S&P Dow Jones Indices

A Division of S&P Global

Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index Guide

May 2024

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The Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA (Transaction Cost Adjusted) index is designed to reflect the performance of liquid US Dollar denominated sovereign bonds issued by entities domiciled in the emerging markets. The index rules aim to offer a broad coverage of the USD liquid sovereign bond universe and have been designed to provide a suitable basis for OTC, exchange-traded derivatives and Exchange Traded Funds (ETFs). The index contains the twenty largest and most liquid emerging market countries that issue USD denominated sovereign debt. The index forms an integral part of the existing Markit iBoxx index families, which continue to provide the marketplace with accurate and objective benchmarks by which to assess the performance of bond markets and investments.

The definition of emerging markets is consistent with the methodology detailed within the *Markit Global Economic Development Classification* document, which is available under https://products.markit.com/home/login.jsp.

All iBoxx indices are priced based on multiple data inputs. The Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index uses multi-source prices as described in the document *Markit iBoxx Pricing Rules* publicly available on https://www.spglobal.com/spdji/en/indices/products/indices.html.

This document covers the index rules and calculation methodology.

2 Selection criteria

The eligible universe is derived from emerging market central government debt denominated in US Dollars.

The following selection criteria are used to determine the index constituents:

- Bond type
- Issuer type
- Issuer domicile
- Amount outstanding and denomination
- Time to maturity
- Age
- Credit Rating

2.1 Emerging Market definition

2.1.1 Issuer domicile

Only issuers from countries/territories classified as emerging markets are eligible for the index. The list of emerging markets is established according to *Markit Global Economic Development Classification Methodology* and is used to determine the eligibility of the issuer. The classification methodology as well as the most up-to-date classifications are published in the Indices section on https://www.spglobal.com/spdji/en/indices/products/indices.html. The classification is updated annually and implemented on 30 November each year.

2.1.2 Defaulted countries and sovereign debt rating

Countries that are in default on their external debt or that do not have a long term foreign debt rating from either of Fitch Ratings, Moody's Investor Service or S&P Global Ratings are excluded from the index. Countries with ratings of D or RD from Fitch Ratings, C or Ca from Moody's Investor Services and D or SD from S&P Global Ratings are not eligible. A default is determined based on information from the rating agencies.

In addition, a country is considered to be in default if one of the six credit events as defined by International Swaps and Derivatives Association (ISDA) occurs:

- Bankruptcy
- Obligation acceleration
- Obligation default
- Failure to pay
- Repudiation/Moratorium
- Restructuring

2.1.3 Additional restriction for countries on financial sanction regimes

Countries included on the financial sanctions' lists of the European Union or the United States (US) are excluded from the index unless:

- Sanctions are applied to specific individuals only, or
- Funds, funding and financial transactions of the government and government-related entities are unaffected by the sanctions.

The information about the sanctions regime is compiled:

- For the European Union from the Common Foreign & Security Policy
- For the US from the Office of Asset Control (OFAC)

A country is placed on the sanction list if relevant sanctions apply for either the European Union or the US. The decision about adding/removing countries is taken in consultation with the Technical Committee. Any decision to change the list of countries on the sanction list is immediately published on https://www.spglobal.com/en/.

A country emerging from default is re-included in the index at the next index rebalancing after its rating has been reinstated. If financial sanctions are instated for a particular country, this country is removed from the index at the next month-end. If financial sanctions are lifted, the country is included in the index at the next index rebalancing after all relevant sanctions have been lifted.

Based on current information, the following countries are excluded from the index because of applicable sanctions:

- Cuba
- Iran
- Myanmar
- North Korea
- Sudan
- Syria
- Russia
- Venezuela

2.2 Issuer Type

Only sovereign debt issued by the central government or the central bank is eligible for the index.

2.3 Bond type

Only plain vanilla fixed coupon bonds and step coupon bonds are eligible.

