Nurturing Markets,
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Corporate Bond Valuation Methodology

(Version March 2023)

INTRODUCTION:

FIMMDA publishes Daily Yield and Spread Matrices, Traded Data (15 days) on all Mumbai business days of the month. Additionally, on polling days i.e., every fortnight of every month, FIMMDA publishes Fortnightly Spread Matrix. FIMMDA also publishes Security Level Valuation (SLV) (currently on a trial basis) for plain vanilla bonds.

As traded data from exchanges are provided with delay valuations are published on a *T+1 basis.

*Note: *T = Trading date = Valuation date*

For Example, Valuation's data of trade date 29-06-2021 are published on 30-06-2021.

Due to any technical glitches if we are unable to publish fortnightly / daily spread / yield matrices and other valuation data you may use the published matrices for the previous Mumbai business day.

In such a case, due NOTICE will be provided on our website.

The methodologies for publishing various rates / matrices are detailed here under:

Chapter	**Name**
	Definitions
1	Daily Yield Matrix
2	Daily Spread Matrix
3	Fortnightly Spread Matrix
4	Traded Data (15 days)
5	Security Level Valuation (SLV)
	References

DEFINITIONS:

Market Yield Movement (MYM):	MYM is the process wherein the polled levels as on the immediately preceding polling day (Polled Matrix) are adjusted to the extent of movement as on the valuation day based on trades of Top Issuers.
Plain Vanilla Bonds:	Plain Vanilla Bonds are the most basic type of fixed-term, fixed-rate bonds with a pre-determined maturity amount.
Polled Matrix:	Matrix prepared based on Polls from Identified submitters. Submissions are web-based FIMMDA website) and the data are analysed through Straight Through Processing (STP).
Proxy Yield Matrix:	Application of change in MYM to respective buckets of residual maturity on a non-polling day.
Representative Issuers:	Representative Issuers are those Issuers identified at the Valuation Committee meeting every month based on the frequency of trades during the month and volume for trade replacements.
Top Issuers:	The Top Issuers are those issuers identified at the Valuation Committee meeting every month based on secondary market traded volume for assessing MYM.
Trade Replacements:	Traded Volume Weighted Average Yields (VWAY) of bonds issued by Representative Issuers which are considered for tenor-wise replacements of trades after application of filters.
Valuation Date:	Trading day for which valuations are published. As traded data from exchanges are provided with delay valuations are published on *T+1 basis. *Note: *T = Trading date = Valuation date*

CHAPTER 1
DAILY YIELD MATRIX

1. Construction of Daily Yield Matrix:

1.1 For Yield Matrix construction, the bonds are grouped into the following three major industry segments.

i. PSU, FIs & Banks (Public Sector Undertakings, Financial Institutions & Banks)
ii. NBFCs (Non-Banking Financial Companies)
iii. Corporates
**Public Sector NBFCs are considered under PSU category.*

1.2 For each segment the matrix consists of yields across rating categories starting from AAA up to BBB- and tenors 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 15 years.

2. Daily yield matrix is constructed using fortnightly polls from identified submitters.

2.1 <u>On Polling Days:</u> Constructed using polls from identified submitters with replacement of trades wherever applicable.

2.2 <u>On Non-Polling days:</u> Constructed using polled matrix adjusted with Market Yield Movement (MYM) and replacement of trades wherever applicable.

2.1. POLLING DAYS:

A. Polling:

Polls are conducted every fortnight and FIMMDA's identified submitters will submit their polled yields for select tenors under each segment across ratings AAA, AA+, AA and AA-. The polling is subject to the following conditions:

i. Where a security has two or more different ratings from different rating agencies, the lowest of the ratings shall be considered for the valuation purposes.

ii. A rating is considered valid only if it is not more than 12 months old as on date of valuation.

iii. Based on polled tenors, the yields for other tenors are derived through linear interpolation as detailed vide para 2.1 (A- vii) below.

iv. For 15-year tenor under NBFCs & Corporates categories, process is detailed vide para 2.1 (A- ix) below.

Note: For securities ratings below AA-, fixed spreads are applied as detailed vide para 2.1-point no. D below.

