & Poor's/Fitch Ratings	AAA to AA	A	BBB	BB to B	Below B	Unrated
Moody's Ratings	Aaa to Aa	A	Baa	Ba to B	Below B	Unrated
Risk Weight (%)	0	20	50	100	150	100

With the update by the regulator, currently, the application assigns a 0% risk weight for Claims on foreign central banks in their jurisdiction, denominated in the domestic currency of that jurisdiction.

However, in case a Host supervisor requires a more conservative treatment to such claims in the books of foreign branches of the Indian banks, they should adopt the requirement prescribed by the host country supervisors for computing capital adequacy.

The Basel application handles this using the following processes:

- Reclassify party type to Standard party type.
- Reclassification based on product –party combination.
- Assign Risk weight Assignment.
- Claims on Corporate and Primary Dealers
- Claims on Primary Dealers are reported separately (not under Claims on Corporates) under the RBI RCA3 reporting requirements. Hence these are assigned under the existing asset class 'Primary Dealers'.
- Any Claims on Corporate, Asset Finance Corporations (AFC), Non-Banking Finance Companies - Infrastructure Finance Companies is Risk-Weighted as per the Rating Agencies which are registered with SEBI. The Ratings are reclassified as per Basel Credit Ratings. The Short Claims and Long Term claims are rated differently.
- Any claims on AFCs which attract 150 percent Risk Weight reduces to 100 percent.
- For entities/counterparties whose obligations are restructured or re-scheduled, the unrated claims on these entities attract 125 percent Risk Weight.
- For Claims on corporate which are unrated, the risk weight assigned does not preferential to that assigned to its sovereign of Incorporation.
- Unrated claims to Corporate, where the aggregated exposure to a single counterparty is more than the threshold limit of Rs 10 crore is risk-weighted at 150%.

Looking at the above it is implied that RBI defined a threshold limit of Rs 10 crore for aggregate exposure on a single counterparty to determine that an RW of 150% applies to Unrated claims.

The RCA3 reporting template requires the Unrated claims above threshold limit and Risk-weighted at 150% is reported as a separate row. Hence it is assumed that the threshold limit logic for unrated claims applies under the RBI Basel III requirements as well.

In the RCA3 report "Mkt risk Specific-CDS" for RBI, Part A Specific Risk Charge does not reflect the impact of hedging for CDS. Part B Specific Risk Charge which is reported counterparty-wise has hedging benefit reflected in the values.

Assumption

As per Para 5.8.2 of RBI Basel III guidelines (2013), RBI can warrant a standard risk weight higher than 100% to unrated corporate claims. Further para 5.8.2 of the RBI New Capital Adequacy Framework (2007) mentions that With effect from April 1, 2009, all fresh sanctions or renewals in respect of unrated claims on corporate in excess of Rs. 10 crore threshold (with reference to the aggregate exposure on a single counterparty for the bank as a whole) attracts a risk weight of 150%.

Since the RCA3 reporting template requires the Unrated claims above threshold limit and Risk-weighted at 150% to be reported as a separate row, it is assumed that the threshold limit logic as defined under the 2007 RBI Basel II guidelines for unrated claims applies under the RBI Basel III requirements as well.

Risk weights for Claims on Non-Resident Corporates.

Bank

An RBI Basel III guideline requires calculating RWA for claims on banks, that is, exposure in capital instruments of other banks.

Claims on Banks in India and Branches of Foreign Banks in India are treated based on the following major criteria:

- Investments in capital instruments of banks where the investing bank holds not more than10% of the investee bank.
- The aggregate of these investments, together with investments in capital instrumentsin insurance and other financial entities do not exceed 10% of the common equity of the investment bank.
- Equity investments in other banks where the investing bank holds more than 10% of theissued common shares of the investee banks.
- The aggregate of these investments, together with investments in capital instruments in insurance and other financial entities do not exceed 10% of the common equity of theinvesting bank.

The applicable treatment is as follows:

Risk Weights (%)	
All Scheduled Banks	**All Non-Scheduled Banks**

(Commercial, Regional Rural Banks, Local Area Banks, and Co-Operative Banks)				(Commercial, Regional Rural Banks, Local Area Banks, and Co-Operative Banks)		
Level of Common Equity Tier 1 capital (CET1) including applicable capital conservation buffer (CCB) (%) of the investee bank (where applicable)	Investments referred to in paragraph (i)	Investments referred to in paragraph (ii)	All other claims	Investments referred to in paragraph (i)	Investments referred to in paragraph (ii)	All Other Claims
1	2	3	4	5	6	7
Applicable Minimum CET1 + Applicable CCB and above	125 % or the risk weight as per the rating of the instrument or counterparty, whichever is higher	250	20	125% or the risk weight as per the rating of the instrument or counterparty, whichever is higher	300	100
Applicable Minimum CET1 + CCB = 75% and <100% of applicable CCB	150	300	50	250	350	150
Applicable Minimum CET1 + CCB = 50% and <75% of applicable CCB	250	350	100	350	450	250
Applicable Minimum CET1 + CCB = 0% and <50% of applicable CCB	350	450	150	625	Full deduction*	350
Minimum CET1 less than applicable minimum	625	Full deduction*	625	Full deduction*	Full deduction*	625

The entire exposure is handled assuming it is less than 10% of the Banks own equity. During the Capital, structures run, depending upon the value of F_SIGNIFICANT_INVESTMENT_IND, the investment above 10% and below 10% gets divided – the below 10% is risk-weighted proportionately, and above 10% is moved to deductions.

In the case of banks where no capital adequacy norms are prescribed by the RBI, the lending / investing bank calculates the CRAR of the cooperative bank concerned, notionally, by obtaining necessary information from the investee bank, using the capital adequacy norms as applicable to the commercial banks.

In case, it is not feasible to compute CRAR on such a national basis, the risk weight of 350 or 625 percent, as per the risk perception of the investing bank, is applied uniformly to the investing bank's entire exposure.

Above mentioned treatment is handled through a set of rules.

RW Assignment mentioned in the above table is handled through:

- IND - Basel III Non Sec Pre-mitigation UL for Claims on Banks Other Than Capital Invst Exp– STD
- IND - Basel III Non Sec Pre-mitigation RW UL For Capital Investments - Claims On Banks - STD
- IND - Basel III Non sec Pre-mitigation RW UL for claims on Banks – Cap Invest on Inst Ratings – STD
- IND-Basel III Non sec Pre-mitigation RW UL for claims on Banks capt invst based on Cust ratings-STD

Treatments based on other conditions are handled through:

- IND - Basel III Non Sec Pre-mitigation RW UL for Claims on Bank – STD
- IND - Basel III Non sec Pre-mitigation RW UL for claims on Banks based on risk perception – STD
- IND - Basel III Non sec Deduction for Claims on Banks Invst within 10percent – STD

Treatment based on Exposures to Export Credit Guarantee Corporation

Export Credit Guarantee Corporation (ECGC) is a central government undertaking body to provide a credit guarantee on the default of payments by the buyer. It works as an insurance firm that guarantees export payment if the buyer defaults in making payment.

ECGC issues Whole-turnover Packing Credit Guarantee (WTPCG) to banks that undertake to obtain cover for packing credit advances granted to all its customers on an all-India basis. The guarantee/insurance cover given by ECGC for export credit exposures of the banks ranges between 50% and 75% for pre-shipment credit and 50% to 85% in case of post-shipment credit. However, the ECGC's total liability on account of a default by the exporters is capped by an amount specified as Maximum Liability (ML). The banks are required to proportionately distribute the ECGC maximum liability amount to all individual export credits that are covered by the ECGC Policy. For the covered portion of individual export credits, the banks can apply the risk weight applicable to claims on ECGC. For the remaining portion of individual export credit, the banks can apply the risk weight as per the rating of the counter-party.

The Basel application handles this during CRM processing:

- Mitigant Allocation of maximum liability to individual credit exposures.
- Risk weight for uncovered portion. This is handled under the sub process - 'Non Sec STD RW Assignment' for different counterparties.
- Risk weight for covered portion guaranteed by ECGC.

- Post risk weight assignment and allocation of mitigant at individual exposure level, the RWA amount is calculated.

The banks are required to proportionately distribute the ECGC maximum liability amount to all individual export credits that are covered by the ECGC Policy. The maximum liability amount is expected as a download from the bank in the mitigant table where this amount is linked to all the Credit exposures covered. Later, in the CRM process mitigant amount is allocated as per the existing logic.

Claims on Foreign Banks

Claims on Foreign banks are risk-weighted based on ratings assigned by international agencies.

The claims on a bank which are denominated in 'domestic' foreign currency met out of the resources in the same currency raised in that jurisdiction is risk-weighted at 20 percent provided the bank complies with the minimum CRAR prescribed by the concerned bank regulator(s).

The rule “IND - Basel III Non Sec Pre-mitigation UL for Claims on Foreign Banks” assigns RW according to rating and based on the difference in funded and denominated currency.

Also, in case a Host Supervisor requires a more conservative treatment for such claims in the books of the foreign branches of the Indian banks, they should adopt the requirements prescribed by the Host supervisor for computing capital adequacy. That is, if the applicable host country risk weight is more, then the maximum of the host country supervisory risk weight and risk weight calculated by RBI is applied to the exposure.

This is done through rule “IND - Basel III Non Sec Pre Mitigation RW UL - Host Regulator RW Treatment – STD”. Depending upon treatment prescribed by the host supervisor, this rule is expected to be updated during implementation.

As per the document DBR.BP.BC.No.43/21.06.001/2015-16, the RW assignment for foreign central banks and foreign sovereigns is based on the following table:

Claims on Foreign Sovereigns / Central Banks – Risk Weights						
S&P* / Fitch Ratings	AAA to AA	A	BBB	BB to B	Below B	Unrated
Moody’s Ratings	AAA to AA	A	BBB	BB to B	Below B	Unrated
Risk Weight (%)	0	20	50	100	150	100
*Standard & Poor’s						

Corporate

Risk weighting of Claims to Primary Dealers and Claims on Corporate, NBFC-IFCs, and AFCs based on ratings

The circular issued by RBI in August 2016 for risk weight changes for unrated exposures on corporate, AFC, and NBFC-IFCs is complied within this release. The document used for reference is “Review of Prudential Norms–Risk Weights for Exposures to Corporates, AFCs and NBFC-IFCs” released in August 2016.

Earlier, the risk weight applied to the unrated exposure to Corporate, AFC, and NBFC-IFCs is 100% for both Long term and Short term claims. The same is modified as follows:

Starting immediately, the RW to be applied to unrated exposures of Corporate, AFC, or NBFC-IFCs which have an aggregate exposure of more than INR 100 Crores to the banking system, is 150%. This is applicable if the exposure was previously rated, but has now become unrated.

For all unrated exposures to Corporate, AFC, and NBFC-IFCs, the RW is 150% starting from 30th June 2017 onwards. This is applicable only if the party has an aggregate exposure of more than INR 200 Crores to the banking system.

All the exposures which are unrated and do not fall into the criteria specified in points 1 and 2 above continue to attract an RW of 100% for both long and short-term claims.

The exposures to Corporates, AFCs, and NBFC-IFCs are treated under the sub-process “Non Sec STD Ceiling RW Assignment for Corporate AFC NBFCIFCs and HFCs”.

Risk Weight Capping for Exposures to HFCs

In accordance with the circular issued by RBI in October 2016, Housing Finance Companies (HFCs)are risk-weighted similar to Corporate, AFCs, or NBFC-IFC’s. The document used for reference is “Risk Weights for Exposures to HFCs” published by RBI in October 2016.

HFCs are introduced as a new entry in the **DIM_STANDARD_PARTY_TYPE** table and banks are expected to reclassify their housing finance companies into HFCs.

All exposures to HFCs are treated similar to the exposures on Corporate, AFCs, and NBFC-IFCs. The exposures to HFCs are treated under the sub-process “Non Sec STD Ceiling RW Assignment for Corporate AFC NBFCIFCs and HFCs”.

Unrated Exposure to Entities whose Obligations are Restructured/Rescheduling

The unrated claims on Entities whose obligations are restructured/rescheduling are assigned 125% risk weight until satisfactory performance under the revised payment schedule is established for one year from the date when the first payment of interest falls due under the revised schedule.

To handle this requirement, identify the exposures which are restructured and capture the first payment date under the revised schedule. Since obligation subject to restructuring /rescheduling are mostly loans, these attributes are expected only on the Stage Loans Contracts table.

Two hierarchies are created which is used to risk weight unrated restructured exposures to corporate entities:

- Restructured Obligation Indicator
- Restructured Obligation (when the restructured indicator is Y)
- Non-Restructured Obligation (catch-all node)

- Satisfactory Performance Period

Satisfactory Performance - Less than One year (Past Due Flag is N and difference between First Payment date under Revised Schedule and Mis Date is less than 1 year)

Satisfactory Performance - More than One year (Past Due Flag is N and difference between First Payment date under Revised Schedule and Mis Date is more than 1 year)

OTHERS (catch-all node)

Claims on Primary dealers are treated as claims on Corporate.

MDBs

As per the RBI Basel III guidelines, the following guarantors are considered eligible:

Sovereigns and sovereign entities. This includes BIS, IMF, European Central Bank, and European Community and other eligible MDBs, ECGC, CGTSI, CRGFTLIH, banks, and primary dealers with a lower risk weight. The following MDB is treated as an eligible guarantor:

- World Bank Group: IBRD and IFC
- Asian Development Bank
- African Development Bank
- European Bank for Reconstruction and Development
- Inter-American Development Bank
- European Investment Bank
- European Investment Fund
- Nordic Investment Bank
- Caribbean Development Bank
- Islamic Development Bank
- Council of Europe Development Bank

Other entities that are externally rated, including credit protection provided by parent, subsidiary, and affiliate companies when they have a lower risk weight than the obligor. The exception to this requirement is when credit protection is provided to a securitization exposure.

When credit protection is provided to a securitization exposure, other entities that are currently externally rated BBB- or better AND that were externally rated A- or better at the time the credit protection was provided. This includes credit protection provided by parent, subsidiary, and affiliate companies when they have a lower risk weight than the obligor.

These are reclassified as MDB and risk-weighted at a flat 20%.

Claims on PSEs

All domestic PSEs are handled similar to Claims and Corporate.

Domestic PSE:

The claims on domestic PSEs are risk-weighted like claims on corporate. See section associated with RW assignment to corporate

Foreign PSE:

The Claims on foreign PSEs are risk-weighted as per the rating assigned by the international rating agencies.

The risk weights for Foreign PSEs are given as follows.

Claims on Foreign PSEs – Risk Weights S&P/ Fitch ratings	AAA to AA	A	BBB to BB	Below BB	Unrated
Moody's ratings	Aaa to Aa	A	Baa to Ba	Below Ba	Unrated
RW (%)	20	50	100	150	100

The rule "IND – BASEL III Non Sec Pre-Mitigation RW UL – STD" assigns RW accordingly.

Retail and Others

The claims (including fund-based and non-fund based) that meet all the four criteria listed below is considered as retail claims for regulatory capital purposes and included in a regulatory retail portfolio. Claims included in this portfolio are assigned a risk-weight of 75 percent.

Qualifying Criteria

Orientation Criterion: The exposure (fund-based and non-fund-based) is to an individual person or persons or a small business; Person under this clause means that any legal person capable of entering into contracts and includes but not restricted to an individual, HUF, partnership firm, trust, private limited companies, public limited companies, co-operative societies and so on. Small business is one where the total average annual turnover is less than Rs 50 crore. The turnover criterion is linked to the average of the last three years in the case of existing entities; projected turnover in the case of new entities, and both actual and projected turnover for entities that are yet to complete three years.

Product Criterion: The exposure (fund-based and non-fund-based) takes the form of any of the following: revolving credits and lines of credit (including overdrafts), term loans, and leases (for example installment loans and leases, student and educational loans), and small business facilities and commitments.

Granularity Criterion: Banks must ensure that the regulatory retail portfolio is sufficiently diversified to a degree that reduces the risks in the portfolio, warranting the 75 percent risk weight. One way of achieving this is that no aggregate exposure to one counterpart should exceed 0.2 percent of the overall regulatory retail portfolio. 'Aggregate exposure' means the gross amount (that is, not taking any benefit for credit risk mitigation into account) of all forms of debt exposures (example: loans or commitments) that individually satisfy the three other criteria. In addition, 'one counterpart' means one or several entities that can be considered as a single beneficiary (example: in the case of a small business that is affiliated to another small business, the limit applies to the bank's aggregated exposure on both businesses). While banks can appropriately use the group exposure concept for computing aggregate exposures, they evolve adequate systems to ensure strict adherence to this criterion. NPAs under retail loans are to be excluded from the overall regulatory retail portfolio when assessing the granularity criterion for risk-weighting purposes.

A low value of individual exposures: The maximum aggregated retail exposure to one counterpart should not exceed the absolute threshold limit of 5 crores.

The below claims have to be excluded from the Regulatory Retail Portfolio:

- Exposures by way of investments in securities (such as bonds and equities), whether listed or not;
- Mortgage Loans to the extent that they qualify for treatment as claims secured by residential property 39 or claims secured by commercial real estate 40;
- Loans and Advances to bank's staff which are fully covered by superannuation benefits and/or mortgage of flat/ house;
- Consumer Credit, including Personal Loans and credit card receivables;
- Capital Market Exposures;
- Venture Capital Funds.
- Loans and advances to the bank's staff which are fully covered by superannuation benefits and/or mortgage of flat/ house attract a 20 percent risk weight.
- Other loans and advances to the bank's staff are eligible for inclusion under the regulatory retail portfolio and therefore attract a 75 percent risk weight.

The deposits kept by banks with the CCPs, namely Clearing Corporation of India Limited (CCIL), the risk weight is 20 percent, and the deposits kept by banks with other CCPs, risk weight is according to the ratings assigned to these entities.

Audit Trail for Regulatory Retail Portfolio

The RBI guidelines detail the categorization of exposures into a regulatory retail portfolio (RRP) based on the qualifying, orientation, product, and granularity criteria. For satisfying the granularity criterion, the aggregate exposure to any counterparty must not exceed 0.2% of the overall regulatory retail portfolio. There is a need for the banks to report the overall regulatory retail portfolio (RRP) which forms a base for this criterion and also the 0.2% of the same. For this purpose, the following suggested solution aims at enhancing the solution to capture this information so that it can be used by the banks, in case of any specific reporting requirements.

The existing solution stores the value for the granularity check as 0.2%. This value of 0.2% is used in the DT to compute the checks and then assign the asset classes for the relevant exposures as RRP. A placeholder in the non-sec processing table to store the value of the exposure is used as a threshold. For all the RRP exposures, the overall RRP exposure value and also the threshold RRP value which is 0.2% of the overall RRP portfolio are marked.

Computation of LTV Ratio for Partially Disbursed Loan

The loan-to-value ratio (LTV ratio) is computed for the loans given by the bank based on the outstanding amount to the property value as per the RBI guidelines. RBI has approved some clients to use sanctioned amount instead of the outstanding amount for partially disbursed loans. Since it is not explicitly stated in the accord and there is no written communication from RBI to date about the usage of sanctioned limit for LTV calculations, the solution provides the banks an option to opt for the usage of sanctioned amount for the partially disbursed loans.

For this purpose, the outstanding amount in the LTV ratio calculation is replaced with the sanctioned amount for partially disbursed loans.

Parameter Treatment:

LTV METHOD is set to 'SANCTAMT' if the Computation of LTV Ratio for Partially Disbursed Loan is opted.

BPBL6145	BP - IND Non Sec LTV Ratio Calculation

The parameter for the above BP is set in the following rule.

RLBL6389	IND - Basel III - Non Sec LTV Ratio Calculation For Claims Secured by Residential Property

Data Expectation:

For the partially disbursed loans, the principal drawn amount must contain the amount disbursed for the loan account till date, and the current credit limit column must hold the amount of loan finally sanctioned.

Past Due Exposures

Risk Weight Application for Unsecured Portion of NPAs

- The unsecured portion of NPA (other than a qualifying residential mortgage loan), net of specific provisions (including partial write-offs), is risk-weighted as follows:
- 150 percent risk weight when specific provisions are less than 20 percent of the outstanding amount of the NPA.
- 100 percent risk weight when specific provisions are at least 20 percent of the outstanding amount of the NPA.
- 50 percent risk weight when specific provisions are at least 50 percent of the outstanding amount of the NPA.
- In addition to the above, where an NPA is fully secured by the following forms of collateral that are not recognized for credit risk mitigation purposes, either independently or along with other eligible collateral a 100 percent risk weight can apply, net of specific provisions, when provisions reach 15 percent of the outstanding amount:
- Land and building are valued by an expert valuer and where the valuation is not more than three years old.
- Plant and machinery in good working condition at a value not higher than the depreciated value as reflected in the audited balance sheet of the borrower, which is not older than eighteen months.
- To compute the level of specific provisions in NPAs for deciding the risk-weighting, all funded NPA exposures of a single counterparty (without netting the value of the eligible collateral) is reckoned in the denominator.
- To define the secured portion of the NPA, eligible collateral is the same as recognized for credit risk mitigation purposes. Hence, other forms of collateral like land, buildings, plant, machinery, current assets, and so on are reckoned while computing the secured portion of NPAs for capital adequacy purposes.
- Risk Weight Application for Unsecured Portion of NPAs which are Claims Secured by Residential Property

- Claims secured by residential property which are NPA are risk-weighted as follows:
- 100 percent risk weight when specific provisions are less than 20 percent of the outstanding amount of the NPA.
- 75 percent risk weight when specific provisions are at least 20 percent of the outstanding amount of the NPA and less than 50 percent of the outstanding amount of the NPA.

50 percent risk weight when specific provisions are at least 50 percent of the outstanding amount of the NPA.

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 **Non Sec Pre CRM RWA Computation** in **IND BASELIII NON SEC STD** process.

7.1.1.8 Credit Risk Mitigation Process

To calculate the post-CRM RWA, the 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 Fact Mitigants table (FCT_MITIGANTS) where further processing takes place and also data population for Counter guarantees. This takes place under the process **IND BASELIII MITIGANT DATA POPULATION.**

Mitigant Multiple assessments

Similar to exposures with multiple ratings, mitigants with multiple ratings are also subject to Multiple rating Assessments. This is handled as part of the task **Multiple_Assmt_Mitigant** in the process **MITIGANT ELIGIBILITY VOL HAIRCUT ASSIGNMENT SEC NONSEC.**

7.1.1.8.2 Mitigant Approaches and their Risk Weighting Rules

Mitigant Risk Weight

For Comprehensive approaches, the application assigns risk weight to mitigants based on credit rating, standard product type, and standard mitigant type. This gets handled in the sub process **Mitigant Risk Weight Assignment**.

The risk weight specific to the Comprehensive Approach is part of the sub process **Mitigant Risk Weight Assignment Comprehensive Approach.**

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 identifies the eligibility of the financial collateral for both 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 mitigant eligibility is part of the sub process **Mitigant Collateral Eligibility Comprehensive Approach** and **Mitigant Eligibility**

7.1.1.8.3 Mitigant Haircut Assignment

Under the Standardized approach, the bank has to follow supervisory estimates for Mitigant Haircut assignment. This is based on various categories like 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 the mitigants table (FCT_MITIGANTS) to the sub exposures table (FCT_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 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 the **Mitigant Volatility Haircut Assignment** sub 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 the **Mitigant Volatility Haircut Assignment** sub 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 the **Maturity Mismatch Haircut Assignment for Mitigants** sub process.

Compliance for Mortgage Guarantee Companies

Based on the request of some clients, the solution is now supporting the treatment for the exposures guaranteed by the Mortgage Guarantee Companies. For this purpose, the reclassification for Mortgage Guarantee Company (MGC) in party type reclassifications is included. The mitigant, in this case, is a guarantee and the issuer type is an MGC. The mitigant is treated in the same way as the existing treatment of guarantees.

For the exposure side, exposures to MGC are reclassified into the Corporate Non SME Non SL asset class and treated accordingly. The same reclassification is done for effective asset class for MGC and where mitigant type is Credit Derivative or Guarantee, that is, into Corporate Non SME Non SL asset class.

- Mortgage guarantee companies are included as a party type which is reclassified into the standard party type of Mortgage Guarantee Company.

Key Data Elements

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

For Mitigants

- Re-securitized exposures Mitigant – The mitigants belonging to re-securitized exposures have a "Y" value in this field. The application marks them as ineligible mitigants.
- Securitized exposures Mitigant – The mitigants belonging to securitized exposures have a "Y" value in this field. The application assigns different volatility haircuts for these, depending on the current ratings and the residual maturity.

For Ratings

- Current Rating for the Guarantees and Credit derivatives issued to Non-Securitized Exposures.
- Current Rating and Original Rating for the guarantees and credit derivatives issued to Securitized Exposures.

Treatment for Specific Exposures Types:

Capital and Provisioning Requirements for Exposures to entities with Unhedged Foreign Currency Exposure

The unhedged foreign currency exposures are affected by the volatility in exchange rate movements. These impact the capacity of the holders to fulfill their credit obligations toward the banks and hence result in default losses and thereby affects the complete financial system.

To resolve this issue, the application is updated with the changes suggested by the RBI. The changes include provisioning and determining capital requirements due to Unhedged Foreign Currency Exposures (UFCE).

Foreign Currency Exposure (FCE) refers to the gross sum of all items on the balance sheet that have an impact on profit and loss account due to the movement in foreign exchange rates. Financial hedges and Natural hedges are recognized to calculate unhedged foreign currency exposures. A financial hedge is considered when the exposure is hedged using a derivative contract. Natural hedge occurs between 2 exposures when both of them have opposite cash flows in the same accounting year. Based on these criteria of hedging, the unhedged foreign currency exposure is computed.

The application assesses the extent of possible loss that arises in case of volatility in the exchange rate to compute the incremental capital requirements that are maintained by the bank for UFCE. This possible loss is based on the annualized volatility of the USD-INR exchange rate. For the overseas branches/subsidiaries of the bank, the local currency of that jurisdiction is substituted to INR.

This annualized volatility is computed by taking the largest annual volatility as seen in the last 10 years' historical data in the adverse direction. This annualized volatility is provided by FEDAI (Foreign Exchange Dealers' Association of India) on instructions from RBI in due course of time daily and posted on FEDAI's website. The resulting annualized volatility is used to calculate the loss by multiplying with the UFCE amount declared by the counterparty entity.

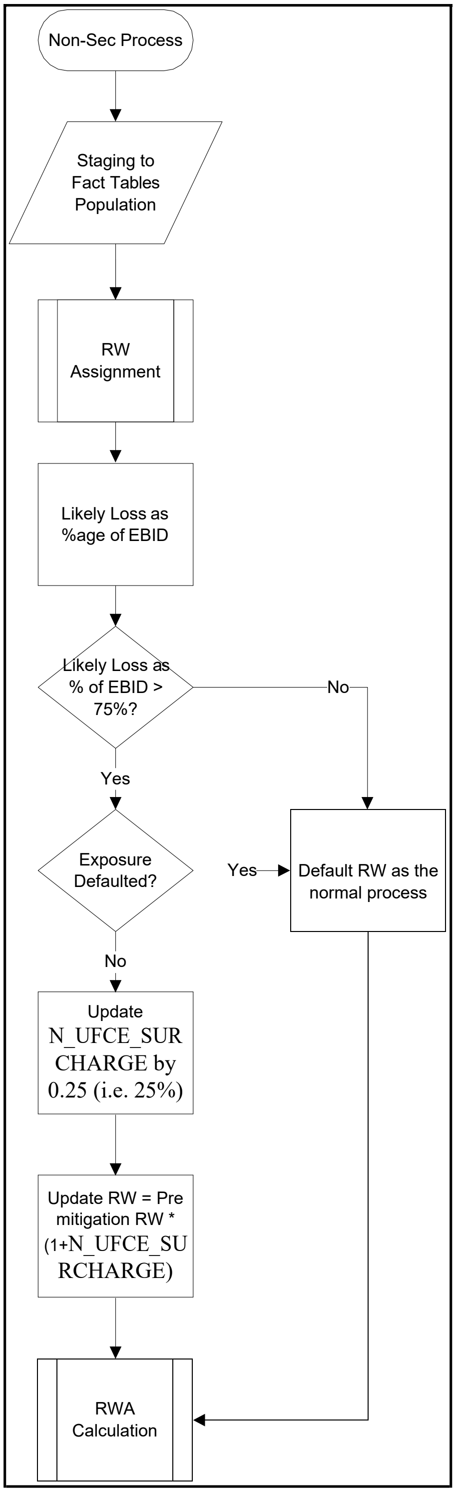
After computing the loss figure, it is compared with the Earnings before Interest and Depreciation (EBID) of the counterparty and expressed in percentage. Higher the percentage, the higher the susceptibility of the entity (the counterparty) to adverse exchange rate movements. Therefore, all exposures to such entities (whether in foreign currency or INR), attract incremental capital and provisioning requirements.

UFCE is monitored on a monthly interval and the incremental capital requirements are computed at least quarterly. The frequency of this calculation can increase depending on the volatility of the USD-INR exchange rate. For Incremental capital requirements, the exposure amount that is used for the credit risk capital requirements is used.

For new entities or projects under implementation where the EBID value is not available, the application calculates the incremental capital requirements based on projected average EBID for the three years from the date of commencement of commercial operations.

The following illustration displays the flow for the UFCE process :

Figure 6 Process flow for UFCE process



UFCE Treatment

The population of Party-Currency Mapping

Party-Currency mapping is in the **FSI_SETUP_PARTY_CURRENCY_MAP** table and on the execution of the **BASEL_SETUP_TABLE_POPULATION** batch; the data will be moved to the table **FSI_PARTY_CURRENCY_MAP** by the T2T **FSI_PARTY_CURRENCY_MAP_POP**.

Maximum Annual Volatility Rate

In the Non-Sec Data Population process, the party-currency mapping for the run is populated from **FSI_PARTY_CURRENCY_MAP** into the processing table **FSI_PARTY_CURRENCY_CALCULATION** using the **T2T -> FSI_PARTY_CURRENCY_CALCULATION_POP**.

The Maximum Annual Volatility Rate is picked up from **FSI_EXCHANGE_RATES** based on the Base Currency (BCY) and Non-Base Currency (NBCY) in **FSI_PARTY_CURRENCY_CALCULATION**.

Likely Loss Amount

The Likely Loss Amount in the **FSI_PARTY_CURRENCY_CALCULATION** table is calculated by a new Rule BP - Party Currency Likely Loss Amount.

The “Likely Loss Calculation for UFCE as Percentage of EBID” in **FCT_NON_SEC_EXPOSURES** is calculated by the existing “IND - Likely Loss Calculation for UFCE as Percentage of EBID”. The new tasks are added to the Non-Sec Data Population for India jurisdiction.

Risk Weight Increase for UFCE Entities

RW increase for UFCE Entities computed in the Rule “IND - RW Increase for UFCE Entities” which refers to **FSI_PARTY_CURRENCY_CALCULATION.N_UNHEDGED_AMOUNT**.

Data Expectations:

- Table FSI_SETUP_PARTY_CURRENCY_MAP to be populated by the user.
- N_UNHEDGED_AMOUNT in the above table is provided in reporting currency.

Treatment of Equity Exposures under Strategic Debt Restructuring Scheme

The Strategic Debt Restructuring Scheme (SDRS) introduced by RBI allows banks to convert the outstanding loans into a majority equity stake in a defaulting company if the company fails to honor its debt commitments agreed under a restructuring plan. These guidelines are applicable for lending under Consortium and Multiple Banking Arrangements (MBA). As per this scheme, all debt restructuring deals in India have a pre-condition that all the loans should be converted into shares. If a borrower fails to honor its debt commitments agreed under a restructuring plan then the Joint Lenders Forum (a committee formed by all the lenders of a borrower) reviews the accounts of the borrower and decides whether to invoke the SDRS, within 30 days after reviewing the account. Such a decision should be approved by the majority of JLF members. Later, the JLF must approve the SDR conversion package within 90 days from the date of deciding to undertake SDR.

Then the SDR conversion package should be completed within 90 days from the date of approval of the SDR package by the JLF. Post the conversion of the loan (whole or part of the loan) into equity shares, all the lenders under the JLF must collectively hold 51% or more of the equity shares issued by the company. As per this scheme, by making banks the majority owners and replacing the existing management, banks are required to divest their stake in the company to a new promoter and recover their due by selling the firm to a new promoter. Banks are required to sell their stake within an 18-

month time-period from the Reference Date (Reference date is the date when Joint Lenders Forum's decision to undertake Strategic Debt Restructuring).

Full Conversion

In Full Conversion, banks convert the entire consortium/multiple lending into equity shares. These are treated as equity exposures as detailed in the following section:

Treatment of Equity Exposures Acquired under SDRS

Paid-up Equity investment of below 10% or less acquired by banks are risk-weighted at 150% or the risk weight as warranted by the rating of the counterparty or lack of it, whichever is higher. This risk weight is assigned for 18 months from the Reference Date. On the other hand, after 18 months Paid-up equity investment of below 10%, is risk-weighted as per extant capital adequacy regulation. This means that in this case, these are risk-weighted at 125% or the risk weight as warranted by the rating of the counterparty or lack of it, whichever is higher.

Paid-up Equity investment of above 10% acquired by banks are risk-weighted at 1250%.

Partial Conversion

In Partial Conversion, instead of converting the entire loan, banks convert the partial loan into equity exposures. In such cases, these partial loans converted into equity shares are treated as per equity exposures as explained in the introduction section. The part of the loan which is not converted into equity exposures is treated as per existing guidelines for restructured loans.

In the Basel solution, a fully converted loan that has undergone SDRS is expected only in the Stage Equity Exposures table, with an SDRS Undertaking date in the SDRS Undertaking Date column. If the equity is not a result of the loan's conversion into equity as part of SDRS, this date should be blank.

The column Parent Exposure ID in the Stage Equity Exposures table should contain the exposure ID of the loan (the value of Account Number column in Stage Loan Contracts table) from which this exposure was derived, that is, the loan that was taken up for SDRS. For a partially converted loan under SDRS, two records are expected. First, for the loan which is yet to be converted into equity in the Stage Loan Contracts table and the second, for the converted portion in Stage Equity Exposures table. For both these records, the SDRS Undertaking Date column should capture the date on which the SDRS was undertaken. The column Parent Exposure ID in Stage Equity Exposures should contain the exposure ID of the loan from which this exposure was derived, that is the loan that was taken up for SDRS (the value of Account Number column in Stage Loan Contracts table). These exposures are then taken to the non-sec processing table and treated as per the guidelines in the accord.

7.1.2 Securitization – Standardized Approach

For more information about the securitization, see the **Credit RWA for Securitization** section of the **Basel III Standardized Approach** chapter of the OFS Basel Regulatory Compliance User Guide.

7.2 Counterparty Credit Risk

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.

All the calculations listed in the previous Credit Risk section are applicable, except for the specific EAD calculation listed below.

Derivatives – OTC / Cleared Transactions/ Exchange Traded Derivatives

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 while they follow Standardized or IRB approaches for credit risk. The SA-CCR approach is applicable for Over Counter (OTC) Derivatives, Exchange Traded Derivatives, and Long Settlement Transactions.

Important: The changes detailed in this section are applicable only from 1 April 2018. Therefore, only those Runs with the **FIC_MIS_DATE** greater than or equal to 1 April 2018, is executed.

According to the guidelines, the banks that do not have the approval to apply the IMM approach for the relevant OTC transactions must use SA-CCR.

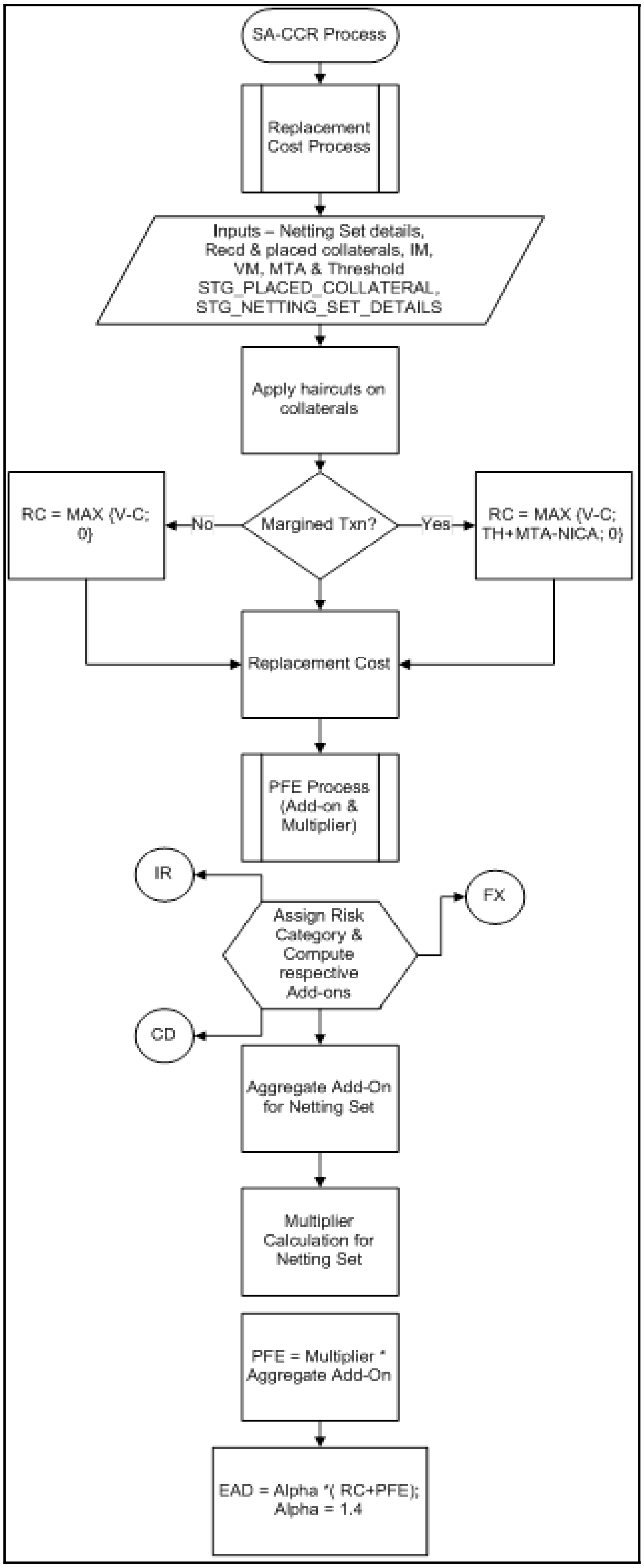
Ensure that you have modified the data type length of **the V_PARENT_EXPOSURE_ID** column in the **STG_UNDERLYING_EXPOSURES** table to VARCHAR2(50).

This approach does not impact the IMM approach for CCR and any processes for IRB (AIRB or FIRB) runs.

Process Flow

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

Figure 9 Process flow of SA-CCR



Replacement Cost

The Replacement Cost (RC) is computed differently for margined and unmargined netting agreements. The Exposure at Default (EAD) for margined netting agreement is capped at the EAD of the same netting agreement calculated on unmargined basis.

The RC is capped to zero to ensure that the replacement cost does not become negative value when the bank maintains NICA in excess of TH+MTA.

For unmargined transactions, the RC intends to capture the loss that occurs when a counterparty defaults and closes out its transactions immediately. For margined transactions, the RC intends to capture the loss that occurs if a counterparty defaults at present or in the future, assuming that the closeout and replacement of transactions occur instantaneously. However, there can be a period (the margin period of risk) between the last exchange of collateral before default and the replacement of the trades in the market.

The RC can be calculated as follows:

For unmargined transactions:

RC= MAX {V-C; 0}

Where:

V = Value of the derivative contract in netting agreement

C = Haircut value of net collateral held.

For unmargined transactions:

RC = MAX {V-C; TH+MTA-NICA; 0}

Where:

V = Value of the derivative contract in netting agreement

C = Haircut value of net collateral held

TH = Positive threshold before counterparty sends collateral to the bank

MTA = Minimum transfer amount applicable to counterparty

NICA = Net Independent Collateral Amount

The formulation for RC for SA-CCR approach depends on the transaction types (margined or unmargined). You must distinguish between the transactions that require only Initial Margin (IM) and no variation margin (VM) as unmargined transactions and the transactions that require IM and VM as margined transactions.

The following tables are referred to as derivative tables in the application. Note that the data for counterparty credit risk related transactions that is for derivatives are expected in these tables:

STG_FORWARDS

STG_FUTURES

STG_OPTION_CONTRACTS

STG_SWAPS_CONTRACTS

STG_CREDIT_DERIVATIVES

The N_MARKET_VALUE column in all the preceding derivative tables is used to store the market value of the derivative contract.

Due to uncertainty in the guidelines regarding the treatment of cross-product netting agreements (the nettings agreements that include OTC and SFT), the application calculates the netting agreement level amounts applicable for OTC derivatives by finding out the proportion of OTC in the netting agreement and then allocating the contract amounts accordingly to the same under SA-CCR approach.

IM and VM are expected at the netting agreement level. Banks must provide the same either by dividing the IM/VM at the counterparty level into netting agreements or by aggregating the IM/VM at the transaction level to the netting agreement level. Minimum Transfer Amount and threshold amount should also be provided at the netting agreement level in **the STG_NET_EXPOSURES** table.

Banks are also required to identify the transactions as margined or unmargined and provide the values appropriately in the F_MARGINED_TXN_IND column of the **STG_FORWARDS, STG_FUTURES**, STG**_OPTION_CONTRACTS**, **STG_SWAPS_CONTRACTS**, and **STG_CREDIT_DERIVATIVES** tables. Bilateral transactions, where there is a one-way margining agreement that exists in favor of the counterparty (where bank posts but does not receive collaterals) must have the value of the column **F_MARGINED_TXN_IND** as Y and F_Nettability_Flag as N.