The following bond types are not eligible for the index:

- Extendable bonds
- Callables
- Capitalizing bonds
- Convertibles
- Floating rate notes
- Inflation linked bonds

- Payment-In-Kinds (PIKs)
- Perpetuals
- Preferred shares
- Putables (including poison puts)
- Restructured debt
- Sinking funds
- Structured notes
- Zero coupon bonds (including Zero coupon step-ups, GAINS)
- 144As and private placements
- Retail bonds

For retail bonds and private placements, publicly available information is not always conclusive and the classification of a bond as a retail bond or a private placement will be made at S&P DJI's discretion based on the information available at the time of determination. Any bond classified as retail or private placement is added to the list of excluded private placements and retail bonds. The list is published on https://www.spglobal.com/spdji/en/ for future reference and to ensure decision's consistency.

In instances where a new bond type is not specifically excluded or included according to the published index rules, S&P DJI will analyse the features of such securities in line with the principles set out in this guide. S&P DJI may consult the specific Index Committees. Any decision as to the eligibility or ineligibility of a new bond type will be published and the index rules will be updated accordingly.

2.4 Amount outstanding and denomination

The bonds need to be denominated in US Dollar and need to have a minimum amount outstanding of USD 500 million.

2.5 Time to maturity

At inclusion in the index, bonds need to comply with a minimum time to maturity rule. For new bonds that are considered for inclusion in the index, the minimum time to maturity is two years at the rebalancing date. The minimum time to maturity for existing bonds is 1.25 years at each quarterly rebalancing.

2.6 Age

There is no age restriction

2.7 Credit rating

The minimum average rating for bonds to be considered to be eligible for the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index is CCC.

Bonds with a rating downgrade to RD/SD will remain eligible until the second rebalancing after the downgrade. If such bonds have not been upgraded by T-3 of the second rebalance following the initial downgrade, they will be removed from the indices. This means RD/SD rated bonds remain eligible in the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index for the first rebalancing after their downgrade to allow for sufficient time to complete a distressed debt exchange or change of terms (assuming they meet all other criteria).

Bond or issuer must be rated by one or more of the following three credit rating agencies:

- Fitch Ratings
- Moody's Investor Service
- S&P Global Ratings

If more than one of the above agencies rates a bond, then the iBoxx rating is the average of the provided ratings. The index consolidates ratings to the nearest rating grade and does not use rating notches.

For subordinated debt to be eligible, any of the three credit rating agencies must rate a bond.

For more information on how the average rating is determined, please see the *iBoxx Rating Methodology* available on https://www.spglobal.com/spdji/en/ under *Methodology*.

2.8 International clearability

Bonds must be clearable via one of the following three clearinghouses:

- Clearstream
- Euroclear
- Hong Kong CMU

2.9 Issuer Ranking and Bond Selection

The top twenty countries are selected on a quarterly basis to be included in the index.

Each country is ranked by its size and traded volume. The size of a country is the aggregate notional outstanding in the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index. The countries are ranked based on the aggregate outstanding in descending order. Countries with the same amount outstanding share the same rank. The traded volume is taken from the most recent available Quarterly Debt Volume Trading Survey provided by Emerging Markets Traders Association (EMTA). The countries are ranked according to their hard currency denominated bond trading volume in descending order with the same trading volume sharing the same rank.

The two resulting ranks are combined as a simple arithmetic average which gives the aggregate score per country. All countries are then ranked in accordance with the aggregate score in ascending order, and the top twenty countries are selected. In the case of the 20th rank being shared by two countries, then the country with the larger outstanding notional debt in the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index is selected first. In case of identical issuance sizes and trading volumes the country with the smaller debt to GDP ratio is selected first.

A maximum of two bonds are selected from each of the countries; however, a second bond is only selected if its age is less than five years.

The bonds are ranked by the following criteria, by decreasing order of importance:

- Bonds issued within the last five years are considered first
- Bond size (notional amount outstanding) in descending order
- Age (time since first settlement date) in ascending order
- Time to maturity in descending order
- ISIN (as a final tiebreaker)

3 Bond classification

All bonds are classified based on the principal activities of the issuer and the main sources of the cash flows used to pay coupons and redemptions. In addition, a bond's specific collateral type or legal provisions are evaluated. Hence, it is possible that bonds issued from different subsidiaries of the same issuer carry different classifications.