B. Procedure for obtaining polls: (Polled Matrix)

i. Submissions from the identified submitters are web-based (FIMMDA website) and the data are analysed through Straight Through Processing (STP).

ii. Identification of submitters: The submitters are identified by FIMMDA based on their secondary market volume. It is ensured that different segments of the market are given due representation in the polling. At present there are 20 identified submitters consisting of PSU Banks, Private Banks, Foreign Banks and Primary Dealers. FIMMDA sends mail to the identified submitters one day prior to every polling day enclosing previous 15 days traded data.

iii. Identification of Representative Issuers (RIs): FIMMDA will share the traded data of all bonds (excluding AT1/ Tax-free) during the month to the Identified Submitters (Pollers) for them to identify a Representative Issuer in each segment for AAA rating. 'SO / CE' rated bonds will not be considered for the selection of representative issuers.

During the Monthly Valuation Committee Meeting, the traded data of all the bonds are showcased and representative issuers are finalised in the meeting.

Note: Trades of these RIs will be used during the valuation process for replacement while constructing the matrix.

Sample proforma of recording decision of identified Representative Issuers (RIs) in the monthly Valuation Committee meeting:

Rating	**Segments**	**RIs**
AAA	PSU/FI/Banks	

AAA	NBFCs	
AAA	Corporates	

iv. One day prior to polling day, on each fortnight / month-end, FIMMDA will circulate the traded data of all bonds of the fortnight along with the names of the identified Representative Issuers which could, subject to the individual submitter's policy, be used as a reference issuer / bond for polling in that segment and rating. If the Representative Issuer is not identified, then the submitters will continue to poll as per their expert judgment / internal policy.

v. Yield matrix is for 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 15 years.

However, the submitters are required to poll only for the 1 yr., 3 yr., 5 yr., 7 yr., 10 yr. and 15 yr. tenors for PSUFIs & Bank's segment and 1 yr., 3 yr., 5 yr. and 10 yr. tenors for NBFC's & Corporate's segments. Similarly, the submitters are required to poll only for AAA, AA+, AA and AA- ratings.

vi. Outliers in each segment / rating / tenor are removed using median and two Standard Deviation (SD) method i.e., any poll/s which is/are away from the median value by two standardeviations (2-SD) is/are removed as outlier/s. After the removal of the outlier/s, the median is taken as the representative value.

vii. Yields for the other intermediate maturities are derived by linear interpolation.

For Example;

If median of 1 year poll yield is 4.00- & median of 3-year poll yield is 5.00, then the 2-year yield, is derived via interpolation from 1 year and 3-year poll yields.

Given 3 & 1 year tenors polled yields: 5.00 & 4.00 respectively,

2-year Yield = 1 yr polled yield + ((3 yr polled yield - 1 yr polled yield)/ (3-1))

= 4.00 + ((5.00-4.00)/ (3-1))

= 4.00 + (1.0/2)

= 4.00 + 0.50

= 4.50

So, the 2-year yield will be 4.50

viii. Computation of yield for 0.5 year:

- The monthly average traded spread between the traded yields of 0.5 year and 1-year during month is computed for last three months.
- Based on the moving average of last 3 months applicable traded spread for the ensuing month is decided, by the Valuation Committee.
- If there are no adequate trades, or spread so arrived is not in sync with market expectation, Valuation Committee may refine the spread to align to the prevalent market level of traded spreads.

ix. For NBFCs and Corporates, the 15-year maturity yield is arrived by:

NBFC 10-year tenor yield + Category Spread (10-year tenor yield NBFC – 10-year tenor yield PSU) + Tenor Spread (15-year tenor yield PSU – 10-year tenor yield PSU) + Illiquidity Spread.

Illiquidity premium- to be added is as hereunder:

Rating	AAA	AA+	AA	AA-
Bps	25	30	35	40

This spread will be reviewed at quarterly intervals at the Valuation Committee Meeting.