Potential Future Exposure (PFE)

The PFE, Add-ons, and Multiplier are detailed in this section.

The PFE add-ons consist of an aggregate add-on component, which consists of add-ons calculated for each risk category and a multiplier that allows for the recognition of excess collateral or negative mark-to-market value for the transactions.

Add-on Aggregate is the aggregate of add-on components. The multiplier is defined as a function of the following three inputs:

Value of the derivative contract in netting agreement (V)

Haircut value of net collateral held (C)

Add-on Aggregate

If the banks hold collateral that is present in excess than the market value of derivative contracts to reduce the counterparty credit risk, it is called, over-collateralization. If the value of the collateral is lesser than the market value of the derivatives, the contract is called, under-collateralized. To provide the benefit of over-collateralization to banks, BIS has introduced a multiplier on the PFE Add-ons. This decreases as the collateral value increases and is at five percent of the PFE Add-on.

Therefore, when the collateral value is higher than the derivative value, RC becomes zero and the PFE Add-on is multiplied by a multiplier to factor in the effect of over-collateralization. If the contract is under-collateralized, that is if the collateral value is less than the derivative value, the replacement cost remains the same as explained in the Replacement Cost section (for margined and unmargined). In addition, the multiplier becomes equal to, one so that, under collateralization neither benefits nor detriments the bank.

Add-on Aggregate is the sum of the Add-ons for each risk category in a netting agreement. Note that it is an absolute sum and not a netting effect.

The process for Add-on calculation includes the following steps.

Risk Category

For each exposure, the banks must identify the primary risk driver of the risk factors such as interest rate, foreign exchange, or credit. This is crucial because the Add-on formula for each risk category is different and it depends on the nature of the risk factors. For Add-on calculation it is assumed that all the exposures possess zero current mark-to-market value. That is, all the contracts are at-the-money. The risk categories can be identified by defining the primary risk factors of underlying exposures in the derivative contracts.

Adjustments

Multiple factors are a part of the Add-on estimation formulae for each risk category, based on which the transactions are adjusted. These factors are:

Adjusted Notional Amount: An adjusted notional amount based on actual notional or price is calculated at the trade level. For interest-rate and credit derivatives, this adjusted notional amount also incorporates a supervisory measure of duration.

Delta Adjustment: Supervisory delta adjustment is made to the notional amount depending on the position of the trade (long/short) and the type of trade (option, CDO tranche, or neither).

Volatility Adjustment: Supervisory adjustment is applied to a notional amount to capture volatility.

Hedging Sets: The trades within each risk category are separated into hedging sets and an aggregation method is applied to aggregate all the trade-level inputs at the hedging set level and finally at the risk-category level. For credit derivatives, this involves the application of a supervisory correlation parameter to capture important basis risks and diversification.

Maturity Adjustment: A maturity factor depending on the type of transactions (MF margined, MF Unmargined) is defined based on the time horizon at the trade level. This maturity adjustment factor is applied to the adjusted notional amount. Maturity adjustment for unmargined transactions is the lesser of one year and residual maturity of the contract, floored by 10 business days. For margin transactions, maturity adjustment is calculated after the minimum period of risk (MPOR) which depends on cleared transaction indicator.

Period or Date Parameters

Four date parameters are used in the SA-CCR approach. These are:

- **M**: This is the latest date on which the contract is active. In such cases where the derivative contract has another underlying contract (for example, Swaption) and where the exercise of one contract can result in the position in the underlying contract, M is the final settlement date of the underlying contract. This input is used in MF adjustment for unmargined transactions.

- **S**: This is the start date for the interest rate derivatives and credit derivatives. If the derivatives refer to another underlying interest rate or credit instrument, then the start date is calculated based on the underlying contract. This value should not be less than 10 days. If the contract has already started, it should be equal to zero.

  For example, for Bond futures, S is the start date of the bonds. These inputs are used for the duration adjustment of the notional amount for IR and Credit derivatives.

- **E**: This is the contract end date for the interest rate derivatives and credit derivatives. If the derivatives refer to another underlying interest rate or credit instrument, then this end date is calculated based on the underlying contract. This value should not be less than 10 days.

For example, for Bond futures, it is the end date of the bonds. This input is used for the duration adjustment for a notional amount of IR and Credit derivatives. Also, this date determines the maturity bucket category for the IR and Credit Risk Categories.

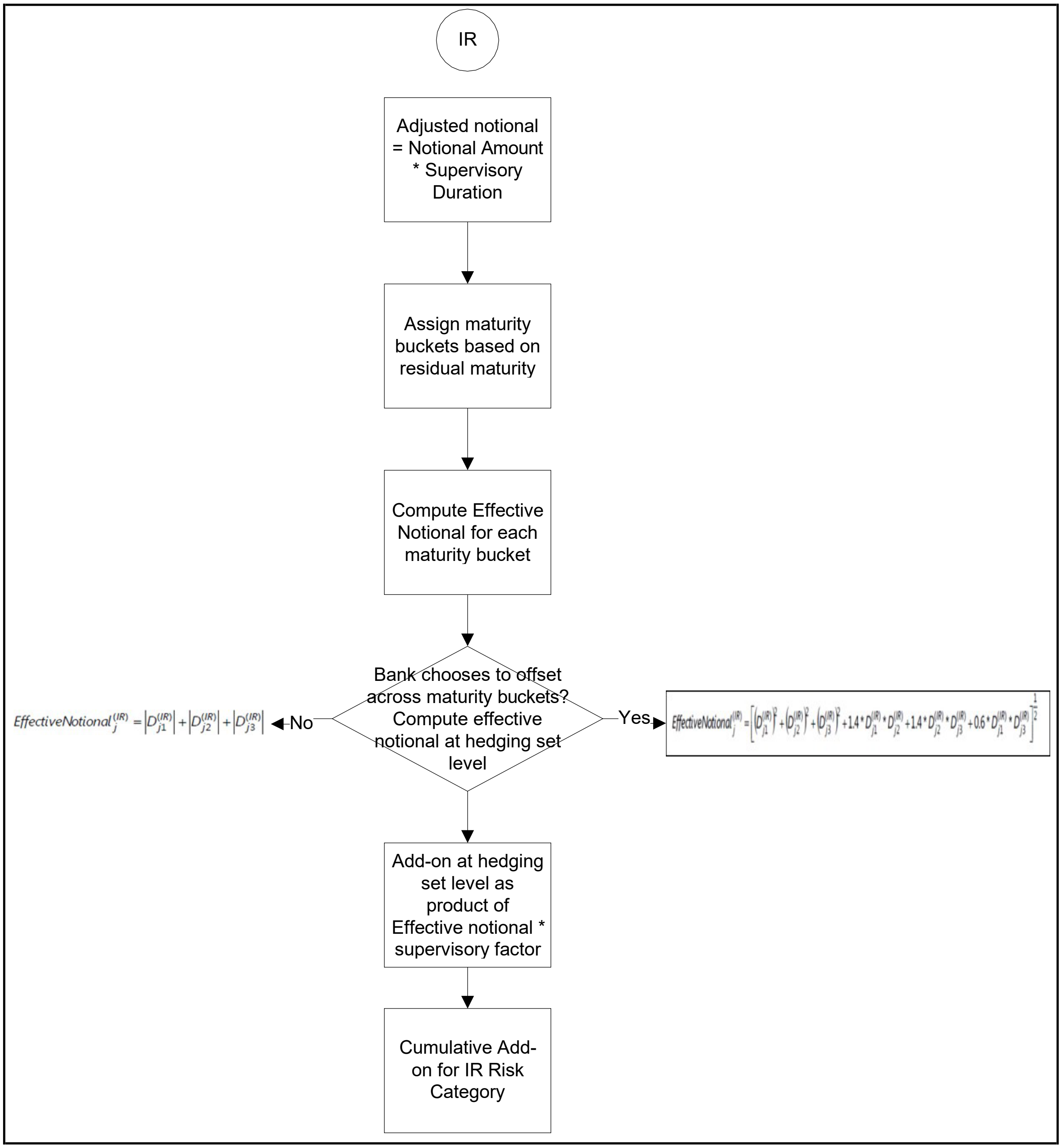
- **T**: This is the latest contractual exercise date for options in all the Risk Categories. This isused in the computation of the Delta adjustment factor for options.

Add-ons

Add-on for IR Derivatives

The following flowchart depicts the IR derivatives:

Figure 10 Process flow for IR derivatives

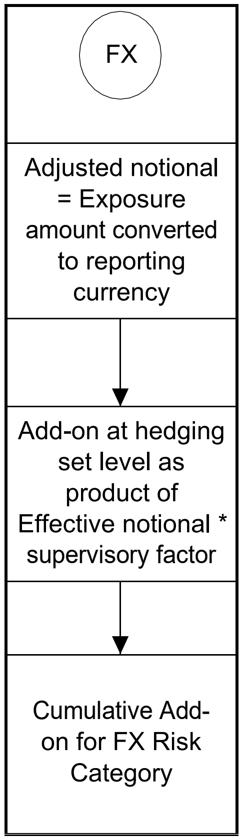


For interest-rate derivatives, each currency forms a different hedging set. In each hedging set, the trades are divided into maturity buckets (Less than 1 year, 1 to 5 years, and more than 5 years). Positions are allowed to be completely offset within a time bucket. Add-on for IR derivatives is the sum of add-ons for each hedging set.

Add-on for FOREX Derivatives

The following flowchart depicts the FOREX derivatives:

Figure 11 Process flow for FOREX derivatives

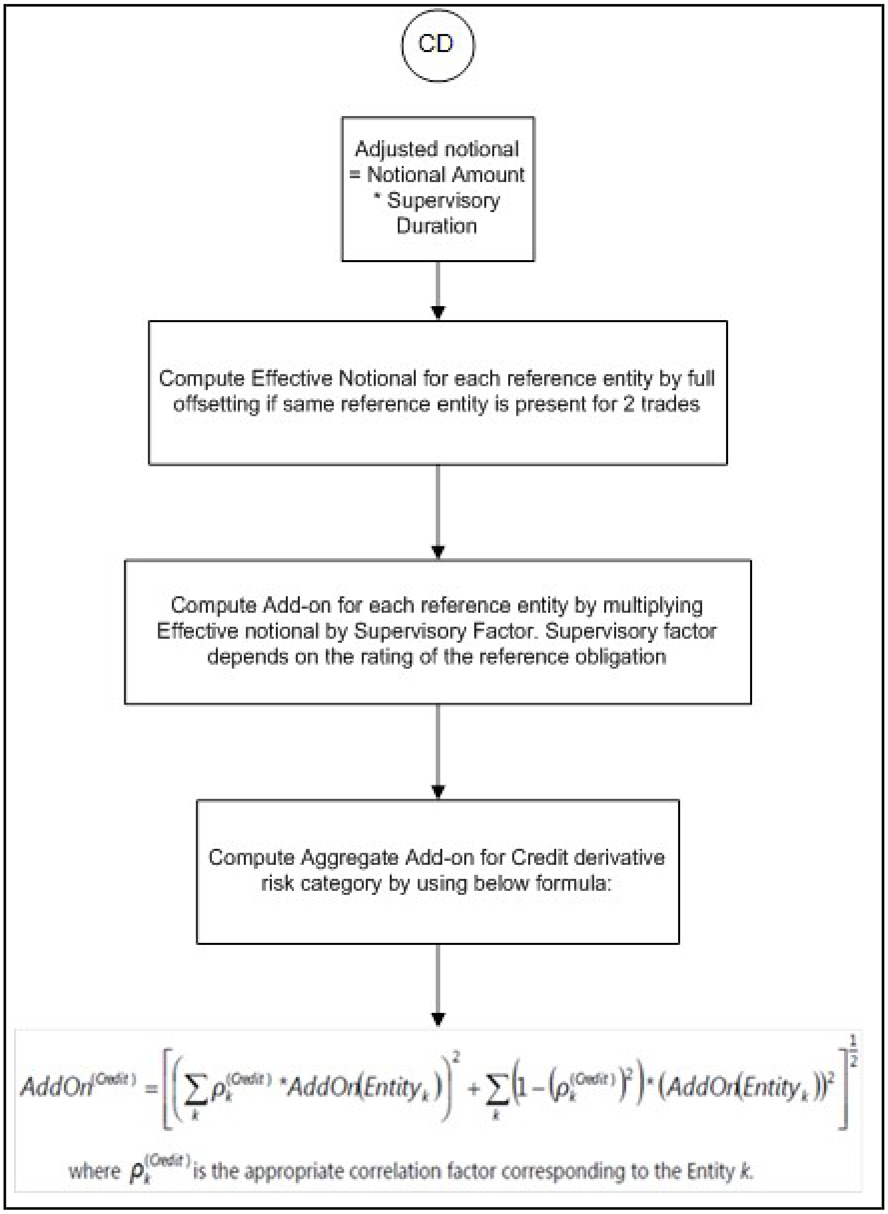


Add-on for hedging set for forex derivatives is calculated as per the guidelines.

Add-on for Credit Derivatives

The following flowchart depicts the add-on calculation for credit derivatives:

Figure 12 Process flow for the add-on calculation for credit derivatives



All credit derivatives that reference the same entity (either a single entity or an index) are allowed to offset each other completely to form an entity-level effective notional amount.

For single name entities, SF is determined by the credit rating of the reference name. For index entities, SF is calculated by determining if the index is investment-grade or speculative grade. All entity level add-ons are grouped in a single hedging set, except for basis and volatility transactions for which full offsetting is not allowed.

For credit derivatives, add-ons are divided into systematic and idiosyncratic components. Entity Level Add-ons are allowed to be completely offset in systematic components whereas, in the idiosyncratic component, there is no offsetting benefit.

Treatment of Multiple Margin Agreements and Multiple Netting Agreements

For RC and PFE, if one of the netting agreement has multiple margin agreements, then this netting agreement should be divided into sub-netting agreements to align with the margin agreements.

If a single margin agreement applies to multiple netting agreements, RC is calculated by taking the maximum of the mark-to-market value of the derivative contract in the netting agreement, then subtracting the value of the collaterals against the margin agreement, and finally flooring this value to 0.

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 mark-to-market values of the derivative contracts.

CDO Tranches are not included in the out-of-the-box product as the guidelines do not clarify whether CDO's should be treated under SA-CCR or Securitization. The existing treatment of CDO tranches under securitization remains unchanged.

Data for Staging Tables

Data for the staging tables (**STG_FORWARDS**, **STG_FUTURES**, **STG_SWAPS_CONTRACTS**, **STG_OPTION_CONTRACTS**, and **STG_CREDIT_DERIVATIVES**) are provided with the appropriate underlying types. This ensures that the correct asset class and sub-class are assigned. Otherwise, the banks cannot avail of the offsetting benefit for the offsetting of notional amount, as permitted by RBI.

Underlying type values in each of the derivative tables are listed in the previous paragraph are expected from the following codes:

- INTRAT
- EXRATE
- CREDIT
- IGRO
- NIGRO

The following are ensured:

- The correct hedging sets are formed and processed accordingly for margin agreement codes and netting agreement codes. Incorrect data in these columns can lead to inaccurate capital computation.
- For derivatives that have 2 legs in the books, the same Deal ID should be provided with appropriate position indicators. This is to ensure that the correct treatment is applied to such positions and offsetting benefit is given to the bank wherever permitted.
- Netting agreement codes should be provided uniformly across the relevant transactions. This is to ensure that the correct calculation of PFE and also to help identify netting agreements in which trades exceed 5000.

Run Management

You can choose between SA-CCR and IMM approach for the CCR charge.

RBI has provided an option to choose if the banks want to recognize offset across maturity buckets or not. To enable the offsetting option across maturity buckets for the SA CCR approach for the IR asset class, a new column namely **V_CCR_IR_BUCKET_OFFSET** is introduced. If this column is provided with the value Y, then the solution uses the formula according to the guidelines for Offsetting. Otherwise, the formula for effective notional calculation for IR asset class from the guidelines is considered.

As the partial offset within a netting is not detailed in the accord, the same is not included in the scope of the application.

Risk-Weighted Asset (RWA) Approach

RWA calculation for the instruments which are subject to CCR risk is similar to RWA calculation for other instruments.

Credit Risk Mitigation (CRM) Approach

CRM calculation for the instruments which are subject to CCR risk is similar to CRM calculation for other instruments.

Securities Financing Transactions

Securities Financing Transactions (SFT) include Repo Style transactions, Margin Lending, Security Financing Borrowing, and so on. The SFT portfolio of a bank is included for capital charge calculations as per the standardized, Approach for India. The application takes the notional amount as the EAD amount.

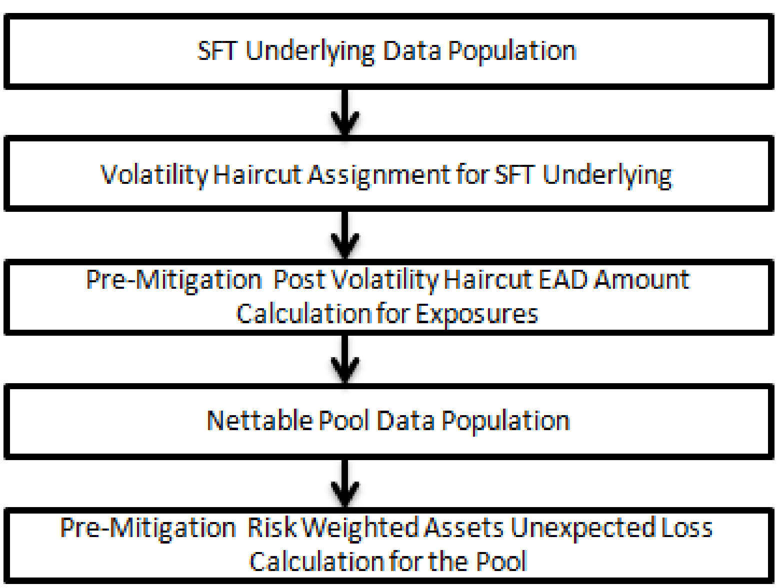
The SFT EAD calculation follows the Collateral Haircut Approach methodology.

For all SFT contracts which have a mitigant mapped to them, the application computes CRM based on the RWA approach undertaken by the bank. For the standardized approach, a risk weight is applied for all eligible mitigants based on mitigant value post haircut adjustment.

Process Flow for Credit Risk Securities Financing Transactions

SFT EAD is computed in the sub process SFT Exposures SFT Exposures RWA Comprehensive Approach. The following illustration displays the process flow for Credit Risk Securities Financing Transactions.

Figure 13 Process flow for Credit Risk Securities Financing Transactions



A comprehensive explanation of the process flow is as follows.

SFT Underlying Data Population

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

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

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

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

Haircut Assignment for SFT Underlying

This is computed by the following Rules:

- Basel Product Type Level1 for SFT - Comprehensive Method
- Non Sec Basel Methodology Assignment for SFT Comprehensive Method – STD
- FCT_SFT_UNDERLYING_DATA_POPULATION
- Del_NonSec_SFT_Undrly
- FOREX Haircut for SFT Underlying
- Non Sec Pre-Netting EAD Calculation for SFT

Pre-Mitigation Post Volatility Haircut EAD Amount Calculation for Exposures

For SFT transaction, the application calculates EAD for the parent exposure, based on the underlying information. The underlying exposures are processed in the **FCT_SFT_UNDERLYING** table and then the EAD computed is moved to the parent record in **FCT_NON_SEC_EXPOSURES**. Each underlying exposure is assigned a volatility haircut if the underlying exposures are financial instruments. 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 (Pre mitigation, post volatility haircut EAD).

Nettable Pool Data Population

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 EAD computations as above are taken from **FCT_NON_SEC_EXPOSURES** to **FCT_NETTABLE_POOL** after netting them based on the same netting agreement code.

Pre-Mitigation Risk-Weighted Assets Calculation for the Pool

Pre-Mitigation Risk-Weighted Assets are calculated for the pool as EAD, netted as above, multiplied by the risk weight.

7.2.1.1 Allocation of RWA at Exposures

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

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

Treatment of Unutilized Cash Margins

The exposures to Central counterparties are treated in a differential manner than the other exposures as per the RBI guidelines. For this purpose, the placed collaterals, that is, the margins placed with the CCP are considered. There can be cases where an initial cash margin placed with a CCP is not completely utilized. The accord is silent about the treatment of such an unutilized cash margin placed with the CCP. Based on the feedback from some clients, it is observed that RBI has given its consent to treat such unutilized cash margins as cash-in-hand and risk weight the same accordingly.

This feature is provided as an option to the customers to decide and treat the unutilized cash margins placed with CCP's as cash-in-hand or leave them as such as per the existing guidelines and treatment in the solution.

Parameter Treatment:

Parameter [TREATMENT] is set to 'Y' if the Treatment of Unutilized Cash Margin is opted. See the following table for

BPBL6155	BP - Unutilized Cash Deduction from Non Sec EAD Pre-Mitigation
BPBL6156	BP - Unutilized Cash Deduction from Non Sec Drawn EAD Pre-Mitigation
BPBL6157	BP - Non Sec Unutilized Cash Margin with CCP as EAD Pre-Mitigation
BPBL6158	BP - Non Sec Unutilized Cash Margin with CCP as Undrawn EAD Pre-Mitigation

The parameters for the 4 BPs are set in the following rules.

RLBL6395	IND - Basel III - Non Sec Unutilized Cash Margin with CCP
RLBL6396	IND - Basel III - Non Sec Unutilized Cash Deduction from Placed Collaterals

If the customer opts for the treatment of unutilized cash margins as cash-in-hand, the amount from the unutilized cash margin column is used to create an exposure in the non-sec processing table on the below lines:

- Party type is "Central Counter Party (CCP)".
- Basel Product Type is "Cash (CASH)".
- Asset Class is "Cash (CSH)".
- Exposure amount is the amount computed for the unutilized cash margin in the process explained above in this section.

- Risk-weighting and treatment for these Cash items continue to be as per the existing process as per RBI guidelines.

Data Expectation:

- Utilized Cash Margin is downloaded in STG_ENTITY_CCP_DETAILS at CCP level.
- Placed Collateral is an existing downloaded data.
- Unutilized Cash is computed as Placed Collateral Fair Component Value [Margin Type as Initial Margin (IM) and Product Type as Cash] aggregated at CCP level <minus> Utilized Cash Margin.
- Unutilized Cash Exposure is at CCP level in FNSE table.
- Utilized Cash is Placed Collateral Fair Component Value [Margin Type as Initial Margin (IM) and Product Type as Cash] at Placed Collateral Level <minus> Unitized Cash.
- Risk Weight for Cash is 1 as earlier.

7.3 Default Fund Contributions Related Capital Charge

Default Fund Contribution is the funds contributed or commitments made by a clearing member to a Central Counterparty's (CCP) mutualized loss-sharing agreement. The purpose of such default funds is to provide capital as a safeguard against extraordinary losses that might occur in connection with a financial crisis in the market or the simultaneous defaults of several large members. The clearing members contribute to such default funds which are 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) feature in the OFS Basel application 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 cushion against the defaults by any clearing member of the central counterparty.

If the CCP is not a qualified CCP (Non-QCCP), then the risk-weighted asset amount for the banking organization's default fund contribution is the sum of default fund contribution multiplied by 1250%.

If the CCP is a qualified CCP (QCCP), then the RWA amount is computed using the method described below:

The RWA amount for default fund contribution with a QCCP is computed as a minimum of (2% of trade exposure amount + 1250% of Funded Default fund contribution by the reporting bank) and (20% of the trade exposure amount). The formula used is as provided:

Min {(2% * TEi + 1250% * DFi); (20% * TEi)}

Where;

TEi is bank i's trade exposure to the QCCP; and

DFi is bank i's pre-funded contribution to the QCCP's default fund

The Trade Exposure Amount is computed as the sum of net potential exposure amount, Fair value of collateral, and Pre-mitigation but post volatility haircut exposure at default for a QCCP.

Total Risk-weighted assets for default fund contribution is the sum of clearing member's RWA for all of its default fund contributions to all CCP's of which bank is a clearing member.

7.4 Settlement Risk / Unsettled Transactions

Calculation of exposure for Delivery versus Payment (DvP) and Non DvP transactions is done by subtracting the mark-to-market value from contract amount (for DvP transactions) and assigning the mark-to-market value (for non-DvP transactions). This is done using the rule: "India - Non Sec Pre-Mitigation EAD Amount for unsettled Transaction".

For DvP Transactions, if the payments have not yet taken place five business days after the settlement date, banks are required to calculate a capital charge by multiplying the positive current exposure of the transaction by the appropriate factor as detailed in the following table:

Table 9 Calculation of capital charge

Number of working days after the agreed settlement date	Corresponding risk multiplier (in per cent)
From 5 to 15	9
From 16 to 30	50
From 31 to 45	75
46 or more	100

For non-DvP transactions (free deliveries), after the first contractual payment/delivery leg, the bank that has made the payment treats its exposure as a loan if the second leg has not received it by the end of the business day. If the dates when two payment legs are made are the same according to the time zones where each payment is made, it is deemed that they are settled on the same day. For example, if a bank in Tokyo transfers Yen on day X (Japan Standard Time) and receives corresponding US Dollar via CHIPS on day X (US Eastern Standard Time), the settlement is deemed to take place on the same value date. Banks compute the capital requirement using the counterparty risk weights prescribed in these guidelines. However, if five business days after the second contractual payment/delivery date the second leg has not yet effectively taken place, the bank that has made the first payment leg receives a risk weight of 1250% on the full amount of the value transferred plus replacement cost if any. This treatment applies until the second payment/delivery leg is effectively made.

7.4.1 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 a Comprehensive Approach. It is applicable only when banks follow the Simple Approach, or wherein the SFT transaction has a third-party guarantee.

7.4.1.1 Pooling

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

Pooling pulls out 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 Fact Sub Exposures (FCT_SUB_EXPOSURES), and the pooling is part of the sub process "**Non Sec Pooling and Optimization**"

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

a. 1-0➔One exposure not mapped to any mitigant
b. 1-1 ➔One exposure mapped to one mitigant
c. 1-N➔One exposure mapped to multiple mitigants
d. N-1 ➔Multiple exposures mapped to a single mitigant
e. N-N ➔Multiple exposures mapped to Multiple mitigants

7.4.1.2 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 are available in the Annexure.

7.5 Credit Valuation Adjustments

Basel committee has introduced a Credit Valuation Adjustment (CVA) capital charge, which is added to default risk capital charge to arrive at the new Counterparty Credit Risk (CCR) capital charge. 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 takes into account the possibility of the counterparty's default. In other words, CVA is the market value of counterparty credit risk.

The application calculates CVA Charge for OTC derivatives of the bank using a standardized approach using RBI guidelines.

CVA weight Assignment

As per the existing RBI Basel III guidelines all the unrated exposure was assigned 10% weight whereas per RBI guidelines the unrated counterparties are assigned a weight of 3%.Except when the counterparty is scheduled bank, the weights are assigned based on the rating in accordance with the rating in the following table:

Table 10 Ratings for CVA weight Assignment

Ratings	Wi
AAA	0.7%
AA	0.7%
A	0.8%
BBB	1.0%
BB	2.0%
B and unrated	3.0%
CCC	10.0%

Wi is the weight applicable to counterparty ‘i’. Weight is assigned to a counterparty based on its external rating.

The rule is created to assign a weight to an unrated schedule bank with the above table.

Wi for unrated scheduled commercial banks is derived based on the CET1+CCB ratio of the bank.

Table 11 Wi for unrated scheduled commercial banks

CET1+CCB of Bank	Ratings	Wi
Applicable Min CET1+CCB>100%	AAA/AA	0.70%
Applicable Min CET1+CCB between 75% and 100%	A	0.80%
Applicable Min CET1+CCB between 50% and 75%	BBB	1%
Applicable Min CET1+CCB between 0% and 50%	BB	2%
CET1 less than the applicable minimum	CCC	10%

RBI allows banks to adjust the Outstanding EAD which is used to calculate the CVA Charge. Reduction of Outstanding EAD after mitigation is allowed to extent of Incurred CVA Loss by the bank. An example is shown in the below table.

DVA amount is expected at GL level or transaction level. The application expects you to provide data either at the transactions level or GL level. If you provide data at GL level, then you must mandatorily select deduction from capital as the option from Run management. Option to deduct or adjust with outstanding EAD is available, only when you provide data at the transaction level. Following are the instances:

For deduction from the capital when you provide data at GL level.

For deduction from the capital when the data is provided at the transaction level. The Rule needs to sum the total DVA amount from all the transactions and update against the capital head created.

For deduction from the capital, if you provide data at GL Level and transaction level, the application by default uses the GL level data, Since GL data is audited data.

For adjustment to the outstanding EAD amount, the following table provides the details regarding the adjustment for the outstanding exposure (Uncovered EAD).

Adjustment to each uncovered EAD must be done before adjusting the uncovered EAD with Maturity and discount factor adjustment is done for exposure related to CVA.

An example of EAD, Incurred CVA, and DVA Adjustment is provided in the following table:

Table 12 Example for uncovered EAD, incurred CVA and DVA adjustment

Uncovered EAD	Incurred CVA	DVA	DVA at GL Level - EAD after Incurred CVA	DVA at transaction level - EAD after Incurred CVA and DVA
100	30	10	70	80

7.5.1 Assumptions

CVA hedge should be identified by the clients separately. Only single-name CDS and Index Hedge are eligible for CVA. The Basel Regulatory Capital application handles the index position in the following manner:

Both index position marked to the level of the counterparty or not marked to the level of the counterparty is handled by the application.

Effective index hedge amount is considered in the CVA charge calculation at portfolio level without considering whether it is marked to the counterparty or not.

If the index position is marked to the counterparty, then the index hedge amount is considered while allocating the total CVA charge to the counterparty CVA Charge, while using the Standardized Approach.

7.5.2 Data Expectation

Incurred CVA loss is captured in the column for the product processor.
Column Name: n_incurred_cva_amount.

DVA Amount is captured in the column for all product processor.

7.5.3 Simple CVA Approach

The application calculates CVA capital charge at a portfolio level using the following formula as specified by RBI Basel III guidelines:

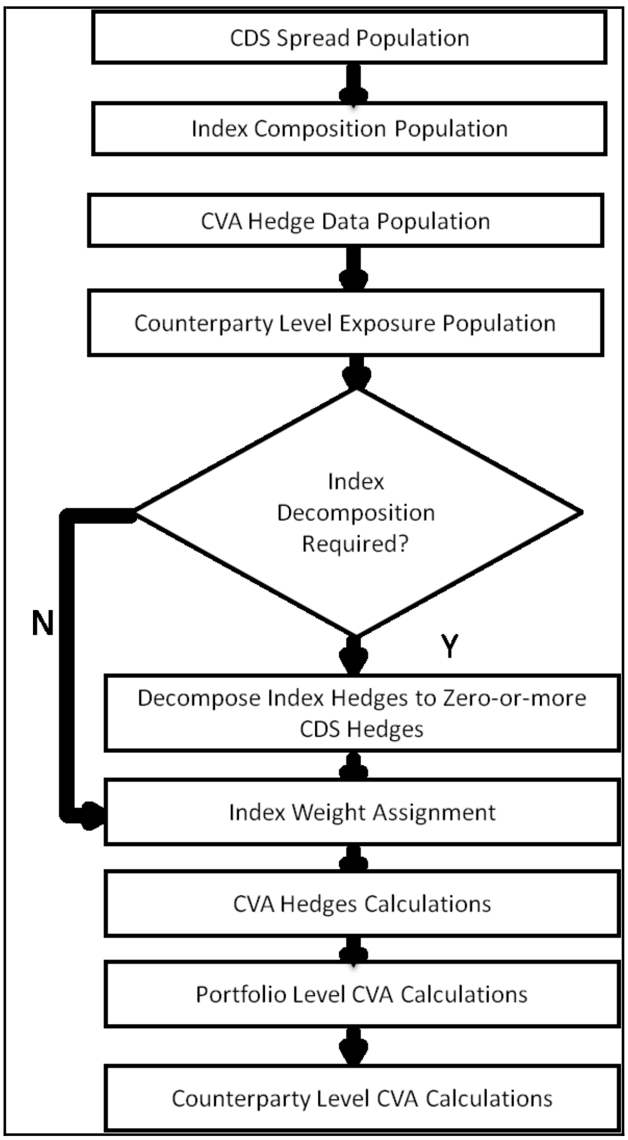
Figure 14 Formula for Simple CVA Approach

$$K_{CVA} = 2.33 \times \sqrt{\left(\sum_i 0.5 \times w_i \times \left(M_i \times EAD_i^{total} - M_i^{hedge} \times B_i \right) - \sum_{ind} w_{ind} \times M_{ind} \times B_{ind} \right)^2 + A}$$

Where:

$$A = \sum_i 0.75 \times w_i^2 \times \left(M_i \times EAD_i^{total} - M_i^{hedge} \times B_i \right)^2$$

Figure 15 Process flow diagram for simple CVA approach



CDS Spread Population and Index Composition Population

- Pre-processed data for CVA is required to be populated only once for a particular execution date. The process CVA DATA POPULATION in the Run- Staging Data Population - INDIA Credit Value Adjustment is responsible for populating pre-processed data for CVA.

CVA Hedge Data Population

- Mitigants data marked as CVA hedge is populated as a part of the CVA hedge data population. The application loads all the single-name CDS hedge and index hedge data. The hedge data marked as CVA does not flow in the application during the CCR process. Tables are not added for hedge records; however, a few columns are added to the existing table to capture CVA specific data. CVA specific data is present in the following tables:
- Fact Mitigants (F_CVA_HEDGE): Identifier for CVA hedge records by which the application identifies it as CVA hedge.
- Stage Mitigants (**V_REF_ENTITY_PARTY_ID**): This field captures the counterparty of the hedge transaction.
- N_CDS_INDEX_AVG_SPREAD: Average traded CDS Index Spread which is required for the assignment of weight to the index.

Counterparty Level Exposure Population

- The application expects the uncovered EAD at the netting agreement level or trade level. This is available as an output of the Current Exposure Method (CEM). If more than one netting agreement is available, then the exposures are summed at the counterparty level. These aggregated data is stored in the **FCT_REG_COUNTERPARTY_CVA** table using **COUNTERPARTY_EXPOSURE_POPULATIO** T2T.
- Maturity adjustment discount factor is computed at the netting agreement level or for each netting agreement using the formula 1- exp (-0.05*Mi)/ (0.05*Mi).
- Maturity is the notional weighted maturity at the netting agreement level. The application sums the data for exposure at the counterparty level. If more than one netting agreement is available, the exposures are discounted and then summed at the counterparty level. Weight Assignment is performed based on the Counterparty PD as specified in the following table.

Table 13 Calculation of Weight assessment based Counterparty PD

Ratings	Wi
AAA	0.7%
AA	0.7%
A	0.8%
BBB	1.0%
BB	2.0%
B and unrated	3.0%
CCC	10.0%

W Data is aggregated at the counterparty level and stored in a separate counterparty table.

- i is the weight applicable to counterparty 'i'. Weight is assigned to a counterparty based on its external rating.
- The rule is created to assign a weight to an unrated schedule bank with the above table.
- Wi for unrated scheduled commercial banks is derived based on the CET1+CCB ratio of the bank. See the following table for details:

Table 14 Wi and ratings for unrated scheduled commercial banks

CET1+CCB of Bank	Ratings	Wi
Applicable Min CET1+CCB>100%	AAA/AA	0.70%
Applicable Min CET1+CCB between 75% and 100%	A	0.80%
Applicable Min CET1+CCB between 50% and 75%	BBB	1%
Applicable Min CET1+CCB between 0% and 50%	BB	2%
CET1 less than the applicable minimum	CCC	10%

Index Decomposition Required

- You can select index decomposition from the Run Management screen. Index decomposition option, creates single name CDS hedge positions for the counterparties which are part of the CDS Index and also have exposures. Index hedge amount is adjusted by the same amount for which the single-name CDS hedge is created, to get the maximum benefit from hedging. The maturity of the single-name CDS hedge is considered the same as the maturity of the index.

Index Weight Assignment

- For index weight assignment, index composition and counterparty probability of default is expected as a download in the application. Weight for the index is the sum of all counterparty weights multiplied by the weight of the counterparty in the index.

The risk weight cannot be different for the counterparty irrespective of the number of different transactions with the counterparty.

CVA Hedge Calculations

- After the population of hedge data and the creation of single-name CDS hedge from the index, the application sums the notional to counterparty level and populates in the CVA specific table. The maturity adjustment discount factor is computed by using the formula (1-exp (-0.05* Mihedge))/ (0.05* Mihedge). If more than one CDS Contract is available for the counterparty, then the above amount is summed at the counterparty level. Index hedge notional amount is computed after subtracting the notional of all single name CDS hedge created by the decomposition process from index notional. Maturity adjustment discount factor for index position is computed using the formula (1-exp (-0.05* Mind)) / (0.05* Mind). If more than one index hedge is available, then the index hedge amount is summed up. All the above data required for CVA calculation is populated from mitigants data to CVA specific table. The data is summed for each counterparty and stored.

Portfolio Level CVA Calculation

- Portfolio Level CVA Charge is calculated as per the following formula:

Figure 16 Formula for Portfolio Level CVA Charge

$$K = 2.33 \cdot \sqrt{h} \cdot \sqrt{\left(\sum_i 0.5 \cdot w_i \cdot \left(M_i \cdot EAD_i^{total} - M_i^{hedge} B_i\right) - \sum_{ind} w_{ind} \cdot M_{ind} \cdot B_{ind}\right)^2 + \sum_i 0.75 \cdot w_i^2 \cdot \left(M_i \cdot EAD_i^{total} - M_i^{hedge} B_i\right)^2}$$

- The CVA charge calculated at the portfolio level is populated in the FCT_REG_CVA_SUMMARY table. Single Name CDS Hedge component for CVA at the portfolio level is calculated and the summary table is populated using CVA_SUMMARY_POPULATION T2T.

Counterparty Level CVA Calculation

- CVA Capital Charge at counterparty level is allocated using the following formula:

CVA at Counterparty = Total CVA at Portfolio *WCVAi

WCVAi = Absolute [0.5*Wi *(Mi * EADitotal - Mihedge * Bi) - $\sum_{indi}(W_{ind} * M_{ind} * B_{ind})$**]/**

ΣniAbsolute[0.5*Wi * (Mi * EADitotal - Mihedge * Bi) - $\sum_{indi}(W_{ind} * M_{ind} * B_{ind})$]

7.5.4 Treatment for Incurred CVA Losses

The Incurred CVA Losses (ICVAL) are adjusted with the valuations for illiquid positions. The computation of Incurred CVA losses is prescribed by RBI based on the expected exposure amount and risk premium or credit spreads. The Incurred CVA loss must be deducted from the EAD when calculating the CVA capital charge. The formula to be used for computation of Incurred CVA loss is as follows:

ICVALt = Max [0, {(EEt * RPt) – (EE0 * RP0)}]

Where;

ICVALt is the cumulative Incurred CVA loss at time t. Here, t is the date of valuation.

EEt is the value of counterparty exposure projected after 1 year from time t (date of valuation) and then discounted back to time t. The exposure is computed in line with CEM and the discount rate used is the risk-free rate of return for 1 year. The counterparty exposure, in this case, refers to the credit equivalent amount (RC+PFE) computed post-CRM.

EE0 is the counterparty exposure estimated at time 0 (date of transaction) using CEM. The counterparty exposure, in this case, refers to the credit equivalent amount (RC+PFE) computed post-CRM.

RPt is the credit spread of the counterparty as reflected in CDS or bond prices. If the market-based credit spreads are not available, then the risk premium applicable to the counterparty according to its credit grade as per the internal rating system of the bank can be considered. This is the risk premium as at time t (date of valuation).

RP0 is the credit spread of the counterparty as reflected in CDS or bond prices. If the market-based credit spreads are not available, then the risk premium applicable to the counterparty according to its credit grade as per the internal rating system of the bank can be considered. This is the risk premium as at time 0 (date of transaction).

The CVA calculation parameters Discount Rate, Original Risk Premium, and Current Risk Premium are fetched from STG_CPTY_EXPECTED_EXPOSURE and FCT_YIELD_CURVE tables using the below DTs and dependent functions.

Table 15 Data transforms and dependent functions for CVA calculation parameters

Data Transform / Functions	Description
FN_COM_CPTY_CREDIT_SPREAD	Function to fetch credit spread from STG_CPTY_EXPECTED_EXPOSURE table.
FN_COM_IRC_YIELD_CURVE	Function to fetch curve data from FCT_YIELD_CURVE table. Discount Rate is fetched from this table with Asset Class as "Sovereign". Risk Premiums are fetched from this table with Asset Class same as the Basel Rating of the Exposures, only when the spread is not available in STG_CPTY_EXPECTED_EXPOSURE table. Curve data must be available for all Basel Ratings or Data Transform fails. The Asset Code is Reporting Currency Code of the run in the yield curve table.
FN_DT_INCURRED_CVA_LOSS_PARAM	Data Transform to update Discount Rate, Original Risk Premium, and Current Risk Premium against the exposures, using the above functions.

