

## **Annexure B**

### **WATERFALL APPROACH FOR VALUATION OF TRADED AND NON-TRADED MONEY MARKET AND DEBT SECURITIES**

AMFI, vide its best practice circular no. 83/2019-20 dated November 18, 2019 had issued the standard guidelines for waterfall valuation approach for money market and debt securities to be followed and documented by Valuation agencies. The following are the areas identified for the said guidelines:

1. Waterfall mechanism for valuation of money market and debt securities
2. Definition of tenure buckets for similar maturity
3. Process for determination of similar issuer
4. Recognition of trades and outlier criteria
5. Process for construction of spread matrix

#### **Part A: Valuation of Money Market and Debt Securities other than G-Secs**

##### **1. Waterfall Mechanism for valuation of money market and debt securities:**

The following shall be the broad sequence of the waterfall for valuation of money market and debt securities:

- i. Volume Weighted Average Yield (VWAY) of primary reissuances of the same ISIN (whether through book building or fixed price) and secondary trades in the same ISIN
- ii. VWAY of primary issuances through book building of same issuer, similar maturity (Refer Note 1 below)
- iii. VWAY of secondary trades of same issuer, similar maturity
- iv. VWAY of primary issuances through fixed price auction of same issuer, similar maturity
- v. VWAY of primary issuances through book building of similar issuer, similar maturity (Refer Note 1 below)
- vi. VWAY of secondary trades of similar issuer, similar maturity.
- vii. VWAY of primary issuance through fixed price auction of similar issuer, similar maturity
- viii. Construction of matrix (polling may also be used for matrix construction)
- ix. In case of exceptional circumstances, polling for security level valuation (Refer Note 2 below)

##### **Notes:**

1. Polling shall be conducted to identify outlier trades for any booking building issuance of less than INR 100 Cr and also for those primary issuances that are not done through book building.
2. Polling shall be conducted for exceptional circumstances like stale spreads, any event/news in particular sector/issuer, rating changes, high volatility, corporate action or such other event as may be considered by valuation agencies. Here stale spreads are defined as spreads of issuer which were not reviewed/updated through trades/primary/polls in same or similar security/issuers of same/similar maturities in waterfall approach in last 6 months.  
Further, the exact details and reasons for the exceptional circumstances which led to polling shall be documented and reported to AMC. Further, a record of all such instances shall be maintained by AMC and shall be subject to verification during SEBI inspections.
3. All trades on stock exchanges and trades reported on trade reporting platforms till end of trade reporting time (excluding Inter-scheme transfers) should be considered for valuation on that day.
4. In case of exceptional events, for the purpose of calculation of VWAY of trades and identification of outliers, on the day of such exceptional events, rather than considering whole day trades, only those trades shall be considered which have occurred post the event (on the same day).

The following events would be considered exceptional events:

- i. Monetary / Credit Policy
- ii. Union Budget
- iii. Government Borrowing / Auction Days

- iv. Material Statements on Sovereign Rating
- v. Issuer or Sector Specific events which have a material impact on yields
- vi. Central Government Election Days
- vii. Quarter end day

In addition to the above, valuation agencies may determine any other event as an exceptional event. All exceptional events along-with valuation carried out on such dates shall be documented with adequate justification.

## 2. Definition of tenure buckets for Similar Maturity:

When a trade in the same ISIN has not taken place, reference should be taken to trades of either the same issuer or a similar issuer, where the residual tenure matches the tenure of the bond to be priced. For identifying similar maturity trades, the tenure buckets are to be created and trades falling within such similar maturity shall be used as per table below:

Residual Tenure of Bond to be priced	Criteria for similar maturity
Upto 1 month	Calendar Weekly Bucket
Greater than 1 month to 3 months	Calendar Fortnightly Bucket
Greater than 3 months to 1 year	Calendar Monthly Bucket
Greater than 1 year to 3 years	Calendar Quarterly Bucket
Greater than 3 years	Calendar Half Yearly or Greater Bucket

In addition to the above:

- a. In case of market events, or to account for specific market nuances, valuation agencies may be permitted to vary the bucket in which the trade is matched or to split buckets to finer time periods as necessary. Such changes shall be auditable. Below are the example for such events / nuances:
  - i. Traded yields for securities with residual tenure of less than 90 days and more than 90 days are markedly different even though both may fall within the same maturity bucket
  - ii. Similarly, for less than 30 days and more than 30 days or cases where yields for the last week v/s second last week of certain months such as calendar quarter ends can differ.
- b. In the case of illiquid/ semi liquid bonds, traded spreads shall be permitted to be used for longer maturity buckets (1 year and above). However, the yield should be adjusted to account for steepness of the yield curve across maturities.
- c. The changes / deviations mentioned in clauses a and b above, should be documented, along with the detailed rationale for the same. Process for making any such deviations shall also be recorded. Such records shall be preserved for verification.