C. **Validation and Trade Replacement:**

Process of replacing the polled yields in the matrix by traded (validated) yields as Traded yields should be always given priority over polled yields.

i. Process of Validation:

a) All individual trades reported to the exchanges (NSE, BSE and MSE) as on date of poll are obtained from the Exchanges.
b) Trades of Rs.5 Cr and above and trades in OTC market are only considered. IST trades are ignored. Also, all bonds with special features are also excluded. (viz. PUT/CALL Options, AT1, Tax-Free, Step Up/Down, Convertible (Optional/Partially/Fully),

Discount Bond (Deep Discount), Zero Coupon bond, Redemption Premium, Staggered Bond, Compliant and Subordinate Bonds (Tier I, Tier II and Tier III), Floating Rate Bonds, Market Linked bonds (Nifty Linked / G-Sec / T-Bill / MCLR) etc.)

c) For plain vanilla bonds, for each ISIN, the yields reported by the exchanges are validated vis-à-vis yields calculated using reported price and cash flow details already available with FIMMDA.

Validation: When difference in FIMMDA calculated yield and exchange reported yield is:

a. Within 15 bps – FIMMDA Yield will be considered for valuation.
b. More than 15 bps but all relevant information (cash flow and other details) for calculation of yield is available with FIMMDA – FIMMDA calculated yield will be considered for valuation. Else exchange yield will be considered.
c. More than 15 bps due to rating downgrade by more than 2 notch (for plain vanilla bonds) – FIMMDA calculated yield will be considered for valuation.
d. More than 15 bps for other than plain vanilla bonds – Exchange Yield will be considered for valuation.

ii. After validation as above, for each of the traded ISINs, the volume weighted average yield (VWAY) is calculated after identifying and removing the outlier trades (applicable 2 or more trades) if any.

Outlier trades are those whose yields lie outside 1 standard deviation provided 1 standard deviation is 0.15 or more.

iii. Trade Replacement:

The volume weighted average yields (VWAY) of bonds issued by representative issuers are considered for tenor-wise replacements as below:

Residual Maturity Ladder

Maturity Range (In yrs.)	Tenor
0.2600 to 0.7500	0.5
0.7501 to 1.5000	1
1.5001 to 2.5000	2
2.5001 to 3.5000	3
3.5001 to 4.5000	4
4.5001 to 5.5000	5

5.5001 to 6.5000	6
6.5001 to 7.5000	7
7.5001 to 8.5000	8
8.5001 to 9.5000	9
9.5001 to 10.5000	10
14.5001 to 15.5000	15

**(Trades with tenor of Residual maturity up to 0.25 yrs. Are ignored)*

iv. Filter criteria for considering traded yields for replacement:

a. Only plain vanilla bonds issued by the representative issuer will be considered for a replacement for constructing the matrix of the day.

b. The traded yields will be considered for replacement if the difference between the traded yield and polled yield is less than or equal to 15 bps. The difference between the polled yield and traded yield to be computed up to 2 decimals with rounding off to the next higher number in case the third decimal exceeds 5 i.e., greater than .005. This basis of computation will be followed also for the following applicable replacement conditions.

c. If the difference between the traded yield and polled yield is more than 15 bps and up to 25 bps (inclusive), the trade will be considered for a replacement provided number of trades in the particular tenor is at least 3 and the traded volume of Rs. 50 Cr or more.

d. Outlier traded yields: It follows from the above that traded yield will be considered as an outlier if the difference between the traded yield and the polled yield is more than 25 bps (excepting for 0.5 yr. tenor) subject to what has been mentioned in (b) and (c) above.

v. In order to facilitate the identification of outlier trades as mentioned above, the yield matrix will be first constructed using polled yields and interpolated yields (for intermediate tenors for which polls are not taken) and then the polled/interpolated yields will be replaced by the traded yields after fulfilling above criteria.

vi. While replacing polled yields with traded yields in 0.5 yr. tenor, trades of securities with less than 3 months (0.25) residual tenor are ignored and

for trades with residual maturity above 0.25-year up to 0.75-year, securities of traded yields of Representative Issuers are to replace polled ones even if the difference is more than 25 bps.

vii. Identification of outlier trades and ignoring them is only for matrix construction. For valuing the traded ISIN, the traded price will be used as per RBI guidelines.

D. Bonds rated below "AA- ":

i. For the bonds rated below AA- fixed spreads are determined by the traded levels of the last three months (excluding AT1 bonTax-free bonds and SO / CE rated bonds), in the Valuation Committee meeting at the beginning of every calendar quarter.

ii. These spreads are kept fixed for 3 months.

iii. FIMMDA will announce the fixed spreads to be applied for the next 3 months or period as may be determined in the Valuation Committee Meeting.

iv. These fixed spreads are converted to yields for constructing yields for rating categories below AA-.