Data Expectation

- Expected Exposure at time 0 (EE0) must be provided for contracts that are entered in the system before the incorporation of this functionality. This value must also be computed by the bank as per the CEM approach and then provided as a download. For the new exposures, the value is computed in the solution and stamped for processing.
- Bank can choose either MTM Value or the Initial Margin Amount to compute the Expected Exposure at t = 0 for newly originated contracts. This can be achieved by setting the parameter value for [REPLACEMENT COST] in the RLBL0699 (Incurred CVA Original Expected Exposure) as 'IMA' to use Initial Margin Amount.
- Projected MTM amount must be the amount projected 1 year hence from the valuation date (EEt) and provided as a download by the bank.
- The tenors must be picked up depending on the tenor 0 (for RP0) and tenor corresponding to residual maturity for RPt. For tenor <> 0, the values of credit spread or risk premium is considered as the value of RP at time t.
- If a run is getting re-executed or a new/duplicate run is executed for the same date and legal entity, please remove the records inserted in Setup Table for Expected Exposures (**FSI_SETUP_EXPECTED_EXPOSURE**) by the previous run. The expected exposures at t=0 inserted by a run can be identified by the Run Surrogate Key (**N_RUN_SKEY**) column.
- In absence of credit spreads, FIMMDA spreads can be used by the bank as the risk premium. For this purpose, the FIMMDA spreads must be provided as a download in the interest rate curve history table with the curve name as follows: FIMMADA CORP, FIMMDA NBFC, and FIMMDA PSU OTHERS for party types being Corporate, NBFC and PSU, banks, and others respectively.
- For the discount rates, the risk-free government rates must be provided as a download in the interest rate curve history table with the asset class code being as Z.
- Stage IRC Rates must have curve data for all rating combinations as present in the non sec processing table for risk premium curve.
- Time vertices must have at least 0, 1m, 3m, 6m, and 1 year as data points.

- Stage Counterparty Expected Exposure must have at least 0, 1m, 3m, 6m, and 1 year as data points at counterparty level.
- If the spread is available in Stage Counterparty Expected Exposure, then risk premium is not picked from Stage IRC Rates. If this field in Stage Counterparty Expected Exposure is null, then Stage IRC Rates is referred for a risk premium.

7.6 Market RWA

The Market Risk Capital Charge is expected to cater to the following trading book portfolio information of an Indian bank:

- Securities included under the Held for Trading category
- Securities included under the Available for Sale category
- Open gold position limits
- Open foreign exchange position limits
- Trading positions in derivatives
- Derivatives entered into for hedging trading book exposures.

The guidelines are issued for the Standardized approach only.

7.6.1 Standardized Approach

In the Standardized Approach (STD Approach), the Market Risk Capital Charge is calculated for the following instrument types:

- Interest Rate related Instruments (IR Instruments)
- Equity Position Risk
- Foreign Exchange Risk
- Options
- Credit Default Swap in Trading Book

Prerequisite for Market Risk Processing

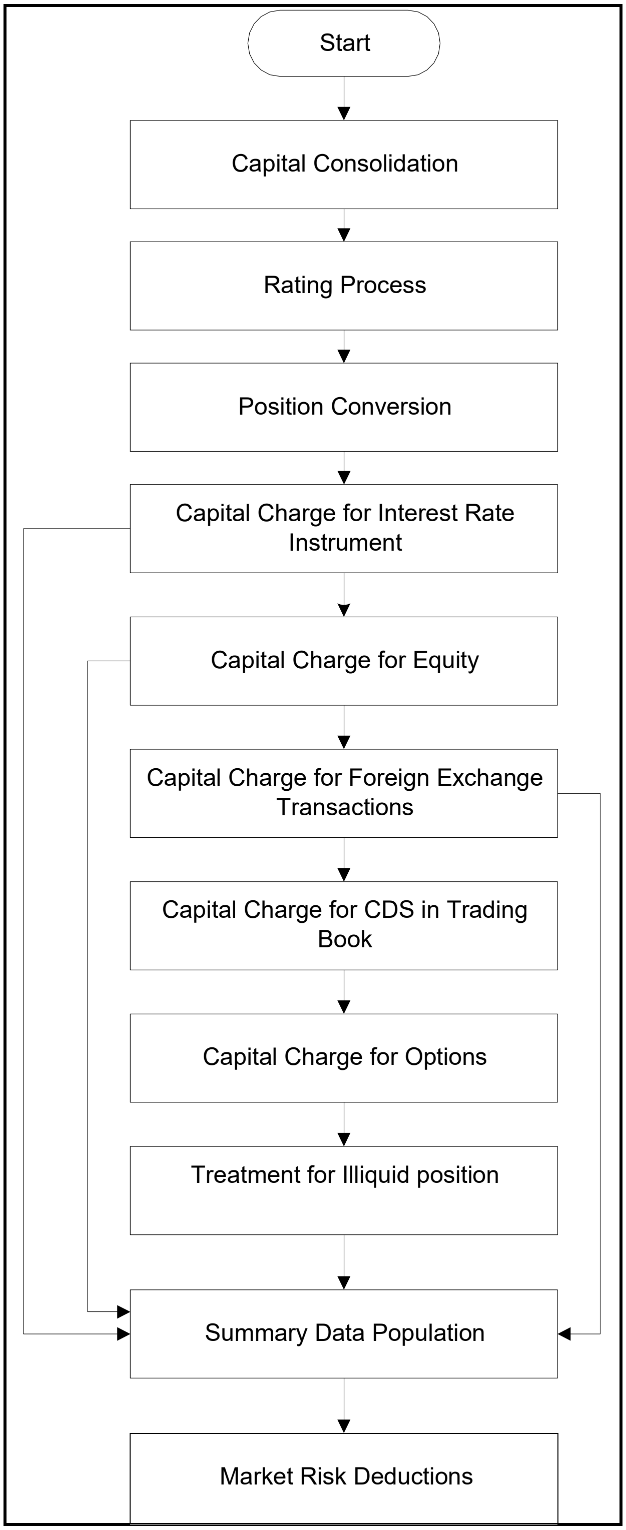
Execution of the Run, Staging Data Population - Market Risk - RBI Standardized Approach is usually a one-time activity. This should be executed once before the actual Market Risk Run is executed. The following tasks are populated when the Run is executed:

- IRC Data
- Market prices of the instruments
- Bank positions

This Run populates the instrument level data that is required by the actual Run for further processing. The instrument-level data, such as the number of units of the instruments on that particular MIS date is downloaded in the bank instrument position (**STG_BANK_POSITIONS**) table. This data flows into the fact table for further processing. The OTC instrument price is expected as a download. For non-OTC instruments, the data for instruments' price is captured in Market Instrument Contract (**STG_MKT_INSTRUMENT_CONTRACT**) table. This data flows into the fact table for further processing. For IR instruments, the interest rate required is captured in IRC Rate History (**STG_IRC_RATE_HIST**) table. This data flows into the fact table for further processing. This data is required for term structure that is used in Modified Duration and Greeks parameter calculation for options.

Run: Risk-Weighted Asset Calculation - Market Risk - RBI Standardized Approach

Figure 17 Process flow for Risk-Weighted Asset Calculation - Market Risk



Capital Consolidation

- For a reporting bank, the level at which the consolidation is processed is identified by the application. You can select the Solo or Consolidation level for each entity in the rule present in the Capital Consolidation process. This particular process handles entity level details. The entity data is captured in the Legal Entity Details (STG_LEGAL_ENTITY_DETAILS) table. All the child entities underlying a parent are considered for RWA consolidation. When consolidation is the level selected for a reporting bank, each child entity data is consolidated with the parent entity post entity shareholding percent multiplication.

  For more information on the process and sub-process that computes this task, see the following:

  Process: IND BASELIII CAPITAL CONSOLIDATION

  Sub-process: Ind Capital Consolidation Approach

Approaches Followed in Capital Consolidation

The three approaches followed by the Capital Consolidation are:

- **Consolidation Approach (CONSL)**: Under this approach, all the entities of the bank's organizational structure are considered. This includes all the entities/subsidiaries that belong to the same jurisdiction. All the exposures of the entities in the organizational structure are considered for computing risk-weighted exposures, except the intra-group exposures.
- **Aggregation Approach (AGG)**: This approach is similar to the Consolidation approach but is used in cases, where some of the entities that are part of the bank's organizational structure belong to a different jurisdiction. The capital requirement of the affiliate is computed as per the jurisdiction that it is subject to and is then aggregated with the rest of the group's capital requirement. Intra-group exposures are not excluded in this approach.
- **Deduction Approach (DED)**: This approach is used in the case where some of the subsidiaries/entities that are part of the bank's organizational structure are excluded from consolidation. In such a scenario, the regulatory investment in the excluded subsidiary attributable to the rest of the group are deducted from the consolidated capital requirements.

Rating Process

- Rating data is expected for all instruments which bear an interest rate risk. The rating data is reclassified into RBI equivalent standard rating and the standard rating is considered for assigning specific risk charge for interest rate instruments, wherever applicable. If there are multiple ratings for the same issue, then the application does a multiple assessment check as per the multiple assessment logic detailed in the RBI Basel III guidelines. This process assigns an RBI equivalent rating for an instrument, counterparty, and/or issuer, based on the rating details available for the same, after applying multiple assessment logic.

For more information on the process and sub-process that computes this task, see the following:

- Process: IND BASELIII CREDIT RATING PROCESSING
- Sub-process: Credit Rating Data Population - IND

Position Conversion

Position conversion is processed before Capital Charge calculation under Market Risk. In Position Conversion, different instruments are broken into long and short positions and carried forward for specific and general risk charge calculation. All derivative instruments undergo position conversion so that the instrument is broken down into simplified positions for further processing. For derivative positions in equities, commodities, gold, currencies, and so on, only one leg is exposed to interest rate and the other leg is exposed to the respective asset (equity, FOREX). The following information is required for position conversion: Long/Short position, Value of Notional Position, Coupon Rate, and Maturity.

Methodology for Position Conversion

While calculating interest rate risk, each instrument is converted into multiple positions. The notional value of each position is derived based on the following methodology:

Notional positions in actual debt securities are valued as the nominal amount underlying the contract at the current market price of the debt security

Positions in zero-specific-risk securities are valued using one of the following two methods:

- The present value approach, under which the zero specific-risk security is assigned a value equal to the present value of all the future cash flows that it represents.
- The alternative approach, under which the zero specific-risk security is assigned a value equal to the market value of the underlying notional equity position in the case of an equity derivative; the notional principal amount in the case of an interest rate or foreign currency swap; or the notional amount in the case of any other financial instrument.

In the case of options, the delta weighted values are processed for general risk charge calculation. Delta is computed by the application based on the instrument type, coupon, residual maturity, strike price, spread, option premium value, and so on.

For an Interest Rate (IR) Swap, the parent instrument is identified as a Receiver or Payer swap based on whether the bank is receiving fixed or paying fixed, respectively. After Position Conversion, the parent swap is converted to two child positions which are in zero specific risk securities. The exposure amount for each of these positions is computed based on the coupon rate of receiving leg for the long child position and the coupon rate of the paying leg for the short child position. Currently, the notional amount for both the child positions is being computed using the current market price column of the parent.

For Credit Derivative Swap, the parent swap is converted to two child positions, of the opposite position. So if the Parent CDS is Long, its child position is Short. One position is zero specific risk security; the other is a debt security. The exposure of Zero specific risk security is based on the Present Value of cash flows of Parent CDS. The exposure of Debt security is equal to the Notional of Parent CDS. Zero specific risk security has only General Market Risk computed, where-as Debt security has only specific risk computed.

Instrument Coverage

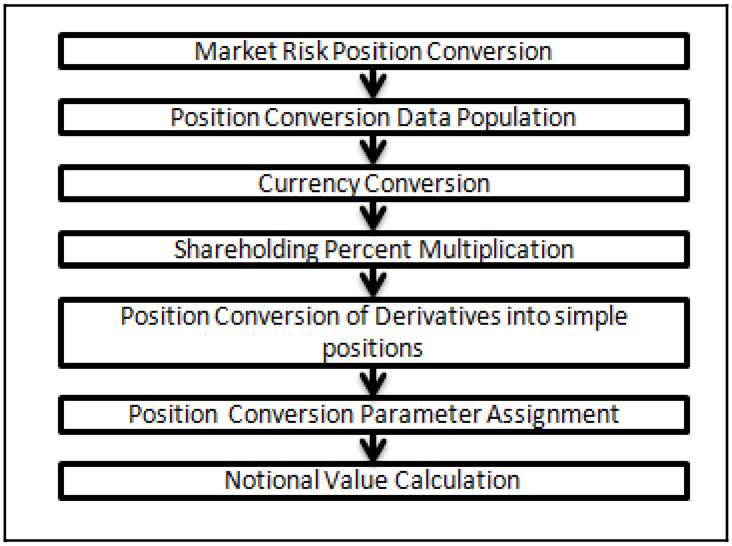
- Interest Rate Derivatives
  - Bond Forward
  - Forward Rate Agreement
  - Bond Future
  - Future on a Basket/Index of bonds
  - Interest Rate Futures
  - Receiver Swap (without deferred start)

    - Payer Swap (without deferred start)
    - Basis Swap (without deferred start)
    - Forward Basis Swap
    - Forward Receiver Swap
    - Forward Payer Swap
    - Dual Currency Bond
- Equity Derivatives
    - Equity Forward
    - Equity Future
    - Equity Swap
- Currency Derivatives
    - Currency Forward
    - Currency Future
    - Currency Swap
    - Gold Forward
- Options / Structured Products
    - Option on Equity
    - Option on Currency
    - Option on Commodity
    - Option on Currency Future
    - Option on Currency Forward
    - Currency Swaption
    - Option on a bond
    - Option on a bond future
    - Option on a Forward Rate Agreement
    - Option on an Interest Rate Future
    - Swaptions
- Credit Derivative
    - Credit Default Swap
- Hybrid Instruments
    - Convertible Preference Shares
    - Hybrid Debt
    - Hybrid Funds

Position Conversion Process Flow

The process flow of Market Risk Position Conversion is as follows:

Figure 18 Process flow for Market Risk Position



Position Conversion Data Population

The application populates **FCT_MARKET_RISK_EXPOSURES** with the details given by the bank in **STG_BANK_POSITIONS** and **STG_INSTRUMENT_CONTRACT_MASTER. FOREX** exposures of the bank are populated into **FCT_MARKET_RISK_FOREX**. This exercise is processed for all the trading book exposures.

For more information on the process and sub-process that computes this task, see the following:

Process: IND RBI III MKT RISK DATA PROCESSING

Sub-process: Market Risk Data Population

Treatment of Hybrid Instrument in Market Risk Standardized Approach

This section is an addition to the existing position conversion process for the extension of the same to treat hybrid instruments.

Currently, in the BIS solution, the basket futures are treated. The treatment for the hybrid instruments is similar to the basket futures. The following hybrid instruments are considered:

- Convertible Preference Shares: These have the major risk factor as Equity (EQ).
- Hybrid Debt Instruments: These have the major risk factor as Interest Rate (IR).
- Hybrid Funds: These have the characteristics of debt and equity and can be assigned a major risk factor of either type.

The above instruments are broken down into component positions. The child positions, spot debt, and spot equity are allocated the contract amount based on the weight of each risk factor (IR or EQ) in the hybrid parent instrument.

The weight of the underlying instruments corresponding to Spot Equity, Fixed Rate Bond, or Floating Rate Bond is used to arrive at the notional amount of each child position. The rest of the key parameters, that is, coupon rate, maturity date, re-pricing date, currency, coupon basis, issuer details, and so on are populated to child positions based on the information provided by the bank in the master table for instrument contract corresponding to the instrument code given for the underlying. The position in child instruments is the same as the position in the parent hybrid instrument.

The resultant child positions are then considered for specific risk and general risk under EQ and IR processes depending on the type of instrument assigned to the position. The specific risk charge computed at the child positions is summed up and reported against the parent position.

The components of the hybrid parent contract should be EQSPOTSPT, IRSPOTFIB, or IRSPOTFLB. Each has a unique instrument code captured in the underlying table and the master instrument contract table. The underlying table, Stage Fund CIS Composition, captures the weights (stock, bond, and cash) and relationship with the parent hybrid contract. The master contract table captures the other details of the instrument like the maturity date, re-pricing date (if applicable), currency, coupon basis (fixed or floating), coupon rate, issuer details, contract rating, and so on. The weights of the components must be provided by the bank as a download.

Currency Conversion

All the positions in other currencies are converted into the reporting currency of the bank, based on the currency conversion rate between the exposure currency and reporting currency.

For more information on processes and sub-processes that compute this, see the following:

Process: IND RBI III MKT RISK DATA PROCESSING

Sub-process: Market Risk Currency Conversion

Shareholding Percent Multiplication

For consolidated runs, exposures of the child entities are multiplied by the entity shareholding percentage to arrive at the consolidated exposure at the parent level.

For more information on the process and sub-processes that compute this task, see the following:

Process: IND RBI III MKT RISK DATA PROCESSING

Sub-process: Forex Shareholding Percent Multiplication"

Example of a Forward Rate Agreement (FRA) Position Conversion

A purchased FRA can be depicted through two notional zero-coupon positions: one short position (liability) up to the maturity of the underlying credit transaction and one long position (claim) up to the settlement of the FRA. Suppose a firm purchases 3 x 6 month FRA, principal: 1000; interest rate 6%. This position is broken down into two opposite zero-coupon bond positions as follows:

- **First Position:**

  Position : Long

  Value of Notional Position : PV {1000/ ((1+5%) ^0.25) = 987.87}

  Maturity : 3 months

  Coupon : Zero (Coupon of less than 3%)

- **Second Position:**

  Position : Short

  Value of Notional Position : PV {1000/ ((1+5%) ^0.5) = 975.90}

Maturity : 6 months

Coupon : Zero (Coupon of less than 3%)

A sold FRA has positions exactly opposite to the one given in the preceding example, that is, the long position becomes short and the short position becomes long, with the value, maturity, and coupon remaining the same.

The actual discount rates for discounting the notional values of the two legs in the preceding example are the interest rates pertaining to the respective maturities, that is, 3 months (long leg) and 6 months (short leg). For simplification purposes, an assumed rate of 5% is considered in the preceding example. The procedure followed by the application considering the preceding example is as follows:

The FRA as the contract is captured in the contract record details table with banks' position in the contract in the position table. The application also captures the position mapping table for the above instrument type which is used for position conversion. For the preceding FRA example, two positions are created, one long position with a maturity of 3 months and a short position for the life of the contract, that is, with a maturity of 6 months.

Both the position legs are reclassified into zero specific risk security.

The various contract parameters are assigned by the application to both legs. Example: Coupon Rate, Maturity.

The Notional Value of both the legs is calculated as per the logic stated in the example.

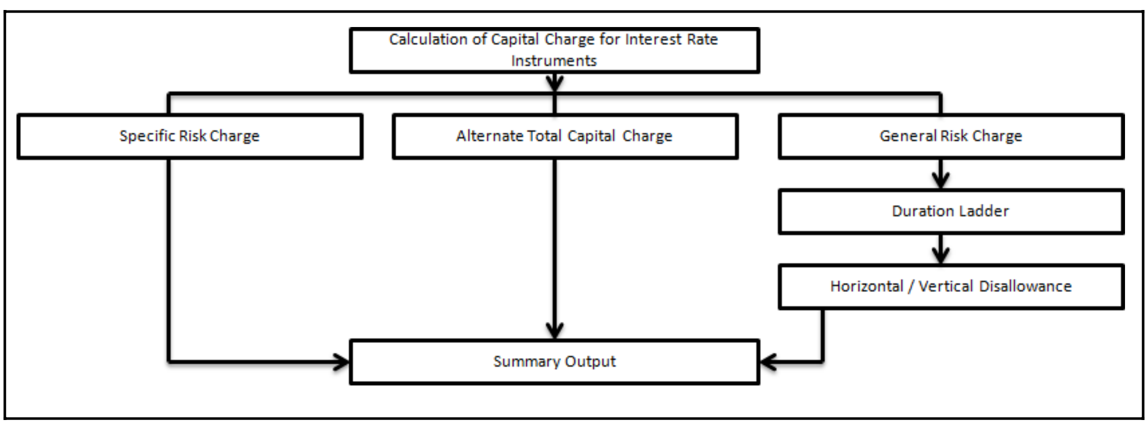
Capital Charge Computation for Interest Rate Instruments

The total risk charge for Interest Rate (IR) instruments consists of a specific risk charge (specific to the Issuer and Instrument) and a general risk charge (market-related risk vested in the instrument).

Process flow diagram for Interest Rate Risk

The following image shows the process flow for Interest Rate Risk:

Figure 19 Process flow for Interest Rate Risk



General Risk Charge

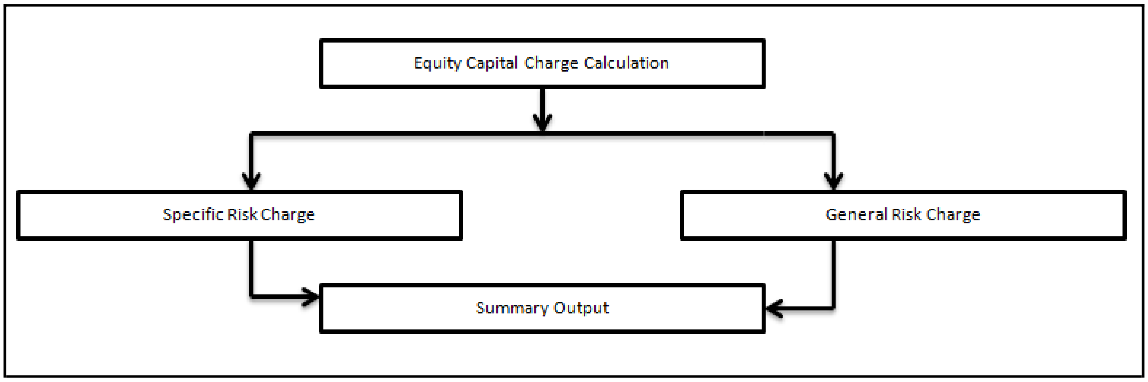
A general risk charge is calculated for each interest rate risk exposure for a reporting bank. The general risk charge is calculated by following the Duration Ladder approach. This is processed irrespective of the category of investments, whether they are ‘Available for Sale’ (AFS) or ‘Held for Trading’ (HFT).

The exposures which are Fully Deducted from CET 1, under Interest Rate Specific Risk Charge calculation, are excluded from General Risk Charge calculation.

Capital Charge Calculation for Equities

The application calculates equity capital charge as a summation of specific risk charge and general risk charge. The process flow for calculation of equity risk charge is as follows:

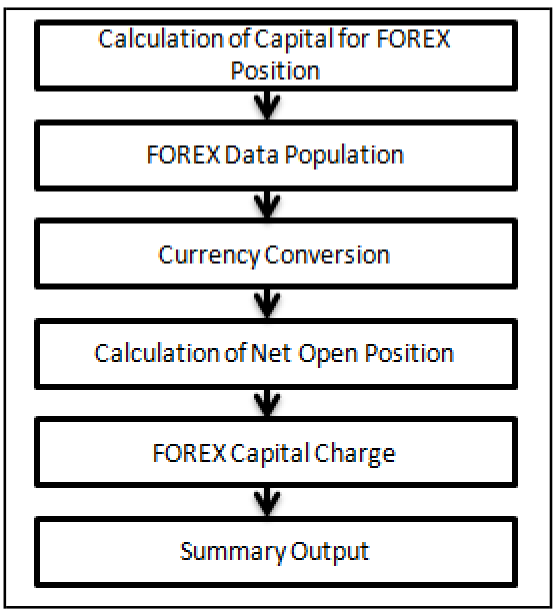
Figure 20 Process flow for calculation of equity risk charge



Capital Charge for Foreign Exchange Transactions

The following image displays the process flow for for Foreign Exchange Transactions:

Figure 21 Process flow for Foreign Exchange Transactions



FOREX Data Population

All foreign exchange exposure data is expected at a net level by each currency in a separate table meant only for FOREX exposures data (**STG_FOREX_EXPOSURES**). Forward currency position, asset, liability, accrued interest, profit and loss, structural position, and so on, in different currencies are captured separately in the FOREX exposure table. This data is then populated to **FCT_MARKET_RISK_FOREX** which is a dedicated table to compute FOREX capital charge.

For more information on the process and sub-process that computes this task, see the following:

Process: IND RBI III MKT RISK DATA PROCESSING"

Sub-process: Market Risk Data Population

Capital Charge for CDS in Trading Book

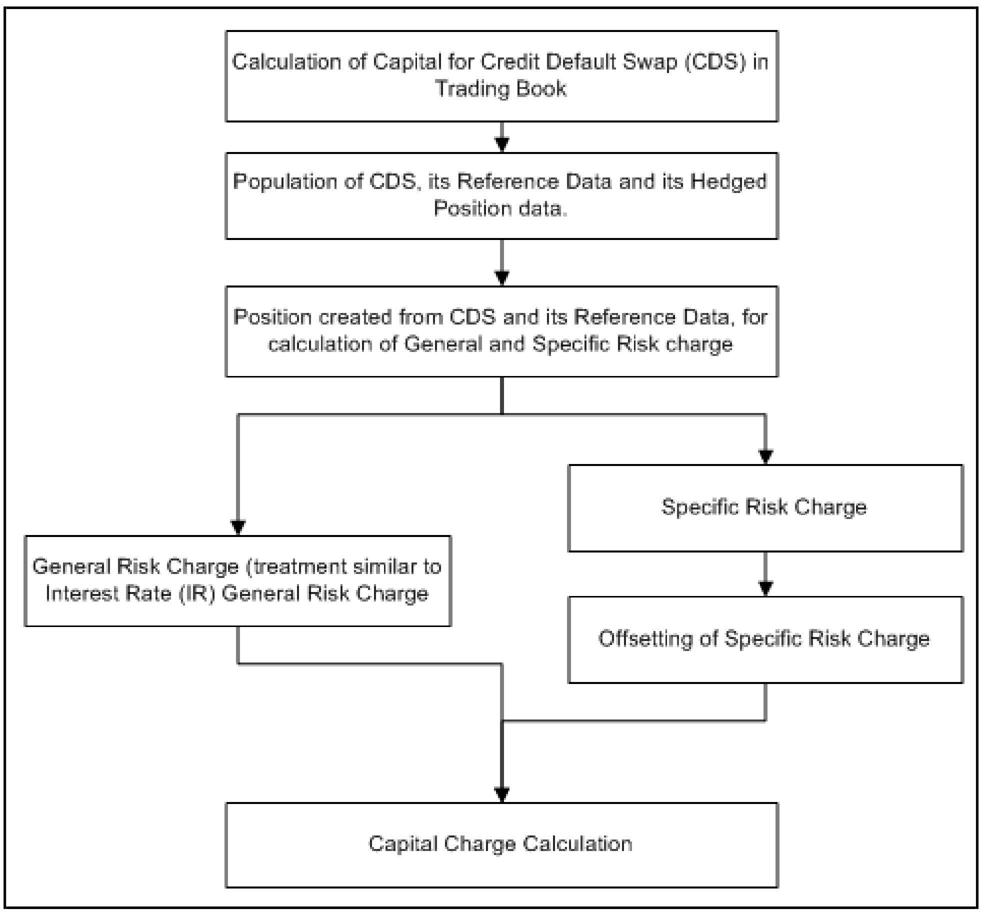
Credit Default Swap (CDS) is a financial instrument, used to hedge counterparty credit risk. The total risk charge for CDS instruments consists of a specific risk charge (specific to the Issuer and Instrument) and a general risk charge (market-related risk vested in the instrument).

CDS Parent instrument is converted into two Child position, each position is specific to Specific Risk and General Risk charge computation. Details of Position conversion is mentioned in Section - Position Conversion.

Process Flow diagram for Capital Charge for CDS in Trading Book

The following image displays the process flow for Capital Charge for CDS in Trading Book:

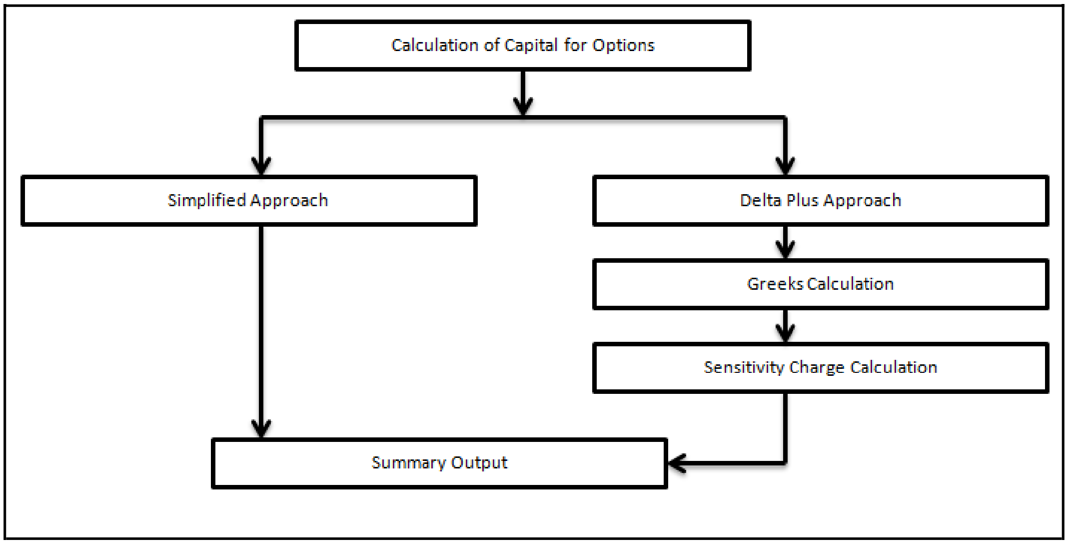
Figure 22 Process flow for Capital Charge for CDS in Trading Book



Capital Charge for Options

The following image displays the process flow for Capital Charge for Options:

Figure 23 Process flow Capital Charge for Options



Delta Plus Approach

In the Delta Plus Approach, the option taken on any underlying contract is processed for position conversion. The purpose of position conversion is to create multiple positions with delta weighted amounts and send each position for respective capital charge calculation.

Treatment for Illiquid Positions

RBI guidelines for treatment for Illiquid Positions have the following consideration:

- Valuation Adjustments for Less Liquid Derivatives Positions
- Valuation Adjustment for Less Liquid or Illiquid Positions
- Valuation Adjustments for Derivatives Portfolio
- Valuation adjustment is done for Derivative products. Its value is market to market or, whichis held in the trading book. These are applicable for Market Risk calculation.

The valuations required to be adjusted or deducted are-

- Incurred CVA Losses
- Closeout Costs
- Operational Costs
- Early Termination, Investing, and Funding Costs
- Future Administrative Costs
- Model Risk, if appropriate

All valuation details are expected as a download at the contract level. Incurred CVA Losses, Adjustment to MTM (which include adjustment due to Closeout costs, Operation Costs, Early termination, investing, funding cost, Future administrative costs, model risk), and another valuation adjustment, if any. All this adjustment mentioned is deducted from CET1.

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7.6.2 Key Data Elements

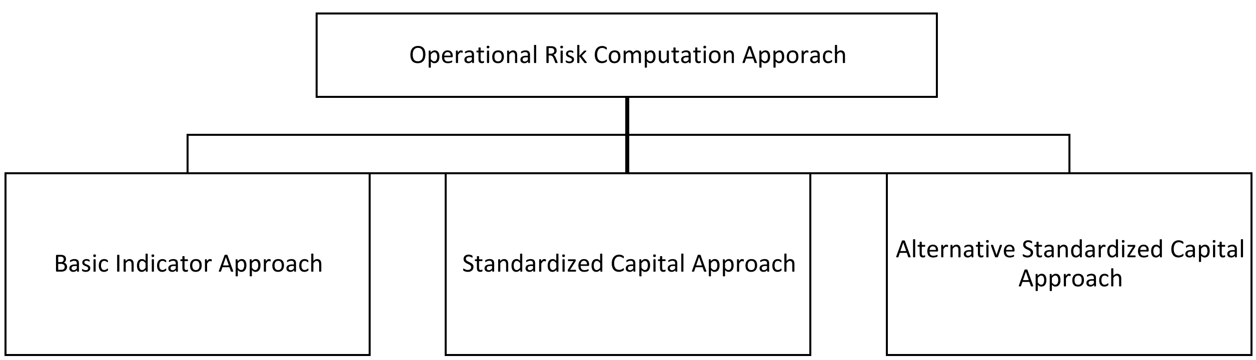
Key data elements are listed in this section. For a complete list of tables and columns to be populated, see the Download Specification document.

- Interest Rate Historical Data: Interest Rate information for the IR instrument is stored here.
- Bank Positions: Position in the instrument (Long/Short), Price of Instrument, and No of Units for OTC instruments are stored here.
- Market Instrument Contract: The price of Non-OTC instruments is stored here.
- Instrument contract: Instrument Type, Counterparty type, currency code, coupon rate, effective date, maturity date, strike price, coupon rate, coupon frequency are stored here.
- FOREX Exposures: Exposure amount, asset amount, asset accrued interest, asset accrued profit are stored here.

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

Figure 24 Process flow for Operational Risk portfolio

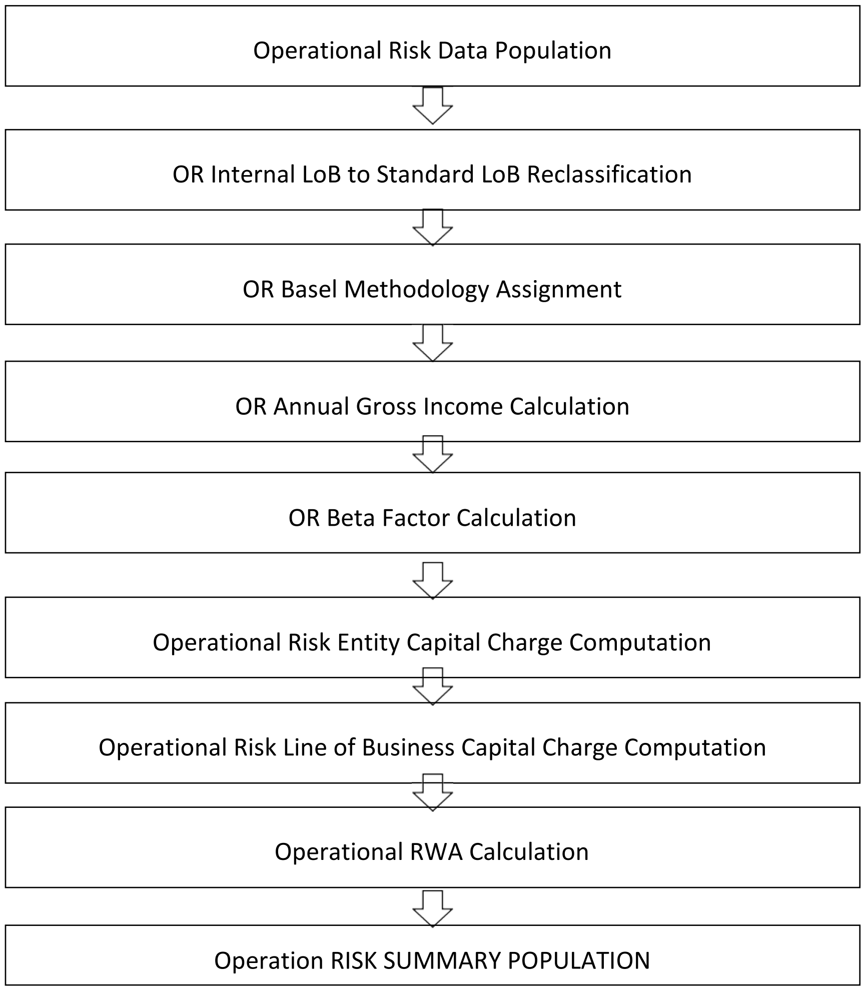


When executing Solo Run for computing Operational Risk, the parent entity data is processed. However, for a Consolidated Run, the parent entity and the subsidiary data are processed.

Process Flow for Operation Risk RWA

The following image displays the process flow for Operation Risk RWA:

Figure 25 process flow for Operation 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 RBI guidelines have prescribed one method for calculating Operational Risk (OR) Capital Charge which is as follows:

- Basic Indicator Approach

While 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 is processed.

7.7.1 Basic Indicator Approach

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

The capital charge formula is as follows:

Figure 26 Formula for capital charge

$$K_{BIA} = \left[\sum \left(GI_{1\ldots n} \times \alpha\right)\right] / n$$

Where:

KBIA = the capital charge under the Basic Indicator Approach

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

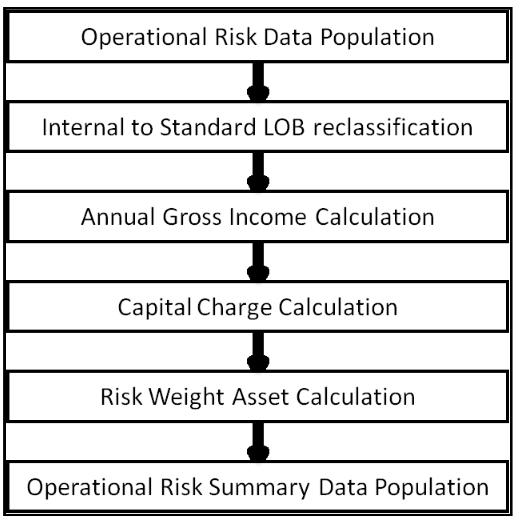
n = number of the previous three years for which gross income is positive

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

Process Flow for Operational RWA

The process flow to compute operational risk under the Basic Indicator Approach are as follows:

Figure 27 Process flow for Operational RWA



Prerequisite

Before calculating the capital charge for OR, the following should be computed as a prerequisite:

In the process **IND OPS RISK**, the task defined as Opr_Risk_Capital_Charge 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 Opr_Risk_Capital_Charge. Therefore, in the future, if the previous 4 years have to be considered, then change that particular parameter only.

Operational Risk Data Population

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

Internal LOB to Standard LOB Reclassification

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

Annual Gross Income Calculation

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

Capital Charge Calculation

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

Risk Weight Asset Calculation

The capital charge value obtained is then converted to the equivalent RWA value by multiplying with the factor 100 divided by 9.

Operational Risk Summary Data Population

The RWA amount is populated into the Operational Risk Summary (FCT_OPS_RISK_SUMMARY) table along with the entity for which the OR RWA is calculated. The application converts all the elements in the annual gross income and loan and the advance amount reported in their respective national currency, to the reporting currency. While calculating annual gross income or loan and advance amount for the subsidiary that is part of regulatory consolidation, the amount is limited to the share-holding percentage. Hence, a subsidiary that is part of regulatory consolidation and parent holding in the subsidiary is considered as 45%, then the amount limited to 45% is considered for gross calculation. Similarly, if the holding is more than 50%, then the entire amount is considered for gross calculation.

7.7.2 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.

- Entity details that are part of regulatory consolidation and parent entity shareholding percent are required. This data is captured in 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, Insurance Irregular Gain, Net Write-off Amount, Reversed Provision Amount, Reversed Write-off Amount, Disposable Property Income Legal Settlement Income, and Insurance Claim Income for each line of business and each financial year, is required.

7.8 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 a 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.

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 a lack of disclosure. To address this issue of inconsistency, the Basel Committee had prescribed a new definition of capital to strengthen the global capital framework under Basel III. RBI came up with Basel III to calculate the total capital for the Indian banks and the Foreign bank's branches in India.

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

- Tier1 capital
  - Common Equity Tier 1 Capital for Indian Banks
  - Common Equity Tier 1 Capital for branches of Foreign Banks in India
  - Additional Tier 1 Capital for Indian Banks
  - Additional Tier 1 Capital for branches of Foreign Banks in India
- Tier 2 capital
  - Tier 2 Capital for Indian Banks
  - Tier 2 Capital for branches of Foreign Banks in India

Each component of capital is subject to restrictions where CET1 must be at least 5.5% of the total risk-weighted asset. Tier 1 capital must be at least 7.0% of the total risk-weighted asset. The total capital must be 9.0% of the total risk-weighted asset. Each component of capital undergoes minority interest and regulatory adjustments. The minority interest applies to a bank only. Most of the regulatory adjustment line items are to be deducted from CET1.

For a bank, the accounting entity that is not part of regulatory consolidation, the investment amount is partly deducted from its respective component of capital and is partly risk-weighted as per banking or trading book rules.

Securitization transaction and non-DvP and non-PvP transaction items, which were formerly as per Basel II, deducted 50% from Tier 1 and 50% from Tier 2 are instead risk-weighted at 1250%. 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 31st March 2014, 40% on 31st March 2015, 60% on 31st March 2016, 80% on 31st March 2017, and reaches 100% on 31st March 2018. The same transition approach applies for all deductions from additional Tier 1 and Tier 2 capital.

The capital Structure process takes inputs from Fact Non Sec Exposures (**FCT_NON_SEC_EXPOSURES**) and Market Risk Exposures (**FCT_MARKET_RISK_EXPOSURES**). The capital Structure process is positioned between Market Risk data processing **IND RBI III MKT RISK DATA PROCESSING** and Market Risk position conversion **IND RBI III MKT RISK POSITION CONVERSION** due to the following reasons:

- The significant and insignificant investment deductions involve splitting of certain exposures into multiple exposures (2 new exposures and deletion of the parent exposure). These split exposures should be position converted and RWA is calculated on these position converted exposures.
- After processing of Market Risk, the calculated RWA is populated to Market Risk Summary (**FCT_MARKET_RISK_SUMMARY**) which contains the aggregated record for each instrument type. If Market Risk is processed before Capital Structure processing, then the RWA is adjusted for the split exposures for the Market Risk record and this task is repeated for each record.

If the RWA for the split exposures is adjusted, then it is approximate in case the RWA is pro-rated between instrument types. The same tasks are repeated (falling into cycles) if RWA is computed in this table again.

All the GL line items are expected at the Solo level for each entity. The consolidated data is discarded. While executing Solo Run the parent entity data is processed. Investment into the subsidiary data is processed as per the Credit Risk and Market Risk Rule. Capital line item pertaining to parent entity is only processed.

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

The sub-processes and rules within the Market Risk Data Processing **process IND RBI III MKT RISK DATA PROCESSING**perform the following tasks:

The Rules within the sub process Market Risk Currency Conversion converts the amount attributes, which are in natural currency to reporting currency, which is used for further processing. Attributes like the exposure amount, margin amount, MR notional amount, and so on are processing for currency conversion from natural currency to reporting currency.