The issuer classification is reviewed regularly based on updated information received by S&P DJI, and status changes are included in the index at the next rebalancing if necessary.

Where the sector classification of a specific entity is not very clear due to the diversified business of the entity, decision will be made at S&P DJI's discretion. S&P DJI will assign the classification according to its evaluation of the business risk presented in the security prospectus and annual reports, if available. S&P DJI will also compare the classification to peers in the potential sectors. Membership lists including classification are published on the FTP server and in the *Indices* section of the webpage for registered users.

4 Index Calculation

4.1 Static data

Information used in the index calculation is sourced from offering circulars and checked against standard data providers.

4.2 Bond prices

For more details, please refer to the *iBoxx Pricing Methodology* document, available in the *Methodology* section of the webpage at https://www.spglobal.com/spdji/en/.

4.3 Rebalancing process

The Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index is rebalanced quarterly on the last calendar day of February, May, August and November.

A preliminary membership list is published on the 10th calendar day of the month (moved to the next business day in case of holiday/weekend).

Two business days before the end of each month, the rating and amount information for the constituents is updated and the list is adjusted for all rating and amount changes which are known to have taken place three business days before the end of the month which could also result in exclusion of the bond. However, if bonds which are part of broader USD indices become eligible into the index two business days prior to rebalancing because of rating and/or amount changes, will be included in the index.

Two business days before the end of the month the final index membership list for the following month is published at the close of business.

On the last business day of each month, S&P DJI publishes the membership list with the capped amount outstanding and closing prices of all bonds at the close of business.

4.4 Index Weights

The target weight of each country reflects its weight in the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index. The relative weight of all qualifying countries is determined based on the next month's membership list of the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index at the close of the third last trading day of the month. All countries not represented in the liquid index are removed from the constituent list and the weight of the remaining countries is calculated. Bonds within a country are weighted according to their market sizes. The weight of a country is capped at 12.5%. In addition, the weight of a country with a debt to GDP ratio of 80% or more is capped at 5%.

The notional for each bond is calculated from the weights using the mid prices as of the third last trading day of the rebalancing month.

4.5 Index data

The calculation of the index is based on mid prices. New securities are included in the index at their respective mid prices when they enter the index family. The index is transaction cost adjusted. In the event that no price can be established for a particular security, the index continues to be calculated based on the last available price. This might be the case in periods of market stress, or disruption as well as in illiquid or fragmented markets. If the required inputs become impossible to obtain, S&P DJI may consult market participants prior to the next rebalancing date. Decisions are made publicly available on a timely basis and S&P DJI may refer back to previous cases.

The indices are transaction cost adjusted. For specific cost factor calculation formulae please refer to the Markit iBoxx Bond Index Calculus document, available in the Methodology section of the Markit iBoxx Documentation page at https://www.spglobal.com/spdji/en/.

The rebalancing takes place after close of market on the last trading day of a rebalancing month.

4.6 Index calculus

The index calculation follows the Markit iBoxx USD index calculation except that after each rebalancing the rebalancing costs are incorporated in the index by the following formula:

$$TR_t^{Open} = TR_t^{Close} \cdot (1 - cost)$$

TR_t^{Open} is Total Return Index on the first day after a semi-annual rebalancing

TR_t^{Close} is Total Return Index on the last day before a semi-annual rebalancing

For specific index formulas please refer to the Markit iBoxx Bond Index Calculus document available on www.spglobal.com/spdji/en/ under Methodology.

4.7 Treatment of special intra-month events

Data for the application of corporate actions in the index may not be fully or timely available at all times, e.g. the final call prices for make-whole calls or the actual pay-in-kind percentage for PIK-payment options. In such cases, S&P DJI will estimate the approximate value based on the available data at the time of calculation.