E. Basel III Compliant AT1 Perpetual Bonds:

i. Based on the actual trades in AT1 bonds during a particular month, spreads for AT1 bonds are decided in the monthly valuation committee meeting.

ii. The spreads are being published for

a. <u>three ratings viz.</u>

- AA+ & above,
- AA and
- AA- & Below

b. three tenor buckets viz.

- up to 2 years,
- above 2 years & upto 5 years and

- above 5 years.

iii. Valuation of AT 1 perpetual bonds will be done at YIELD TO FIRST CALL (YTCF) basis.

iv. Process:

a. Spreads for traded ISINs on a particular day are arrived at using traded spreads (volume weighted average).

b. For all bonds in each rating segment & tenor bracket, volume weighted average will be calculated.

c. The individual spreads so calculated will be pooled for each rating segment & tenor (upto 2 years, above 2 years and upto 5 years and above 5 years) (AA+ and above, AA and AA- & below) and their volume-weighted average spread will be arrived.

Total of 6 spreads will be published.

d. In case there are no trades in any tenor, of a rating, then the spreads are decided by the Valuation Committee meeting based on prevailing market conditions will be considered.

v. The spreads determined by Valuation Committee meeting are fixed for the Month.

Note: Whenever a new Security is issued, the issuing bank should inform the ISIN details like description, coupon, date of issue (DOI), date of maturity (DOM), date of call/put details, ratings etc. to FIMMDA immediately after the Issue.

F. The daily yield matrix thus computed is uploaded on T+1.

2.2 NON- POLLING DAYS:

On Non-Polling days the following methodology will be applied to compute daily Yield Matrix for the valuation day:

- Polled Matrix (Ref. Para 2.1 as detailed above) of immediately preceding fortnightly polling day is used as a base for all the subsequent days in the fortnight.
- On valuation day, the polled matrix is adjusted to the extent of movement in market yield, from the poll day to valuation day. The movement is assessed using 8-bucket model and trades of Top Issuers.

A. Eight Bucket Methodology:

Computation of Daily Yield Matrix is based on a bucketing concept, under which the entire universe of traded and non-traded securities is classified based on a residual maturity ladder aggregated under 8 residual maturity buckets.

The Bucket classification is given below.

Residual Maturity (in months)	Tenor >	Tenor <=
Bucket 1	3.0001	6.0000
Bucket 2	6.0001	12.0000
Bucket 3	12.0001	24.0000
Bucket 4	24.0001	36.0000
Bucket 5	36.0001	60.0000
Bucket 6	60.0001	84.0000
Bucket 7	84.0001	120.0000
Bucket 8	120.0001	above

Note:

- *less than 3 months ignored*
- *Maximum residual maturity considered is up to 2000 months.*

B. Market Yield Movement (MYM):

MYM is the process wherein the polled levels as on the immediately preceding polling day (Polled Matrix) are adjusted to the extent of movement as on the valuation day based on trades of Top Issuers.

TOP ISSUERS:

- The Top Issuers are identified at the Valuation Committee meeting every month based on the frequency of their secondary market volume.
- Threshold for identifying top Issuer is fixed at 5000 Cr. (excluding SO / CE bonds of the issuer).
- Committee also considers trading activity and homogeneity of yields during the past 3 months, excluding the month of valuation.
- For computing the Daily Yield matrix, the bucket yield (of the Top Issuers) is calculated as below:

i. For Traded Buckets:

a. The VWAY of the Top Issuers are segregated residual tenor-wise into respective buckets after removal of outliers.

b. Outlier detection is based on trades of various Top Issuers on the day of valuation and assigned to the relevant bucket based on average residual maturity of trades.

c. Outlier trades:

<u>If less than 5 trades in a bucket:</u> No outlier detection process is applied.

<u>If 5 trades or more in a bucket:</u> Trades falling one Standard Deviation away from the median are removed as outliers provided the standard deviation is more than 0.15.

d. After identification of outliers, the VWAY of the residual trades is computed and the bucket yield of Top Issuers is arrived at for the day.

ii. For Non-Traded Buckets:

a. The average delta of yields of last 7 trading days of the particular bucket is calculated and is added to the previous day's yield of that bucket.

b. The average Delta is restricted to +/- 25 bps* and is added to the previous day's published yield.