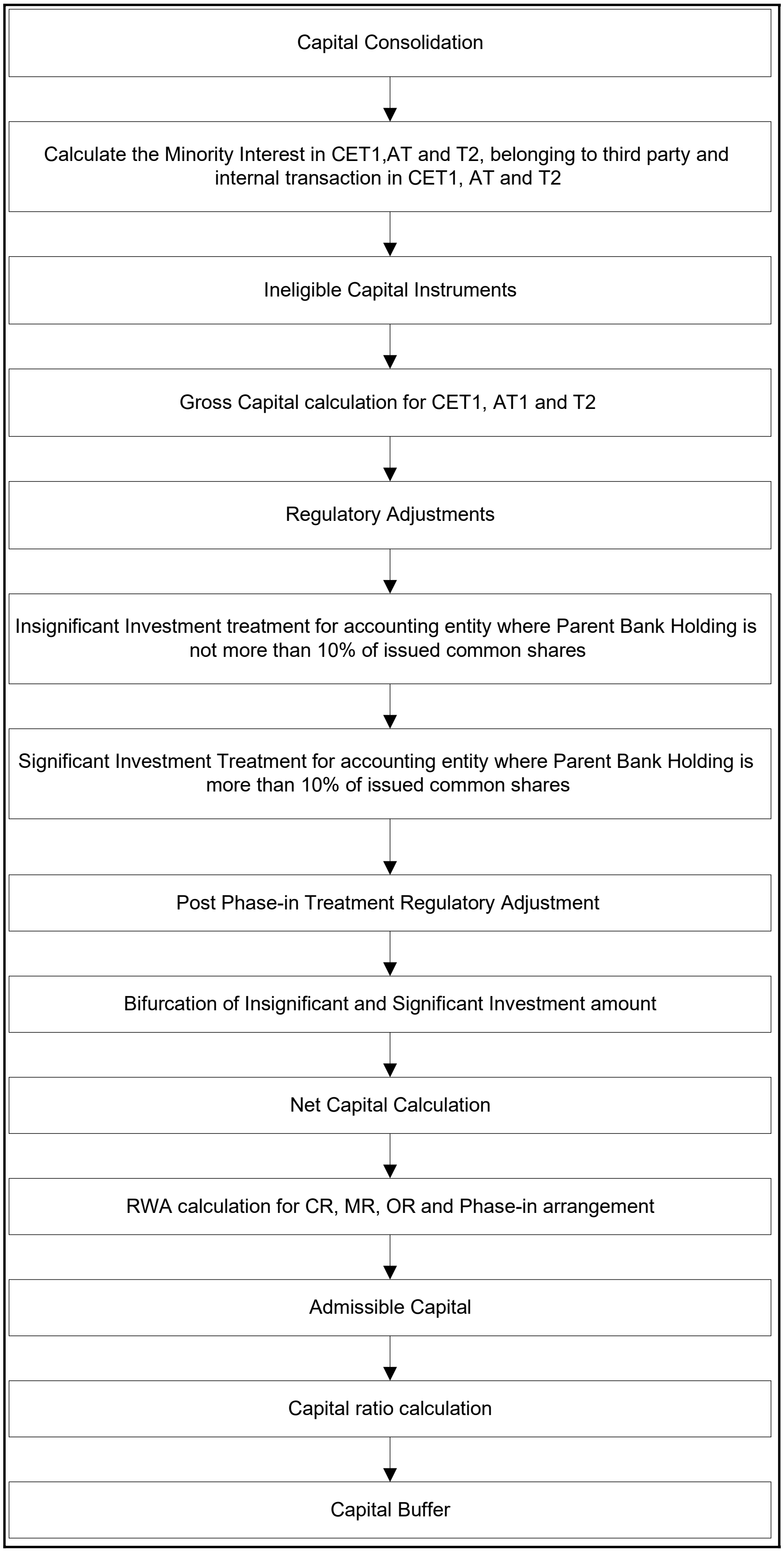
The Rule Mkt Risk Instrument type to Capital Comp Group Reclassification in the sub process Market Risk Reclassification within **IND RBI III MKT RISK DATA PROCESSING**re-classifies Market Risk instrument data into the various Capital Component Groups such as CET1, AT1.

The re-classified instruments are further processed for identification of Regulatory Entity Internal Transaction, Reciprocal Cross-Holding, Own Shares - Treasury Stock, and Significant Investment in Non Reg Consl Entity transaction. The following Rules in the Market Risk Capital Consolidation Calculations sub process identify these transactions:

- Cap Consl - MR Deduction of Regulatory Entity Internal Transaction
- Cap Consl - MR Basel III Deduction of Reciprocal Cross-Holding
- Cap Consl - MR Deduction of Own Shares - Treasury Stock
- Cap Consl - Mkt Risk Deduction of Significant Investment in Non Reg Consl Entity

Capital Structure is executed along with Capital Consolidation and Credit RWA process. For arriving at the capital structure, the minority interest is found out, ineligible capital instruments are identified, gross capital is calculated, adjustments for regulatory purposes are made, insignificant adjustments are also made, phase in treatments are brought in, and finally the net capital is calculated. The following block diagram illustrates the process and the subsequent section details each of the blocks depicted in the block diagram:

Figure 28 Process flow Capital Consolidation



Capital Consolidation

The Capital Consolidation is done as explained in the capital adequacy flow. See Capital Consolidation Process.

Surplus of Minority Interest

Minority Interest as per the RBI Basel III guidelines are calculated and the surplus amount in each tier of capital, which is attributed to third parties, is deducted from the gross capital of each tier of capital.

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 – Minority Interest Calculations in **IND BASELIII CAPITAL STRUCTURE INDIAN BANKS**process covers the above processing. The RBI specific data is captured in the table, **FSI_SETUP_CAPITAL_HEAD**.

The deduction also includes internal transactions in each tier of capital among the various entities which are part of the regulatory consolidation. Hence, minority interest attributed to the third party and the internal transactions in each tier of capital is deducted from the gross capital of each tier of capital.

RBI says the minimum required CET-1, Tier -1 capital, Total capital ratios, that is (8.0%, 9.5%, and 11.5%) used as the basis for computing the surplus capital for minority interest are not phased-in, while for other jurisdiction these minimum required capital percent receives phase-in treatment.

Internal Transactions

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

Limits on a Bank's Investments in Capital of Banking, Financial and Insurance Entities

The limit to be applied on various cases of bank's investments in banking, financial and insurance entities is detailed in this section. The limit breaches are highlighted and reported via a report under Basel Dashboard in addition to allocating them to CAP IDs in the solution.

The following entity types are considered as financial entities:

- Asset Management Companies (mutual funds/ venture capital funds/ private equity fund, and so on)
- Non-Banking Finance Companies
- Housing Finance Companies
- Primary Dealers
- Merchant Banking Companies
- Entities engaged in activities that are ancillary to the banking business

- Central Counterparties

Hence, in this section, wherever the word 'Financial Entity' or 'Financial Institution' is used, the above party types are considered.

The limits, to which a bank's investments in the capital instruments issued by banking, financial, or insurance entities, is subject are detailed as follows:

If the bank has invested in any banking, financial, or insurance entity, then the aggregate of such investment must not exceed 10% of the total capital computed post all regulatory adjustments other than the significant/ insignificant investments. This implies that the amount which falls within this 10% limit is taken up for further processing and for computing the significant and insignificant computations. The excess amount, that is, the amount above 10% is stored in a CAP ID.

Reporting bank must not further invest in another bank's equity capital if this new investment makes reporting bank's holding more than 5% of the investee bank's equity capital. The investee bank's equity capital is captured at the party level. This fresh stake can be identified by the start date, that is, the date on which the contract was effective. It is assumed that fresh stakes are categorized as those investments which are taken up during the fiscal year, that is, between the start date of the fiscal year and the execution date.

Reporting bank's stake in any company, be it a financial or a non-financial company, cannot exceed 30% of the paid-up share capital of the investee company or 30% of the reporting bank's paid-up share capital and reserves, whichever is lesser. In this scenario, it is required to first aggregate all the investments to a company. Secondly, compare the paid-up capital of the investee company with paid-up capital and reserves of the reporting bank. Thirdly, check the amount computed as part of step 1 which is within the limits of 30% of the amount arrived at in step 2. The amount exceeding the limit is then stored in a CAP ID.

Equity Investment by the bank in its subsidiary or financial services company, financial institution, stock, or other exchanges must not exceed 10% of reporting bank's paid-up share capital. For this purpose, only equity investments in all the above company types are captured and then compared with the paid-up share capital of the reporting bank.

Equity investment by the reporting bank in companies engaged in non-financial services must not exceed 10% of the investee company's paid-up share capital or 10% of the bank's paid-up share capital and reserves, whichever is lesser. In this scenario, it is required to first aggregate all the investments to a company engaged in non-financial activities. Secondly, compare the paid-up capital of the investee company with paid-up capital and reserves of the reporting bank. Thirdly, check the amount computed as part of step 1 which is within the limits of 10% of the amount arrived at in step 2. The amount exceeding the limit is then stored in a CAP ID.

Equity Investment in a company engaged in non-financial services and part of the organization structure of the reporting bank (can be an affiliate, subsidiary, joint ventures, and so on) must not exceed 20% of the investee company's paid-up share capital. Hence, first, aggregate all investments to an entity that is a part of the organization structure and is non-financial. Then compare it with the paid-up share capital of the investee entity. The amount exceeding 10% of the paid-up share capital of the investee entity is stored in a CAP ID.

Equity investments in subsidiaries and non-subsidiaries engaged in financial services activities and entities engaged in non-financial services activities (non-subsidiaries) must not exceed 20% of reporting bank's paid-up share capital and reserves. This 20% limit does not apply to HFT instruments. For this purpose, firstly, the equity investments are aggregated (except the HFT marked items) for all financial services entities and non-financial services entities and then compare with reporting bank's paid-up share capital and reserves. The amount exceeding 20% of the bank's paid-up share capital and reserves are stored in a CAP ID.

If a solo run is executed for a subsidiary, and if the subsidiary has invested in the regulatory capital of the parent entity, then this amount is deducted from the subsidiary's capital.

Data Expectation

Currently, in DIM_EXPOSURE, the columns **D_ACCT_START_DATE** and **D_ACCT_CLOSED_DATE** are not marked as mandatory. Therefore, these columns can have a NULL value for some exposures. However, for Equity Exposures, these columns in **STG_EXPOSURE_MASTER** are populated and the SCD batch is executed. The Start and End Date in FNSE are populated when equity exposures are moved from FEE to FNSE.

In DIM_DATES, the columns **D_FISCAL_YEAR_START_DATE** and **D_FISCAL_YEAR_END_DATE** are used to check if it's a freshly acquired investment within the Fiscal Year. Ensure that these columns are populated in DIM_DATES.

Financial Year Start Date and End Date can vary based on the Jurisdiction.

Treatment of Revaluation Reserves

The revaluation reserves arising out of change in the carrying value of the bank's property can be discounted at 55% and included as part of Common Equity Tier 1 Capital. Earlier, this item was considered under Tier 2 Capital. The value to be considered in CET1 is 0.45 * Value stored under CAP048 ("Latent revaluation reserves from securities").

The inclusion of revaluation reserves in CET1 is subject to the following operational criteria:

- The bank can sell the property readily at its own will and there is no legal impediment in selling the property.
- The revaluation reserves are shown under Schedule 2: Reserves and Surplus in the Balance Sheet of the bank.
- Revaluations are realistic, in accordance with Indian Accounting Standards.
- Valuations are obtained, from two independent valuers, at least once every 3 years; where the value of the property is substantially impaired by any event. These values are to be immediately revalued and appropriately factored into capital adequacy computations.
- The external auditors of the bank have not expressed a qualified opinion on the revaluation of the property.

The instructions on the valuation of properties and other specific requirements as mentioned in the circular on 'Valuation of Properties - Empanelment of Valuers' published by RBI, are strictly adhered to.

Treatment of Foreign Currency Translation Reserve (FCTR)

Foreign currency translation reserves can arise due to the translation of financial statements of the reporting bank's foreign operations. This is in accordance with the accounting standards. This foreign currency translation reserve is provided by the bank and can be considered a part of CET1 capital. The value to be considered as part of CET1 capital is 75% of the value provided as the foreign currency translation reserves.

The inclusion of foreign currency translation reserves in CET1 is subject to the following operational criteria:

- The FCTR is shown under Schedule 2: Reserves and Surplus in the Balance Sheet of the bank.
- The external auditors of the bank have not expressed a qualified opinion on the FCTR.
- Treatment of Deferred Tax Assets (DTAs)

RBI has provided the following guidelines for the treatment of DTA's in line with the Basel Accord. The following guidelines are applicable for DTA:

Deferred Tax Assets (DTA's) associated with accumulated loss is deducted in full from CET1 capital.

DTA's related to temporary (timing) differences must not be fully deducted, but can be recognized as part of CET1 capital up to 10% of the CET1 capital computed post all regulatory adjustments and post the significant investments in an unconsolidated financial entity which is not in common stock. For example, if the DTA due to temporary differences is 50 and CET1 post deductions are 100, then only 10 from DTA due to temporary differences can be considered in CET1. The rest of the amount, that is, 40 is taken for deduction from CET1 capital.

The amount of DTA due to temporary differences, in addition to the individual threshold of 10% of CET1, is also subject to an aggregate threshold of 15%. This aggregate threshold is computed along with the amount computed as significant investment in common shares of the unconsolidated financial entity. The amount computed in point 2 above along with the amount for significant investment in common shares of the unconsolidated entity must not be more than 15% of the CET1 capital computed post all the regulatory adjustments (including significant investment adjustments).

Continuing the same example as in point 2 above, if the significant investment amount is 15, and DTA due to temporary differences is 10 (from point 2), then (10+15 = 25) which is more than the 15% threshold (CET1 post deductions is 100). Hence, in such a case, a total of 15 is considered. Out of this, based on the pro-rata basis, DTA is considered till the extent of (15*10/25 = 6).

The remaining amount of DTA, that is, (10-6 =4) is taken up for deduction from CET1.

The cumulative amount of DTA to go for deduction (considering point 2 as well) is (40+4) = 44.

DTAs that are being deducted from CET1 can also be netted with the Deferred Tax Liabilities (DTLs) provided that:

- the DTAs and DTLs relate to taxes levied by the same taxation authority and offsetting is permitted by the relevant taxation authority;
- the DTLs permitted to be netted against DTAs must exclude amounts that are netted against the deduction of goodwill, intangibles, and defined benefit pension assets; and
- the DTLs are allocated on a pro-rata basis between DTAs subject to deduction from CET1 capital.

It is assumed that these criteria are fulfilled by the bank when providing the value of Deferred Tax Liabilities.

The amount of DTA arising out of temporary differences that are not deducted from CET1 is risk-weighted at 250%, same as in the case of significant investment treatment.

Continuing the same example from points 2 and 3 above, DTA due to temporary difference which is not deducted has a value of 6. This amount is assigned a risk-weight of 250%, that is, the RWA for this is 2.5*6 = 15.

Treatment of 15% Aggregate Threshold

The following items receive limited recognition when calculating CET1, with recognition capped at 10% of the bank's common equity (CET1 – Post Deduction Amount of CET1 in Significant Investment of BFSI):

Investment in the common share of unconsolidated financial institutions.

DTA arising from temporary differences.

The bank must also deduct the amount by which the aggregate of the above two items exceeds 15% of its common equity component of Tier 1(calculated post all regulatory adjustment).

During the transition period, the 15% of the CET1 Amount is calculated on the CET1 Amount post all regulatory deductions till the Significant Investments. After the transition period, 17.65% of the CET1 Amount is calculated on the CET1 Amount post all regulatory deductions including the Significant Investments less the items undergoing threshold deduction in full.

The amount of the above line items that are not deducted are risk-weighted at 250%.

Treatment for Eligibility of Quarterly Profit for Inclusion in CET1 Capital

The RBI guidelines recommend the inclusion of eligible quarterly profit into CET1 Capital. The criteria for the inclusion of this profit is that the quarterly incremental specific provision for the NPAs for the previous financial year should not have varied more than 25% from the average specific provision for the NPAs throughout the previous financial year. For this purpose, the incremental provisions made for non-performing assets are considered at the end of all 4 quarters of the previous financial year. These incremental provisions should then be compared with the average of such provisions over the 4 quarters of the previous financial year. The deviation in such a case should not be more than 25%.

Only if these conditions are satisfied, the eligible profit can be considered based on the following formula:

EPt = (NPt – 0.25*D*t)

Where,

EPt is the Eligible profit up to the quarter 't' of the current financial year; t varies from 1 to 4.

NPt is the net profit up to the quarter 't' of the current financial year.

D is the average annual dividend paid during the last three years.

t is the number of the quarters for which computation is being done, that is, 1 for Q1, 2 for Q2, 3 for Q3, and 4 for Q4.

The treatment for Eligibility of Quarterly Profit for inclusion in CET1 Capital is carried out in the Capital Structure processes under a new sub-process "Profit Eligibility and Calculation", which is added to compute Eligible Quarter profit and then added to the Gross CET1 Capital in "Provisions and Gross Capital Calculations" sub-process.

The following CAP IDs are introduced in the **DIM_STANDARD_ACCT_HEAD** table.

CAP ID	STANDARD ACCT HEAD DESCRIPTION
CAP1124	Specific Provision for NPAs in Quarter 4 of Second Previous Financial Year
CAP1125	Specific Provision for NPAs in Quarter 1 of Previous Financial Year

CAP1126	Specific Provision for NPAs in Quarter 2 of Previous Financial Year
CAP1127	Specific Provision for NPAs in Quarter 3 of Previous Financial Year
CAP1128	Specific Provision for NPAs in Quarter 4 of Previous Financial Year
CAP1129	Specific Provision for NPAs in Current Reporting Period
CAP1130	Highest Incremental Provision in Consecutive Quarters of Previous Financial Year

Data Expectation for Specific Provision for NPA:

In Fact Standard Account Head for CAP1129 for the runs in Q1-Q4 of previous Financial Year and Q4 of second previous Financial Year.

If data is not available in #1, then expected Non Sec Exposures for the runs in Q1-Q4 of previous Financial Year and Q4 of second previous Financial Year.

If data is not available in #2, then the customer/bank has to provide data for CAP1124, CAP1125, CAP1126, CAP1127, CAP1128 as the download in Stage Standard Account Head for the current run. Bank has to add the mapping for these CAP IDs in Capital to Standard reclassification rule.

Data is expected for quarterly runs, so MIreS Date for the previous quarterly runs should be the last date of the quarter (that is, 30-Jun-xxxx, 30-Sep-xxxx, 31-Dec-xxxx, 31-Mar-xxxx)

The existing solution expects eligible profit for a quarter as a download. This feature aims at revamping the computation of eligible profit and determining the eligibility of the profit for inclusion in common equity tier 1 capital (CET1).

Capping of General Provisions Amount Included on T2 Capital Under Standardized Approach

General Provisions on Standard Assets, Floating Provisions, Provisions held for Country Exposures, Investment Reserve Account, excess provisions which arise on account of sale of NPAs, and countercyclical provisioning buffer qualifies for inclusion in Tier 2 capital. However, these items together are admitted as Tier 2 capital up to a maximum of 1.25% of the total credit risk-weighted assets under the standardized approach.

Eligible provisions amount is computed as part of the rule 'CS - Basel III General Provision for Standardized' and is stored under the existing Capital head 'General provision for Standardized Approach'.

Shortfall of Stock of Provision to Expected Loss

Any shortfall of Stock of Provision (General Provision) to Expected Loss under the IRB approach is deducted from the CET1 capital. Where the total expected loss amount is less than total eligible provisions, banks are permitted to recognize the difference under Tier 2 capital up to a maximum of 0.6% of credit-risk weighted assets calculated under the IRB approach.

Regulatory Adjustment

The regulatory adjustments and deductions are applied to the following capital at Solo and Consolidated levels.

Goodwill and other intangibles, DTAs, cash flow hedge reserve, gain on sale of the securitization transaction, cumulative gain and losses due to change in own credit risk, defined pension fund asset are direct downloads (in **STG_GL_DATA** table). The General Provision is obtained as a download in the Stage General Ledger Data (**STG_GL_DATA**) table. All the DTLs related to phase line items are expected as the download in the **STG_GL_DATA** table. The application calculates the values net of

DTL and then processes it for the Regulatory Adjustments. This amount is prorated between the standardized approach and the IRB approach. This is processed using the Provisions and Gross Capital Calculations sub process. As per RBI, "Defined Benefit Pension Fund Assets and Liabilities" includes other defined employees' funds also. The bank needs to provide the data for this line item as inclusive of other defined employees' funds.

Goodwill and Other Intangible Assets

Goodwill and all Others Intangible assets are deducted from Common Equity Tier1 (CET1) capital including any goodwill, that is included in the valuation of significant investment in the BFSI entities which are outside the scope of regulatory consolidation. The full amount that is deducted from CET1 is Goodwill and Intangible Asset net of Deferred Tax Liability.

Operating losses in the current period and those brought forward are also deducted from CET1 capital.

The data in the below Capital heads are provided as the direct download:

- Goodwill
- Deferred Tax Liability related to Goodwill
- Other Intangible Assets
- Deferred Tax Liability related to Other Intangible Asset
- Losses brought forward and losses in the current period
- Deferred Tax Assets (DTA)

The DTAs computed are deducted from Common Equity Tier 1 capital and includes:

- DTA associated with accumulated losses
- The DTA (excluding DTA associated with accumulated losses), net of DTL, where the DTL is more than the DTA (excluding DTA associated with accumulated losses). The excess is neither adjusted against item (a) nor added to Common Equity Tier 1 capital.

DTAs are captured under the below break-up amounts:

- DTA associated with accumulated losses
- Other DTA (excluding DTA associated with accumulated losses)

DTL is permitted to be netted off only against the 'Other DTA' amount. Any Excess DTL is not permitted to be offset against 'DTA associated with accumulated losses' nor to be added to the CET1 capital.

If the DTA (net of DTL) has a negative value then, the line item does not follow the phase-in treatment. Only positive value goes for a transitional arrangement.

Data Expectation

The download is expected for **STG_STANDARD_ACCT_HEAD** and reclassified in the rule RLBL6040 (IND - Basel III Capital - Standard Acct Head Reclassification) to the CAP ID (CAP867 Deferred Tax Asset related to Temporary Differences).

Cash Flow Hedge Reserve

The amount of the net cash flow hedge reserve which relates to the hedging of items that are not fair valued on the balance sheet (including projected cash flows) is de-recognized in the calculation of

Common Equity Tier 1. This means that positive amounts are deducted and negative amounts are added.

Data in the below Capital heads are provided as the direct download:

- Cash Flow Hedge not fair valued (Asset)
- Cash Flow Hedge not fair valued (Liability)

The Final amount which is derecognized from Capital is computed by the rule 'CS - Net Cash Flow Hedge Reserve Calculation'.

If the Net cash Flow Hedge Reserve has a negative value then, the line item does not follow phase-in treatment. Only positive value goes for a transitional arrangement.

Cumulative Gain and Losses due to Change in Own Credit Risk on Faired Valued Financial Liabilities

Banks derecognize all unrealized gains and losses that result from changes in the fair value of liabilities that are due to changes in the bank's own credit risk from the CET1. This means that positive amounts are deducted and negative amounts are added.

In addition, with regard to derivative liabilities, derecognize all accounting valuation adjustments arising from the bank's own credit risk. The offsetting between valuation adjustments arising from the bank's own credit risk and those arising from its counterparties' credit risk is not allowed. If a bank values its derivatives and securities financing transactions (SFTs) liabilities taking into account its creditworthiness in the form of debit valuation adjustments (DVAs), then the bank deducts all DVAs from its Common Equity Tier 1 capital, irrespective of whether the DVAs arises due to changes in its own credit risk or other market factors. Thus, such deduction also includes the deduction of initial DVA at the inception of a new trade. In other words, though a bank has to recognize a loss reflecting the credit risk of the counterparty (that is, credit valuation adjustments-CVA), the bank is not allowed to recognize the corresponding gain due to its own credit risk.

If the line item has a negative value then, the line item does not follow phase-in treatment. Only positive value goes for a transitional arrangement.

The Investment in own shares is calculated as the sum of the pre-mitigation EAD (EAD Pre-mitigation Measure Value (**N_EAD_PRE_MITIGATION**) Non Sec Exposures (**FCT_NON_SEC_EXPOSURES**) table) of the exposures which have the flag of treasury stock indicator (**F_TREASURY_STOCK_INDICATOR**) as "Y".

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

All the regulatory adjustment line items are deducted from their respective tier of capital post minority and internal transaction deduction.

Reciprocal Cross Holdings

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

For this processing, the reciprocal amount is expected as a download in the Stage Capital Investments Position Table (**STG_CAP_INVESTMENTS_POSITIONS**) at an instrument level. The instrument code provided in this table is the instrument in which the reporting bank has invested, and for which there is a reciprocal cross-holding by the reporting bank. The reciprocal cross holding amount is also captured in this table. The solution expects the staging data of the exposures to have the reciprocal cross holding indicator (**F_RECIPROCAL_CROSS_HLDG_IND**) as 'Y'.

The solution, as part of the sub process Non Sec Reciprocal Cross Holdings Data Population inthe processes **IND BASELIII CAPITAL STRUCTURE INDIAN BANKS**and **IND_BASELIII_CAPITAL_STRUCTURE_FOREIGN_BANKS** splits the exposure into two, based on the reciprocal cross holding amount. The exposure which meets the reciprocal cross holding amount is stamped with the reciprocal cross holding indicator (**F_RECIPROCAL_CROSS_HLDG_IND**) as 'Y', and this will go for the reciprocal cross holding treatment for the capital instruments.

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

Treatment of Grandfathered Instruments

As per the RBI guidelines, for the issued instruments which are grandfathered, the base amount to be used for phase-in calculations is considered as the amount outstanding as of 1st Jan 2013. This amount is used to compute the amortization amount (in the last 5 years of maturity) and the phase-out amount. The phase-out for the grandfathered instruments is done at 10% every year while the amortization for the same is done at 20% every year in the last 5 years from the maturity date. Though the accord does not explicitly mention the recognition of the amount of instruments to be taken as the minimum of the amortization or phase-out amount, based on the feedback received from some clients, it is decided that the amount to be considered for instruments subject to phase-out is the minimum of the amortization amount or the phase-out amount. This approach has the consent of RBI and the client.

Data Expectation

For the grandfathered instruments, the base amount is provided as the outstanding notional amount as of 1st January 2013. This amount is provided only for the issued instruments which are grandfathered. The data is provided in Issue Current Outstanding Amount with the FIC_MIS_DATE as of 1st January 2013.

Phase-in Treatment for Regulatory Adjustments

The regulatory adjustment line items that include Goodwill net of DTL, Other Intangibles net of DTL, DTA net of DTL, Net Cash Flow Hedge Reserves, Gain on Sale related to Securitization transaction, Defined Pension Fund Asset net of DTL, and losses due to changes in own credit risk, Investment in Treasury Stock, and Reciprocal Cross Holding follows phase-in arrangement. The phase-in deduction percent for each year is available in a setup table - Setup Capital Heads (**FSI_SETUP_CAPITAL_HEAD**) table.

Treatment Specific to Insignificant Investments

Investment in all financial entities, which are outside the scope of regulatory consolidation, is identified as significant and insignificant investments. The shareholding percent for these parties are expected as the download in **STG_PARTY_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 an insignificant investment. The parties are identified as significant when the shareholding percentage is greater than or equal to 10%. And the others are identified as an insignificant investment.

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 Fact Non Sec Exposures (**FCT_NON_SEC_EXPOSURES**) table. 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 the 10% limit is processed for the deduction. This summing up includes the direct, indirect, and synthetic investments. Indirect investments are investments in Investment funds and those which have invested in capital instruments. Synthetic investments are the investments in synthetic transactions on capital instruments. For all these exposures, the net long position amount, updated in the **N_EAD_PRE_MITIGATION** is considered.

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 the banking book rule for the instrument.

The application computes as follows:

Parties are marked as insignificant investment parties by updating the flag: **F_SIGNIFICANT_INVESTMENT_IND** in Fact Party Shareholding Percent (**FCT_PARTY_SHR_HLD_PCT**) with value N.

The exposure amount of banking book and trading book exposures to these entities are summed by grouping their component of capital and compared against 10% of the parent bank's CET1 capital. The portion of the 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 the Non-Regulatory Consolidation Entity Investment (**FSI_NON_REG_CONSL_ENTITY_INVST**) table which is the processing table for insignificant and significant investment deductions.

After the application of this treatment, the Insignificant Investments line item also follows a phase-in arrangement which is similar to the phase-in arrangement for Regulatory Adjustments.

Treatment Specific to Significant Investments

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 Entity Information (**FCT_ENTITY_INFO**) with value 'Y'.

The exposure amount of banking book and trading book exposures to these entities are summed by grouping their component of capital and compared against 10% of the parent bank's CET1 capital. The portion of the amount which exceeds the 10% limit is deducted from CET1. The exposures of AT1 and T2 are fully deducted from the respective tier of capital.

This is done by calculating the 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.

After the application of this treatment, the Significant Investments line item also follows a phase-in arrangement which is similar to the phase-in arrangement for Regulatory Adjustments.

Treatment of Indirect Investments

In the case of Indirect Investments, the solution applies the Insignificant Investment treatment. The solution captures the fund investment percentage in the various products in the Stage Fund Underlying Composition table (Stg_Fund_Underlyng_Composition). The solution processes these investments as per the treatment for exposures pertaining to Insignificant and Significant Investments. The deduction, as applicable per phase-in, is from CET1.

Threshold Deduction

The two-line items, (Significant Investment in the Common Shares of Accounting entities from the **FSI_NON_REG_CONSL_ENTITY_INVST** and DTAs that arise from temporary differences that comes from the **FCT_CAPITAL_ACCT_HEAD**) are populated in the **FSI_THRESHOLD_TREATMENT** table and the threshold calculations are processed in this table.

Threshold Treatment

These three line items are individually compared with the 10% of CET1 calculated post Regulatory Adjustments, Insignificant Investments, and Indirect Investments. The amounts which are above the 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, goes for risk-weighting at 100%.

Post-Phase-in Treatment for Insignificant Investments, Significant Investments, and Threshold Deductions

In this step, the balance phase-in deduction amount for Insignificant, Significant, and Threshold deductions are calculated and they are assigned the applicable risk weight. The RWA of these amounts is also computed.

Bifurcation of Insignificant and Significant Investment Amount

All the investment transactions in Insignificant Entity and Significant Entity go for bifurcation. Insignificant investment amounts below 10% are stamped as ‘INSIG_RWA’ and any amount above 10% are stamped as ‘INSIG_DED’. The same logic is applied to the Significant Investment amount in CET1. The CET1 amount in Significant Investment entity that is below 10% is stamped as ‘SIG_RWA’ and the amount above 15% limit is stamped as ‘SIG_DED’. The original transactions are deleted and new transactions are created with stamping as described above. The new transaction thus created can be traced by looking into the parent exposure ID.

The exposure to be deducted is marked with a standard account head surrogate key based on whether the deduction is Insignificant or Significant investment and based on the capital component group.

This splitting of exposures is done Non Sec Exposures (**FCT_NON_SEC_EXPOSURES**) and Fact Sec Exposures (**FCT_SEC_EXPOSURES**). This splitting logic is carried to Equity Exposures (**FCT_EQUITY_EXPOSURES**) and Fact Sub Exposures (**FCT_SUB_EXPOSURES**) as well.

Treatment of Intra-Group Transactions

Intra-group exposures beyond the permissible limits are deducted from the Common Equity Tier 1 capital of the bank. Banks are required to comply with these limits at solo and consolidated levels. The guidelines are meant for banks’ transactions and exposures to the entities belonging to the bank’s group (group entities).

Intra-group exposures are applicable to all scheduled commercial banks, including foreign banks operating in India, belonging to a financial group. A 'group' is defined as an arrangement involving two or more entities related to each other through any of the following relationships and a 'group entity' as any entity involved in this arrangement:

- Subsidiary – Parent
- Associate
- Joint Venture
- Related Party
- Direct or indirect ownership of 20% or more interest in the voting power of the enterprise
- Common brand name
- Promoters of bank
- Non-Operative Financial Holding Company (NOFHC) of bank

An entity that has any of the first six relations, as above, with the promoters/NOFHC and their step-down entities.

The relationship between entity and parties are captured in the staging table for a party-party relationship, while the relationship types must be captured in the staging master table of party relationship type. This staging master table populates a dimensional table for party relationship type through the SCD process. The rule "IND - Basel III - Party Relationship Type Reclassification" must be modified based on the values entered by the bank to ensure correct reclassification into standard party relationship type values. The seeded table for the standard values is Regulatory Party Relationship Type Dimension.

Data Expectation

The bank must provide an exhaustive list of Party-Party relationship in the table Stage Party To Party Relationship (**STG_PARTY_PARTY_RELATIONSHIP**). The relationship list must include direct and indirect relationships between the parties. The solution does not derive any relationship between two parties based on any common related party.

Entities Exempted from the Definition of Group Entities

The following entities are exempted from being part of Group Entities:

- Ownership Public Sector Banks (PSBs) lies with the Government of India.
- Entities that are promoted by financial sector intermediaries including banks to undertake financial market infrastructure activities are not treated as group entities like depositories, exchanges, clearing and settlement agencies, and so on.
- Exposures include credit exposure (funded and non-funded credit limits) and investment exposure (including underwriting and similar commitments). Exposure on account of equity and other regulatory capital instruments should be excluded while computing exposure to group entities.

Banks should adhere to the following intra-group exposure limits:

Single Group Entity Exposure:

- 5% of Paid-up Capital and Reserves for non-financial companies and unregulated financial services companies.
- 10% of Paid-up Capital and Reserves for regulated financial services companies.

Aggregate Group Exposure:

- 10% of Paid-up Capital and Reserves for all non-financial companies and unregulated financial services companies taken together.
- 20% of Paid-up Capital and Reserves for the group. That is all group entities (financial and non-financial) taken together.

Intra-Group Exposures Exempted from the Prudential Limits

Banks' exposures to other banks/financial institutions in the group in the form of equity and other capital instruments are exempted from the limits. These include inter-bank exposures among banks in the group operating in India and Letters of Comfort issued by parent banks in favor of overseas group entities to meet regulatory requirements.

The treatment of Intra-group exposures is carried out in the Capital Structure processes for Indian and Foreign Banks under a new sub-process "Intra Group Treatment Calculations" before the "Provisions and Gross Capital Calculations" sub-process.

The following CAP IDs are introduced in the **DIM_STANDARD_ACCT_HEAD** table.

CAP ID	STANDARD ACCT HEAD DESCRIPTION
CAP1119	Deduction Amount from CET1 Capital for Intra-Group Transactions
CAP1120	Single Group Exposure Limit for Non-Financial Companies and Unregulated Financial Services Companies
CAP1121	Single Group Exposure Limit for Regulated Financial Services Companies
CAP1122	Aggregated Group Exposure Limit for Non-Financial Companies and Unregulated Financial Services Companies
CAP1123	Aggregated Group Exposure Limit for Regulated Financial Services Companies
CAP1131	Intra Group Exposure Exceeding Single Group Exposure Limit
CAP1132	Intra Group Exposure Exceeding Aggregate Group Exposure Limit
CAP1133	Intra Group Exposure Beyond Permissible Limit - Deduction from CET1 Capital

The new table **IND_BASEL_III_INTRA_GROUP_EXPOSURE_DATA_POP** populates the exposures from Fact Exposure tables at Single and Aggregate group level for each Entity - Related Party combination in the processing table **FSI_INTRA_GROUP_EXPOSURES**.

The CAP IDs for Single and Aggregate Groups are assigned to the respective columns in the processing table using the following rules:

- IND - Basel III - Single Group Limit Standard Acct Head Identification
- IND - Basel III - Aggregate Group Limit Standard Acct Head Identification

The exposure limit percentage for the Single and Aggregate Group are assigned from the FSI_SETUP_CAPITAL_HEAD using the following rules:

- RLBL6377: IND - Basel III - Single Group Exposure Limit Percent
- RLBL6378: IND - Basel III - Aggregate Group Exposure Limit Percent

The exposure limit amounts for the Single and Aggregate Group are computed by multiplying the limit percentages with the sum of using the rule IND - Basel III - Intra Group Exposure Limit Amount.

The excess Intra-Group exposure amount beyond permissible limit for CET1 deduction is computed by considering the greatest of the 2 excess exposure using the rule IND CS - Intra Group Exposure Exceeding Permissible Limit.

The excess Intra-Group amount to be deducted from CET1 Capital is classified into the DEDCET1 capital component group using the rule IND CS - Basel III Standard Account Head to Capital Component Group reclassification.

The CET1 deduction of Intra-Group exposures from Net CET1 Capital is carried out using the rule IND CS - Net CET1 Capital post Deduction of Intra Group Exposures Exceeding Permissible Limit.

Non-Qualifying Capital Instruments

Capital instruments that no longer qualify as non-common equity Tier 1 capital or Tier 2 capital (for example, IPDI and Tier 2 debt instruments with step-ups) are considered as Ineligible Capital Instruments and are phased out beginning January 1, 2013. After fixing the base at the nominal amount of such instruments outstanding on January 1, 2013, their recognition is capped at 90% from January 1, 2013, with the cap reducing by 10 percentage points in each subsequent year. This cap is applied to Additional Tier 1 and Tier 2 capital instruments separately and refers to the total amount of instruments outstanding which no longer meet the relevant entry criteria. To the extent, an instrument is redeemed, or its recognition in the capital is amortized, after January 1, 2013, the nominal amount serving as the base is not reduced.

Previously eligible capital items subject to phasing are captured at the instrument level and the appropriate amount eligible to be included in the relevant capital tier during the transition period is computed at the instrument level itself. The total eligible item is aggregated and populated on the Standard Account Head Fact table for the below Capital heads:

- Total Non-qualifying capital instruments subject to phase-out from Additional tier 1 capital
- Total Non-qualifying capital instruments subject to phase-out from Tier 2 capital

After the data is populated on the Standard Account Head Fact table, the same is classified into the appropriate capital component.

Following are the steps in the process:

Details of all ineligible capital instruments, which are eligible under the current Basel II regulations such as IPDI and Tier 2 debt instruments with step-ups are captured under the below tables:

Stage Issued Instrument Positions (**STG_ISSUED_INSTR_POSITIONS**)

Stage Instrument Contract Master (**STG_INSTRUMENT_CONTRACT_MASTER**)

- The Data captured is moved to the respective Fact and Dimension table below:

Fact Issued instrument Positions (**FCT_ISSUED_INSTR_POSITIONS**)

Instruments Contracts Dimension (**DIM_INSTRUMENT_CONTRACT**)

- The eligible amount included as part of Basel III capital structure is computed and stored in the Fact Issued Instrument Positions table under the attribute 'Amount Recognized in Regulatory Capital'.
- The eligible capital computed amount is aggregated and added on Fact Standard Account Head table under the below Capital heads:

- Total Non-qualifying capital instruments subject to phase-out from Additional tier 1 capital
- Total Non-qualifying capital instruments subject to phase-out from Tier 2 capital
- Gross Capital Calculation for CET1, AT1, and T2

For Gross Capital calculation all the components are classified into their respective tiers (CET1, AT1, and T2) based on their purpose. 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.

Net Capital Calculation

The Net CET1, Net AT1, and Net T2 capital amount are calculated post all regulatory adjustments, including the insignificant, significant, and threshold treatment. 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.

RWA Calculation for Credit Risk, Market Risk, Operational Risk, and Phase–in arrangement.

The Regulatory Adjustment RWA is the sum of RWA calculated for all the exposures which undergo the processing of Regulatory Deductions, Insignificant Investments, Significant Investments, and the Threshold deduction line items which are risk-weighted.

The Total RWA amount is the summation of Non-Securitization, Securitization, Market Risk, Operational Risk, and Regulatory Adjustment RWA.

The DTAs arising due to the temporary difference are at a risk weight of 100% and after the RWA has calculated as a part of Credit RWA.

Capital Ratio Calculation

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

Transitional arrangement for capital ratios has begun as of April 2013. Capital ratios and deductions from Common Equity is fully phased-in and implemented as of March 31, 2019, instead of March 31, 2018. The phase-in arrangements for banks operating in India are indicated in the following table:

Minimum Capital Ratios	April 1, 2013	March 31, 2014	March 31, 2015	March 31, 2016	March 31, 2017	March 31, 2018	March 31, 2019
Minimum Common Equity Tier (CET1)	4.5	5	5.5	5.5	5.5	5.5	5.5
Capital Conservation Buffer (CCB)	-	-	-	0.625	1.25	1.875	2.5
Minimum CET1+CCB	4.5	5	5.5	6.125	6.75	7.375	8
Minimum Tier 1 Capital	6	6.5	7	7	7	7	7
Minimum Total Capital	9	9	9	9	9	9	9
Minimum Total Capital + CCB	9	9	9	9.625	10.25	10.875	11.5

Phase-in of all deductions from CET1 (in %) #	20	40	60	80	100	100	100

Shortfall Treatment for Unconsolidated Financial Institutions

The Basel accord mentions treatment of the shortfall in the unconsolidated financial institutions. This is due to the deduction of the regulatory capital instruments, which are part of the significant and insignificant treatment. The solution handles this by taking the input of the following CAP IDs in the standard accounting head staging table:

- CAP723 (Shortfall in Equity Capital of Unconsolidated Majority Owned Financial Entities)
- CAP727 (Shortfall in AT1 Capital of Unconsolidated Majority Owned Financial Entities)

This is deducted from the Net CET1 capital which is remaining after the deduction of the shortfall in AT1 capital.

