Markit iBoxx Pricing Rules

May 2016

Table of Contents

Changes to the Markit iBoxx Pricing Rules

31 Mar 2013	Markit enhances the number of price inputs used for index computation and updates the Markit iBoxx Pricing Rules.
14 Nov 2014	End of day prices section revisited. Complaints section added
13 May 2016	End of day pricing section and EVB pricing service methodology link updated.

1 Pricing Methodology

Markit iBoxx index calculations are based on multi-sourced pricing which, depending on the structure of each market, takes into account a variety of data inputs such as transaction data, quotes from market makers and other observable data points.

For indices calculated in real-time, for example EUR and GBP, the source of data is quotes from market makers. In this case, all data points have to pass through a three-step consolidation process as described in this document.

Should specific data sources be used for a given index, these will be noted within the index rules document. Markit reserves the right to add additional sources at its discretion to ensure the continuity and accuracy of its index products. The rules for all index families are available on www.markit.com/indices under Markit Bond Indices (*Markit Indices –> Markit iBoxx –>Documentation → iBoxx rules).*

1.1 Data inputs

End-of-Day Price Inputs

- Market quotes received from sell-side/buy-side; and/or
- End-of-day book of records prices; and/or
- Institutional size transaction data.
- Curve-based pricing model, where observable prices are not available.

Curve-based pricing model is based on the yield curve of the calculation day. Yield curves for determining the price must:

- Be entity specific,
- Be currency specific,
- Be seniority specific (including guarantees),
- Be cash flow type specific,
- Contain bonds of similar issue size,
- Be single Coupon Frequency specific : Each bucket will have constituents with a common coupon frequency,
- Separate legacy Issues within an entity: Merger related legacy issues generally require a separate curve.

Real-Time Price Inputs

- Real-time market quotes received from sell-side

1.2 End-of-Day Pricing Process

The majority of Markit iBoxx indices are powered by independent bond pricing services which are consistent with Markit's approach to ensuring the quality, integrity, continuity and reliability of its iBoxx indices. Markit's Evaluated Bond Pricing Service is the main pricing service used as an input for the calculation of the Markit iBoxx Indices.

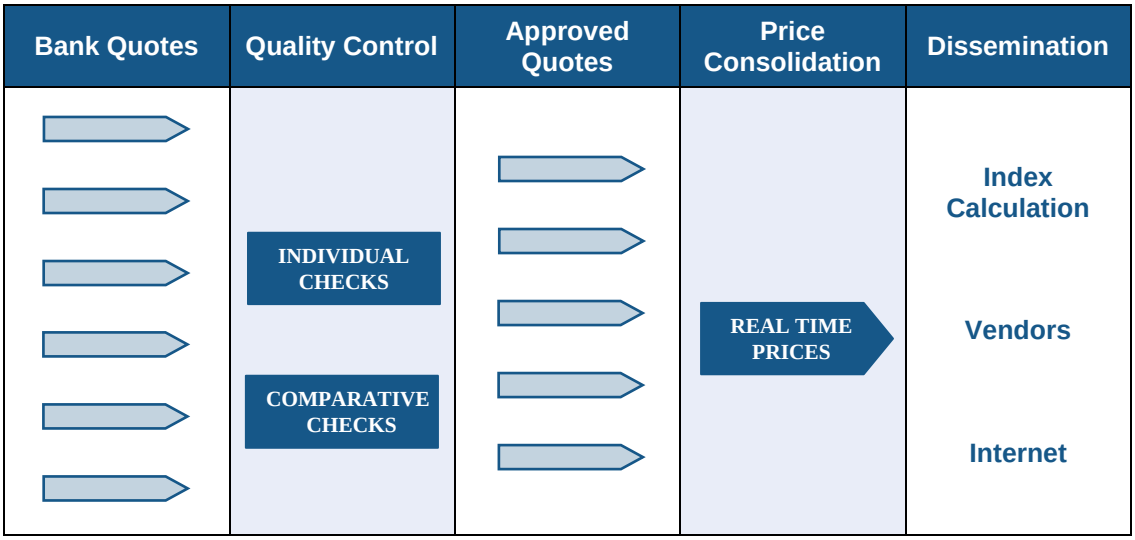
A variety of representative sources are used to fuel the bond pricing services including but not limited to books of record contributions, parsed dealer runs, reported trade prices and executed levels. Each pricing service submitting to the Markit iBoxx indices has its own proprietary methodology as to how it processes the different inputs. Markit's Evaluated Bond Pricing Service Methodology is detailed here and additional methodology documents are available upon request.

