Corporate Bond - Methodology for Daily Security Level Valuation (SLV)

Version: January 2019

Methodology: FIMMDA undertook the process to publish Security level Valuations. For this purpose, the trade data was collated for about three years, 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 a methodology for publishing security level valuation on a daily basis.

Presently we are able to give Security Level Valuations for about 5600 bonds.

The methodology as approved by the core committee for valuation of corporate bonds and FIMMDA board is as under:

A) Traded securities:

All individual trades reported to the exchanges (NSE, BSE, MSE) are obtained from the Exchanges. Trades above Rs.5 Cr and trades in OTC market (secondary as well as primary) are only considered. Trades in odd lots and IST trades are ignored.

The yields reported to the exchanges are cross checked by calculating yields afresh using the cash flow details prepared for each ISIN.

Trades falling one Standard Deviation away from the median are removed as outliers provided the standard deviation is more than 0.15.

For all the traded ISINs, the volume weighted average yield and prices (VWAY/VWAP) are calculated after identifying and removing the outlier trades, if any

1) To rule out the possibility of any off-market level trade, filters are applied to the traded yields.
2) The filters referred to are applied vis-vis the **Model yields** / traded yields of the previous day:

Model yields:

To start with, for each ISIN the traded yield / interpolated yield from the yield matrix as of 29th December 2017 is taken (previous day yield).

Market yield change is added to the previous day yield to arrive at the current day (1st Jan 2018 in this example) model yield for each ISIN.

Market yield change is calculated by following the process as described below:

- Market yield change in respect of time period
  - *Short (1-3 yrs.)*
  - *Medium (3-7yrs.)*
  - *Long (more than 7 yrs.)*

- Tenor bonds issued by the selected issuers (**based on frequency of trading and homogeneity of yields during the past 6 month period**)
  - *PSU (PGC, EXIM, IRFC, NHPC and NTPC) and*
  - *NBFC (LIC Hsg., HDFC) segments*

  is calculated by comparing the median traded yield as of any trading day with that of immediately preceding trading day. The difference (+/-) is considered as hardening/ softening of yield as of that day as compared to the immediately preceding trading day.

But, before calculating the median traded yield, outlier ISINs, if any, are statistically identified and removed. Outlier ISINs are those whose yields lie outside one standard deviation provided the standard deviation is more than 0.15.

Application of Filters:

1. The **first filter** is deviation of the traded yield from the 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).

2. The **second filter** is the deviation of the traded yield from the ISIN's previous traded yield. The traded yield may be deviating from the model yield by more than 3%; but if the traded yield is within 2% of the ISIN's previous traded yield, then the traded yield is considered to have passed the filter criteria and it shall replace the model yield. (For this purpose, last ONE months traded data were fed into the system).

3. The **third filter** is the deviation of ISIN's traded yield from the model yield of the succeeding/preceding security in the same issuer. The traded yield of an ISIN may not be satisfying first and second filter. But, if the traded yield is in line with the model yield of the succeeding/preceding security of the same issuer (traded yield within +/- 2% of the model yield) the traded yield is considered for valuation.

4. The **fourth filter** is the deviation of the ISIN's traded yield from the traded yield of succeeding/preceding security of the same issuer. The traded yield may not satisfy the first three filters. But, if the traded yield is in line with the other traded yield of the succeeding / preceding security of the same issuer (traded yield within +/- 2% of the traded yield of succeeding/preceding security) the traded yield is considered for valuation.

   The above four filter criteria and the percentages <u>are the result of extensive research.</u>

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

   The model/traded yield of current day for each ISIN is its yield for valuation.

B) Sparingly traded / thinly traded securities:

ISINs traded during the period observation (from 29 Dec 2017) are considered after the initial tests of identification outliers etc as explained above. The **market yield change** is applied to all non-traded days and the **model yields** are calculated. The calculated yields are back tested with traded yields when traded again.

C) Non-traded securities / Low grade securities where the trades are very few: For securities where we are unable to give valuations due to lack of trades, we recommend the application of our daily Corporate Bond Matrix.

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