## 3. Process for determination of similar issuer:

Valuation agencies shall determine similar issuers using one or a combination of the following criteria. Similar issuer does not always refer to issuers which trade at same yields, but may carry spreads amongst themselves & move in tandem or they are sensitive to specific market factor/s hence warrant review of spreads when such factors are triggered.

- i. Issuers within same sector/industry and/or
- ii. Issuers within same rating band and/or
- iii. Issuers with same parent/ within same group and/or
- iv. Issuers with debt securities having same guarantors and/or
- v. Issuers with securities having similar terms like Loan Against Shares (LAS)/ Loan Against Property (LAP)

The above criteria are stated as principles and final determination on criteria, and whether in combination or isolation shall be determined by the valuation agencies. The criteria used for such determination should be documented along with the detailed rationale for the same in each instance. Such records shall be preserved for verification. Similar issuers which trade at same level or replicate each other's movements are used in waterfall approach for valuations. However, similar issuer may also be used just to trigger the review of spreads for other securities in the similar issuer category basis the trade/news/action in any security/ies within the similar issuer group.

#### 4. Recognition of trades and outlier criteria:

##### i. Volume criteria for recognition of trades (marketable lot)

AMFI, in consultation with SEBI has defined the marketable lot as under. The following volume criteria shall be used for recognition of trades by valuation agencies:

Parameter	Minimum Volume Criteria for marketable lot
Primary	INR 25 cr for both Bonds/NCD/CP/ CD and other money market instruments
Secondary	INR 25 cr for CP/ CD, T-Bills and other money market instruments
Secondary	INR 5 Cr for Bonds/NCD/ G-secs

Trades not meeting the minimum volume criteria i.e. the marketable lot criteria as stated above shall be ignored.

##### ii. Outlier criteria

It is critical to identify and disregard trades which are aberrations, do not reflect market levels and may potentially lead to mispricing of a security or group of securities. Hence, the following broad principles would be followed by valuation agencies for determining outlier criteria.

- Outlier trades shall be classified on the basis of liquidity buckets (Liquid, Semi-liquid, Illiquid). Price discovery for liquid issuers is generally easier than that of illiquid issuers and hence a tighter pricing band as compared to illiquid issuers would be appropriate.
- The outlier trades shall be determined basis the yield movement of the trade, over and above the yield movement of the matrix. Relative movement ensures that general market movements are accounted for in determining trades that are outliers. Hence, relative movement over and above benchmark movement shall be used to identify outlier trades.
- Potential outlier trades which are identified through objective criteria defined above will have to be validated through polling from market participants. Potential outlier trades that are not validated through polling shall be ignored for the purpose of valuation.
- The following criteria shall be used by valuation agencies in determining Outlier Trades

Liquidity Classification	Bps Criteria (Yield movement over Previous Day yield after accounting for yield movement of matrix)		
	Upto 15 days	15-30 days	Greater than 30 days
Liquid	30 bps	20 bps	10 bps
Semi-liquid	45 bps	35 bps	20 bps
Illiquid	70 bps	50 bps	35 bps

The above criteria shall be followed consistently and would be subject to review on a periodic basis by valuation agencies and any change would be carried in consultation with AMFI

- In order to ensure uniform process in determination of outlier trades the criteria for liquidity classification shall be as detailed below.

**Liquidity classification criteria — Liquid, semi-liquid and Illiquid definition**

Valuation agencies shall use standard criteria for classifying trades as Liquid, Semi-Liquid and illiquid

basis the following two criteria

- Trading Volume
- Spread over reference yield

Such criteria shall be reviewed on periodic basis in consultation with AMFI.

**Trading Volume (Traded days) based criteria:**

Number of unique days an issuer trades in the secondary market or issues a new security in the

primary market in a calendar quarter

<b>Liquid</b>	$\geq 50\%$ of trade days
<b>Semi</b>	$\geq 10\%$ to $50\%$ trade days
<b>Illiquid</b>	$< 10\%$ of trade days

**Spread based criteria:**

Spread over the matrix shall be computed and based on thresholds defined, issuers shall be classified as liquid, semi liquid and illiquid. For bonds thresholds are defined as

	<b>Bonds</b>	<b>CP/CD</b>
<b>Liquid</b>	upto 15 bps	upto 25 bps
<b>Semi</b>	$> 15-75$ bps	$> 25-50$
<b>Illiquid</b>	$> 75$ bps	$> 50$ bps

In case of bonds, spread is computed as average spread of issuer over AAA Public Sector Undertakings/Financial Institutions/Banks matrix .For CP/ CD, spread is computed as average spread of issuer over A1+/AAA CD Bank matrix).