Pricing data is produced by experienced pricing analysts using established instrument evaluation models; non-transactional data such as observed bid and ask prices may predominate for a given bond as the data is being scrutinized to reliably represent the interest measured. The pricing service may also decide to rely upon Expert Judgment in an active albeit low liquidity market or any other circumstances, when observed bid and ask prices or transactions may not be consistently available each day.

For some countries and regions Markit iBoxx indices may also use local providers as a primary price source including:

- Japan Bond Trading Company Ltd. for bonds denominated in Japanese Yen (JPY)
- Thai Bond Market Association (ThaiBMA) for bonds dominated in Thai Bhat (THB)

1.3 Real-Time Pricing Process



A three step process is applied to the incoming market maker quotes.

1. Pre-filter to technically validate the quote format and timing of the contribution

2. Clustering and check of the admissible quotes
- The dispersion of the quotes that pass the technical validation is checked in the second filter
- The admissible bid and ask quotes are ordered separately from highest to lowest
- The first test checks the maximum dispersion, defined as the distance between the highest and the lowest quote (Maximum Distance Test). If the maximum distance is within a specified limit, all quotes are eligible for the consolidation
- If the Maximum Distance Test is breached, two further tests are applied:
  - First, the distance between the highest/lowest quote and its immediate neighbor is checked (Outer Distance Test). If this test is breached, the maximum/minimum quotes are ineligible for the consolidation.
  - Second, the distances between the other neighboring quotes are tested and all quotes are dismissed if one of the distances is greater than a predefined limit (Inner Distance Test)
- If the tests fail, the quotes will be tested against the Markit Control Price. If a control price exists:
  - A pre-defined margin will be set around each Markit Control Price to define an area within which a quote of a bond is permitted to be
  - The margin is set per sector/rating combination and is reviewed monthly
  - All quotes within that Margin (Control Price Margin) are eligible for the consolidation. The Inner and Outer Distance tests are rerun under the Markit Control Price constraint

3. Consolidation
- The consolidated bid and ask quotes are calculated from the remaining eligible quotes:
  - If less than two quotes are valid, no consolidated quotes can be generated
  - If two or three quotes are received, the consolidated quote is determined as the arithmetical mean of all eligible quotes
  - If four or more quotes are received, the highest and lowest quotes are eliminated. Thereafter the arithmetic average of the remaining eligible quotes is calculated to determine the consolidated quote

Where Markit further identifies quotes received from banks that should be excluded, Markit will lock them out of the next day's pricing process. The lock-out process can only be applied retrospectively as it cannot be applied continuously in the real-time pricing process.

In cases where no observable data is available or where the depth/quality of data is not sufficient, the last iBoxx index price will be carried forward.

2 Price Challenge Process

Markit strives to provide index information of the highest accuracy to its customer and to conduct its business with integrity. Markit welcomes client data challenges raised by any user of indices data around accuracy of index or constituent information and is committed to treating all challenges effectively and in a timely manner.

Markit has established a dedicated email address for data challenges.

- Data challenges should be sent to: iBoxx@markit.com

In order to efficiently process a challenge, the initial request should include as many details as possible around the data challenge and also include the following details:

- Name
- Institution & Department
- Title & Function
- Email address
- Telephone number

Markit has a dedicated client support team and aims to provide a confirmation of receipt within an hour of submission of a challenge and to resolve challenges within one business day after submission. Any data challenge is investigated by a member of the Markit client services team and specialist from the Markit's index operations team or Markit pricing group where applicable.

Markit is committed to transparency and strives to provide timely feedback on the results of the outcome of a data challenge. The goal is to provide the results of a challenge including supporting information within one business day of receipt of a challenge. In cases where this is not possible Markit is committed to provide a reason for the delay and status updates.

Actions on upheld data challenges for Markit iBoxx indices are subject to our Restatement Policy.

3 Further information

- For contractual or content issues please refer to

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- For technical issues and client support please contact iBoxx@markit.com or

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- Formal complaints can be sent electronically to a specifically dedicated email address – complaints_indices@markit.com. Please note complaints_indices@markit.com should only be used to log formal complaints. For any general index enquiries, please contact Markit iBoxx indices support group iBoxx@markit.com

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