For example:

Days	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Yields	6.58	6.69	6.45	6.40	6.20	6.35	6.50	6.65	6.37	6.28	6.18
Diff. (Today – Previous Day) Yield		0.11	-0.24	-0.05	-0.20	0.15	0.15	0.15	-0.28	-0.09	-0.10
7 Days Average delta								**-0.01**	**-0.01**	**-0.02**	**0.00**

**In case of market volatility due to certain events (monetary policy or other regulatory/govt. decisions) expert judgement if warranted may be exercised and the restriction of MYM to +/- 25 bps may not be adhered to.*

C. Proxy Yield Matrix:

Application of change in market yield to respective buckets of residual maturity.

i The tenor wise values from Polled Matrix are now assigned to the relevant buckets and such yield is kept constant till the next polling day.

The process of assignment of the polled yields to buckets is given hereunder:

- 0.5 yr. tenor yield: Bucket 1
- Average of 0.5 & 1 yr. tenors: Bucket 2
- Average of 1 & 2 yr. tenors: Bucket 3
- Bucket 4: Average of 2 and 3 yr. tenors
- Bucket 5: Average of 3 to 5 yr. tenors
- Bucket 6: Average of 5 to 7 yr. tenors
- Bucket 7: Average of 7 to 10 yr. tenors
- Bucket 8: Average of 10 and 15 yr. tenors

ii Then Market Yield Movement (MYM) (Bucket Wise and Segment Wise) is compared with the Polled Matrix (Ref. Para 2.1-C-i detailed above) of immediately preceding polling day and the difference (+/-) is considered as hardening/softening of yield as of that day as compared to the immediately preceding trading day as below.

MYM as calculated above is added / subtracted to the respective bucket values from the Polled Matrix as below:

yield movement in –

- bucket 2 is added to 1-year tenor,
- bucket 3 is added to 2-year tenor,
- bucket 4 is added to 3-year tenor,
- bucket 5 is added to 4-year and 5-year tenor,
- bucket 6 is added to 6-year and 7-year tenor,
- bucket 7 is added to 8-year, 9-year and 10-year tenor and
- bucket 8 is added to 15-year tenor.

iii 0.5-year tenor is derived by subtracting fixed spread (as decided by the valuation committee) from 1-year tenor as above.

D. **Trade Replacements:**

Values in Proxy yield matrix are replaced by actual traded yields of bonds issued by the representative issuers (Refer Para 2.1 B(iii), and Para C (iv)).

The daily yield matrix thus computed is uploaded on T+1.

CHAPTER 2
DAILY SPREAD MATRIX

From the values in Daily Yield matrix, the respective FBIL G-sec par yields (annualized) are deducted to arrive at Daily Spread Matrix (Segment Wise / Rating Wise / Tenor Wise) for the day for both Polling and Non-Polling days.

The Daily Spread Matrix starts from six-month tenor.

For valuation of securities with maturities of less than six months the spread for six-month tenor should be considered. Spread for intermediate tenors for each curve may be arrived at by linear interpolation.

For securities where the residual maturity is more than 15 years, the spreads of 15 years should be added to the base yield of applicable maturity.

For ratings below AA- the spreads over AA- as fixed at the valuation committee meeting are added to FBIL G-Sec respective par yields.

CHAPTER 3
FORTNIGHTLY SPREAD MATRIX

Fortnightly Spread Matrix is published on fortnightly polling days.

From the values in Daily Yield matrix (on polling days), the respective FBIL G-sec par yields (Annualized) are subtracted to arrive at Fortnightly Spread Matrix (Segment Wise / Rating Wise / Tenor Wise) for the day.

The Fortnightly Spread Matrix starts from six-month tenor.

For valuation of securities with maturities of less than six months the spread for six-month tenor should be considered. Spread for intermediate tenors for each curve may be arrived at by linear interpolation.

For securities where the residual maturity is more than 15 years, the spreads of 15 years should be added to the base yield of applicable maturity

For ratings below AA- the spreads over AA- as fixed at the valuation committee meeting are added to FBIL G-Sec respective par yields.