Treatment of Investment in Capital of Unconsolidated Non-financial Subsidiaries

The Basel accord mentions the treatment for equity investments in non-financial subsidiaries from the consolidated/solo bank capital. The solution handles this by taking the input of the following CAP ID in the standard accounting head staging table:

CAP722 (Investments in Equity Capital of Unconsolidated Non-financial Subsidiaries)

This is deducted from the Net CET1 capital which is remaining after the deduction of the shortfall in AT1 capital.

Treatment of Equity Investment in Non-financial and Insurance Subsidiaries

Equity Investments in Insurance Subsidiaries

The regulatory adjustment applies to the capital of the entities that are within the organization structure of the Parent for which consolidation is being calculated and are outside the scope of regulatory consolidation and where bank hold more than 10% of the issued common shares capital of the entity.

Equity investments in insurance subsidiaries that are outside the scope of regulatory consolidation are fully deducted from banks' Common Equity. Also, the total investment of the bank in the insurance entity is summed up, where the holding of the bank is more than 10 % of the Bank's CET1.

If the sum of the total of all holding is more than 10% of the bank's common equity (CET1-post minority and all regulatory adjustment) then the amount is fully deducted from banks CET Capital.

If the sum of total of all holding is less than 10% of the bank's common equity (CET1-post minority and all regulatory adjustment) then the treatment remains the same as existing <Reference to significant/insignificant treatment under capital structure for India Basel III>.

Equity Investments in Non-Financial Subsidiaries

All investments in the paid-up equity of non-financial entities (other than subsidiaries) that exceed 10% of the issued common share capital of the issuing entity or where the entity is an unconsolidated affiliate receive a risk weight of 1250%. Equity investments equal to or below 10% paid-up equity of such investee companies are assigned a 125% risk weight or the risk weight as warranted by rating or lack of it, whichever higher.

Significant /Insignificant treatment for financial and non-financial entities is handled based on standard party type.

7.8.1 Assumptions

The regulatory adjustment that follows a phase-in arrangement and is not deducted from CET1, needs to follow the national treatment as per RBI III accord. Hence, the assumption is that the regulatory adjustment line item follows the Basel II accord. Items that were formerly deducted from 50%-50% from Tier 1-Tier 2 capital are deducted from AT1 and capital investment instrument not deducted from CET1 is risk-weighted at 100%.

Since investments in accounting entities (which are outside the scope of regulatory consolidation) by parent bank are long-term investments and mostly equity related instruments, these investments are not processed for Credit Risk Mitigation.

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**).

As per the Phase-In treatment flow and details available in the RBI Basel III Master Circular for instruments issued before 12th Sep 2010, treatment of exposure depends on the Call exercise date. It is assumed that the Call referred to in the circular is the first call available post instrument issue.

7.8.2 Key Data Elements

The key data elements are listed in this section. For more information on the tables and columns to be updated, see the Download Specifications document.

- The data for third party investment, with the investment percentage in each tier of capital along with the total amount available in each tier of capital, is expected as a download value, for the surplus of Minority Interest computation.
- The entity-level Market Risk RWA is expected as a download value in the Standard Account (**DIM_STANDARD_ACCT_HEAD**) table. This is required for calculating the Total RWA.
- The Market Risk data for significant and insignificant investment exposures are expected as download value in the Stage Investments (**STG_INVESTMENTS**) table (for equity and non-equity trading book exposures except the mutual fund trading book exposures) along with the other investment data. The data for indirect capital instruments are expected in the Fund Underlying Composition table (**STG_Fund_Underlyng_Composition**). All the amounts are converted into the same currency for ease of processing and reporting.
- The application expects the GL IDs and the description to be unique across an entity and the data is expected at a solo level. The application ignores consolidated data and calculates the data for consolidation.

Minority Interest Calculations' Data Expectation

- The application expects the capital ratios, tier wise capital amount, third party investment percentage, and the total RWA of the subsidiary as the download for the Minority Interest calculation.
- The entities which have to be processed for Minority interest computation have to be provided with the **F_THIRDPARTY_MINORITY_HOLD_IND** flag in the **STG_ENTITY_SHR_HLD_PERCENT** table as "Y".

- The application expects only the preferred shares data for the REIT subsidiary. Hence for the Minority Interest computation to happen correctly, the REIT subsidiaries should enter the CET1, AT1, T2, and Total RWA amount. The stage data expectation for minority interest calculation in REIT is the third party holding percentage must be 0% for the CET1 and must have the applicable percentage only for the portion of preferred shares data in the REIT subsidiary.

The application processes the REIT subsidiaries available as part of the **DIM_ORG_STRUCTURE** table, wherein the operating entity flag is "Y", regardless of the third party minority holding indicator flag as “Y” or “N”. The REIT subsidiaries should have the regulatory entity indicator flag as “Y” in the **DIM_ORG_STRUCTURE** table.

Regulatory Adjustments’ Data Expectation

The application expects the goodwill value to be provided, which is net of the goodwill for the entity and any goodwill used in the valuation of the significant investments.

The application expects the deferred tax liabilities value associated with the various regulatory adjustments to be populated wherever the entity expects the value to be netted, satisfying the criteria for netting

The application expects the ‘Other Intangible Assets’ as a single line item, which includes all the intangible assets other than goodwill.

The defined pension fund net asset is not required to be deducted for an insured depository institution. Since the insured depository institutions are not part of regulatory consolidation, this data is not expected for those institutions in the STG_GL_DATA table. It is instead expected to be provided in the Product processor tables, and the capital charge must be calculated as per the applicable rules.

The defined pension fund asset reported must be the defined pension fund asset net of unrestricted access and unfettered access to the assets in the fund, based on supervisory approval. The applicable amount which corresponds to the unrestricted and unfettered access to the assets in the fund is expected as the download in the Product Processor tables. Hence the capital charge is calculated on this.

Internal Transactions Data Expectation

The Customer Reference code of the exposures should be of any entity’s party id, which is part of the Organization Structure Dimension (**DIM_ORG_STRUCTURE**), to be identified as internal transactions.

Investment in Own Shares Data Expectation

The Customer Reference code of the exposures should be of the parent entity’s party ID, which is to be identified as an investment in own shares

Reciprocal Cross Holdings Data Expectation

The reciprocal cross-holdings flag should be ‘Y’.

Threshold Treatment Data Expectation

The Deferred Tax Assets (DTA) related to temporary differences that are processed for the threshold treatment is expected as the download value net of deferred tax liabilities associated with that.

7.8.3 Limitations

The limitations in the release of OFSCAP 8.0.4.0.0 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 the 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 to 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 table of Fact Non Sec Exposures (FCT_NON_SEC_EXPOSURES), 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.

- **Reciprocal Cross Holdings Treatment**

  The reciprocal cross-holding amount which goes for capital treatment has a phase-in treatment, wherein during phase-in, a portion of the exposure goes for deduction from the 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 to 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 table of Fact Non Sec Exposures (FCT_NON_SEC_EXPOSURES), 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.

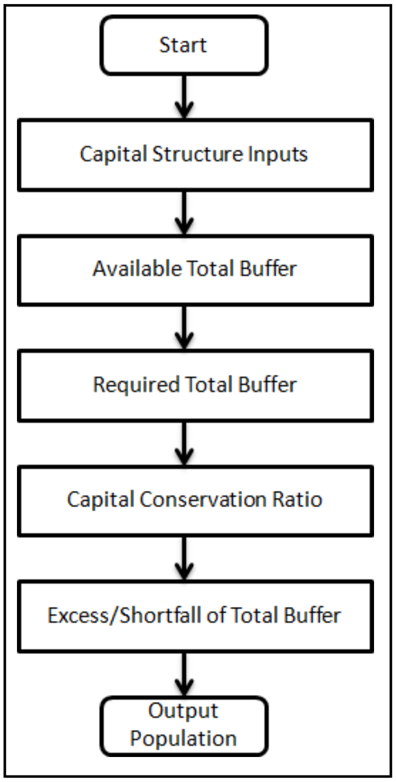
  Also, reciprocal cross-holdings treatment is not available for market risk exposures. This is scoped in the upcoming releases.

7.9 Capital Buffers

There are two types of Capital Buffers prescribed in the RBI Master Circular for Basel III which are as follows:

- Capital Conservation Buffer (CCB)
- Countercyclical Capital Buffer (CCCB)

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



The tasks related to Capital Buffer calculations are present in the process **named INDIA BASELIII CAPITAL BUFFERS**. The processing is as follows.

Capital Structure Inputs

The Capital Structure Rules are executed before the calculation of buffers. These Rules calculate the available capital ratios and required capital ratios of the three capital components which are Common Equity Tier 1 Capital Ratio, Tier 1 Capital Ratio, and Capital Ratio.

These line items are populated in the Fact Standard Accounting Head (**FCT_STANDARD_ACCT_HEAD**) table.

Available Total Buffer

Calculation of Available Buffer from CET1 Capital is performed using inputs taken from the previous step.

Required Total Buffer

Required Total Buffer is the sum of the two required buffers: Calculation of Required Capital Conservation Buffer (CAP823) and Calculation of Required Weighted Average Countercyclical Capital Buffer (CAP819).

Capital Conservation Buffer

The RBI Master Circular for Basel III requires banks to maintain Capital Conservation Buffer (CCB) out of Common Equity Tier 1 Capital (CET1). This requirement is as per the transitional arrangement as stated in the RBI guidelines.

Capital distribution constraints are imposed on a bank when the capital level falls within the Capital Conservation Buffer range. As a result of the change in the Transition period from 2017 to 2018, there is a change in the capital level or CET1 range required to be maintained by the bank during the transition period. The following table lists the minimum ratio that must be maintained by the banks.

Minimum Capital Conversion Standards for Individual Banks			
Common Equity Tier 1 ratio after including the current periods retained earnings			Minimum Capital Conservation Ratios
As on March 31, 2016	**As on March 31, 2017**	**As on March 31, 2018**	
5.5% to 5.65625%	5.5% to 5.8125%	5.5% to 5.96875%	100%
>5.65625% to 5.8125%-	5.8125% to 6.125%	>5.96875% to 6.4375%	80%
>5.8125% to 5.96875%	>6.125% to 6.4375%	>6.4375% to 6.90625%	60%
>5.96875% to 6.125%	>6.4375% to 6.75%	>6.90625% to 7.375%	40%
>6.125%	>6.75%	>7.375%	0%

Countercyclical Capital Buffer

The Countercyclical Capital Buffer (CCCB) is determined by RBI, based on the various market variables like credit to GDP gap, incremental C-D ratio over a moving period of 3 years, GNPA growth, industry outlook assessment index, and interest coverage ratio. The credit to GDP gap is defined as the difference between the credit to GDP ratio and the long-term trend value of the credit-to-GDP ratio at any point in time.

The countercyclical capital buffer has a lower threshold value and a higher threshold value to be maintained, and this is determined based on the credit-to-GDP gap.

The credit-to-GDP gap is decided by the RBI, based on the following conditions:

The lower threshold when this CCCB will be activated is 3%, provided GNPA remains constant. This indicates that at 3%, RBI requires the CCCB to be maintained at any percentage more than 0%.

The upper threshold when this CCCB will be maximum (2.5%) is 15%, provided GNPA remains constant. This indicates that at 15%, RBI requires the CCCB to be maintained at 2.5%.

This indicates that at less than 3% credit-to-GDP gap, RBI does not have any mandatory requirement for CCCB.

For India, the CCCB is maintained by banks at the solo level and consolidated level.

Calculation of Required Countercyclical Capital Buffer

Required Countercyclical Capital Buffer Ratio (**FSI_REQUIRED_CNTR_CYC_BUFFER**) table is updated with values using a T2T. The values are taken from the Benchmark Counter-Cyclical Buffer Ratio table. The Regulator Code column in the Benchmark Counter-Cyclical Buffer Ratio table is compared to the jurisdiction code column in Run Dimension. This T2T aggregates the country-wise exposure amount for each country. When no Countercyclical Capital Buffer is available, the required weighted average is 0 as the benchmark is assumed to be 0. (If there is no countercyclical requirement, we expect the regulator to provide 0 as the benchmark.)

After the T2T loading, based on each country's requirement for Countercyclical Capital Buffer, the weighted average Countercyclical Capital Buffer is calculated.

This is applicable for both Indian banks and foreign banks. For Indian banks having an international presence, the banks' CCCB is the weighted average countercyclical capital buffer requirement across various jurisdictions, as applicable.

Calculation of Required Buffer from CET1 Capital, Tier1 and Capital Adequacy Ratio

For the calculation of the required buffers, based on Updated Capital Component Group Skey (which corresponds to BFCET1 - Buffers from CET1 for Required Buffer from CET1 Capital, BFT1 - Buffers from T1 for Required Buffer from T1 Capital, and BFCAR - Buffers from CAR for Required Capital Adequacy Ratio), the standard account head amount is summed up and populated against the corresponding CAP ID in Fact Standard Accounting Head (FCT_STANDARD_ACCT_HEAD) table.

Calculation of Capital Conservation Buffer / Available Buffer from CET1 Capital

The value that the application calculates for an available buffer from CET1 capital meets the buffer requirements for the two buffers: Capital Conservation Buffer (CCB) and Countercyclical Capital Buffer (CCCB). No priority is given to any buffer over another. Hence, the shortfall or excess, if any, is calculated and reported at an aggregate level. The required total buffer is calculated as the sum of the required values of two individual buffers.

The application also computes CET1 and Buffer Lookup Ratio, which is further required for calculating the Minimum Capital Conservation Ratio. To calculate the available buffer, the remainder of the following is taken:

Excess of CET1 Capital Ratio over the benchmark (4.5%), after catering to the shortfall (if any), in the Additional Tier 1 and Tier 2 capital to their respective benchmark levels (1.5% and 2% respectively).

Hence, CCB excludes any additional CET1 needed to maintain 6% of Tier 1 Capital Ratio and 8% of Total Capital Ratio.

Capital Conservation Ratio

The required buffer from CET1 capital (sum of two required buffers) is compared with the Available Buffer from CET1 capital. If the banks are unable to meet their total buffer requirements for the two buffers, then they are subject to constraints on the discretionary payments of earnings. In this case, the Capital Conservation Ratio is calculated and represents the percentage of net earnings after tax (positive) not distributed by the bank and held back as retained earnings. Capital Conservation Ratio of the current year is applied after 12 months from the time of calculation.

For banks not meeting the buffer requirements, there are restrictions on discretionary distributions. Assuming a concurrent requirement of Capital Conservation Buffer of 2.5%, and Countercyclical Capital Buffer of 2.5%, the required capital conservation ratio is as follows.

CET1 Ratio Bands	Minimum Capital Conservation Ratio (expressed as a % of earnings)
> 5.5% to 6.75%	100%
> 6.75% to 8.0%	80%
> 8.0% to 9.25%	60%
> 9.25% to 10.50%	40%
> 10.50%	0%

Capital Conservation Ratio is calculated based on required CET1, buffers, and the setup or semi-static tables as per the year when the Run is executed.

Capital Conservation ratio is updated in Fact Capital Conservation Ratio. The values are populated through a T2T. The application assigns minimum Capital Conservation Ratio range for a given CET1 and Buffer Lookup Ratio in a table (FCT_CAPITAL_CONSERVATION_RATIO). This table is dynamic and formula-driven and is constructed by the application using the values of the required buffers as per the RBI guidelines. The application constructs the range of CET1 and Buffer Look-up ratio (Lower Limit and Upper Limit) for the required Capital Conservation Ratio in four quartiles.

Lower Limit = 0.000001 + Upper Limit of (n-1)th quartile

Lower Limit of first quartile =- 0.045

Upper Limit = 0.045 + (Total Required Buffer from CET1 Capital * 0.25 * n)

Where n is the quartile number

7.9.1 Assumptions

Countercyclical Capital Buffer requirement for each country should be provided by the client or the bank as the final percentage applicable for each country and this is dependent on the home regulator.

For Required Weighted Average Countercyclical Capital 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 as per the bank's requirement.

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. To calculate the quartile 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 building these quartiles is 4.5%

Excess/Shortfall of Total Buffer

The calculated values (only positive values are considered) are stored against the corresponding CAP IDs –Excess of Total Buffer (CAP839) and Shortfall of Total Buffer (CAP840)– as two separate line items of which one is 0.

7.9.2 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 Capital Buffer requirement for each country should 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 a Countercyclical Capital Buffer percentage that is higher than the percentage prescribed by the regulator of the exposure country. Hence, the required Countercyclical Capital Buffer percentage for each exposure country provided as input should be the one that the home regulator agrees to.

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.

As the required Capital Conservation Buffer (CCB) must be met as per the transitional arrangement, the required buffer value must be set up in Setup Capital Heads (FSI_SETUP_CAPITAL_HEAD) table for different periods against the standard account head CAP ID (CAP823). Different CCB requirements specified by the different regulators can be set up 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 Capital Buffer for different countries as set by different regulators is expected as the download in Stage Benchmark Countercyclical Capital Buffer (**STG_BENCHMARK_CNTR_CYC_BUFFER**). This data is populated to Benchmark Countercyclical Capital 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 a consolidation Run, the consolidating entity's regulator specified buffer requirements are considered.

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

If the bank is not using the OFSAA Capital Adequacy Pack for any one of the risk types, (Credit/Market), then the bank must provide the RWA amount corresponding to the respective risk types in table Stage Countrywise Risk Summary (Stg_Countrywise_Risk_Summary) for each country to which the bank has an exposure. The values are picked from here in cases where such data is missing from the application processing. For example, if the bank is using only the Credit Risk framework from Basel processing and some other engine for market risk computations, then this table should contain the RWA amount as input with a risk type ID as MR for the countries where the bank has market risk exposure. These values are considered for the Countercyclical Buffer calculation. In the absence of such inputs, the solution computes Countercyclical Buffers based only on the information which is an output of the solution's processing area.

7.10 Large Borrowers – Enhancing Credit Supply

RBI has introduced the guidelines on Enhancing Credit Supply for Large Borrowers through Market Mechanism. This guideline provides a method to identify the exposures to certain large borrowers and shield against any probable losses arising due to such large exposures. The new regulation helps the banks in controlling the exposures to single large borrowers by imposing controls on the banks by suggested limits and prudential measures in case of breach of limits. The following features are introduced as part of this:

- Aggregate Sanctioned Credit Limit (ASCL) is calculated.
- Identifies the specified borrowers to which the bank might have larger and riskier exposure.
- Stamps the Reference Date.
- Normally Permitted Lending Limit (NPLL) is calculated.

If there is a breach of the NPLL, then the Prudential Measures prescribed by the regulator are applied.

7.10.1 Calculating ASCL

ASCL is calculated for each of the party with the maximum of both funds based credit limits sanctioned and the fund based credit limits outstanding, in addition to the unlisted privately placed debt with the banking system. This means that the data with regard to fund based credit limits sanctioned, fund based credit limits outstanding and unlisted privately placed debt with the banking system is at the granularity of the borrower (party) and is not only limited to the credit limits of the bank doing the computations (reporting bank) but to the banking system as a whole as specified by RBI.

Which means,

Aggregate Sanctioned Credit Limit (ASCL) = MAX (fund based credit limits sanctioned, fund based credit limits outstanding) + Unlisted privately placed debt with the banking system

As defined by the RBI banking system, which includes all banks in India RRBs and co-operative banks and branches of Indian banks abroad.

If the ASCL for a certain borrower crosses a limit specified by RBI then the borrower is considered to be a Specified Borrower. The specified limits are as follows:

- If the ASCL calculated for a certain party is more than Rs.25,000 crore at any time during the financial year 2017-18.
- If the ASCL calculated for a certain party is more than Rs.15,000 crore at any time during the financial year 2018-19.
- If the ASCL calculated for a certain party is more than Rs.10,000 crore at any time from April 1, 2019, onward.

The ASCL calculated as specified above is compared with the limits specified for the respective years to identify the specified borrowers. The NPLL calculation is to be done for the specified borrowers from the next financial year.

The date on which a certain borrower's ASCL crosses the reference limit set for a certain financial year and the borrower becomes a Specified Borrower is called the Reference Date.

Other SCBs, NBFCs registered with RBI, AIFIs (NHB, SIDBI, EXIM Bank, and NABARD) and HFCs registered with NHB will be exempted from the calculations. These exempted parties i.e. parties like **NHB, SIDBI, NABARD, EXIM** must be populated to **DIM_PARTY** with v_party_type as OTHER.

ASCL is addressed in the following batch:

BASEL_SETUP_TBL_POP Batch: Basel Setup Table Batch Population. ASCL is calculated and populated to **FSI_CP_BANKING_SYSTEM_EXPOSURE**.

Specified borrowers are addressed in the following batch:

India Basel III - Large Borrowers Setup Batch: Requires all the new FSI Setup Table to be populated and reclassification rules be updated with appropriate mapping. This batch identifies the specified borrowers and stamps the reference date for the borrowers.

Note: ECB and Trade Credit raised from overseas branches of Indian banks will count towards ASCL.

7.10.2 Calculating NPLL

After ASCL is computed, for parties that have had a breach of the prescribed ASCL limit to be identified as specified borrowers, the NPLL is calculated. The reference date always falls in the identification year as it is the date when the borrower became a specified borrower.

NPLL calculation starts from the immediate next financial year of the reference date. NPLL is either 50 percent or 60 percent (depending on the conditions) of the incremental funds. Any funds raised by the specified borrower in the given year, by way of equity, are deemed to be part of incremental funds.

In the case where a specified borrower has already raised funds by way of market instruments and the amount outstanding in respect of such instruments as on the reference date is 15 percent or more of ASCL on that date, then the NPLL is calculated as 60 percent of the incremental funds raised by the specified borrower over and above its ASCL as on the reference date and 50 percent otherwise.

The following is a special case:

In the FAQs to Enhancing Credit Supply for Large Borrowers through Market Mechanism, RBI has stated that the ASCL limits to be used for identification of a borrower as a specified borrower on or before March 31, 2016, as Rs. 25,000 crore and the reference date for all borrowers identified as specified borrowers before FY 2016-17 will be set as 1st April 2016.

If a borrower is identified to be a Specified Borrower with an ASCL of more than Rs. 25,000 crore, before the financial year 2016-17 then such borrower irrespective of when their ASCL crossed the Rs. 25,000 crore mark will be assigned a reference date of 1st April 2016. The NPLL calculation and prudential measures for such borrowers are applicable from 1st April 2017 onward.

The following are the Runs for NPLL:

- IND Basel III Capital Calculation - Standardised Approach - Indian Banks
- IND Basel III Capital Calculation - Standardised Approach - Foreign Banks
- IND Basel III Capital Calculation - Foundation IRB Approach - Foreign Banks
- IND Basel III Capital Calculation - Advanced IRB Approach - Foreign Banks
- IND Basel III Capital Calculation - Foundation IRB Approach – Indian Banks
- IND Basel III Capital Calculation - Advanced IRB Approach - Indian Banks

Banks must apply their due-diligence while deciding the NPLL for a single borrower so that borrowers do not circumvent the cut-off ASCL criteria by borrowing through dummy/fictitious group companies.

From the financial year 2017-18 onwards the banking system shall ordinarily keep its future incremental exposures to the specified borrowers within the NPLL, else they will be subject to the prudential measures as specified.

7.10.3 Prudential Measures

After the NPLL per borrower is calculated, the banking system's total exposure to a specified borrower is compared against the NPLL on a particular day. In case the bank's total exposure to the specified borrower excluding market instruments subscribed by the banking system in the financial year 2017-2018 issued by such specified borrower is greater than the NPLL for that specified borrower then the prudential measures prescribed by RBI are applied.

The prudential measures are methods to shield against any probable losses arising due to the default of such large borrowers. This helps in controlling the exposures to single large borrowers by imposing controls on the banks by suggested prudential measures in the form of higher risk weights and provisions in case of breach of limits. Prudential measures also come in the form of systematic divestment of certain investments.

The first of prudential measures come in the form of additional provisions. This happens to be out of the scope of the application. This is because the specific provisions are dealt with as a part of accounting and not capital calculations.

The next prudential measure comes in the form of additional risk weights. RBI guidelines state that the banks need to apply an additional risk weight of 75 percentage points over and above the existing applicable risk weight for the exposures to the specified borrowers where there has been a breach of NPLL to arrive at the new applicable risk weights.

The following are the Runs for Prudential Measures:

- IND Basel III Capital Calculation - Standardised Approach - Indian Banks
- IND Basel III Capital Calculation - Standardised Approach - Foreign Banks
-

All holdings by a bank of market instruments issued by a 'specified borrower' after the ‘reference date’ shall be held in the AFS/HFT category and marked to market as applicable thereto. However, banks may, at their discretion, value their holdings of market instruments issued by the specified borrowers in 2017-18 at book value.

RBI will review the entire guidelines including the ASCL limits after a year of the guidelines becoming fully implemented, that is, during FY 2019-20. Refer to the RBI guidelines in para 4 of (i) in RBI/2016-17/50 DBR.BP.BC.No.8/21.01.003/2016-17.

ECB and Trade Credit raised from overseas branches of Indian banks will count towards ASCL.

Systematic Divestment

The third prudential measure for breach of NPLL comes in the form of systematic divestment of subscriptions made by the bank in 2017-18 in bonds issued by the specified borrowers over the succeeding three financial years.

The application helps in indicating the divestment schedule. It helps to indicate the minimum amount of bonds that are to be divested in a particular financial year.

The bank is supposed to systematically divest over the succeeding three financial year’s, the subscriptions made by it in bonds issued by the specified borrowers in 2017-18. The bank is advised not to invest in any bonds issued by specified borrowers after FY 2017-18. The application displays the minimum volume of the bonds that are to be divested in a particular financial year in accordance with the divestment schedule advised by RBI.

The specified divestment percentage schedule provided by RBI guidelines are as follows:

- Not less than 30 percent by March 31, 2019
- Not less than 60 percent by March 31, 2020
- Not less than 100 percent by March 31, 2021.

Systematic Divestment is addressed in the following batch:

IND_BASEL_III_PARTY_DIVESTMENT_INFO: T2T Batch to be executed for the financial year 2017-18. This automatically takes the bond instruments from FNSE as per the last run of the financial year 2017-18.

A separate batch has to be created with this T2T and can be executed for any date on or after 31st March 2018 to display the minimum volume of the bonds that are to be divested in a particular financial year.

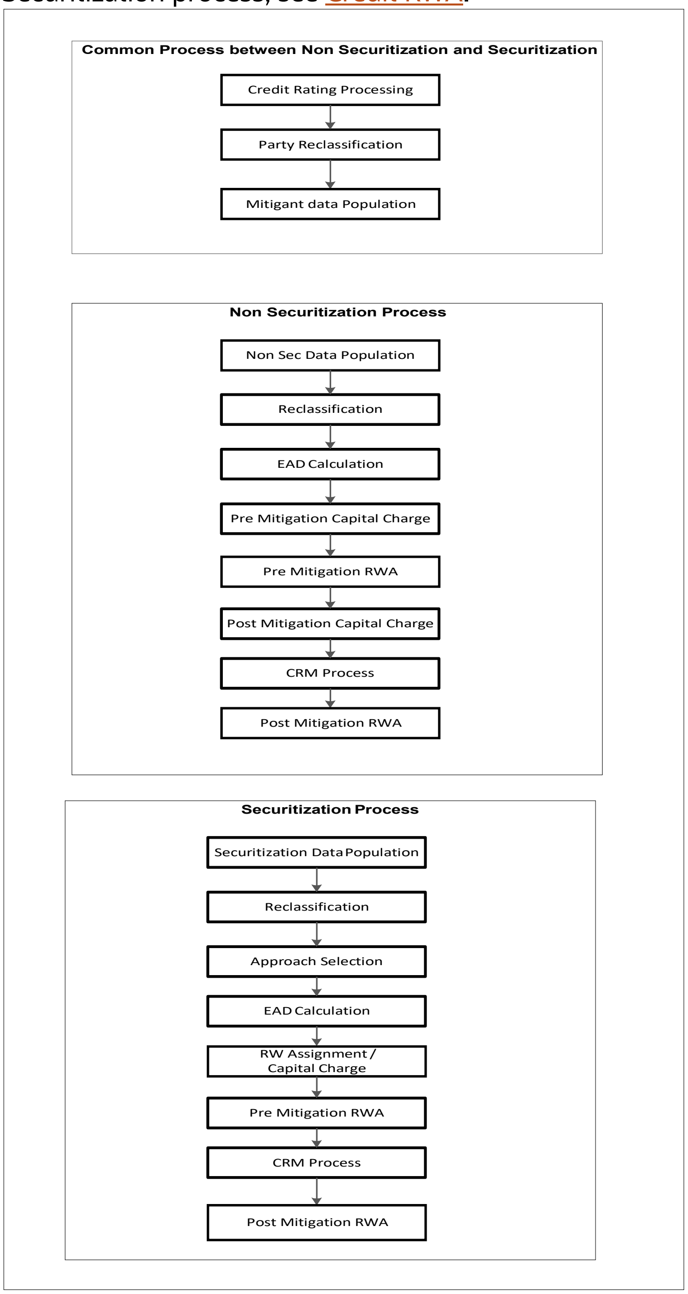
Irrespective of when the batch is run, the results populated will be as of 31st March 2018.

8 Basel III – Internal Ratings Based Approach

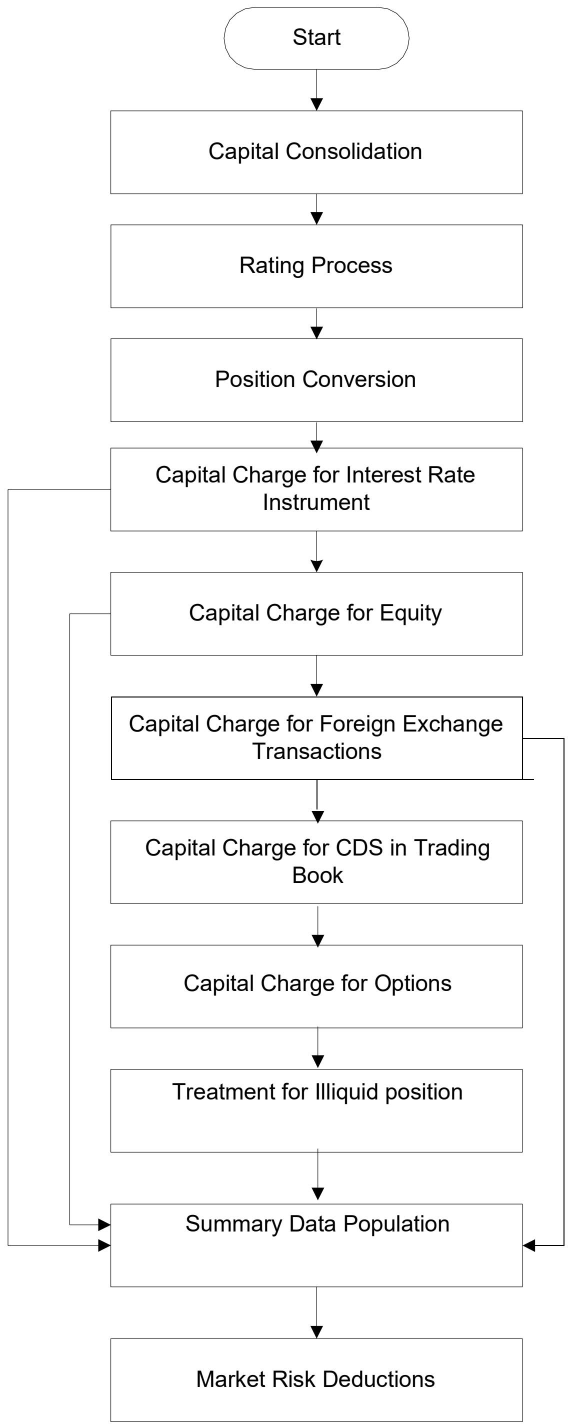
8.1 RBI III - High Level Process Flow for Internal Ratings Based Approach

8.1.1 Process Flow for Credit RWA

The Credit Risk Calculation is performed as in the Standardized approach. For more information on the sub processes as detailed in the preceding process flow for the Non Securitization process and Securitization process, see Credit RWA.

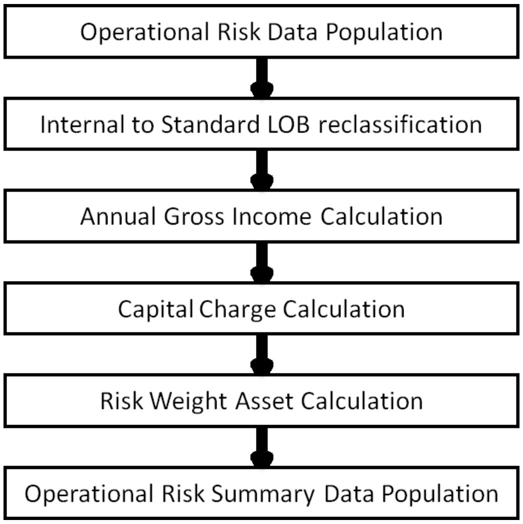


8.1.2 Process Flow for Market RWA



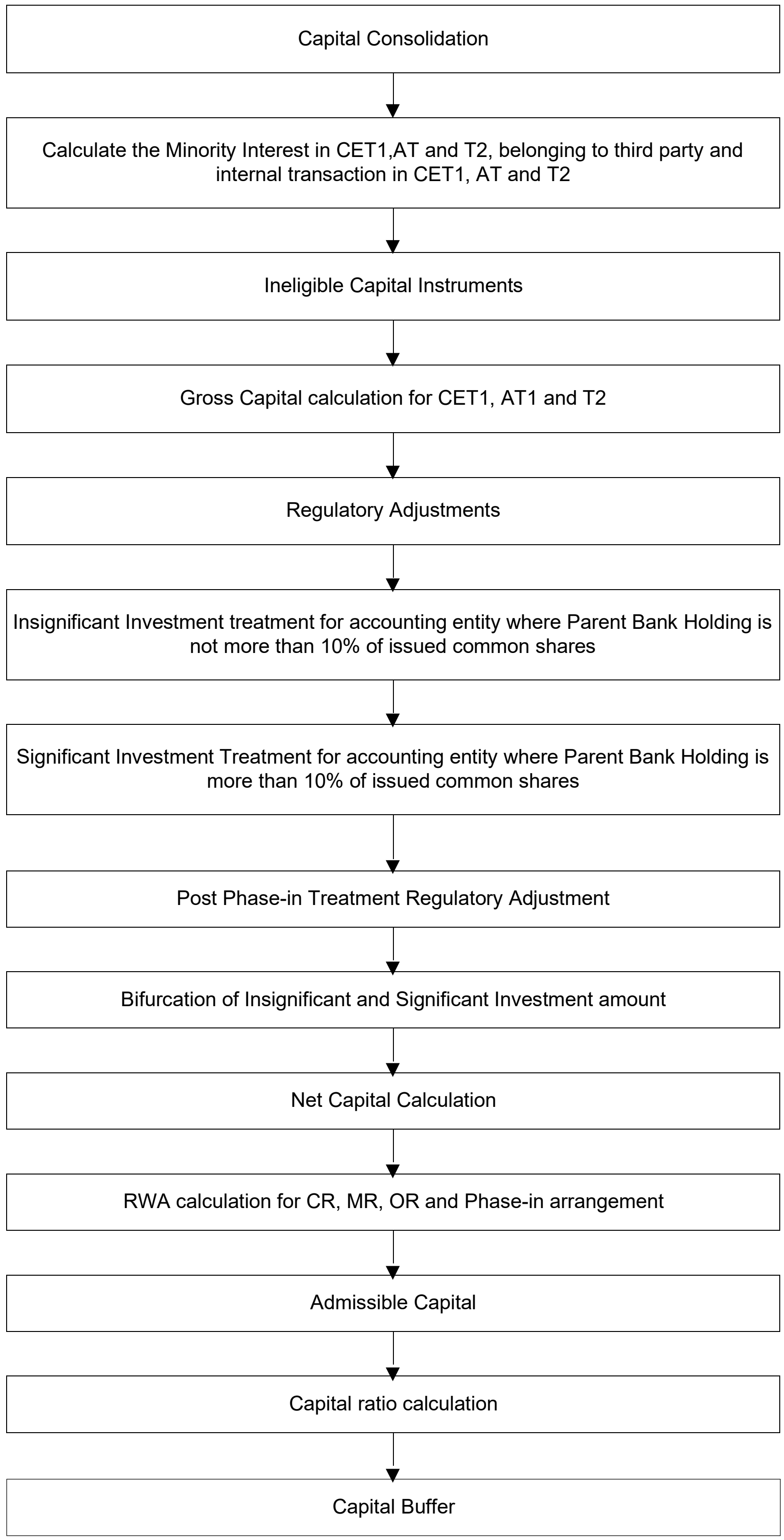
The Market Risk Calculation is performed as in the Standardized approach. For more information on Market RWA computation, see Market RWA.

8.1.3 Process Flow for Operational RWA



The Operational Risk Calculation is performed as in the Standardized approach. For more information on the Operational RWA computation, see Operational RWA.

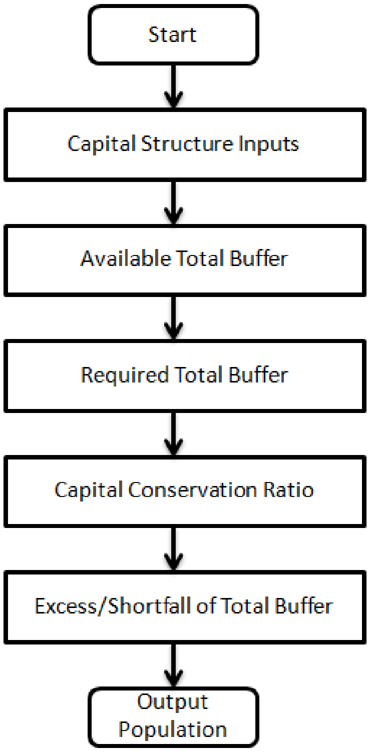
8.1.4 Process Flow for Capital Structure



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

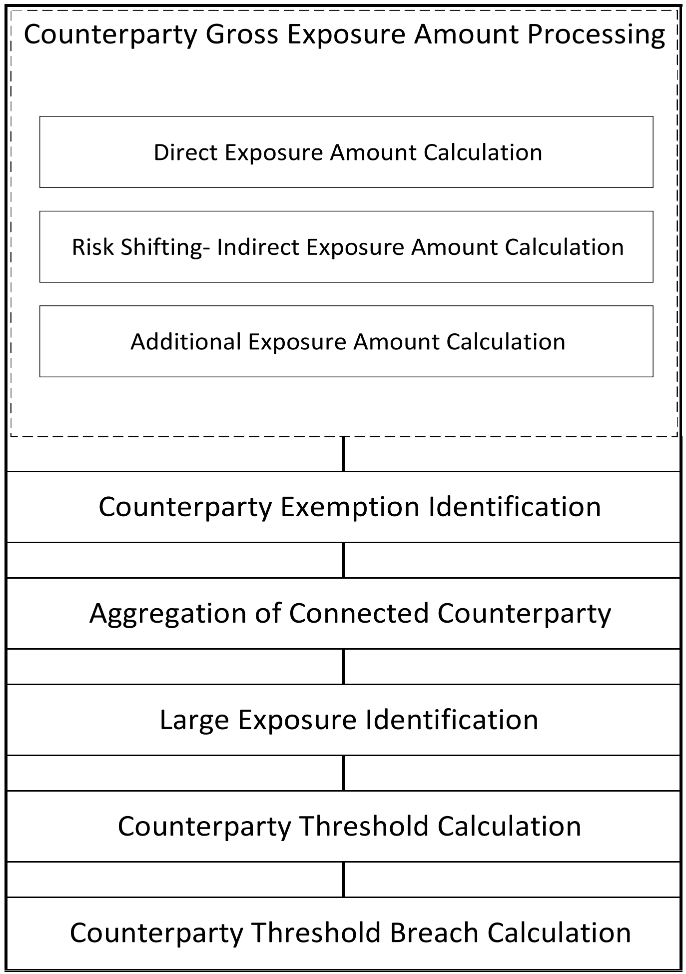
For more information on the sub processes of Capital Structure, see Capital Structure.

8.1.5 Process Flow for Capital Buffers

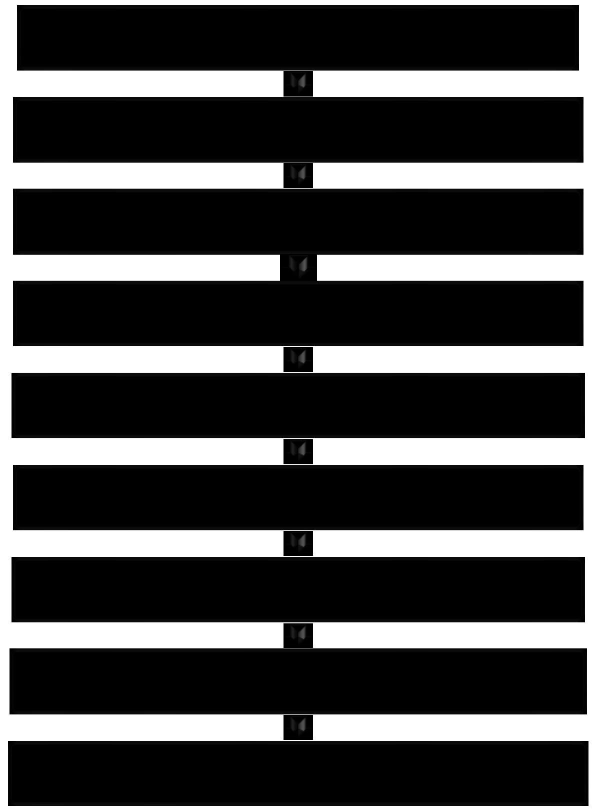


The tasks related to Capital Buffer calculations are present in the process named **INDIA_BASELIII_CAPITAL_BUFFERS**. The processing is detailed in Capital Buffers.