At each quarterly rebalancing, the complete membership list of the index is compiled from the Underlying Index using the rules and market profile described above. In between the quarterly rebalancing, at each month-end, the current index constituents are checked to identify whether one or several need to be removed from the index, and if that is the case then they will be replaced by a substitute. The information used is as of the close of three trading days before the end of the month. The treatment is applied to distressed and defaulted bonds as well as any other changes.

- Coupon changes: While most Index adjustments are made through the quarterly rebalancing procedure, coupon changes are taken into account in the calculation of the Index from the exact date on which the coupon was altered.
- Bonds no longer in the underlying index: Bonds may drop out of the Index at the end of a month because they have left the underlying index. In this case they will be replaced by suitable substitutes.
- Cash Investment: Cash received from coupon payments and non-substituted bonds will be invested at the end of each month in the money market until the end of the following month.

Bonds can exit the underlying index due to reasons such as:

- Default of the issue or issuer
- Reduction in the amount outstanding below threshold level due to repurchases

Defaulted bonds are removed from the index three index calculation days after the publication of a notice by S&P DJI is in effect.

Bonds that leave the underlying index also exit the Index at month-end. If this occurs between two rebalancing dates, other suitable bonds will replace those that have left. This also applies to defaulted bonds. The procedures below are applied only if a bond has left the Index between rebalancing dates.

At the end of the month, the eligible bond universe for the coming month is compiled and published in accordance with the selection and ranking criteria. These are applied to establish a hierarchy within the eligible bond universe. All bonds already in the index are eliminated from the hierarchy, resulting in a substitution list for each index. A separate list that contains bonds dropped and the selected substitutes with their fictitious amounts outstanding is published.

For each bond that has left, one other bond will become the substitute and enter the index. The proceeds from the sale of a dropped bond are invested in its substitute. The substitute will have a fictitious amount outstanding:

$$N_{substitute} = (\frac{P_{dropped} + A_{dropped}}{P_{substitute} + A_{substitute}})N_{dropped}$$

Where:

$A_{dropped}$ is the accrued interest of the dropped bond

$A_{substitute}$ is the accrued interest of the substitute bond

$N_{dropped}$ is the amount outstanding of the dropped bond

$N_{substitute}$ is the amount outstanding of the substitute bond

$P_{dropped}$ is the Bid price of the dropped bond

$P_{substitute}$ is the Ask price of the dropped bond

If no suitable substitute is available after applying the selection criteria, then the rule concerning the maximum number of bonds from one issuer will be relaxed and the most suitable substitute will be determined using the other selection and ranking criteria. The substitute will have a notional amount outstanding based on the formula. The substitute bond enters the Index at the Mid price. In the event that no substitute is available, the proceeds from the sale of the dropped bond are invested as cash.

4.7.1 Maturity extension

4.7.1.1 Maturity extension for perpetuals & dated fixed-to-fixed bonds with a reset date

Maturity	Coupon/Call structure	Workout Date at issuance	Updated Workout date if not called
Perpetual	Reset*/Callable	Assume first call date as workout date	Extend workout date until the end of the next reset date*
Dated	Reset/Callable	Assume reset date as workout date	Extend workout date until the end of the next reset date or final maturity date*

*Assumes the bond terms allow for a redemption at the new assumed maturity date

4.7.1.2 Maturity extension for perpetual bonds without a reset date

Maturity	Coupon/call structure	Workout date at issuance	Updated Workout date if not called
Perpetual	Fixed/ Callable	Assume first call date as workout date	Extend workout date until the assumed next call date - 5 years from first call date*.

*Assumes the terms allow for a redemption at the new assumed maturity date.

4.8 Index history

The index history starts on 30 November 2014 at a base value of 100.

4.9 Settlement conventions

All iBoxx indices are calculated using the assumption of T+0 settlement days.

4.10 Calendar

S&P DJI publishes an index calculation calendar available on https://www.spglobal.com/spdji/en/ under *iBoxx Indices Calendars*. This calendar provides an overview of the index calculation holidays of the iBoxx bond index families each year.

4.11 Publication of the Index

The Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index is calculated as end-of-day index and distributed once daily after close of US markets.