CHAPTER 4:
TRADED DATA (15 DAYS)

RBI's Guidelines (Master Direction - Classification, Valuation and Operation of Investment Portfolio of Commercial Banks (Directions), 2021 Master Circular No.: RBI/DOR/2021-22/81 DOR.MRG.42/21.04.141/2021-22 dated August 25, 2021 (Updated as on December 8, 2022) CHAPTER – V Valuation of Investments {point No. 10 (c)}) stipulates:

"c) Where the debentures/ bonds are quoted and there have been transactions within 15 days prior to the valuation date, the value adopted should not be higher than the rate at which the transaction is recorded on the stock exchange."

Traded data is published by exchanges on all trading days which include T+0, T+1 and T+2 trades for the day. Failed trades data is published with a delay of 2 days.

Accordingly, FIMMDA puts up the traded data for pervious 15 days on its website on a daily basis:

A. Cumulative Corporate Bond Trades during the last 15 calendar days (**Including probable Failed Trades**)
B. Cumulative Corporate Bond Trades during the last 15 calendar days (**Excluding failed trades**)

For all trading days:

A. Cumulative Corporate Bond Trades during the last 15 calendar days (**Including probable Failed Trades**):

   i This sheet consolidates all trades in the individual bonds (whether the settlement is T+0, T+1 or T+2) reported on platforms of all three Exchanges up to previous day to valuation day.
   ii This is a provisional sheet showing the weighted average price and weighted average yield of a bond traded and reported on the Reporting Platforms of NSE (CBRICS), BSE (ICDM) and MCX SX-FIRST.

iii If a bond is traded more than one day during the last 15 calendar days including the valuation date, then the data pertaining to the latest trades are only given.

B. Cumulative Corporate Bond Trades during the last 15 calendar days (**Excluding failed trades**):

i. This is the final sheet showing the weighted average price and weighted average yield of a bond traded, reported and settled.
ii. This sheet is an amended data pertaining to second working day before the valuation day, when the fate of T+2 trades will also be known.
iii. Failed trades and trades which were not finally settled cannot be considered as valid trades. Accordingly, the report "Cumulative Corporate Bond Trades during the last 15 calendar days (Excluding failed trades)" for the relevant valuation date needs to be considered for valuation by Users.

For Example, we publish on –

A) On June 15, 2021 i.e., valuation date (published on June 16, 2021)
i) Data from 01-06-2021 to 15-06-2021 including probable Failed Trades,

ii) Data from 28-05-2021 to 11-06-2021 excluding Failed Trades (Revision of data for Valuation date of 11-06-2021)

B) On June 17, 2021 i.e., valuation date (published on June 18, 2021)
i) Data from 03-06-2021 to 17-06-2021 including probable Failed Trades

ii) Data from 01-06-2021 to 15-06-2021 excluding Failed Trades (Revision of data for Valuation date of 15-06-2021)

CHAPTER 5
SECURITY LEVEL VALUATION (SLV)

PREAMBLE:

FIMMDA undertook the process to publish Security level Valuations. For this purpose, the traded yield / interpolated yield from the yield matrix as of 29th December 2017 for each ISIN is taken (previous day yield) to start with.

The trade data for about three years was analysed under the model and back testing of the model yields with the actual traded yields was done. The differences, causes, remedial measures were discussed with the market participants and based on these inputs, FIMMDA evolved following methodology for publishing security level valuation (SLV) on a daily basis.

FIMMDA publishes Daily Yield Matrix, Daily Spread Matrix, Fortnightly Spread Matrix, as per methodology detailed in earlier Chapters.

The methodology for computation of daily SLV is an extension of the models / processes adopted for constructing daily / fortnightly yield matrices. Certain processes in this methodology, align to and derive input from construction daily / fortnightly yield matrices. Hence wherever applicable references are made to the relevant chapters of the document.

The methodology detailed below covers computing Security Level Valuation (SLV), ISIN wise for Plain Vanilla Bonds only.

Methodology:

A) Traded Data Collation & Validation:

All individual trades reported to the exchanges (NSE, BSE, MSE) are obtained from the Exchange and validated. (As explained under validation process vide Chapter 1 para 2-C- i and ii).

Thus, for all the traded ISINs of the day Volume weighted average yields arrived at after due application of the outlier and filtration process.