8.1.6 Process flow for Large Exposures



8.1.7 Process flow for Leverage Ratio



The leverage ratio calculations are a separate run, and not part of the regular capital calculation run. This is because of the changes in the Credit conversion factor assigned to the exposures, and also exemption of few exposures from the calculation which are part of the capital charge calculations. Also, the mitigation is not required for these exposures, and the exposure measure calculations are different from the regular EAD calculations.

8.2 Credit RWA

The application supports the computation of credit RWA as per the guidelines laid out by the RBI. Credit RWA computation is divided into Credit Risk for Non Securitized exposures process and Credit Risk for Securitized exposures process.
For Credit Risk of Non Securitized exposures, the application follows the Foundation IRB Approach (FIRB) and Advanced IRB Approach (AIRB).

8.2.1 Non Securitization - Foundation IRB / Advanced IRB Approach

The Foundation IRB/Advanced IRB Approach consists of the following:

- Banking Book Products
- Over the Counter Derivative Products: See Over the Counter Derivatives in the ***Standardized Approach*** section.

- Securities Financing Transactions: See Securities Financing Transactions in Standardized Approach section.
- Credit Risk Mitigation

Banking Book Products

Rating reclassification is the initial step in the process. All exposures are rated by different agencies. However, the naming convention of these ratings might not be the same as mentioned in the Basel Accord. Therefore, the application re-classify the rating information shared in the bank's data to standard rating as recommended in the Basel Accord.

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

The Credit Risk exposures are identified by their product types, counterparty types, and their corresponding asset classes by the application. A sample list of product types, party types, mitigant types, and credit ratings is pre-defined in the application. However, this list and naming convention differs from one bank to another. The application reclassifies the bank's product types and party types to Basel standard product and party types. Based on the standard Basel product and standard party type, it forms an asset class for each exposure. For equity exposures, the asset class is formed on the basis of the equity type and Basel product type. Some exposures can be hedged against Credit Risk through various mitigants like guarantors, collaterals, credit derivatives, and so on. These provide mitigation to credit risk and are considered while computing Credit RWA as per the RBI 2012 Accord for IRB. Therefore, the application calculates the pre-mitigation RWA amount and post-mitigation RWA amount.

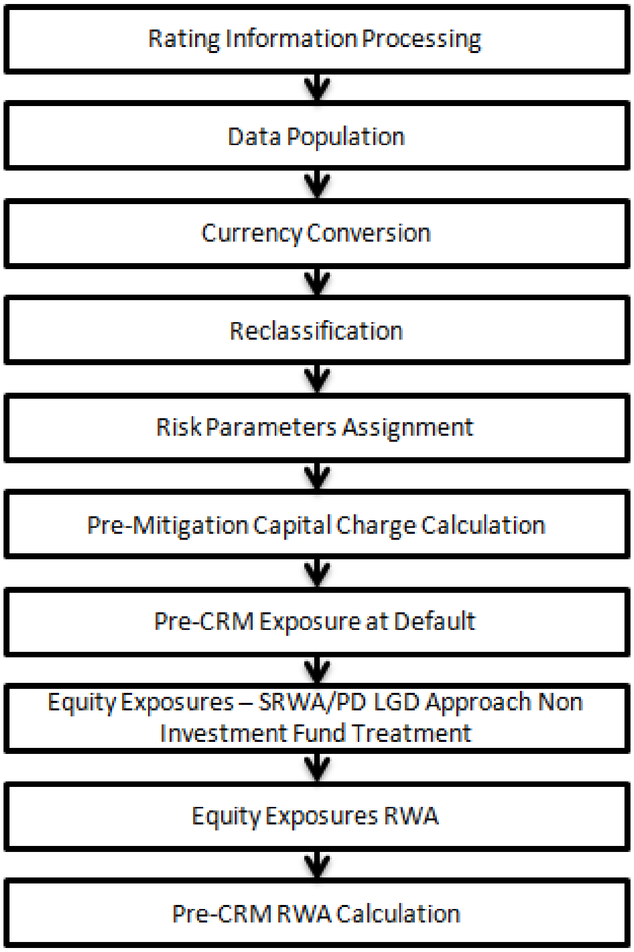
The application calculates the correlation factor using the formula specified for each asset class. Using this Correlation Factor, Probability of Default (PD), and Loss Given Default (LGD), the application calculates the pre-mitigation capital charge for each exposure. This value signifies the capital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

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

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

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

Process Flow for Banking Book Products



Rating Information Processing

Pre Processing Steps

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

- **Accounts Rating Table (STG_ACCOUNT_RATING_DETAILS)**

  Ratings of all Credit Risk Non Securitized Exposures, Securitized Exposures, and Securitized Positions are captured in this table.

- **Instrument Rating Table (STG_INSTRUMENT_RATING_DETAILS)**

  Ratings for all market risk exposures, 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)**

  Credit ratings 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.

Processing Steps

Banks obtain credit ratings from different sources, and these are provided as input in the four rating tables mentioned in the preceding list. The application reclassifies the rating information to Basel standard ratings.

The rating reclassification lookup table (**FSI_RATING_CLASSIFICATION**) is used to lookup reclassified Basel ratings. Ratings are populated from the stage tables (**STG_PARTY_RATINGS_DETAILS**) to FSI (**FSI_PARTY_RATING_DETAILS**) tables using the lookup table (**FSI_RATING_RECLSSIFICATION**) to obtain the reclassified rating.

Note: In the **STG_PARTY_RATINGS_DETAILS** table, ensure that the following columns are populated with data:

- Rating source code (V_RATING_SRC_CODE)
- Party Code (V_PARTY_CD)
- Purpose (V_PURPOSE): Ensure that you indicate whether the rating is a domestic rating or foreign rating in this field. If any other rating is provided, then the exposure is considered as unrated.
- Rating Code (V_RATING_CODE)

Out of the multiple Basel ratings assigned to an exposure, the worst rating is picked up and assigned against the exposures. Basel rating for all asset classes and sovereign rating is computed separately.

Data Population

Pre Processing Steps

Credit Risk exposure data needs to be uploaded in the application for all the product types through their respective input tables known as Product Processors. The important categories of Credit Risk Non Securitization exposures, and their respective table names that are used as an input are listed in the following table:

Product	Source Product Processor
Bills	STG_BILLS_CONTRACTS
Credit Cards	STG_CARDS
Swaps	STG_SWAPS_CONTRACTS
Futures	STG_FUTURES
Guarantees	STG_GUARANTEES
Investments	STG_INVESTMENTS
Lease Contracts	STG_LEASE_CONTRACTS
Letters of Credit	STG_LC_CONTRACTS
Line of Credit	STG_CREDIT_LINE_DETAILS
Commitment Contracts	STG_COMMITMENT_CONTRACTS
Loans	STG_LOAN_CONTRACTS
Money market instruments	STG_MM_CONTRACTS
Overdraft	STG_OD_ACCOUNTS

Product	Source Product Processor
Options	STG_OPTION_CONTRACTS
Re purchase Contracts	STG_REPO_CONTRACTS
Equity Exposures	STG_INVESTMENTS
Underlying Exposures for Derivatives and Securitization	STG_UNDERLYING_EXPOSURES
Underlying Exposures for Repo Contracts	STG_PLACED_COLLATERAL / STG_MITIGANTS
Credit Derivatives	STG_CREDIT_DERIVATIVES
Fixed Assets	STG_FIXED_ASSETS_DETAILS

Processing Steps

Staging data from the Product Processors or other stage tables is populated in the required processing tables. The entire data in the Product Processor is populated in a common fact table for all Non Securitized exposures (**FCT_NON_SEC_EXPOSURES**), except equity data, which is firstpopulated in the respective equity table (**FCT_EQUITY_EXPOSURES**) and is then populated in the common fact table for all Non Securitized exposures. For more information on the list of columns to be populated within each table, see the *Download Specifications* document.

Shareholding Percent Multiplication

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

Exposure Amount X Share Holding Percent = Updated Exposure Amount

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

This assignment that uses the Rule **<Attribute > Shareholding Percent Multiplication,** relates to paragraph 28 of the Basel II Accord. The following attributes undergo shareholding percent multiplication:

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

Currency Conversion

The application converts the amount attributes, which are in natural currency, to reporting currency that is used for further calculations. The column names suffixed with '_ncy' are in the natural currency and are multiplied by a currency conversion factor to populate values in the reporting currency. The Rule **Reporting Currency Code Assignment** assigns the reporting currency. For more information on Currency Conversion, see Exhibit 3.

Note: The data populated in the Product Processor is expected in the natural currency of the exposure.

Reclassification

The application reclassifies the bank's product types and party types to the Basel standard product and party types. Based on the standard Basel product and party type, it forms an asset class for each exposure. A separate Rule in the application reclassifies equity. Similarly, mitigant is reclassified on the basis of its mitigant types and is reclassified to standard mitigant types.

Product Type Reclassification

Product types used by reporting banks as input data are reclassified to standard product types as recommended in the RBI guidelines. The product types after reclassification are stored as Basel product types.

For example, unsecured bonds are reclassified as debt securities.

A separate Rule in the application reclassifies lease residual and equity products.

Party Type Reclassification

Similar to the product type, the customer type and issuer type (which are stored as counterparty type) are also reclassified to standard counterparty type. The application is designed to include customer type, issuer type, and mitigant types in a single table (**STG_PARTY_MASTER**), and these are also reclassified together. Party type reclassification Rules handle reclassification for customer types and issuer types.

For example, an individual is reclassified as Retail.

A separate Rule in the application reclassifies for the issuer of equity. This Rule is defined in the lookup table so that the same reclassification can be used across exposures, equity, and the mitigant tables.

Asset Class Reclassification

On the basis of Basel product type and standard counterparty type, an asset class is formed by the application. This asset class is used for data processing.

For example, the standard counterparty is large corporate, the asset class is large corporate, except for exposures that have product types like cash and real estate. For Basel product type gold, the asset class is gold, except for the standard counterparty type, which is Central Counter Party; the asset class is Central Counter Party. For standard counterparty type Insurance Entity and Basel product type as Line of Credit, the asset class is Corporate Non SME Non SL.

Asset classification of all equity products are performedon the basis of equity type and Basel product type. Asset class for all mitigants is reclassified based on their standard mitigant types and standard issuer type.

RBI Guidelines does not consider specialized lending asset guidelines. RBI does not have a special class called high-volatility commercial real estate (HVCRE) under corporate asset class, unlike BIS. Other Specialized lending asset classes such as, project finance (PF), commodities finance (CF), object finance (OF) and income-producing real estate (IPRE) are part of the solution.

Under exemption in determining effective maturity for smaller domestic corporate borrowers, RBI can exempt facilities to certain domestic corporate borrowers from the explicit maturity adjustment if the reported exposure to the consolidated group based in India is less than Rs. 100 crore subject to the condition that the total exposure of the borrower is less than or equal to Rs. 5 crore from the banking system. This range/criteria of group exposure is used for the reclassification of a corporation into an SME.

These reclassifications are handled in the sub-process “**Bank to Basel Reclassification**” in both FIRB and AIRB processes for India, that is, “**IND_BASELIII_NON_SEC_FIRB**” and “**IND_BASELIII_NON_SEC_AIRB**”.

Mitigant Reclassification

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

Risk Parameters Assignment

The application assigns risk weight parameters of PD, LGD, and maturity to all exposures. For Foundation Internal Rating Based (FIRB) approach, the application assigns the PD and LGD on its own. In Advanced Internal Ratings Based (AIRB) approach, these values are directly taken as downloaded values from the reporting bank.

For senior claim exposures, LGD assigned is 0.65 and for non-senior claim exposures LGD assigned is 0.75. For exposures belonging to the retail asset class, irrespective of the seniority of the exposure, the LGD has a floor value of 0.1. FIRB approach assigns pre-mitigation LGD to all purchase receivables through a separate rule. PD has a floor value of 0.0003 for all asset classes, except for defaulted exposures, where the value is 1.

For corporate and bank exposures, PD is greater of the one-year PD associated with the internal borrower grade to which that exposure is assigned or 0.03%. For sovereign exposures, the PD is the one-year PD associated with the internal borrower grade to which that exposure is assigned. For both FIRB and AIRB, banks should be estimating PDs of the exposures. The PD of the borrowers assigned to a default grade, consistent with default criteria is 100%.

LGD is usually shown as the percentage of EAD that the bank can lose if the borrower defaults. It depends, among others, on the type and amount of collateral and the type of borrower and the expected proceeds from the worth (for example, sales proceeds from sales of collaterals/securities) of the assets. Also, LGD is exposure specific, that is, different exposures to the same borrower can have different LGDs.

- Under FIRB approach, if corporate, sovereign, and banks asset classes are not secured by recognized collateral, the following are the minimum LGD for the exposures which aresubject to RBI review:
    - Senior claims are assigned a 65% LGD in RBI, whereas BIS has 45% LGD.
    - All subordinated claims are assigned 75% LGD in RBI, which is the same as that in BIS.
- The LGD for secured claims is 50% in RBI, whereas in BIS it is 35% (for CRE/RRE andeligible financial receivables only).
- When the exposure is covered by eligible financial receivables, eligible CRE/RRE, and other physical collateral (eligible IRB collaterals). For partial collateralization, the covered portion of the exposure is assigned the percentages as mentioned under C** below, while the uncovered portion is assigned 65% LGD. This is in the case where the collateral is completely used butthe exposure is still partially covered.

  A snapshot of the LGD values applicable for FIRB in India is provided in the following table:

LGD for unsecured and non-recognised collateralised exposures			
Type of exposure	**Minimum LGD (%)**		
Senior Unsecured claim	65		
Subordinated claim	75		
LGD for collateralised exposures – under eligible collaterals			
Type of collateral	**Minimum LGD (%)**	**Threshold level of collateralisation required for partial recognition of collateral for the exposure (C*)**	**Required level of (over) collateralisation for full recognition of collateral for the exposure(C**)**
Eligible financial collateral[@]	-	-	-
Eligible financial receivables	50	0	125
Eligible Commercial Real Estate (CRE)/Residential Real Estate(RRE)	50	30	140
Other physical collateral [£]	60	30	140
@ treatment has been dealt with in detail in para 56 and 57 of the guidance and Appendix 3 £may include industrial properties, land, etc.			

If the exemption in determining effective maturity for smaller domestic corporate borrowers is applied, all exposures to qualifying smaller domestic firms as mentioned above is assumed to have an average maturity of 2.5 years on a consistent basis, similar to foundation IRB.

Tasks for PD-LGD assignments for Purchased Receivables can be found under sub-process **PD-LGD Assignment - Top Down Approach** while for others, it is performed under the sub-process **PD-LGD Assignment**.

Minimum and Over-collateralization levels assignment and amount adjustments are performed under the sub-process **CRM Mitigant Collateralization Level**. The mitigants that fall below the minimum collateralization level or more than over-collateralization level, are marked as ineligible in the **optimizer_cre** and the amount allocated to such mitigants is updated against uncovered row. The LGD assignment for uncovered exposures based on seniority of the exposures is performed in the task **IND - Uncovered Exposures LGD Assignment**. As per the RBI guidelines, the LGD assignment based on collateralization levels is performed only for the FIRB approach, hence the mentioned tasks can be found under the process **IND_BASELIII_NON_SEC_FIRB**.

Pre-Mitigation Capital Calculation

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

The risk multipliers for RBI are different from the risk multipliers for BIS. The treatment of failed trade is replicated from India Standardized Approach rather than BIS. The same is carried to both FIRB and

AIRB for India. The following table illustrates the risk multipliers applicable for India under both Standardized and IRB approaches.

Number of Working Days After the Agreed Settlement Date	Corresponding Risk Multiplier (in per cent)
From 5 to 15	9
From 16 to 30	50
From 31 to 45	75
46 or more	100

Failed trade is treated under the sub-process **Non Sec Failed Trade Processing**.

In the case of sold credit protection exposures, the exposures are assigned the risk weight pertaining to the securitization exposures. For assigning these risk weights, the application applies multiple assessments. This multiple assessments of ratings is performed in the Data Transformation "Mult_Assessment_SCP". The details of the Data Transformation are provided in the following table:

Data Transformation Name	Objective	Processing Logic
Mult_Assessment_SCP	The objective of this Data Transformation is to perform multiple assessment of the ratings and assign a normalized rating and risk weight to the sold credit protection exposures.	For each exposure, the various standard ratings associated with that exposure and the respective risk weights are identified. If the number of ratings are 1, then the same rating gets assigned as the standard rating for the exposure and the risk weight associated with that standard rating gets assigned as the Pre-mitigation risk weight. If the number of ratings are greater than or equal to 2, then the exposure is assigned a risk weight which is the worst of the best two risk weight. And the corresponding rating is assigned to the exposure.

Sold Credit protection is treated under the sub-process **Sold Credit Exp Data Pop**.

Credit Conversion Factor (CCF)

This is applied to all the off-balance sheet exposures. The CCF applied values are the same as in the standardized approach for RBI. The CCF values range as 0%, 20%, 50%, 75%, 100%. The various factors on the basis of which CCF is applied are product type, type of facility (whether it is cancellable or not), and the maturity of exposure. Sub-process **CCF Assignment** assigns the CCF percentages as per the RBI guidelines

Pre CRM Exposure at Default (EAD)

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

- Current Exposure Amount
- Off-Balance Sheet Drawn CCF Percent
- Provision Amount
- Undrawn Amount
- CCF Percent
- Exposure Accrued Interest
- Write Off Amount

CCF percent for FIRB approach is assigned by the application and is taken as a value provided by the client for AIRB Approach.

If the reporting bank has exposure to one of its own subsidiaries, then that exposure is classified as internal exposure. Each of the internal transaction, that is, transaction between the parent and its subsidiary is marked as deduction line item. The deduction is processed as part of the RBI II Capital Structure in the capital structure processing, and all the internal transactions are eliminated from any RWA calculation.

Of the total exposure amount, the exposures can have drawn amount and undrawn amount. Drawn amount is the direct credit exposure and the undrawn amount can become a potential exposure when that amount is drawn. Therefore, EAD related to the undrawn amount is calculated by multiplying the CCF percent with the undrawn amount. The application calculates the EAD related to the drawn amount using the following attributes:

- Exposure Accrued Interest
- Off-Balance Sheet Drawn CCF Percent
- Write Off Amount
- Provision Amount
- Current Exposure Amount

For the market-related off-balance sheet items that are specifically highlighted in RBI Basel III Regulatory issued in 2012, exposure is calculated as committed but undrawn amount multiplied by a credit conversion factor (CCF). The credit equivalent amount in relation to a non-market based off-balance sheet items like direct credit derivatives, trade and performance related contingent items, and other drawndown commitments are determined by multiplying the contracted amount of that particular transaction by the relevant CCF.

In calculating the off-balance sheet credit exposures arising from the market-related off-balance sheet items that expose a bank to counterparty credit risk, the bank includes all its market-related transactions held in the banking and trading book that give rise to off-balance sheet credit risk.

- Market-related off-balance sheet items include the following:
    - Interest rate contracts

  - Foreign exchange contracts, contracts involving gold, cross-currency swaps (including cross-currency interest rate swaps), forward foreign exchange contracts, currency futures, and currency options.
  - Any other market-related contracts specifically allowed by the Reserve Bank which give rise to credit risk.
- Exemption from capital requirements is permitted for the following:
  - Foreign exchange (except gold) contracts which have an original maturity of 14 calendar days or less; and
  - Instruments traded on futures and options exchanges that are subject to daily mark-to-market and margin payments.

The exemptions listed above under point 2 are excluded from the capital computations from the relevant table populations and tasks. Sub-process **EAD Calculation** computes the pre-mitigation EAD.

Equity Exposures – SRWA/ PD LGD Approach Non-Investment Fund Treatment

Equity Exposures are treated in the Equity Exposures (**FCT_EQUITY_EXPOSURES**) table where EAD is calculated using the post offset amount. This is further reduced by the exposure excess investment amount. The excess investment amount is to be provided as an input. For more information, see the *Download Specifications* document.

Equity Exposure can be treated using the Simple Risk Weight Assignment (SRWA) method, PD/LGD approach or Internal Model Method. You can define the approach to be used to calculate the RWA for equity approach. If PD/LGD approach is selected Correlation, Capital charge and RWA is calculated.

If SRWA is the selected RW is calculated based on equity being Public Traded or Private traded. If IMM is selected, then the Capital Charge Derived from VaR Model is taken as input and RW is assigned.

Equity Exposures RWA

Equity Exposure RWA is calculated by multiplying the risk weight with the Equity EAD. Equity data is processed in the Equity Exposures (**FCT_EQUITY_EXPOSURES**) table. From Equity Exposures (**FCT_EQUITY_EXPOSURES**), data is populated to Fact Non Sec Exposures (**FCT_NON_SEC_EXPOSURES)** table.

For calculating risk-weighted assets for equity exposures held in banking book, two approaches are used:

- Market-based approach

  Under the market-based approach, banks are permitted to calculate the minimum capital requirements for credit risk for their banking book equity holdings using either, or both of two following methods:

  - Simple Risk Weight Assignment Method

    Banks in India are not allowed to take a Short position in Equity or derivatives. For this purpose, the offsetting of Long and Short positions of the bank is not permitted.

  - Internal Models Method

    This approach is same as in BIS. There are no functional changes to the same.

- PD/LGD approach

The minimum requirements and methodology for the PD/LGD approach for equity exposures are the same as those for the IRB foundation approach for corporate exposures. The maximum risk weight applicable for equity exposures for India is 1250%.

Sub-processes **Equity PD - LGD Approach**, **Equity Simple Risk Weight Method** and **Equity Internal Model Method** deal with the treatment of equity exposures under SRWA, PD/LGD, and IMM approach respectively.

Framework for Exposures in Default under Corporate, Sovereign, Bank and Retail Exposures

The capital requirement for restructured exposures considers the 'hardship' clauses specified in RBI Master Circular on Relief Measures by Banks in Areas affected by Natural Calamities dated July 1, 2011 or with the prior approval from RBI.

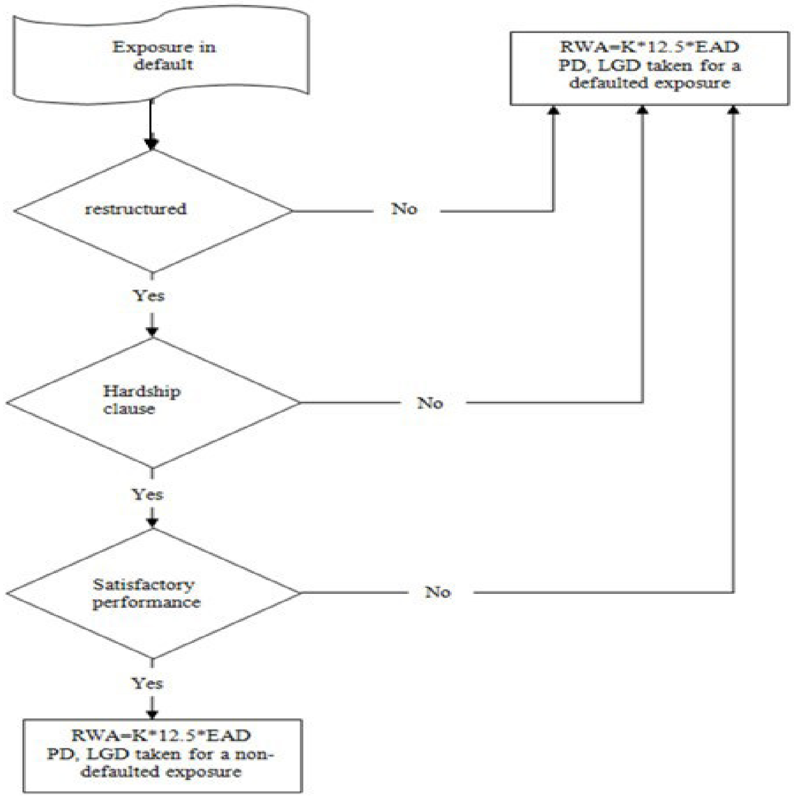
- Capital requirement (K) for a defaulted exposure is equal to the greater of zero and the difference between its LGD and the bank's best estimate of expected loss.
- The risk weighted asset amount for the defaulted exposure is calculated simlar to the non-defaulted exposure. It is the product of K, 12.50% and EAD.
- Restructured exposures under corporate, sovereign and bank asset classes calculate risk weight as applicable to exposures in default, except for hardship clauses.
- Hardship clauses can be extended to borrowers, as per the RBI Master Circular on Relief Measures by Banks in Areas affected by Natural Calamities dated July 1, 2011 or with the prior approval from RBI.
- However, such restructured accounts are eligible for an upgrade to the non-defaulted category after observation of 'satisfactory performance' during the period of one year from the date when the first payment of interest or installment of principal falls due under the terms of the restructuring package.

Note: This treatment of restructured assets classified as standard assets is from the perspective of capital adequacy and is not considered as a contradiction of asset classification norms that have implications for provisioning.

The above definition of defaulted and restructured assets are expected as an input from the bank, where the reporting bank classifies the exposures as NPA or restructured.

If the exposure is restructured and the period of satisfactory performance is more than a year, then the exposure is treated as standard. If the period of satisfactory performance is less than a year, then the exposure is treated as defaulted.

The process flow is as follows:



Task **IND - Non Sec PD Assignment for Defaulted Exposures IRB** considers the above flow and assigns the PD to the defaulted exposures based on the RBI guidelines. The other tasks for RWA and Capital charge calculations pick up this PD and treat these exposures as per the guidelines given by RBI in this regard.

Retail Exposures

The retail exposure rules cover risk components, qualifying criteria, further classification of retail assets, EAD calculations, on balance sheet netting, and risk weight functions of retail assets.

The following claims, both fund based and non-fund based isexcluded from the regulatory retail portfolio:

- Exposures by way of investments in securities (such as bonds and equities), whether listed or not.
- Loans and advances to banks' own staffs that are fully covered by superannuation benefits and / or mortgage of flat / house.
- Capital market exposures.
- Venture capital funds.

Note: Capital calculation for the exposures mentioned in (b) and (d) are treated as per RBI directives of standardized approach of India Basel III.

The above exclusions and qualifying criteria follow the same criteria as per the RBI Standardized approach reclassifications for Retail exposures. The threshold of INR 50 Crore is checked in accordance with the standard approach for India. The reclassification into RRP is done in the task **Map_Ret_Exp**.

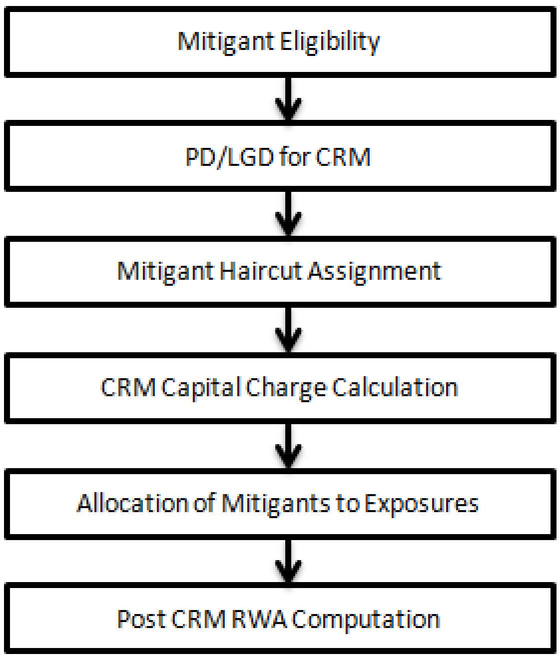
Pre-CRM RWA Computation

Pre-CRM RWA is calculated for all asset classes by multiplying the Pre-CRM EAD with the risk weight.

Credit Risk Mitigation

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

Process Flow for Credit Risk Mitigation



Mitigant Eligibility

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

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

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

PD/LGD for CRM

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

In the FIRB approach for financial collateral, PD used is that of the exposure that the collateral is covering and the LGD used is 0. For other mitigants like guarantees or credit derivative, the PD used is that of the mitigant (expected to be an input from the bank), and LGD used is that of the exposure that the mitigant is covering.

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

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

Mitigant Haircut Assignment

The application does computations for three kinds of mitigant haircut as follows:

- Volatility haircut
- FOREX haircut
- Maturity mismatch haircut

Volatility haircuts are calculated and the amount of the exposure to the counterparty and the value of collateral or mitigant is adjusted to account for any future fluctuations in the market value. After this adjustment, the application updates the volatility adjusted amounts for the exposure (higher than the original exposure amount) and the collateral (lower than original amount).

When the exposure and collateral are in different currencies, the application performs adjustments by applying the FOREX haircut. If the residual maturity of the CRM is less than that of the underlying credit exposure, then a maturity mismatch is applied. If there is a maturity mismatch and the CRM has an original maturity of more than a year, a maturity mismatch haircut is applied to adjust the value.

There are two methods for assigning volatility haircut:

- Supervisory Haircut
- Own Estimate

For the supervisory haircut method, the application assigns volatility haircut based on issuers, issuer's ratings, mitigants residual maturity, and the mitigant type, as recommended by the Basel accord. For the Own Estimate method, the application considers the Basel transaction type of the exposure. Basel transaction types are stored in the Basel transaction type dimension (**DIM_BASEL_TRANSACTION_TYPE**) table. The various transaction types available are capital market driven, repo style, and secured lending.

The volatility haircut is assigned as per the RBI guidelines. The FOREX haircut is also assigned based on these transaction types as per RBI guidelines.

Only eligible mitigants are considered for haircut assignment. The eligible mitigants are moved from the mitigants (**FCT_MITIGANTS**) table to sub exposures (**FCT_SUB_EXPOSURES**) table. Haircuts mentioned in the Basel Accord assume a holding period for ten days. However, if the holding period for mitigants is more than ten days, then the application scales up the haircut value to reflect the correct value as per the holding period.

CRM Capital Charge Calculation

Mitigant Correlation Factor

Similar to Non Securitization exposures, correlation factor for collaterals or mitigants are also calculated for mitigants belonging to all asset classes. This is based on their PD, as mentioned in the RBI guidelines.

Capital Charge Calculation

The capital charge is calculated for all mitigants using their effective maturity, correlation factor, probability of default, loss given default, and maturity adjustment value.

Allocation of Mitigants to Exposures

This process loads the mitigant mapping data from the stage table to the corresponding processing table. Mitigants are allocated to the respective exposures it covers, and the application defines the amount of the bank's exposure the mitigant is covering. The shareholding percent is also applied to the mitigant amounts. The application has a pre-built optimizer for optimum allocation of mitigants to the exposures for CRM purposes. One-to-One, Many-to-One, and Many-to-Many mapping of mitigants are handled in an efficient manner involving storage of intermediate computations for traceability.

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

The application uses the linear programming logic to alloc`ate the mitigants to the exposures. Pooling identifies the exposure and mitigant data from sub exposures (**FCT_SUB_EXPOSURES)** table. Exposure identifier and mitigant identifier are the attributes on which pooling is performed. It assigns a pool ID for each exposure to mitigant combination. Based on these pool Ids, the optimizer allocates a covered factor to exposures. Optimizer allocates mitigants to exposures to attain the most favorable EAD output

For more information on pooling and optimizer, see Pooling and Optimizer

Note: A tag <ALTER_STATEMENTS> is present in Optimizer_Config.xml. This statement is used to enable the parallel Data Manipulation Language (DML) for the optimizer. This is disabled by default due to which a warning appears as follows, which is printed in the optimizer log:

> "Error: Could not find node ALTER_STATEMENTS in the xml"

The administrator can uncomment this tag to enable parallel DML for the optimizer.

Post-CRM RWA Computation

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

Post CRM

Pre-mitigation EAD is split into post mitigation EAD for covered portion (mitigant's EAD - portion of exposure that is covered by mitigant) and uncovered portion (portion of the exposure that is not covered by mitigant). For multiple mitigants covering one exposure, there is more than one record for the covered portion of that exposure. Therefore, each exposure is divided into sub-exposures. Post mitigation RWA Unexpected Loss (post CRM RWA UL) is calculated as the product of sub exposure amount and applicable Risk Weight. For the covered portion, RW applicable is as per mitigant assigned. For example, RW applicable to eligible guarantor. For the uncovered portion, RW of exposures continues to be applied. Sub-exposure amount are then aggregated to exposure level.

Counterparty Credit Risk

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 while they follow Standardized or IRB approaches for credit risk.

8.2.2 Securitization – Internal Ratings Based Approach

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

Securitized exposures are exposures that are issued out of a pool of underlying exposures for the transfer of risk. Re-securitized exposures are the exposures that are issued out of a pool of underlying exposures that constitutes non-securitized exposures and some portion of securitized exposures. The application is capable of handling both securitized exposures and re-securitized exposures. It also handles the calculation for the originator and the investor bank roles. At a broad level, there are two categories of Investors:

- An Investing Bank that has invested heavily in securitization
- An Investing Bank that has invested minimal in securitization

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

For an originator, the data is expected in the same manner as the Investor, except for the Underlying Exposures. The underlying exposures of the pool are expected in the respective PP tables, depending on the product type of the underlying exposures.

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

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

BIS differentiates securitization **exposures** into the following types:

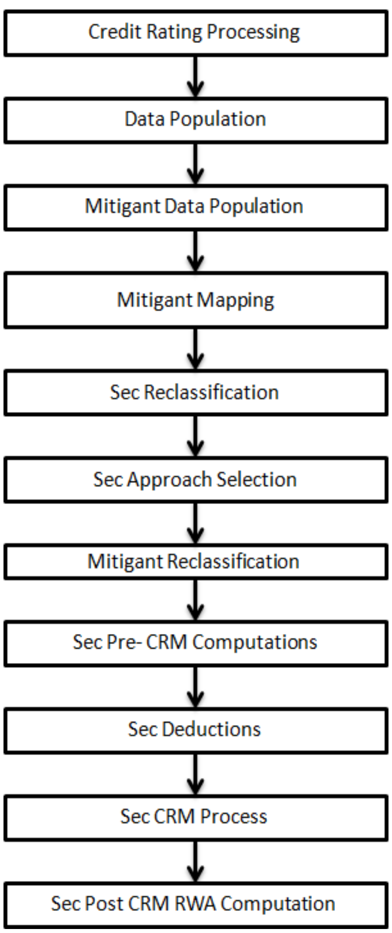
- **Traditional exposures**: A traditional securitization is a structure where the cash flow from an underlying pool of exposures is used to service at least two different stratified risk positions or tranches reflecting different degrees of credit risk.
- **Synthetic exposures**: A synthetic securitization is a structure with at least two different stratified risk positions or tranches that reflect different degrees of credit risk. This is reflected where credit risk of an underlying pool of exposures is transferred, in whole or in part, through the use of funded or unfunded credit derivatives or guarantees that serve to hedge the credit risk of the portfolio.

RBI follows only traditional exposure type in framing the risk weight assets and follows the rules for dealing with such exposure. Additionally, re-securitization exposures are not applicable in RBI.

The advanced approaches and the treatment of securitization exposures under these approaches is detailed in the sections that follow. The process to be referred for securitization exposures is **IND_BASELIII_SEC_IRB**.

Process Flow for Securitization – IRB Approach

The application handles the IRB Approach of the Securitization Exposures as follows:



Credit Rating Processing

All the 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**) tables, and the mitigants rating information are captured in the instrument rating details (**STG_INSTRUMENT_RATING_DETAILS**).

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

Sec Data Population, Mitigant Data Population, and Mitigant Mapping

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

Sec Reclassification

The application uses the standardized data for all kinds of calculations (product type like eligible liquidity facility, bank role like originator, pool type like mortgage-backed securities). Before any computation, the application reclassifies the bank-specific data to standard data, similar to the Basel accord terms. The application reclassifies the Bank role to the standard Bank Role of an Originator or Investor. Any other bank roles like Sponsor, Credit Protection Provider and so on are reclassified into Originator, Investor, respectively.

The application also reclassifies the pool type to the standard pool type like Credit Cards Receivable Pool, Auto Loans, and so on. It also reclassifies the product type to the standard product type like Mortgage-Backed Securities, Eligible Liquidity Facility, and so on. For mitigants, the application reclassifies the mitigant types to the standard mitigant types like the Debt Securities, Credit Derivative, Cash, and so on. It also reclassifies the mitigant issuer type to the standard mitigant issuer type like banks, corporations, and so on.

The reclassification tasks are present in the Sec reclassification and Mitigant reclassification sub processes

Sec Approach Selection

The application assigns the appropriate approach to the exposures based on the criteria specified in the Basel Accord. The application assigns any of the approaches under the following IRB processes

- Sec-Ratings based Approach
- Sec-Supervisory Formula Approach (SFA)
- Sec-IRB 1250% Risk Weight Approach

If the exposure is qualified for the SFA approach (SFA Qualified flag is 'Y') and there is one or no external ratings assigned for that exposure, then the application assigns the SFA to the originator exposures. It assigns the sec-ratings based approach, if there is at least one rating assigned to the exposures. If exposures are qualified for SFA approach (SFA Qualified flag is 'Y') and have more than one rating, the application assigns the sec-ratings based approach to that exposure. In the case of exposures not qualifying for any of these approaches, the application assigns the Sec-IRB 1250% Risk Weight Approach.

This approach selection is handled in the Sec Approach selection sub-process.

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. This is handled in the pre-CRM computations sub-process.

Pre-CRM EAD Computation

The application assigns the Credit Conversion Factor (CCF) to the off-balance sheet items as specified by the RBI guidelines. The CCF percentages are assigned based on the bank role (this is applicable only for the originator bank role), the product type (like the Eligible Liquidity Facility), and the applicable ratings. The CCF percentages are also assigned to the exposures based on the early amortization provision applicable to the transaction. In such cases, the CCF assignment is based on the early amortization type (controlled or uncontrolled), the pool type, and the ratio of three month average excess spread to the trapping point. Additionally, the application computes the pre-mitigation EAD based on the bank role and the product type. It calculates the EAD for the investors and the originators separately based on the calculations given in the RBI guidelines. This is handled in the **Pre-CRM Computations** sub-process.

Risk Weight Assignment

Ratings Based Approach

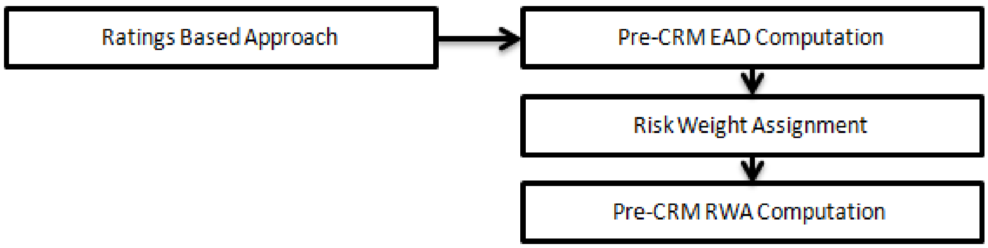
For exposures that follow the ratings based approach, the risk weight assignment is similar to the standardized approach, except for the difference on the criteria used for risk weighting. The application uses the granularity of the pool, seniority position of the exposure, and the credit rating of the exposure for the risk weighting the exposures that follow the ratings based approach.

In the case of exposures that are unrated, the application checks the criteria required for inferring the rating. This is based on the presence of the subordinate tranche information (based on seniority) for the same pool, regardless of whether the bank has an exposure in that tranche or not. The residual maturity of the subordinate tranche being more than the unrated tranche's residual maturity, the credit enhancement level of the unrated tranche is equal to or more than the subordinate tranche's credit enhancement level. The ratings of the tranches also undergo multiple assessments and the application assigns a single rating for all the rated tranches. This multiple assessments of ratings occur in the Data Transformation "Mult_Assessment_Tranche". The details of the Data Transformation are listed in the following table:

Data Transformation Name	Objective	Processing Logic
Mult_Assessment_Tranche	The objective of this Data Transformation is to perform multiple assessments of the ratings and assign a normalized rating and risk weight to the securitization tranche. This is required for processing the inferred ratings treatment.	For each securitization tranche the various standard ratings associated with that exposure and the respective risk weights are identified. If the number of ratings are 1, then the same rating gets assigned as the standard rating for the tranche. If the number of ratings are greater than or equal to 2, then the tranche is assigned a standard rating which corresponds to the worst of the best two risk weights associated with the various tranche ratings.

Based on all this criteria, the rating for the unrated exposure is considered to be equal to the identified subordinate tranche. Due to the seniority of the exposure in the cash flow and in the securitization structure, a subordinate tranche does not have ratings more than that of the immediate senior tranche. Therefore, if more than one subordinate exposure exists, then the application assigns the rating of the immediate subordinate tranche.

This is handled in the **Pre-CRM Computations** sub-process.



Supervisory Formula Approach

For exposures which follow the supervisory formula approach, the application calculates the underlying capital of the securitization pool (K_{IRB}), using the Non Securitization process. Additionally, the application calculates the SFA parameters based on the pool and tranche details. The application calculates these, using the calculation logic specified by the RBI guidelines. It also checks the exposure to identify whether the exposure needs to be straddled or not. This check is based on the credit enhancement level of the tranche to which the exposure belongs to, the thickness of the tranche to which the exposure belongs to, and the underlying capital of the securitization pool.

The exposures for which the sum of the credit enhancement level and the tranche thickness are less than that of the K_{IRB}, the exposures are deducted from the capital. The exposures for which the credit enhancement level is more than that of the K_{IRB}, the exposures have the SFA Parameters computed. The exposures for which the credit enhancement level is less than that of the $K_{IRB,}$ but the sum of the credit enhancement level and the tranche thickness are more than the K_{IRB}. The exposures are straddled, that is, the tranche to which the exposure belongs is split into a position below K_{IRB} and a position above K_{IRB}. All the exposures mapped to the straddled tranche are also split by the application in the same proportion as the split tranche.