The above thresholds shall be periodically reviewed and updated having regard to the market.

The best classification (liquid being the best) from the above two criteria (trading volume and spread based) shall be considered as the final liquidity classification of the issuer. The above classification shall be carried out separately for money market instruments (CP/ CDs) and bonds.

**5. Process for construction of spread matrix:**

Valuation agencies shall follow the below process in terms of calculating spreads and constructing the matrix:

Steps	Detailed Process
<b>Step 1</b>	<p><b>Segmentation of corporates:</b></p> <p>The entire corporate sector is first categorised across following four sectors i.e. all the corporates will be catalogued under one of the below mentioned bucket:</p> <ol style="list-style-type: none"> <li>1. Public Sector Undertakings/Financial Institutions/Banks;</li> <li>2. Non-Banking Finance Companies -except Housing Finance Companies;</li> <li>3. Housing Finance Companies;</li> <li>4. Other Corporates</li> </ol>
<b>Step 2</b>	<p><b>Representative issuers:</b></p> <p>For the aforesaid 4 sectors, representative issuers (Benchmark Issuers) shall be chosen by the valuation agencies for only higher rating (I.e. "AAA" or AA+). Benchmark/Representative Issuers will be identified basis high liquidity, availability across tenure in AAA/AA+ category and having lower credit/liquidity premium. Benchmark Issuers can be single or multiple for each sector.</p> <p>It may not be possible to find representative issuers in the lower rated segments, however in case of any change in spread in a particular rating segment, the spreads in lower rated segments should be suitably adjusted to reflect the market conditions. In this respect, in case spreads over benchmark are widening at a better rated segment, then adjustments should be made across lower rated segments, such that compression of spreads is not seen at any step. For instance, if there is widening of spread of AA segment over the AAA benchmark, then there should not be any compression in spreads between AA and A rated segment and so on.</p>
<b>Step 3</b>	<p><b>Calculation of benchmark curve and calculation of spread :</b></p> <ol style="list-style-type: none"> <li>1. Yield curve to be calculated for representative issuers for each sector for maturities ranging from 1 month till 20 years and above.</li> <li>2. Waterfall approach as defined in Part A (1) above will be used for construction of yield curve of each sector.</li> <li>3. In the event of no data related to trades/primary issuances in the securities of the representative issuer is available, polling shall be conducted from market participants</li> <li>4. Yield curve for Representative Issuers will be created on daily basis for all 4 sectors. All other issuers will be pegged to the respective benchmark issuers depending on the sector, parentage and characteristics. Spread over the benchmark curve for each security is computed using latest available trades/primaries/polls for respective maturity bucket over the Benchmark Issuer.</li> <li>5. Spreads will be carried forward in case no data points in terms of trades/primaries/polls are available for any issuer and respective benchmark movement will be given.</li> </ol>
<b>Step 4</b>	<ol style="list-style-type: none"> <li>1. The principles of VWAY, outlier trades and exceptional events shall be applicable while constructing the benchmark curve on the basis of trades/primary issuances.</li> </ol>

	<ol style="list-style-type: none"> <li>2. In case of rating downgrade/credit event/change in liquidity or any other material event in Representative Issuers, new Representative Issuers will be identified. Also, in case there are two credit ratings, the lower rating to be considered.</li> <li>3. Residual tenure of the securities of representative issuers shall be used for construction of yield curve.</li> </ol>
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**Part B: Valuation of G-Secs (T-Bill, Cash management bills, G-Sec and SDL)**

The following is the waterfall mechanism for valuation of Government securities:

- VWAY of last one hour, subject to outlier validation
- VWAY for the day (including a two quote, not wider than 5 bps on NDSOM), subject to outlier validation
- Two quote, not wider than 5 bps on NDSOM, subject to outlier validation
- Carry forward of spreads over the benchmark
- Polling etc.

**Note:**

1. VWAY shall be computed from trades which meet the marketable lot criteria stated in Part A of these Guidelines.
2. Outlier criteria: Any trade deviating by more than +/- 5 bps post factoring the movement of benchmark security shall be identified as outlier. Such outlier shall be validated through polling for inclusion in valuations. If the trades are not validated, such trades shall be ignored.