B) Computation of Model Yields:

Model yields is the yield that would have been assigned to the ISIN if the ISIN had not traded on the valuation day.

Starting point considered was for the traded yield / interpolated yield from the yield matrix as of 29th December 2017, for each ISIN.

Market Yield Movement (MYM): MYM is the process wherein the polled levels as on the immediately preceding polling day (Polled Matrix) are adjusted to the extent of movement as on the valuation day based on trades of Top Issuers.

MYM is added to the previous day published yield to arrive at the current day Model Yield for each ISIN, for both traded and non-traded ISINs.

C) Final Publication of SLV

i. Traded ISINs: **Application of filters:**

For all traded ISINs, to rule out the possibility of any off-market level trade, following four levels of filters are applied to traded yields vis-vis the Model yields / traded yields of the previous day.

a) Filter-1:
Tolerance vis-à-vis model yield:

Traded yield should be within +/- 3% of the model yield. (3% is chosen as it gave the highest matching in back testing. The percentage can be periodically reviewed and changed, if needed).

b) Filter-2:
Tolerance vis-à-vis the ISIN's previous traded yield:

Trades failing the Filter-1 are checked to see, if the traded yield is within +/- 2% of the ISIN's previous traded yield, within last ONE month (30 calendar days).

c) Filter-3:
Tolerance vis-à-vis Model Yield of Other Securities of the Issuer.
The trades failing the Filter-2 are checked to see, if the traded yield is +/- 2% of the model yield of the succeeding/preceding security of the same issuer.

d) Filter-4:
Tolerance vis-à-vis Traded Yield of Other Securities of the Issuer.
The trades failing the Filter-3 are checked to see, if traded yield is within +/- 2% of the traded yield of succeeding/preceding security of the same issuer.

A trade satisfying any one of the above filters will be considered for replacing the model yield of the day and will be published.

ii. Non-Traded ISINs: SLV for the day would be the Model Yield subject to the following adjustments / refinements.

iii. Realignment Of securities / ISINs: All ISINs, not traded within a look back period of 3 month need to be realigned and a different process is being followed as mentioned in below para of Adjustments / Refinements (c).

Adjustments / Refinements:

The final output will be refined / modified keeping in view the extant RBI guidelines:

a) ISINS not traded on valuation day but traded within last 15 calendar days look back period:

   a. The prices / yields are calculated as per methodology above even when they are not traded by applying the daily market yield change to the last traded price / yield.

   b. RBI's guidelines (Master Direction - Classification, Valuation and Operation of Investment Portfolio of Commercial Banks (Directions), 2021 Master Circular No.: RBI/DOR/2021-22/81 DOR.MRG.42/21.04.141/2021-22 dated August 25, 2021 (Updated as on December 8, 2022) CHAPTER – V Valuation of Investments {point No. 10 (c)}) stipulates taking the last traded price up to previous 15 days.

   c. Accordingly, the last traded price will be repeated (in place calculated model yield / price).

d. On 16th day, if there is no trade in the ISIN, the price / yield for the 16th day will be derived by applying the market yield movement to the calculated / model yield / price of the 15 days. (Not the traded price / yield repeated up 15 days).

b) ISINS not traded on valuation day and also not traded within last 15 days look back period and Model generated yield less than G-sec Par yield of Similar Maturity

a. RBI's guidelines (Master Direction - Classification, Valuation and Operation of Investment Portfolio of Commercial Banks (Directions), 2021 Master Circular No.: RBI/DOR/2021-22/81 DOR.MRG.42/21.04.141/2021-22 dated August 25, 2021 (Updated as on December 8, 2022) CHAPTER – V Valuation of Investments {point No. 10 (c)}) stipulates that the valuation of a corporate bond will not be less than 50 bps of the G-sec Par Yield of similar residual maturity.

b. Accordingly, if the spread between the calculated / model yield of ISINs as compared to FBIL G-sec par yield of similar maturity is less than 50 bps the price / yield is adjusted so that the spread is not lower than 50 bps.

c) **Realignment of securities / ISINs:**

A. <u>Periodicity of Realignment:</u>
Realignment process to be undertaken at least once in three months and on the 15th day of the third month currently.

If 15th of the month on which realignment falls due is a non-working day / holiday, the realignment exercise may be taken up on the next business day.