The application populates straddled tranche information into Securitization Straddled Tranche (**FSI_SEC_STRADDLED_TRANCHE)** table. The application splits each of the exposures of the identified straddled tranche into two. The account skey of the parent exposure, which is undergoing the split, is added as the parent account skey for the new exposures formed. The straddled tranche deduction amount (the K_{IRB} amount less the tranche amount) is calculated and populated from the **FSI_SEC_STRADDLED_TRANCHE** in a pro-rated manner to all the exposures of the straddled tranche that are identified for deductions. The remaining amount (which is the tranche amount above the K_{IRB}) is the exposure amount of the senior exposure belonging to the category of split exposures. After the original exposures are split into two, and their amounts are populated, the original exposure is deleted from the Exposure table.

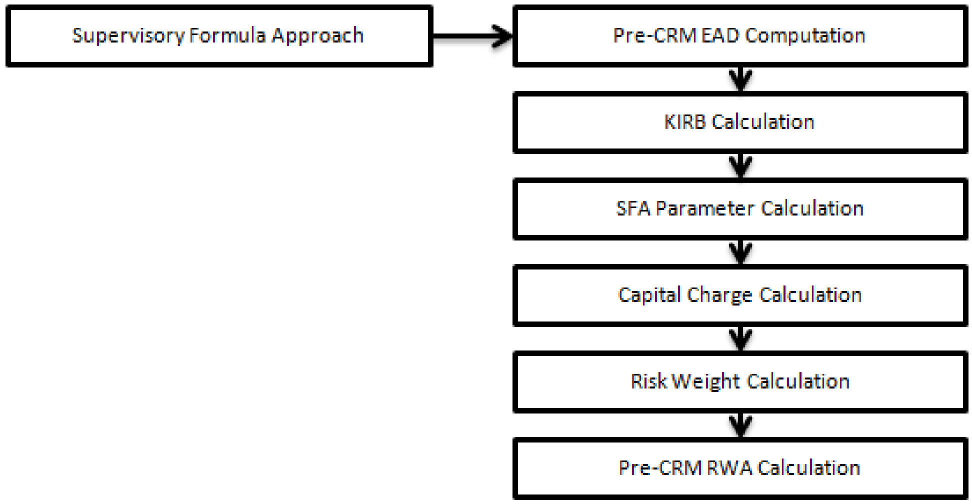
The splitting of the identified straddled exposures are done with the help of the Data Transformation “Sec_Straddling_Sfa” for securitized exposures and with the help of the Data Transformation “Resec_Straddling_Sfa” for resecuritized exposures.

The Details of the Data Transformation are listed in the following table:

Data Transformation Name	Objective	Processing Logic
Sec_Straddling_Sfa	The objective of this Data Transformation is to split the sec position (excluding resec position) belonging to straddling qualifying tranche into two positions (senior and junior) and treat them as per regulator guidelines.	Cases where L < KIRB < (L+T), the position is split into two position, where junior position is calculated as pool capital in amount terms minus the sum of amount of all tranches junior to the one to which bank has exposure to. The remaining amount is assigned to senior position, which gets assigned risk weight calculated as per Supervisory Formula. The junior position is assigned 1250% risk weight.
Resec_Straddling_Sfa	The objective of this Data Transformation is to split the re-sec position belonging to straddling qualifying tranche into two positions (senior and junior) and treat them as per regulator guidelines.	Cases where L < KIRB < (L+T), the position is split into two position, where junior position is calculated as pool capital in amount terms minus the sum of amount of all tranches junior to the one to which bank has exposure to. The remaining amount is assigned to senior position, which gets assigned risk weight calculated as per Supervisory Formula. The junior position is assigned 1250% risk weight. The Data Transformation inserts record corresponding to the straddled tranche into DIM_EXPOSURE and FCT_SEC_EXPOSURES. The Data Transformation updates N_SEC_EXP_RW_UL & N_PRE_CRM_SEC_EXP_CAPITAL_UL. of FCT_SEC_EXPOSURES.

After all the SFA Parameters are computed, the capital charge is calculated using the SFA Parameters. This capital charge is subsequently converted into the risk weight.

This is handled in the **Pre-CRM Computations** sub-process.



Sec 1250% Risk Weight Approach

The exposures which are unrated and do not qualify for any of the approaches, are assigned 1250% risk weight. Additionally, the exposures under RBA that are below investment grade are also assigned 1250% risk weight. The exposures which follow the SFA Approach and which are lower than the KIRB, also get assigned 1250% risk weight.

Sec CRM Process

Mitigant Eligibility, Mitigant Risk Weight, Haircut Assignment, and Allocation of Mitigants to Exposures are handled in Sec CRM sub-process.

Mitigant Eligibility

The application identifies the eligible mitigants based on the criteria as mentioned in the RBI guidelines. The application identifies the following mitigants in the case of Securitized exposures – collateral, guarantees, and credit derivatives. The application is capable of using a comprehensive approach for mitigants that are part of the collateral. This is similar to the mitigant eligibility of the Non Securitization process. The application processes multiple assessments of ratings for mitigants, and some of the mitigant eligibility criteria are based on the ratings and risk weight of the mitigants.

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 being senior or not. For equity, the eligibility is based on the main index equity and the equity trading status. For mutual funds, the eligibility is based on the eligible mutual fund indicator. The application identifies the eligibility of the guarantees and credit derivatives based on the party type of the mitigant and the credit rating assigned to the issuer of the mitigant. In the case of Nth to default credit derivatives, the application further identifies the eligible credit derivative, based on the number of defaults in the exposures and the defaulted position covered by the mitigant. The application identifies the number of defaults in the tranches based on the attachment point of the tranche to which the exposure belongs to, the initial pool exposure amount, and the cumulative default amount.

Further, the application computes the number of tranches in default and compares it with the defaulted position covered by the mitigant. Based on the criteria of eligibility mentioned in the Basel accord, the application identifies whether the mitigant is eligible or not, and if eligible, the application makes the least risk weighted exposure as the eligible mapping, for the least eligible nth to default mitigant for the exposure.

This identification of the eligible nth to default credit derivative and the eligible exposure-mitigant mapping is performed with the help of the Data Transformation "CD_Sec_Mitigant_Elig_IRB". The details of the Data Transformation are listed in the following table

Data Transformation Name	Objective	Processing Logic
CD_Sec_Mitigant_Elig_IRB	The objective of this Data Transformation is to identify an eligible sec exposure mitigant mapping wherein the mitigant is an Nth to default credit derivative, in the case of Securitization IRB Approach.	The eligible nth to default credit derivative mitigant is identified and processed based on the exposures mapped to the same pool id. All the exposures mapped to the same pool ID are identified and the corresponding mitigants mapped to them are also identified. In the sec pool id, the cumulative pool default amount is compared with the tranche attachment point as a number (obtained by multiplying the tranche attachment percentage by the initial pool exposure amount). The number of tranches for which the tranche attachment point is less than the cumulative pool default amount is calculated. This number is compared with the minimum defaulted position of the credit derivative mitigant. For a basket of exposures covered by multiple credit derivatives, eligible mitigant is minimum defaulted position in the basket minus 1. Also other credit derivative in the basket of exposures which are having the defaulted position consecutively iscome eligible. For each eligible mitigant, the exposure mitigant mapping wherein the exposure has the least risk weight or capital charge iscome eligible. All other exposure mitigant mapping for that mitigant is marked ineligible.

The application also identifies the eligibility of the mitigants based on the comparison of the risk weight of the exposures and the mitigants.

The application also identifies the eligibility of the mitigants based on the comparison of the risk weight of the exposures and the mitigants. If the mitigant's risk weight is lesser than the risk weight of the exposures, then the mitigants become eligible or else the application makes them ineligible.

Mitigant Risk Weight

The application calculates the mitigant risk weight similar to the exposure risk weight of Non Securitized exposures. This is based on the issuer type and the credit rating, which includes the unrated issuers as well. The application performs multiple assessments for the mitigants, similar to the Non Securitization process, and arrives at a single rating for the mitigant. Additionally, the application assigns the final risk weight to the mitigant. In the case of financial collateral mitigants like cash and gold, zero risk weight is assigned.

Haircut Assignment

Haircut assignment to the mitigants is processed in the **FCT_SUB_EXPOSURES** table. The application assigns the various haircuts, as applicable to the mitigants. In the case of collateral following simple approach for recognition, there are no haircuts assigned to the mitigant. In the case of collateral following a comprehensive approach, the application has the flexibility to use the supervisory haircuts and scale up if required, based on the minimum holding period. Alternatively, it also uses the bank's own estimate of haircuts. The application applies the volatility haircut, FOREX haircut, and the maturity mismatch haircut appropriately to the mitigants, as per the Basel accord. Only eligible mitigants are considered for haircut assignment. The eligible mitigants data flows from the mitigants (**FCT_MITIGANTS**) table to sub exposures (**FCT_SUB_EXPOSURES**) table.

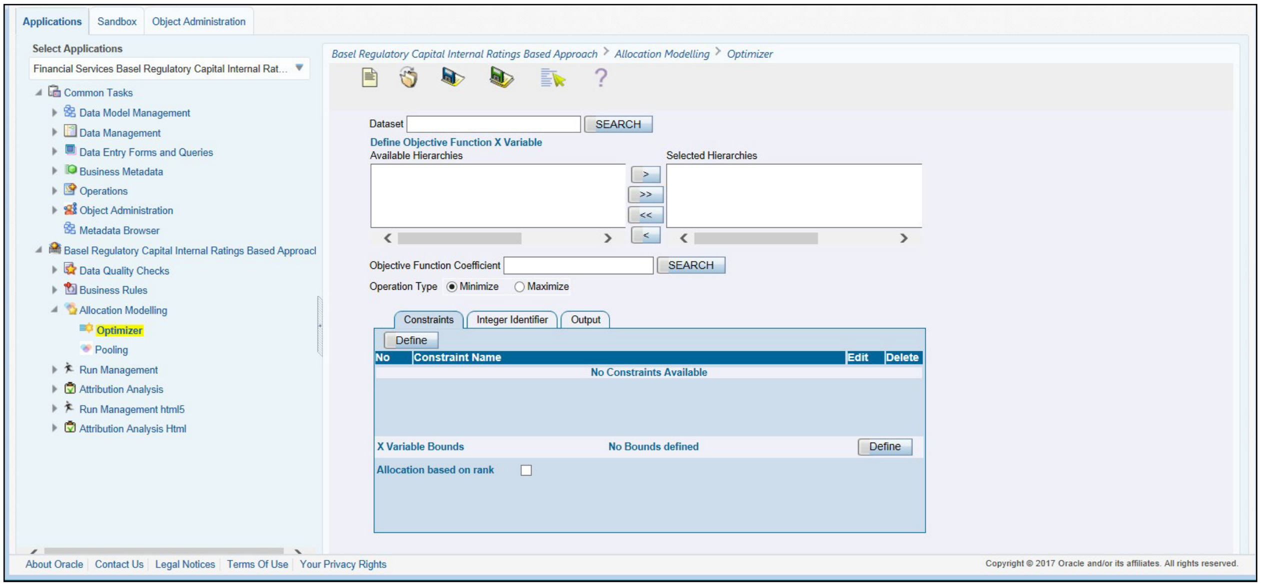
The application populates an uncovered mitigant for each exposure in the **FCT_SEC_EXPOSURES** table. This uncovered mitigant has the same features as that of the exposure and is created in the **FCT_MITIGANTS** table.

Allocation of Mitigants to Exposures

The application computes the mitigant value after all haircuts. The application uses the pooling and optimizer logic to allocate the exposures to the mitigants. This is a bit different from the optimizer logic of Non Securitization exposures as the Securitized exposures have priority in the cash flow and gets the maximum protection by the mitigants. The senior most exposure (or tranche) is denoted with seniority 1, and the second senior exposure is denoted with seniority 2 and so on.

In the case of securitization exposures, the mitigants are always given preference over the senior most exposure and subsequently to the other exposures based on the seniority. The other parameters that are considered in the allocation logic are the risk weight and the mitigant value post haircut. The application uses the linear programming logic to allocate the mitigants to the exposures. The optimizer logic for the Securitization process is a bit different from the Non Securitization process and is provided in the following list:

- Based on the seniority of the exposures, risk weight of the exposures, the mitigant, and the mitigant value, the ordering of ranking in which the mitigants is allocated to the exposures, is arrived at. The order of allocation can be modified by updating the operation type and the optimizer constraints of the objective function. You have to select the allocation rank measure in the **Optimizer Definition** window while defining the optimizer logic. For more information on Currency Conversion, see Exhibit 4**.**



Single Mitigant Mapped to Single or Multiple Exposures

If there is one or more than one exposure mapped to a single mitigant, then the mitigant is allocated to the exposure with the highest seniority. If there is more than one exposure with the same highest seniority, then the mitigant is allocated to the exposure, that yields the highest mitigant value post haircut.

Single Exposure Mapped to Single or Multiple Mitigants

If there is one or more than one mitigant mapped to a single exposure, then the least risk weighted mitigant is allocated to the exposure. If there is more than one mitigant with the same least risk weight, then the mitigant that has the highest mitigant value post haircut is allocated to the exposure.

Multiple Exposures Mapped to Multiple Mitigants

The treatment, in this case, is similar to a single mitigant mapped to single or multiple exposures, for the identification of the mitigant that is assigned to the exposures. Later, the treatment pertaining to single exposure mapped to multiple mitigants is followed to yield the credit Risk weighted exposure amount.

By using the logic mentioned in the preceding list, the application calculates the factor of exposure covered by the mitigant, and the factor of the exposure uncovered (without any protection).

Sec 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.

Post-CRM RWA = Covered Amount * Risk Weight of the Mitigant
+ Uncovered Amount * Risk Weight of the Exposure

This logic is handled in **Sec Post CRM RWA computation** sub process.

The following sub processes and tasks are computed in the **SEC_IRB** Process:

- Sec Reclassification
- Sec Approach Selection
- Mitigant Reclassification
- Sec Pre-CRM EAD Computation
- Risk Weight Assignment
- Pre-CRM RWA Computation
- Mitigant Eligibility
- Mitigant Risk Weight
- Haircut Assignment
- Allocation of Mitigants to Exposures
- Post CRM RWA Computation

8.3 Market RWA

The Market Risk of Non Securitized and Securitized exposures in the Foundation IRB Approach (FIRB) and Advanced IRB Approach (AIRB) is calculated as in the Standardized Approach. See Standardized Approach for more information.

8.4 Operational RWA

The Basel accord has prescribed three methods for calculating Operational Risk capital charges in the Foundation IRB Approach (FIRB) and Advanced IRB Approach (AIRB). Banks can use any of these methods to calculate capital charge same as in the Standardized Approach.

- Basic Indicator Approach
- Standardized Approach
- Alternative Standardized Approach

See Operational RWA for more information.

8.5 Capital Structure

Basel III Capital Structure is calculated for the Foundation IRB Approach (FIRB) and Advanced IRB Approach (AIRB), similar to the Standardized Approach.

See Capital Structure for more information.

8.6 Capital Buffers

Basel III Capital Buffers is calculated for the Foundation IRB Approach (FIRB) and Advanced IRB Approach (AIRB) similar to the Standardized Approach.

See Capital Buffers for more information.

8.7 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. In addition, 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.

The solo and consolidation are as per the regulatory definition and same as the one, which is being used for the regular capital adequacy.

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

The Large Exposures Framework is applicable in BIS from January 1st 2019.

8.7.1 Details of the Large Exposure Calculations

The Large Exposures computation is an additional computation added to the existing capital adequacy run.

The Large Exposures computation require the details of the party's relationship to one another, since there are different limitation to the group exposure (which will be 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 each and every related party's information are provided, and the relationship type is also defined. This is reclassified into the standard relationship type, to be used for further processing and reporting.

The Large Exposure threshold check happens at both the individual level (single counterparty), and also across the connected party level (group of connected clients). This is done at both the solo and consolidation level. And also, the parties identified as large exposures, will have to be more than 10% of the bank's Tier 1 capital. The threshold which it cannot breach depends on the party type and various other conditions, as specified by the regulator. In most of the scenarios, individually and group parties cannot be more than 25% of the Tier 1 capital (depending on the party type), and as a group cannot exceed 25% of the Tier 1 capital.

The check on the large exposure identification happens at the Gross Exposure level, and the check for the threshold limit breach happens on the Net Exposure Level.

Gross Exposure Computations

On Balance-sheet exposure:

The exposure value is calculated as the Net of the specific provisions and value adjustments the and bank is also allowed to calculate the exposure as gross of specific provisions and value adjustments as an alternative for the net exposure value. The net of provisions calculation is happening same as Basel III. The application gives banks an option to choose the approach for calculating exposure value using a Run Management option:

Question: What approach banks choose for on- balance sheet exposures

Option A: Net of provisions

Option B: Gross of provisions

Default Value: A

Off Balance-sheet commitments:

The products the bank has not parted with any money at the start but has promised or is obligated to provide the money when the need arises from customer's side is known as off balance sheet exposures. The most common example of people is guarantees. To use these exposures for the calculation, a CCF is multiplied based on the product type under BASEL III computations.

For these items, as part of Large exposure framework a floor of 10% is applied to these CCFs. This is covered in the rule name RLBL1790 BIS - Large Exposure On Balance Sheet EAD Computation.

OTC derivatives and Instruments with CCR:

The exposure value of these instruments are calculated based on the approach used by the banks for calculating the CCR exposure. These calculations happen using the existing logic given in Basel III for calculating exposure value of the instruments excluding SFTs with counterparty credit risk.

Securities Financing Transactions (SFT):

For the purpose of large exposure framework, the exposure value for the SFT transactions is calculated using the existing logic as part of BASEL III regulations.

The application processes the Non Securitised exposures in the same way as it is done in BASEL III and there is no specific changes for Large Exposure Framework. The corresponding gross exposure amounts required for credit limit calculations are identified in the process **LARGE EXP PROCESSING DATA POPULATION**.

8.7.2 Securitization Data Population and Processing

The application is capable of handling both securitized exposures and re-securitized exposures and the processing is same as the current BASELIII calculations. It also handles the calculation for the originator and the investor bank roles.

8.7.3 Process Flow for Market Risk and SPV

For the purpose of Market risk exposure computations under large exposure framework, application shall refer to the existing market risk process under the capital rules. Those details are moved to Large exposure specific tables for processing and use for assigning limits. If banks use the same application then the values will be picked by the application by default. To capture the third party SPV exposure, a new processing table - FSI_SETUP_SPV_THIRD_PARTY_DTLS has been introduced and the data is expected as download.This will be part of setup table population batch. From there the data is picked and processed for third party exposures as expected in the accord.

Banks' Exposure to exempted entities:

If there is any transaction of the bank that involves exempted entities but has a protection, then the exposure shall be treated as the exposure to the protection provider than the original counterparty.

Data Expectation:

FSI_SETUP_SPV_THIRD_PARTY_DTLS has been introduced and the data is expected as download,

8.7.4 Counterparty Gross Exposure Amount Calculation

The Gross exposure amount that will be considered for Large Exposure framework will be the EAD pre-mitigation calculated as part of non-securitization process, with only the exception being the CCF Flooring to 10%

The computations are the same as Basel III and the application handles the same.

The solution populates all the exposures pertaining to each of the counterparties without considering their relationship with other counterparties into Counterparty Exposure processing table (FCT_COUNTERPARTY_EXPOSURES). The exposure amount pre mitigation, as well as post mitigation, and the exempted amount are considered in this data population.

The data population considers even the indirect exposures, wherein the bank holds a mitigant that is issued by counter-party. The eligible net mitigant amount, post haircut adjustment is considered as an indirect exposure of the Bank towards the issuer of the mitigant, and is capped at the original exposure amount for which the mitigant has been placed so as to take overcollateralization value into consideration

The data population also considers the logic for additional exposures, wherein the bank is a counterparty (customer or issuer, depending on the product code), for the underlying exposures of Securitization or CIU.

8.7.5 Treatment of Specific Exposures

Interbank Exposures:

Exposures related to interbank are to be identified and aggregated and the aggregated amount is to be subjected to the large exposure limits. The large exposure limits applicable will be 25% of banks Tier 1 capital. These interbank exposures will exclude intra-day interbank exposures for the limits. Those exposures are identified based on the flag and further used for assigning limits.

Collective Investment Undertakings (CIU), SPV:

Calculation of gross credit exposure depends on the specific product category of on-balance sheet, off-balance sheet exposure, 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. This same as INDIA and USA , process used are **LARGE EXP SPV UNDERLYING PROCESSING**.

The computation of gross credit exposure for CIU/SPV is handled in Large Exposure SPV Third Party Additional Exposure Amount and Large Exposure Additional Exposure Amount for Counterparties with CIU Underlying. Calculation also covers indirect exposures of the counterparty arising out of the mitigant exposures of the bank.

calculation also takes into, the amount of initial margin and variation margin in excess of that needed to secure the mark-to-market value of a derivative that is posted to a bilateral or central counterparty would be treated as credit exposure to the counterparty unless the margin is held in a segregated account at a third-party custodian account With respect to both cleared and un-cleared derivatives.

The solution populates all the exposures pertaining to each of the counterparties without considering their relationship with other counterparties into Counterparty Exposure processing table (FCT_COUNTERPARTY_EXPOSURES). The exposure amount pre mitigation, as well as post mitigation, and the exempted amount are considered in this data population.

The data population considers even the indirect exposures, wherein the bank holds a mitigant that is issued by a counterparty. The eligible net mitigant amount, post haircut adjustment is considered as an indirect exposure of the Bank towards the issuer of the mitigant, and is capped at the original exposure amount for which the mitigant has beeen placed so as to take overcollateralization value into consideration

The data population also considers the logic for additional exposures, wherein the bank is a counterparty (customer or issuer, depending on the product code), for the underlying exposures of Securitization or CIU.

8.7.6 Covered Bonds

The covered bonds exposure to be considered for Large exposure framework, will be based on the criteria satisfied as given in the accord, If all the conditions are satisfied then application shall reduce the exposure amount to 20% (Parent exposure of covered bond) and use it for futher computations. If the conditions are not satisfied then 100% exposure is considered by the application.

8.7.7 Exposures to QCCP

The large exposure framework is exempted based on the party type. Non QCCPs will receive a limit of 25%. The clearing activities for the considered exposures will be handledas per the guidelines. The following is the exemption criteria for the exposures to QCCP.

This is covered in the rule name RLBL1755 Large Exposures Counterparty Limit Assignment for non QCCP parties.

Data Expectations

The Large Exposure framework is not applicable for the Banks' exposure to QCCP for clearing activities. These are to be exempted based on the party type.

The Non-QCCP involved in clearing activities, will receive a limit of 25%. These exposures are identified using the flag N_Qualified_CCP_flag as N and the party type as CCP.

The below are the list of clearing activities for which the exposure will be considered to aggregate and a breach limit of 25% (of bank eligible capital) will be applicable.

For the Clearing Activity exposure where F_COLL_SEGREGATED_FLAG is Y the exposure Value to be considered is Zero

For the Clearing Activity exposure where F_COLL_SEGREGATED_FLAG is N the exposure Value will be N_COLLATERAL_FAIR_VALUE

For the Clearing Activity exposure for the Funded Default Fund Contributions exposure which is F_UNFUNDED_IND is N, the exposure Value to be considered is the Nominal amount of funded contribution I.e. N_COLLATERAL_FAIR_VALUE

For the Clearing Activity exposure for the Unfunded Default Fund Contributions exposure which is F_UNFUNDED_IND is Y the exposure Value to be considered is Zero

The application identifies the G-SIBs and assigns a large exposure limit of 15%. Identification of G-SIB is done using the Party type.

8.7.8 Exempted Exposures

Application identifies the transactions related to a sovereign or QCCP and exempts it for the Large exposure framework calculations

Identification happens as below:

QCCP: Based on the party type and the Qualified CCP indicator = Y

Sovereign: Based on the Asset class, Guaranted by sovereign flag =Y

8.7.9 Credit Risk Mitigation

Credit Risk Mitigation for large exposure framework will contain the same criteria as it exists in Basel III computations. The existing process will hold good and no additional change is required.

8.7.10 Risk Shifting

A covered company must also take into account the adjusted market value of any eligible collateral when calculating its gross credit exposure to a counterparty. The eligible mitigant value post haircut is considered as an indirect exposures of the holding company towards the collateral issuer. The solution also take into account the collateral eligibility check, haircut value adjusted net mitigant value and also capping the net mitigant value to the original exposure amount in case of over collateralization.

In case of CDS, the amount that will be considered for risk-shifting is EAD calculated by using CCR approach.

8.7.11 Aggregation of Connected Counterparties

The core aim of a large exposure regime is to act as an overlay "to prevent a financial institution from incurring large losses as a result of the failure of an individual client or group of connected clients due to the occurrence of unforeseen events". The large exposures framework requires aggregation of exposures to counterparties, where the counterparties are connected through various relationships like economic interdependence, Business control relationship and so on.

While aggregating the counterparties the following check must be done:

All the counterparty exposure must be aggregated based on the party relationship defined and is aggregated against the ultimate parent. This aggregation logic is used for every party types except for retail party type for which the aggregation logic is different.

A connected group is identified as a large exposure if the net exposure amount crossed the 10% of the eligible capital base. The regulatory thresholds are assigned based on the ultimate parent party type and is used to identify the threshold breach.

8.7.12 Trading Book Exposures for Large Exposures Framework

This section details the trading book exposure for Large Exposure.

The treatment of the trading book exposures that are used as part of the Large exposure framework will be computed based on the existing logic as part of the market risk process. The logics defined as part these frameworks are in general sync with that of the existing process, the special cases where changes from the existing are captured below.

The following changes specific to Large exposure framework when compared to MR of BIS are:

As part of the trading book exposures for Large exposure framework of BIS, the options are treated slightly different from existing logic under Market Risk.

The notional amount that needs to be considered for any long call option will be the Market value of that position.

The notional amount in case of short call option will be also Market value of the position

The notional amount that needs to be considered for any short put option and long put option will be arrived using below logic

Notional Amount = Strike price – market value

Thus arrived exposures will be aggregated along with other positions, during aggregation the net exposure value will be floored to zero.

In the case of sold credit derivatives / protection the exposure will be to the referenced name (which is counterparty)

Notional Amount = Outstanding amount – |Value of credit protection|

|Value of credit protection| =absolute value of the credit protection

In case of CLN, the seller bank should consider both positions in the bond of the note issuer and in the underlying referenced by the note. This means that the notional amount that shall be considered is the sum of both exposure and the underlying value.

The market value for the purpose of large exposures is computed using the price and the number of units as available in the Bank Positions processing (FCT_BANK_POSITIONS)) table. And in the case of market risk exposures, in certain scenarios, the notional amount is being used as the exposure amount, and in certain places like options, the market value or the difference between strike rate and market value, as applicable, are used as the exposure amount. This is based on the regulatory requirement for handling the exposure amount.

8.7.13 Data Expectations

The special cases are not handled as part of this release

Bank must provide an exhaustive list of Party-Party relationship in the table Stage Party To Party Relationship (STG_PARTY_PARTY_RELATIONSHIP). This gets reclassified into the Regulatory Party Relationship type as part of the Process: Party Relationship Population and Reclassification.

The relationship list must include direct and indirect relationships between the parties. The solution sums up the exposures for all the counterparties belonging to the same parent, along with the parent, and populates the Fact Party Group Exposure table (FCT_PARTY_GROUP_LARGE_EXPOSURE). The expectation is that all the parties which are related to each other, have the Parent ID i the Party table as the same. On the party group, the threshold limit check is applied, and the large exposure is also found.

8.7.14 Assumptions

Discretionary relationships are expected to be handled while the Bank provides the relationship data in STG_PARTY_PARTY_RELATIONSHIP.

8.8 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 RBI 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 in sync with 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.

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

The Run Basel III Revised 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 and the Securitization exposures' amount. The off-balance sheet items include the Non-Securitization exposures' amount and the Securitization exposures' amount. Mitigation is not considered when calculating exposure amount.

NOTE

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

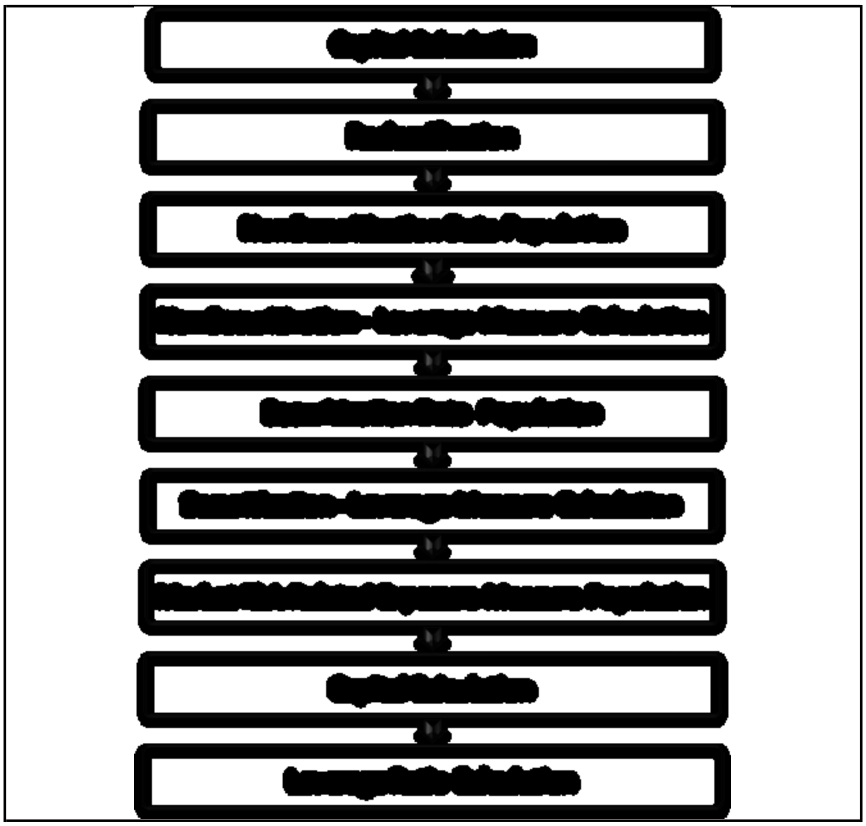
The leverage ratio calculations are a separate run, and not part of the regular capital calculation run. This is because of the changes in the Credit conversion factor assigned to the exposures, and also exemption of few exposures from the calculation which are part of the capital charge calculations. Also, the mitigation is not required for these exposures, and the exposure measure calculations are different from the regular EAD calculations.

8.8.1 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 BIS jurisdiction, the application expects the MR related Exposure measure as a download.

8.8.2 Process Flow for Revised Leverage Ratio



The leverage ratio is calculated by executing the Run Basel III Revised Leverage Ratio Calculation.

The details of the process flow for leverage ratio is as follows.

8.8.2.1 Capital Consolidation Process

The capital consolidation process remains the same as is existing in the capital calculation run.

8.8.2.2 Reclassification

The reclassification process remains the same as is existing in the capital calculation run.

8.8.2.3 Non Securitization Exposure Data Population

Data from the Product Processors are populated to FCT_NON_SEC_EXPOSURES table in the process NON_SEC_DATA_POPULATION. This data population also remains the same as existing in the capital calculation run.

8.8.2.4 Non Securitization Exposure Measure Calculation

After data is populated in non sec processing table, the exposure measure is calculated in the process **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION.**

The Exposure measure is the sum of the Pre Mitigation EAD amount of the following exposure types:

- On-Balance Sheet Exposures
- Off-Balance Sheet Exposures
- SFT Exposures
- Derivative Exposures

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. And any exempted exposures are identified by the solution in the Regulatory Capital Exemption Criteria in the Non Sec Exposures processing table. These exempted criteria are part of the dimension table of Regulatory Capital Exemption Criteria Dimension (**DIM_REG_CAP_EXEMPTION_CRITERIA**).

8.8.2.5 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 as follows:

8.8.2.5.1 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 whether the exposures are derecognized in the balance sheet or not. If the run management option of Y is selected, all the fiduciary assets with the parent fiduciary account is 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**).

This is handled in the Fiduciary Assets Exemption subprocess of the **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION** process.

8.8.2.5.2 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.

This exposure measure does not consider the mitigation effect.

8.8.2.5.3 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, as 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. And 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 which are used to offset the fair value of the repo exposures, are stamped accounting heads, to ensure that they can be 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 as follows:

- **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, and 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'.

  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 caluclated in the data transformation Lev_Ratio_SFT_Addon_amt.

  This is handled in the sub process (Leverage Ratio Computations) of the process **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION**.

- **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. And 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_CONTRACT_ID). And the exposure and the mitigant must be mapped to each other in the exposure mitigant mapping table (**STG_EXP_MITIGANT_MAPPING**).

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 FNSE.n_repo_contract_skey.

The application computes both the gross exposure amount and the addon amount for this SFT transaction, inline with the guidelines. This Add-on amount is caluclated in the data transformation Lev_Ratio_SFT_Addon_amt.

This is handled in the sub process (Leverage Ratio Computations) of the process (BASELIII_LEV_RATIO_EXPOSURE_MEASURE_CALCULATION).

8.8.2.5.4 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 treatment, in terms of the Leverage Exposure Measure calculations. They are as detailed as follows.

Collateral of Derivative

The collateral received with reference to the derivatives, cannot be used in netting, and reducing the exposure amount of the derivatives. Based on whether the operative accounting framework allows for netting of the collateral or not, 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 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.

Data Expectations

Collateral for the derivatives, which is already considered in the MTM calculation, are provided in the **STG_MITIGANTS** table with the eligibility flag as 'N' and the corresponding entry is added into the **STG_EXP_MITIGANT_MAPPINGS** table.

The MTM provided for the derivatives' instruments, must be 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 satisified. 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 'No' 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 (**Cash Variation Margin Exemptions**) of the process **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION**.

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 (QCCP Related Exemptions) of the process **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION**.

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**) which is in the sub process (Written Credit Derivatives SCP BCP Offset Mapping).

All the other written credit derivative treatment is handled in the sub process (Written Credit Derivative Related Exemptions) of the process **IND BASELIII LEV RATIO EXPOSURE MEASURE CALCULATION.**

8.8.2.5.5 Securitization Data Population

Securitization exposure data is populated to securitization processing table in the process **SEC DATA POPULATION**. The population remains the same as in the capital calculation run.

8.8.2.5.6 Securitization Exposure – Leverage Measure Calculation

After securitization exposure data is populated, exposure measure is calculated in the process **IND SEC EXP MITIGANT MAPPING POP**.

The exposure measure calculation remains the same as in the capital calculation run, except that the CCF for the off balance sheet exposures are floored at 10%. And the mitigation is not considered for the leverage measure calculations.

8.8.2.5.7 Market Risk – Leverage Measure Calculation

Leverage Measure for Market Risk is directly expected as a download in the Stage Standard Accounting Head (STG_STANDARD_ACCOUNT_HEAD) with the CAP1809 (On Balance and Off Balance Total Leverage Exposure Measure for Securitized Exposures). This is expected as a download, as the EU jurisdiction does not support the MR calculations.

8.8.2.5.8 Capital Calculation

Capital measure is calculated in EU_CAPITAL_STRUCTURE process. Capital Measure used in the leverage ratio is equal to Net Tier 1 which is post all regulatory adjustments. The capital structure is the same as the capital calculation run.

8.8.2.5.9 Leverage Ratio Calculation

The leverage ratio is calculated as follows.

Leverage Ratio = Tier 1 Capital / Total Leverage Exposure Measure

This is computed in the process **IND BASELIII LEVERAGE RATIO CALCULATION**.

8.8.3 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 as follows:

- 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 the Capital Structure for more details.
- Cash Variation Margin: The collateral segregated flag, exchange traded flag, and netting agreement code are required.
- Netting Agreement: The margin threshold and the minimum transfer amount are required, which are captured in the Stage Net Exposures table (**STG_NET_EXPOSURES**).

9 Annexure A: Key Concepts

9.1 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. Certain SCDs 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 the 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 16: 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 inthe 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 dimensiontable 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 the record in the earlier example is changed to:

Table 17: Values in the DIM_Product table

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

Type 2 SCD Methodology

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

Table 18: Values in the DIM_Product table

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

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

Prerequisites

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

Tables used by SCD Component

The Basel_8.1.1_Seeded_Tables Excel lists out the Stage tables and the corresponding Dimension tables that are used in the BASEL application.

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

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

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

A sequence is added for every user-defined dimension.

Example:

create sequence SEQ_DIM_<DIM> minvalue 1

max value 999999999999999999999999999

increment by 1

Executing SCD Components

For information on the configuration and execution of SCD components, see the Operations section in the Oracle Financial Services Analytical Applications Infrastructure 8.1.1 User Guide.

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

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

Stage Data

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

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

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

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

- STG_PRODUCT_MASTER
- STG_LOB_MASTER
- STG_MITIGANT_TYPE_MASTER
- STG_PARTY_TYPE_MASTER

Seeded Data

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

9.2 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 the Standardized approach and IRB approach.

9.2.1 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 the simple and comprehensive approach mentioned in the 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 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 the optimizer engine, the exposures from FSI_CAP_SUB_EXPOSURES are split into drawn and undrawn exposure and then populated into the 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 the 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 the Advanced Approach, institutions must give the PD or LGD data either at a mitigant level or at an exposure level, if they can 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 Exposure 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 below exposure ID and the mitigant ID mapped to each other, all of them belong to the same pool ID, as they have the mitigants shared.

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

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

In this 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 the advanced approach, the sorting is based on capital.
- The 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 factors 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

In this 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, a 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 are eligible for allocation.
    - This check is done only once for the mitigant mapped to each exposure.
- After all the checks are done then the computation starts by calculating the covered factor for the first row which is as follows:

f1 = (Mitigant_value * Haircut)/ EAD

Where:

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

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

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

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

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

Many Exposures to Many Mitigants

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

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

  Where,

  E1= Exposure amount

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

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

The formula is as follows:

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

The Mitigant Constraint Formula table is provided below:

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.
- The allocation engine updates the covered factor for each exposure based on the previous objective function and the constraints defined by you.
- The total covered factor for an exposure = Covered Factor for all the exposure mitigant combinations 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.

9.3 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 the 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 the DIM_ORG_STRUCTURE table during currency conversion. This is column under the DIM_ORG_STRUCTURE table mapped to these default values are as follows:

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 the 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.
- The data from this table is populated to the 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 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 them to the reporting currency amount columns.

For the mitigants table, the exchange rate that is used for currency conversion is the exchange rate for the entity of the exposure to 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

9.4 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 the 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

9.5 Exhibit 5: Data Expectations for a few of the Basel Products

9.5.1 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 the 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 the mandate-based approach in Equity Investment in funds when there are no entries in STG_FUND_UNDERLYING_COMPOSITION, the 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 the Instrument Contract Dimension table (DIM_INSTRUMENT_CONTRACT).

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

9.5.3 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 the 8.0.5 release, any exposure to 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.

9.5.4 Credit Line Issued Data Expectations

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

Starting from the 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 a 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 that will be treated as a line of credit, and will receive the corresponding Basel guideline specific treatment.,

9.5.5 Forward Contract Data Expectations

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

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

9.5.6 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 the 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.

9.5.7 Spot Forex Data Expectations

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

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

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

9.5.8 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 the capture of the underlying information – STG_UNDERLYING_MASTER/ DIM_UNDERLYING and STG_UNDERLYING_DTL

  - The parent account will be in one of the derivative contracts, 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 a reference in dim_instrument_contract.
- Case 2 – If Parent derivative contract or underlying of the derivative is not instruments but instead are accounts or exposure:
  - This will involve the usage of a single table for the capture of the underlying information – STG_UNDERLYING_EXPOSURES.
  - The parent account will be in one of the derivative contracts, 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 the reference in dim_exposure.

9.5.9 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

10 Annexure B

10.1 Download Specifications

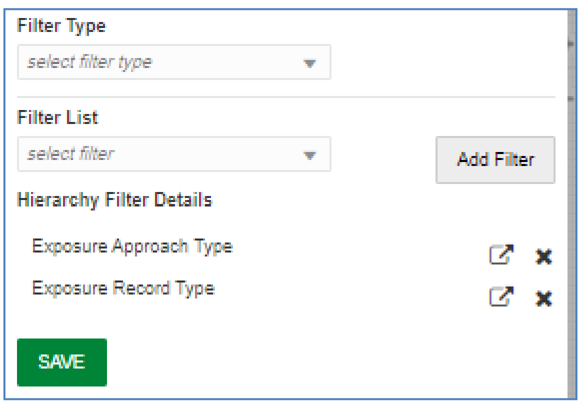
For information, see Download Specifications.

10.2 Using Process Modelling Framework

10.2.1 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 8.1.1, CAP PACK makes use of two filter hierarchies, which apply through PMF. The filter hierarchies used are as follows:



10.2.1.1 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 following matrix:

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
OTH	Others
NSSTD	Non Securitisation Standardized
NSFIRB	Non Securitisation FIRB
NSAIRB	Non Securitisation AIRB
SECSTD	Securitisation Standardized

V_APPROACH_TYPE	V_APPROACH_TYPE_DESC
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 applies to it. Used tables can be either part of the Dataset (for Rules) or Mapped/NonMapped column (for T2Ts).

10.2.1.2 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 currently supported are as follows:

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 follows:

Banking				
MAIN EXPOSURE TYPE	SOURCE	ULY EXPOSURE TYPE	TARGET	V_RECORD_TYPE
BANKING	PP TABLES		FSI_CAP_BANKING_EXPOSURES	BNK_NON_SEC_EXP

Investments				
MAIN EXPOSURE TYPE	SOURCE	ULY EXPOSURE TYPE	TARGET	V_RECORD_TYPE
INVESTMENT	PP TABLES		FSI_CAP_INVESTMENT_EXPOSURES	INV_NON_SEC_EXP
INVESTMENT	STG_UNDERLYING_EXPOSURES	BANKING	FSI_CAP_BANKING_EXPOSURES	INV_NON_SEC_ULY
INVESTMENT	STG_UNDERLYING_EXPOSURES	INVESTMENT	FSI_CAP_INVESTMENT_EXPOSURES	INV_NON_SEC_ULY

When banking and investments both execute, the record type filter helps to process exposures as follows:

1. Banking Portfolio:

   Only those exposures, which have record type as BNK_NON_SEC_EXP in FSI_CAP_BANKING_EXPOSURES.