Bond and index analytical values are calculated end of day Monday to Friday using that day's closing prices. In addition, bond and index analytical values are calculated using the previous trading day’s closing prices on the last calendar day of each month if that day is not a regular trading day as well as on common bank holidays as published in the iBoxx index calculation calendar. This index calculation calendar is available on https://www.spglobal.com/en/ under iBoxx Calendars. Index data is also available from the main information vendors.

Closing index values and key statistics are published at the end of each calculation day in the Indices section on https://www.spglobal.com/en/ for registered users.

4.12 Data publication and access

Frequency	File Type	Access
Daily	Underlying files – Bond level	S&P DJI SFTP Server
	Indices files – Index level	S&P DJI SFTP Server / S&P DJI website/ Bloomberg for index levels only
Daily from the 10th calendar day of the month (or the next index publication day if the 10th calendar day falls on a non-business day)	Forward Files	S&P DJI SFTP Server
Monthly	End of Month Components	S&P DJI SFTP Server / S&P DJI website

4.13 Index review

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

5 Governance and regulatory compliance

IHS Markit Benchmark Administration Limited (IMBA UK) is the Index Administrator of iBoxx indices. Information on IMBA UK's governance and compliance approach can be found here. This document covers:

- Governance arrangements
- Input data integrity
- Conflicts of interest management
- Market disruption and Force Majeure
- Methodology changes and cessations
- Complaints
- Errors and restatements
- Reporting of infringements and misconduct
- Methodology reviews
- Business continuity

More details about IMBA UK can be found on the Administrator's website.

6 Changes to the Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index

01 May 2024	**Annual Index Review 2023** ● Standardization of Index Rules > International clearability > Credit rating
31 July 2022	Monthly forward start date updated from 10th calendar day to 6thcalendar day
31 Jan 2021	Governance and Regulatory Compliance section added
30 Aug 2017	Update of list of countries on financial sanction regimes
30 Nov 2014	Launch of Markit iBoxx USD Liquid Emerging Markets Sovereigns Mid Price TCA Index

7 Further information

Client support

For client support please contact index_services@spglobal.com.

Formal complaints

Formal complaints should be emailed to spdji_compliance@spglobal.com.

Please note: spdji_compliance@spglobal.com should only be used to log formal complaints.

General index inquiries

For general index inquiries, please contact index_services@spglobal.com.

A ESG Disclosures

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG) FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY [1]		
1	**Name of the benchmark administrator.**	IHS Markit Benchmark Administration Limited (IMBA)
2	**Underlying asset class of the ESG benchmark. [2]**	N/A
3	**Name of the S&P Dow Jones Indices benchmark or family of benchmarks.**	iBoxx Benchmark Statement
4	**Do any of the indices maintained by this methodology take into account ESG factors?**	No
Appendix latest update:		May 2023
Appendix first publication:		May 2023

[1] The information contained in this Appendix is intended to meet the requirements of the European Union Commission Delegated Regulation (EU) 2020/1817 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the minimum content of the explanation of how environmental, social and governance factors are reflected in the benchmark methodology and the retained EU law in the UK (The Benchmarks (amendment and Transitional Provision) (EU Exit) Regulations 2019).

[2] The 'underlying assets' are defined in European Union Commission Delegated Regulation (EU) 2020/1816 supplementing Regulation (EU) 2016/1011 of the European Parliament and of the Council as regards the explanation in the benchmark statement of how environmental, social and governance factors are reflected in each benchmark provided and published.

Disclaimer

Performance Disclosure/Back-Tested Data

Where applicable, S&P Dow Jones Indices and its index-related affiliates ("S&P DJI") defines various dates to assist our clients by providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P DJI defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index's launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate certain ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not represent the results of actual trading of investable assets/securities. S&P DJI maintains the index and calculates the index levels and performance shown or discussed but does not manage any assets.

Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US $10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US $1,650), the net return would be 8.35% (or US $8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US $5,375, and a cumulative net return of 27.2% (or US $27,200).

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