B. <u>Realignment of securities / ISINs which have not traded for the last three months as on the date of valuation:</u> -

Traded Yields of ISINs which are traded in the past 3 months as on realignment date will be considered for computation of realigned yield based on a water fall mechanism given hereunder.

Example:
Valuation date – 15-January-2022
Trades to be consider for the period of – 15-October-2021

For Securities with residual maturity more than 1 year, the following Waterfall Mechanism for Realignment are as follows;

Realignment Model Waterfall (Look back period & Reference Security is 3 months)	
1	Secondary Market Trades
	Same Issuer / (Same Rating /Tenor)
2	Primary Issuances Trades
	Same Issuer / (Same Rating /Tenor)
3	Secondary Market Trades
	Same Issuer / (Same Rating /Nearby Tenor)
	Nearby (Immediate Preceding/ succeeding)
4	Secondary Market Trades
	Similar Issuer / (Same Rating /Tenor)
5	Primary Issuances Trades
	Similar Issuer / (Same Rating / Tenor)
6	Secondary Market Trades
	Similar Issuer / (Similar Rating / Nearby Tenor)
	Nearby (Immediate Preceding / succeeding)
7	Use CB Spread Matrix (Same Rating/ Tenor / Category)

Notes:

I. For every stage of the applicable Waterfall the Realigned Yield is to be compared with FBIL G-Sec Par Yield of similar maturity + 50 bps and final Realigned Yield should be higher of the following considered.
For Example:
Valuation date – 15-January-2022
FBIL G-Sec Par Yield + 50 bps = 6.86
Computed Realigned Yield = 6.50
So, New Realigned Yield = 6.86

II. While realigning the yield of respective ISINs use calculated model yield for calculations.

III. For Calculation of PSU, FI & Banks Category all the Issuers need to be considered for realignment.

IV. Similar Issuers:
It covers entire universe on that particular rating and tenor will be consider for calculating realigned yield of non-traded ISINs.

V. Definitions of Waterfalls:

Waterfall 1

- Look back period of trades to be considered will be three months as on the date of Realignment. Where there are more than 1 trade within the look back period Average of Calculated Model Yields to be applied.
- Where there is a reference security which has traded within the look back period but not on the day of Realignment – Consider Computed Model Yield after adjustment of MYM as on the date immediately preceding the realignment date. This will be the applicable realigned yield for the security which is to undergo realignment.
  Calculated Model Yield = Published Yield of previous day + MYM of the maturity-bucket.
  MYM of the maturity-bucket mentioned in Chapter 1 para 2.2 B.

Waterfall 2

- Trades – Primary Issuance – Look back period three months. VWAY to be considered if there are more than 1 primary issuance

Waterfall -3

- *Nearby Tenors means (+ / - 12 Months) - (Immediate Preceding / Succeeding tenor securities)

Example:
Valuation date – 15-January-2022
Maturity Date – 13-May-2030
Preceding Period tenor is 2029
Immediate Tenor is 2030
Succeeding Period tenor is 2031
So, the trades to be considered for the period of – 01-January-2029 to 31-December-2031

VI. Valuation approach changes on exceptional days that falls on realignment day viz policy, budget, elections, year-end / quarter-

end /month-ends or any new norms releases from respective regulatory authorities.

C. Realignment methodology for securities with Residual Maturity of less than 1 year would be the same as above.

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NOTE: *Due to any technical glitches if we are unbale to publish fortnightly / daily spread / yield matrix you may use the published matrix for the previous Mumbai business day. In such a case, we will give a ticker message on our website.*

REFERENCES

Sr. No.		Circular Number
1.	**RBI**	Master Direction – Classification, Valuation and Operation of Investment Portfolio of Commercial Banks (Directions), 2021, vide Circular No. RBI/DOR/2021-22/81 DOR.MRG.42/21.04.141/2021-22 dated 25th August, 2021. (Updated as on December 08, 2022)
2.	**FBIL**	RBI/2017-18/146 FMRD.DIRD.7/14.03.025/2017-18 Taking over of valuation of Government Securities (G-Sec) by Financial Benchmark India Pvt. Ltd. (FBIL) – valuation of portfolios
3.	**FIMMDA**	Guidelines of Valuation of Investments