2. Investment Portfolio:

   a. Exposures, which have record types as INV_NON_SEC_EXP and INV_NON_SEC_ULY in FSI_CAP_INVESTMENT_EXPOSURES.

   b. Exposures, which have record type as INV_NON_SEC_ULY in FSI_CAP_BANKING_EXPOSURES.

The steps to apply filters at Run and Business Pipeline levels are detailed in the OFS Analytical Applications Infrastructure User Guide.

10.2.1.3 Execution and Decision Rules

PMF can 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.

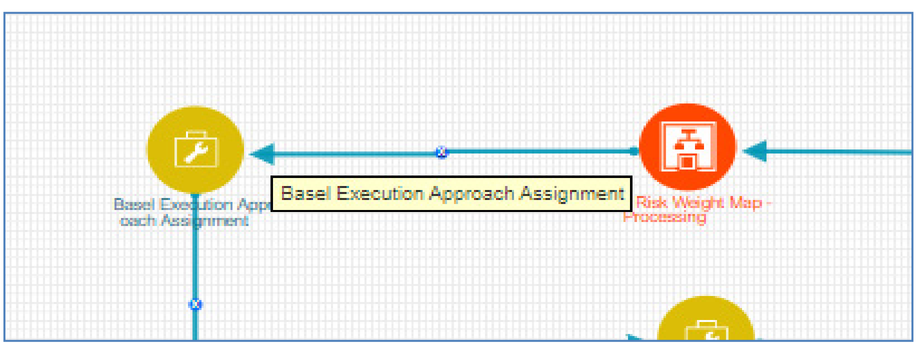
Based upon the selections made in the configuration screen, a table FSI_CAP_RUN_EXE_PAREMETERS is updated with the answers to the questionnaire.

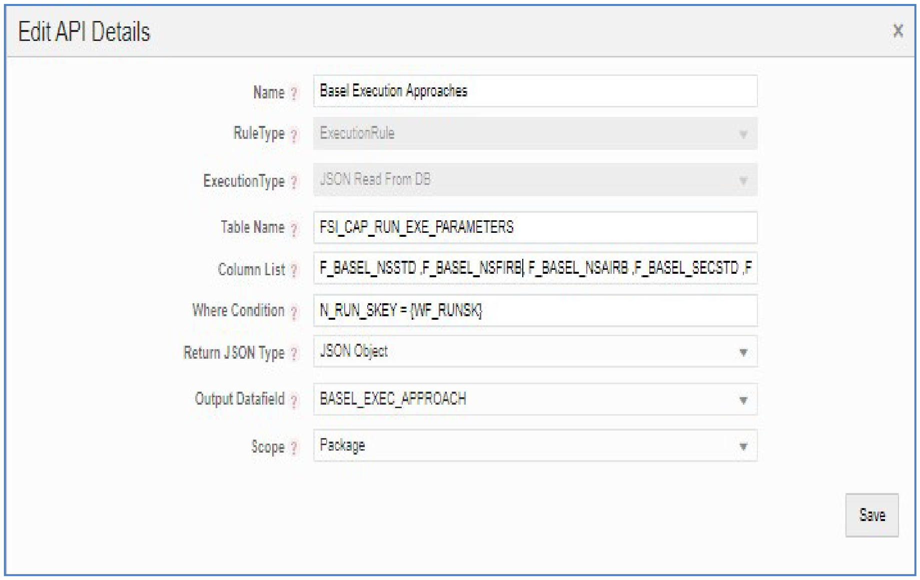
A simple example can be of which portfolios the user has opted for. If the user wishes to execute banking and investments only, then a Basel configuration is created through run management with this questionnaire. This configuration is selected during run execution.

10.2.1.4 Evaluation of Execution Rule

The questionnaire data is captured and pushed into the table FSI_CAP_RUN_EXE_PAREMETERS.

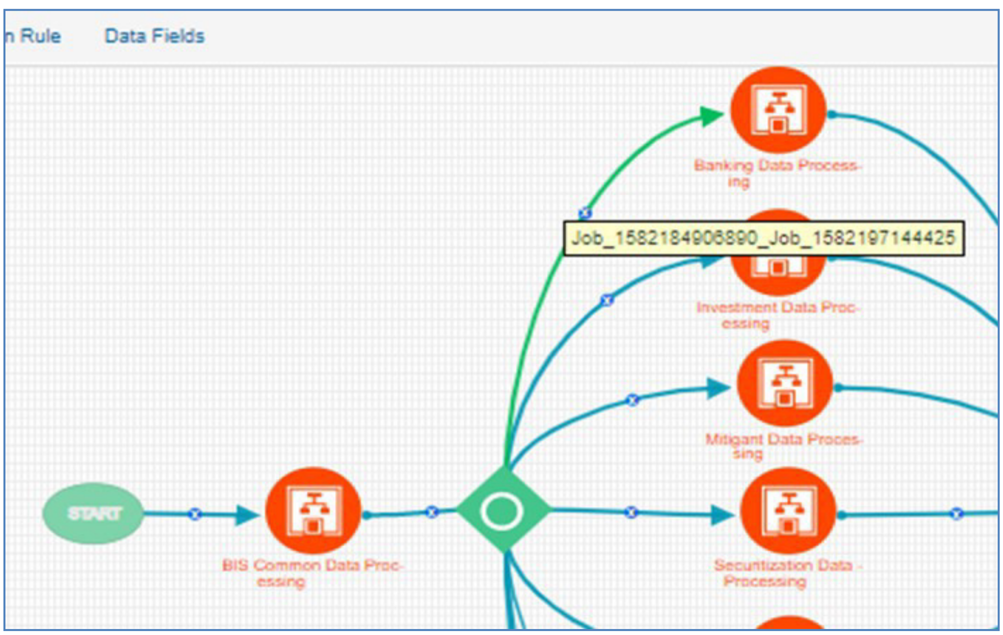
The execution rule 'Basel Execution Approach Assignment' reads the data from this table and assigns the values to respective PMF variables.

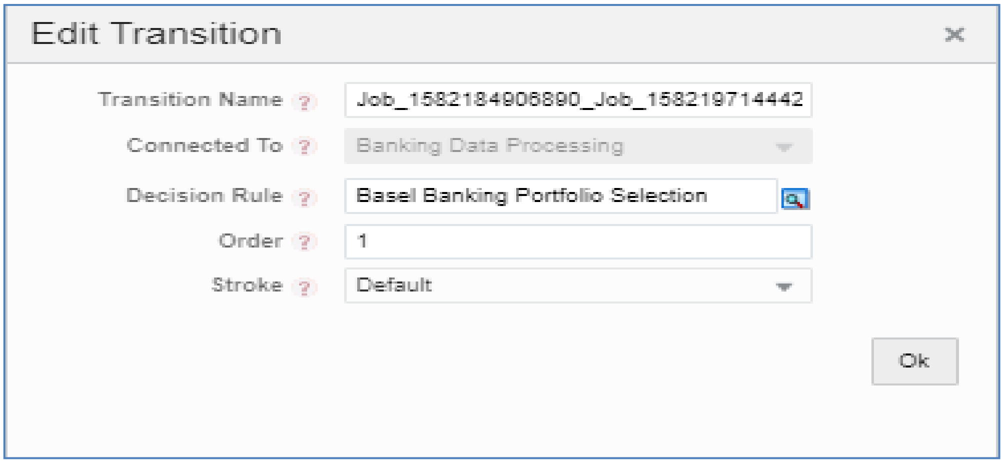


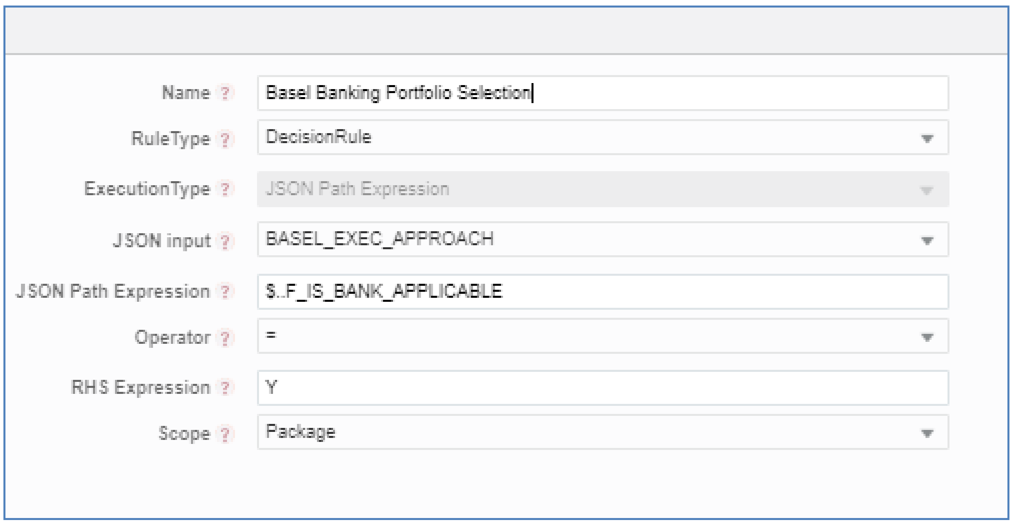


10.2.1.5 Evaluation of Decision Rule

The variables, values for which are assigned in the execution rule, are evaluated in the respective transition lines for each application component. If the value matches with the expected value in the transition line, then that path is taken.







10.2.1.6 Deprecation of Uncovered Record Creation DT and New Logic

The DT, Pop_Uncovered_Mitigant that creates uncovered exposure records in the FCT_SUB_EXPOSURE table is deprecated and is replaced with three T2Ts as mentioned as follows:

For the effective optimization of the mitigants, the application used to create a replica of the exposures, with the standard mitigant type as Uncovered. This used to happen with the DT POP_UNCOVERED_MITIGANT.

To handle the revised data flow of processing, this is replaced by three T2Ts as follows:

1. **T2T_FSI_CAP_NET_POOL_UNCOV_SUB_EXPOSURES**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each nettable pool account from FSI_CAP_NETTABLE_POOL.

2. **SUB_EXPOSURES_BANKING_UNCOV_DATA_POP**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each exposure from FSI_CAP_BANKING_EXPOSURES.

3. **SUB_EXPOSURES_INVESTMENT_UNCOV_DATA_POP**

   This T2T creates and inserts one uncovered exposure in FSI_CAP_SUB_EXPOSURES for each exposure from FSI_CAP_INVESTMENT_EXPOSURES.

10.2.1.7 Reuse of PMF Process for Underlying or Placed Collateral Data Processing

An 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 the investment portfolio.

To achieve the above, the 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 is 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 the securitized pool and are required for the overall processing of the securitization portfolio. The banking pipeline is called with an appropriate record type process filter to process only banking underlying exposures.

The record type process filter used is BNK_SEC_ULY in the Banking pipeline.

Derivative portfolio and SFT portfolio pipelines call the Mitigant pipeline from within to provide mitigant treatment (eligibility, mitigant risk weight, and haircut) to their placed collaterals. The mitigant pipeline is called with an appropriate record type process filter to process only placed collaterals.

The record type process filter used are following:

- OTH_PLACED_COLL_EXP in Mitigant pipeline called in Derivative portfolio pipeline.
- SFT_PLACED_COLL_EXP in Mitigant pipeline called in SFT portfolio pipeline.

10.3 Run Parameters Setup for Creating a Run

If the run definition has not been created through the **Run Management** UI, then the **USER_DEFINED_RUN_PARAMETERS** table must be set up manually for the selected options/approaches for particular regulation and segment. This table contains the setup codes for different options. However, if you want to add more options, then you can add a record (new setup codes with options) by using information that is updated for the selected option are given in the following tables:

Regulation: Basel III

Segment: BIS

Table 19: The values for the BASEL III regulation with the segment as BIS with the Approach as Securitization

RUN_PARAMETERS column name	Approach for Securitization	Selected Option	RUN_PARAMETERS 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 20: The values for the BASEL III regulation with the segment as BIS with the Approach as Market Risk Standardized Approach

RUN_PARAMETERS column name	Approach for Market Risk Standardized Approach	Selected Option	RUN_PARAMETERS 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 21: The values for the BASEL III regulation with the segment as BIS with the Approach as Non-Securitization Standardized

RUN_PARAMETERS column name	Approach for Non Securitization Standardized	Selected Option	RUN_PARAMETERS column value
v_nss_eca_for_sovereign	Use ECA Country Scores for risk-weighting claims on Sovereign	Yes	OPT0004
		No	OPT0005
v_nss_rw_option_dpse	The option used for claims on domestic PSEs	Option I	OPT0008
		Option II	OPT0009
v_nss_rw_option_bank	Option for risk-weighting claims on Banks	Option I	OPT0012
		Option II	OPT0013
v_nss_100pct_rw_corp	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_gold	Use of 0% RW for Gold Bullion held in own vaults or on an allocated basis	Yes	OPT0027
		No	OPT0028
v_nss_borrower_ccy_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_method	Applying Haircut	Supervisory Haircut	OPT0056
		Own Estimate	OPT0057
v_cva_method	CVA Standardized Approach	N/A	OPT0060
v_cva_include_sft		Yes	OPT0062

RUN_PARAMETERS column name	Approach for Non Securitization Standardized	Selected Option	RUN_PARAMETERS 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 22: The values for the BASEL III regulation with the segment as BIS with the Approach as Non-Securitization Standardized (FIRB)

RUN_PARAMETERS column name	Approach for Non Securitization Standardized (FIRB)	Selected Option	RUN_PARAMETERS column value
v_cva_cds_index_decomposition	CDS Index must be decomposed	Yes	OPT0267
		No	OPT0268

Table 23: The values for the BASEL III regulation with the segment as BIS with the Approach as Non-Securitization FIRB

RUN_PARAMETERS column name	Approach for Non Securitization FIRB	Selected Option	RUN_PARAMETERS column value
v_nfir_explicit_mat_adj	Use of Explicit Maturity Adjustment	Yes	OPT0203
		No	OPT0204
v_nir_default_risk_app	Purchase Receivables for Default Risk Approach	Top Down	OPT0207
		Bottom-Up	OPT0208
v_nir_dil_risk_immaterial	Is Dilution Risk immaterial for Purchase Receivables?	Yes	OPT0210
		No	OPT0211
v_nir_1yr_mat_corp_pr	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

RUN_PARAMETERS column name	Approach for Non Securitization FIRB	Selected Option	RUN_PARAMETERS column value
v_ns_sft_method	Approach for Securities Financing Transactions	Simple Approach	OPT0224
		IMM	OPT0225
		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

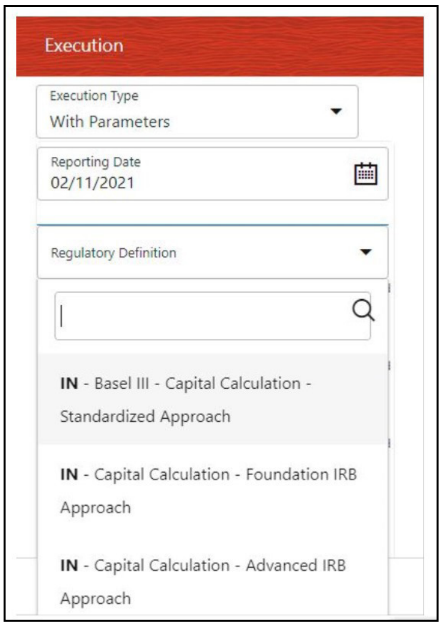
Table 24: The values for the BASEL III regulation with the segment as BIS with the Approach as Non-Securitization Standardized (AIRB)

RUN_PARAMETERS column name	Approach for Non Securitization Standardized (AIRB)	Selected Option	RUN_PARAMETERS column value
v_nir_default_risk_app	Default Risk Approach for Purchase Receivables	Top Down	OPT0303
		Bottom-Up	OPT0304
v_nir_dil_risk_immaterial	For purchase, receivables are Dilution Risk immaterial?	Yes	OPT0306
		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_method	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.	Yes	OPT0337
	Use of preferential risk weights for specialized lending sub-classes in Strong and Good	No	OPT0338
v_nir_equity_approach	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

RUN_PARAMETERS column name	Approach for Non Securitization Standardized (AIRB)	Selected Option	RUN_PARAMETERS column value
v_cva_include_sft	To include SFTs for CVA calculation?	Yes	OPT0364
		No	OPT0365
v_cva_cds_index_decomposition	CDS Index must be decomposed	Yes	OPT0367
		No	OPT0368

10.3.1 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.



10.3.2 Importing Run Definitions

To import the DMP file, perform the following steps:

1. Rename or delete the existing OOB definitions in the setup.
1. Navigate to the directory path `$FIC_HOME/utility/Migration/conf/`.
2. Create a copy of the file `OBJECTMIGRATION_template.xml` as `OBJECTMIGRATION.xml` and provide appropriate values for the parameters as per the following table:

Parameter	Value
$USERID$	Application User ID
$LOCALE$	Locale Information
$INFODOM$	Information Domain
$FOLDER$	Folder or Segment where you wish to import the definition
MODE	IMPORT
$FILE_NAME$	BASEL_RUN_DEFINITIONS_INDIA
MIGRATION_CODE$	11

3. Place the required codes of the definitions that you want to import within the OBJECTS tag.

   Example: `<OBJECT Code="1000" Type="4003" />`

   To find the object codes, you must perform the following steps:

   i. Execute the following query in the atomic schema to check the existing `N_RUN_PARAM_DEFN_ID` that are in use.

      `SELECT * FROM FSI_RUN_PARAM_DEFINITION_TL;`

   ii. Use the Object Code in OBJECTMIGRATION.xml which does not exist in N_RUN_PARAM_DEFN_ID column.

      Note: The type must have the value 4003 which represents Regulatory Calculation Definitions

4. Create the following folder structure in the path `$FIC_HOME/utility/Migration`:

   `metadata/restore`

5. Copy the dump file from the installer and place it in the directory path `$FIC_HOME/utility/Migration/metadata/restore`

6. 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`.

10.3.3 Exporting Optimizer, Portfolio and Run definitions

1. Navigate to the directory path $`FIC_HOME/utility/Migration/conf/`.

2. Create a copy of the file `OBJECTMIGRATION_template.xml` as `OBJECTMIGRATION.xml` and provide appropriate values for the parameters as per the following table:

Parameter	Value
$USERID$	Application User ID
$LOCALE$	Locale Information
$INFODOM$	Information Domain
$FOLDER$	Folder or Segment of the existing definition
MODE	EXPORT
$FILE_NAME$	Name of the file to be exported without the .dmp extension
MIGRATION_CODE$	11

3. Place the required codes of the definitions that you want to export within the OBJECTS tag.

   For example, `<OBJECT Code="1000" Type="4003" />`

To find the object codes, perform the following steps:

   i. Execute the following query in the atomic schema for run definitions:

      `SELECT * FROM FSI_RUN_PARAM_DEFINITION_TL;`

      N_RUN_PARAM_DEFN_ID is the object code and value of Type is 4003.

   ii. Execute the following query in the atomic schema for portfolio definitions:

      `SELECT * FROM FSI_PORTFOLIO_MASTER;`

      N_PPORTFOLIO_ID is the object code and value of Type is 4002.

   iii. Execute the following query in the atomic schema for portfolio 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.`

10.4 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.

DT TASK NAME	PROCESS CODE	PROCESS NAME
FN_DT_UPD_REPORTIN_FLAG	INDIA BASELIII CAPITAL BUFFERS	PMFIND0025
Portfolio_Population	Non Sec Portfolio Assignment	PMFIND0040
Portfolio_Population	Equity Portfolio Assignment	PMFIND0041
Portfolio_Population	Mitigants Portfolio Assignment	PMFIND0048
Portfolio_Population	Placed Collateral Data Polulation	PMFIND0051
Non_Sec_Mit_Portfolio	Non Sec Exposure Mitigant Mapping Data Population	PMFIND0053
Multiple_Assmt_Mitigant	Mitigant Reclassification	PMFIND0054
Del_Mitigant_Underlyings	Mitigant Volatility Haircut Assignment	PMFIND0057
Del_Inv_Own_Shares_Ins	Mutual Fund Indirect Investment Data Population	PMFIND0068
Portfolio_Population	Unutilized Cash Margin	PMFIND0078
Map_Ret_Exp	Regulatory Retail Portfolio	PMFIND0079
Multiple_Assmt_NonSec	Multiple Assessment	PMFIND0082
Unrated_Exp_RW_Rat_Asses	Non Sec Issuer Issue Assesment	PMFIND0089
Issue_Issuer_Assessment	Non Sec Issuer Issue Assesment	PMFIND0089
upd_underly_rating_categ	Non Sec STD RW Assignment for Off Balance Sheet Exposures	PMFIND0096
Del_Non_Sec_Scp	Non Sec SCP RW Assignment	PMFIND0100
Mult_Assessment_SCP	Non Sec SCP RW Assignment	PMFIND0100
Del_NonSec_OBS_Undrly	SFT Exposures RWA Comprehensive Approach	PMFIND0113
Del_NonSec_SFT_Undrly	SFT Exposures RWA Comprehensive Approach	PMFIND0113
DEL_UNLY_CLEARED_TRANS	IND Netting Set Cleared Transaction Processing	PMFIND0119

DT TASK NAME	PROCESS CODE	PROCESS NAME
Portfolio_Population	Market Risk Portfolio Assignment	PMFIND0122
IND_Pop_Uncov_Mitigant	Mitigant Uncovered Data Population	PMFIND0129
Covered_Factor_1_1_STD	Non Sec Pooling and Optimization	PMFIND0135
Covered_Factor_1_N_STD	Non Sec Pooling and Optimization	PMFIND0135
Cov_Factor_1_0_STD_PDue	Non Sec Pooling and Optimization	PMFIND0135
Cov_Ftr_N_N_Fin_Col_STD	Non Sec Pooling and Optimization	PMFIND0135
Del_Underlyings	IND Delete Underlying	PMFIND0144
Portfolio_Population	Other Data Population	PMFIND0161
Sec_Miti_Portfolio	Sec Exp Mitigant Mapping Pop - Ind	PMFIND0166
Sec_Pool_Param_Assignmnt	Sec Reclassification	PMFIND0167
Del_Sec_Excss_Seller_Int	Originator Exposures in Excess of Prescribed Limit	PMFIND0168
Del_Sec_Underwritten_Exp	Underwritten Holdings in Excess of Prescribed Limit	PMFIND0169
Sec_Upd_Investor_Rat_Elg	Sec STD Pre CRM Computations	PMFIND0171
Multiple_Assessment_Sec	Sec STD Pre CRM Computations	PMFIND0171
Del_UW_Sec_Excs_Exp_MitM	Sec Exposure Mitigant Data Creation	PMFIND0174
IND_Pop_Uncov_Mitigant	Sec CRM Process	PMFIND0175
Del_Underlyings	Delete Underlying	PMFIND0177
Del_NonSec_Recprcl_Hldng	Non Sec Reciprocal Cross Holdings Data Population	PMFIND0189
Del_NonSec_Insig_Invst	Non Sec Insignificant Investment Exposure Processing	PMFIND0197
Del_MktRisk_Insig_Invst	Mkt Risk Insignificant Investment Exposure Processing	PMFIND0198
Fn_Dt_Del_Sec_Insig_Invs	Sec Insignificant Investment Exposure Processing	PMFIND0199
Del_NonSec_Sig_Invst	Non Sec Significant Investment Exposure Processing	PMFIND0200

DT TASK NAME	PROCESS CODE	PROCESS NAME
Del_MktRisk_Sig_Invst	Mkt Risk Significant Investment Exposure Processing	PMFIND0201
Non_Reg_Uncov_Mitigant	Non Regulatory Investment Sub Exposures Population	PMFIND0202
Del_Equity_Non_Reg_Invst	Equity Non Regulatory Investment Processing	PMFIND0203
Opr_Risk_Capital_Charge	Operational Risk-Basic Indicator Approach - IND	PMFIND0239
SOLO_REPORT_FLAG_UPDATE	Ind Update Reporting Flag	PMFIND0243

10.5 Implementing Basel

10.5.1 Rules List for Configuration

The list of rules which customer needs to reconfigure at their site is as follows.

Functionality	Reclassification Rule Name
Common	Basel III Capital Consolidation Approach Type Reclassification for an Entity
Common	Seniority Reclassification
Credit Risk - Non-Securitization	IND - Basel III Non Sec Product Type Reclassification - STD
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
Capital Structure	Cap Consl Basel Entity Type Reclassification
Operational Risk	OR Internal LoB to Standard LoB Reclassification
Large Exposures	Party Relationship Type Reclassification

10.5.2 Custom Reclassification Rules

See Configure Rule with Target Members for more information on Custom Reclassification Rules.

10.5.3 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_METHODOLOGY
- 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_METHODOLOGIES
- 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_RELATIONSHP_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

10.6 Basel Analytics Table Population - Reporting T2T

This section provides information on the target and the granularity of tables.

10.6.1 Credit Risk and Counterparty Credit Risk – Non-Securitization

10.6.1.1 Exposure Level Granularity

T2T Name	Description
Account Level Information T2T	These T2T take inputs from different portfolio table (FSI Cap Banking Exposures (FSI_CAP_BANKING_EXPOSURES), FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES), FSI Cap Derivative Exposures (FSI_CAP_DERIVATIVES), and FSI Cap Securities and Financing transactions (FSI_CAP_SFT_EXPOSURES) and populate Fact Regulatory Capital Account Summary (FCT_REG_CAP_ACCOUNT_SUMMARY) • T2T_FRCAS_FSI_CAP_BANKING_EXPOSURES • T2T_FRCAS_FSI_CAP_INVESTMENT_EXPOSURES • T2T_FRCAS_FSI_CAP_DERIVATIVES • T2T_FRCAS_FSI_CAP_SFT_EXPOSURES
Assets Sold Information T2T	This T2T take inputs from FSI Cap Banking Exposures (FSI_CAP_BANKING_EXPOSURES) and populate Fact Regulatory Capital Assets Sold Summary (FCT _REG_CAP_ASSET_SOLD_SUMMARY) • T2T_FCT_REG_CAP_ASSET_SOLD_SUMMARY
Credit Line Information T2T	This T2T populate from FSI Cap Banking Exposures (FSI_CAP_BANKING_EXPOSURES) to Fact Regulatory Capital Credit Line Summary (FCT_REG_CAP_CREDIT_LINE_SUMMRY). • T2T_FCT_REG_CAP_CREDIT_LINE_SUMMRY
Fixed Asset Level Information T2T	This T2T populate from FSI Cap Investment Exposures (FSI_CAP_INVESTMENT_EXPOSURES) to Fact Regulatory Capital Fixed Asset Summary (FCT_REG_CAP_FIXED_ASST_SUMMARY). • T2T_FCT_REG_CAP_FIXED_ASST_SUMMARY

10.6.1.2 Placed Collateral Level Granularity

T2T Name	Description
Placed Collateral Information T2T	This T2T populate Fact Regulatory Capital Placed Collateral Summary FCT_REG_CAP_PLCD_COLL_SUMMARY) from FSI Placed Collateral (FSI_PLACED_COLLATERAL) • T2T_FCT_REG_CAP_PLCD_COLL_SUMMARY

10.6.1.3 Counterparty Level Granularity

T2T Name	Description
Counterparty Level Granularity	These T2T take inputs from Fact Counterparty Details (FCT_CCP_DETAILS), and Fact Counterparty Exposure (FCT_COUNTERPARTY_EXPOSURE) and populate Fact Regulatory Counterparty Capital Summary (FCT_REG_CP_CAPITAL_SUMMARY). • T2T_FRCCS_FCT_CCP_DETAILS • T2T_FCT_REG_CP_CAPITAL_SUMMARY
Large Exposure Limits T2T	These T2T take inputs from Fact Party Group Large Exposure (FCT_PARTY_GROUP_LARGE_EXPOSURE) and populate Fact Regulatory Large Exposure Counterparty Limits (FCT_REG_LARGE_EXP_CP_LIMITS). • T2T_FCT_REG_LARGE_EXP_CP_LIMITS

10.6.1.4 Pool Level Granularity

T2T Name	Description
Pool Level Granularity	This T2T take inputs from FSI Cap Nettable Pool (FSI_CAP_NETTABLE_POOL) and populate Fact Regulatory Capital Pool Summary (FCT_REG_CAP_POOL_SUMMARY). • T2T_FCT_REG_CAP_POOL_SUMMARY

10.6.1.5 Pool and Mitigant Level Granularity

T2T Name	Description
Account Mitigant Level Information T2T	This T2T take inputs from FSI Cap Exposure Mitigant Mapping (FSI_CAP_EXP_MITIGANT_MAPPING) and populate Fact Regulatory Pool Mitigant Mapping (FCT_REG_POOL_MITIGANT_MAP)

T2T Name	Description
	• T2T_FRPMM_FSI_CAP_SUB_EXPOSURES

10.6.2 Credit Risk – Securitization

10.6.2.1 Pool Level Granularity

T2T Name	Description
Securitization Pool Level Information T2T	Below T2T take input from Fact Securitization Pool (FCT_SECURITIZATION_POOL) and populate Fact Regulatory Securitization Pool Summary (FCT_REG_SEC_POOL_SUMMARY) • T2T_FCT_REG_SEC_POOL_SUMMARY

10.6.2.2 Exposure Level Granularity

T2T Name	Description
Account Level Information T2T	These T2T take inputs from FSI Sub Exposures (FSI_CAP_SUB_EXPOSURES) and populate FSI Basel Exposures Post Crm (FSI_CAP_EXPOSURES_POST_CRM) • T2T_FSI_CAP_EXPOSURES_POST_CRM

10.6.3 Common Mitigant Flow

10.6.3.1 Mitigant Level Granularity

T2T Name	Description
Mitigant Level Information T2T	Below T2T take input from FSI Cap Mitigants (FSI_CAP_MITIGANTS) and populate Fact Mitigant Regulatory Capital table (FCT_MITIGANT_REG_CAPITAL) • T2T_FMRC_FSI_CAP_MITIGANTS

10.6.3.2 Mitigant and Account Granularity

T2T Name	Description
Account Mitigant Level InformationT2T	These T2T populate Fact Regulatory Account Mitigant Mapping (FCT_REG_ACCT_MITIGANT_MAPPING) • T2T_FRAMM_NET_POOL_EXP_MITIGANT_MAP • T2T_FRAMM_FSI_CAP_SUB_EXPOSURES

10.6.4 Operational risk

T2T Name	Description
Operational Risk Level information T2T	Below T2T take input from Fact Operational Risk Data (FCT_OPS_RISK_DATA) and populate Fact Regulatory Operational Risk Capital Summary (FCT_REG_OR_CAPITAL_SUMMARY) • T2T_FCT_REG_OR_CAPITAL_SUMMARY

10.6.5 Market Risk

10.6.5.1 General Risk Charge Granularity

Description
These T2T take inputs from different tables (Fact Market Risk Interest Rate Capital (FCT_MARKET_RISK_IR_CAPITAL), Fact Market Risk Foreign Exchange Risk Capital (FCT_MARKET_RISK_FOREX_CAPITAL), Fact Market Risk Equity Capital (FCT_MARKET_RISK_EQ_CAPITAL), Fact Market Risk Commodity Capital (FCT_MARKET_RISK_COM_CAPITAL) and populate Fact Market Risk Capital Summary (FCT_MR_CAPITAL_SUMMARY) • T2T_FCT_MR_CAPITAL_SUMMARY_FMRIRC • T2T_FCT_MR_CAPITAL_SUMMARY_FMRFRXC • T2T_FCT_MR_CAPITAL_SUMMARY_FMREQC • T2T_FCT_MR_CAPITAL_SUMMARY_FMRCC

10.6.5.2 VaR Granularity

Description
These T2T take inputs from Fact Market Risk VaR Summary Data (FCT_MR_VAR_SUMMARY_DATA)and populate Fact Market Risk VaR Portfolio Summary (FCT_MR_VAR_PORTFOLIO_SUMMARY) and Fact Market Risk VaR Summary (FCT_MR_VAR_SUMMARY) • T2T_FCT_MR_VAR_PORTFOLIO_SUMMARY • T2T_FCT_MR_VAR_SUMMARY

10.6.5.3 Repline Granularity

Description
These T2T populate Fact Market Risk Reporting (FCT_MARKET_RISK_REPORTING) from Fact Market Risk Exposures (FCT_REG_MARKET_RISK_EXPOSURES) tables • MKT_RISK_REPORTING_POP_IR • T2T_FCT_REG_MARKET_RISK_EXPOSURES

10.6.6 Forecasted RWA Granularity

T2T Name	Description
Balance Sheet Category Level Forecast Table Information T2T	This T2T take inputs from FSI Forecasted Risk Weighted Assets (FSI_FORECAST_RWA) and populate Fact Forecast Regulatory Capital Summary (FCT_FORECAST_REG_CAP_SUMMARY) • T2T_FCT_FORECAST_REG_CAP_SUMMARY

10.6.7 Entity Level Capital Accounting Head Granularity

T2T Name	Description
Entity Level Information T2T	These T2T take inputs from Fact Standard Accounting Head (FCT_STANDARD_ACCT_HEAD) and populate Fact Regulatory Legal Entity(FCT_REG_LE_CAPITAL_SUMMARY) • T2T_FCT_REG_LE_CAPITAL_SUMMARY

11Annexure C: Frequently Asked Questions

This section addresses some of the frequently asked questions which are as follows:

11.1 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 an accounting entity that 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 the Leverage Ratio if the bank has installed the application for the first time?

Yes, we can compute the Leverage Ratio. The application calculates the current month's 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's Leverage Ratio as input for the previous two months’ leverage ratio, if required.

Can the Leverage ratio be calculated on any day during a particular month?

There is no restriction on the execution date for computing Leverage Ratio. The leverage ratio can be calculated on any given day. However, the 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.

11.2 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 the 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 the Capital Conservation Buffer and the accord does not explicitly mention its priority. The Capital Conservation Ratio for a shortfall is also calculated at an aggregate level and not at an individual buffer level.

Can the regulator of the parent jurisdiction prescribe a 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 has 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 a buffer from CET1 capital. The application can calculate buffers form Tier 1 capital, by taking the remainder of the following:

Excess of Tier1 Capital Ratio over the benchmark (6.0 %), after catering to the shortfall, if any, in Tier 2 capital to its respective benchmark level, which is 2%, minus Required Benchmark Buffer from CET1 capital. Hence, Capital Conservation Buffer excludes any additional CET1 needed to 8% Total Capital Ratio.

To calculate buffer form Total Capital, the remainder of the following is taken:

Excess of Total Capital Ratio over the benchmark (8.0%), minus Required Benchmark Buffer from Tier 1 capital.

11.3 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 the CVA charge without decomposition. The Run can be successfully executed and the 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 the IMM approach be selected for Capital Conservation Ratio calculation and a standardized approach for CVA Calculation?

No, the IMM approach cannot be selected for Capital Conservation Ratio. The application requires CEM method output for computing CVA Charge using a Standardized approach.

Can the discount factor be changed which is currently proposed as 5% as per the Basel guideline?

Yes, the risk-free rate can be changed by modifying Rules. For more information on modifying Rules, see.

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.

11.4 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 change if the newly added parameter is not captured. The data model changes affect the staging table and the processing table.

Can the reclassification rule for mapping of internal LOB to standard LOB be modified?

Yes, you can change the Reclassification Rule as per the 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.

11.5 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 the 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 can 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 can 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 these line items?

The application supports 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).

11.6 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 a 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 previously 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 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 a 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 are based on the data given in the exposures table.

How does the bank select a 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, and the availability of data drives the approach selection. In case the bank has relevant data of underlying exposures that are required for SFA calculations, it needs to follow the SFA approach. Most banks that are originators and sponsors of the deal have this data and some of the investment banks may have it and hence they naturally follow SFA. However, in case the bank does not have this underlying data, it cannot follow the SFA approach; such banks can follow the SSFA approach by providing parameters that apply only to SSFA as direct input to the application.

The reporting bank, which is an investor in a 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 is 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. 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 is 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 protected its securitization exposure with the help of an Nth to Default credit derivative mitigant. How will the application recognize the benefit of 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 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 income ineligible.

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

Tranche ID	Tranche Attachment Point	Associated Pool ID	Initial Pool Amount	Attachment * Pool	Cumulative Loss of the Pool	Defaulted?
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
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, the 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.

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 is the order in which the mitigants are allocated.

Exposure ID	Mitigant ID
E1	M2
E2	M2
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 the optimizer work on a pool-by-pool basis? Can the user explicitly mention how many pools can be processed at a time?

Yes, the optimizer works on a pool-by-pool basis. However, you can specify the number of pools to be processed at a single fand so onh in Optimizer_Config.xml in <PROCESSEDPOOLSIZE> tag.

Is it possible that few of the exposure-mitigant combination can have no pool ids? If so, what happens to those records?

All the records are expected to have pool IDs based on the exposure mitigant combination. If few records do not satisfy the join/filter condition present in the pooling definition, then the pool IDs are not assigned. Such records are not considered for optimizer and the covered factor is not calculated for those exposures.

11.7 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 the 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 can 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.

11.8 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.

11.9 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.

11.10 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 that 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 assessments and calculates the final current rating. In this case, the first mitigant is rated A+ and the second mitigant is rated BBB+, post multiple assessments. 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%.

11.11 Cleared Transactions

What is the treatment for the transaction between clearing member and client which arises due to clearing member acting as an intermediary for the transaction and reporting bank act as clearing member?

Currently, the treatment assigned in the accord is of bilateral trade and the application expects the user not to identify the previous trades as a cleared transaction.

Will the netting agreement be changed for the cleared transaction?

No. Trade marked for the Netting agreement is the trading input and risk calculation does not change previous logic.

Since 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. The application expects the previous condition to be uniform for all the collateral posted, that is, if the collateral is cash and securities will either cover all losses or not cover all losses. Data consistency is expected from the user. Moreover, for the reporting bank to get the transaction cleared from CCP, the previous two conditions are mandatory to meet, so the application expects very less trade to go with a 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?

The application expects the user to identify the CCP as qualifying and non-qualifying. The 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 the application expect the role of the reporting bank with CCP for each transaction?

As per the example in BIS, a CCP also plays the role of Clearing Member for reporting bank transactions with another CCP. This case makes it difficult for the risk system to capture the role of reporting bank at the party level and hence is required for each transaction.

12 Annexure D: Retail Pooling 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 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 **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**.

13 Glossary

AIRB	Advanced Internal Rating Based
AMA	Advanced Measurement Approach
ASCII	American Standard Code for Information Interchange
BCBS	Basel Committee on Banking Supervision
Bankruptcy Remote	In case of liquidation of the company, if the collateral is bankruptcy remote then the 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 clearinghouse 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 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
DeFQ	Data entry and Forms Queries
EAD	Exposure At Default
FFIEC	Federal Financial Institutions Examination Council
FIRB	Foundation Internal Rating Based
FTP	File Transfer Protocol
GL	General Ledger
GRC	General Risk Charge
GUI	Graphic User Interface
IAA	Internal Assessment Approach
IFSB	Islamic Financial Services Board
IMA	Internal Models Approach
IMM	Internal Model Method
IR	Interest Rate
IRB	Internal Rating Based
LGD	Loss Given Default
LIBOR	London Inter-Bank Offered Rate
OBIEE	Oracle Business Intelligence Enterprise Edition
OFSAA	Oracle Financial Services Analytical Application
OFSAAI	Oracle Financial Services Analytical Application Infrastructure
OTC	Over the Counter

Non Securitization Exposure	The exposures that are not securitized by the bank which include, loans, investments, Bonds, Facilities Purchase Receivables, and so on are known as Non Securitized Exposures.
PD	Probability of Default
Private Sector Credit Exposure	A private sector credit exposure is defined as an exposure to a company or an individual that is included in credit risk-weighted assets (excluding exposure to a sovereign, the Bank for International Settlements, the European Central Bank, the European Commission, the International Monetary Fund, a multilateral development bank (MDB), a public sector entity (PSE), or a government-sponsored entity (GSE). The geographic location of a private sector credit exposure is the national jurisdiction of the place the borrower is located in.
Qualifying Central Counterparty (QCCP)	A qualifying central counterparty (QCCP) is an entity that is licensed to operate as a CCP (including a license granted by way of confirming an exemption) and is permitted by the appropriate regulator/overseer to operate as such with respect to the products offered. This is subject to the provision that the CCP is based and prudentially supervised in a jurisdiction where the relevant regulator/overseer has established, and publicly indicated that it applies to the CCP on an ongoing basis, domestic rules and regulations that are consistent with the CPSS-IOSCO Principles for Financial Market Infrastructures.
RBA	Ratings Based Approach
RBI	Reserve Bank of India
RDBMS	Relational Database Management System
Regulatory Reporting	This is a jurisdiction-specific requirement. These reporting requirements are over and

	above the Pillar III reporting requirements and to be submitted to respective regulators.
RRE	Residential Real Estate
RWA	Risk-weighted Assets
SCD	Slowly Changing Dimension
SFA	Supervisory Formula Approach
SFT	Securities Financing Transactions
SRWA	Simple Risk Weight Approach
TXN	Transaction
SLR	Statutory Liquidity Ratio
Stress Testing	Process of defining shocks, stress scenarios and specifying a standalone execution of stress scenarios to obtain the stress values of the variables or mapping a scenario to a Baseline Run
T2T	Table to Table
VaR	Value at Risk

OFSAA Support

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