

**S&P Dow Jones
Indices**

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Markit iBoxx USD Benchmark Index Guide

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1 Markit iBoxx USD Benchmark Index Family

The Markit iBoxx USD Benchmark Index family is designed to reflect the performance of USD denominated investment grade debt. The index rules aim to offer a broad coverage of the USD bond universe, whilst upholding minimum standards of investability and liquidity. As of 31 December 2017, the index tracks more than 6700 bonds with about USD 16 trillion worth of debt. The indices are an integral part of the global Markit iBoxx index families, which provide the marketplace with accurate and objective reference indices by which to assess the performance of bond markets and investments.

The Markit iBoxx USD Benchmark Index family is split into three major indices: Overall, Domestic and Eurodollar. These are further broken down into sub-indices based on sector, rating and maturity. All iBoxx indices are priced based on multiple data inputs. The Markit iBoxx USD Benchmark Index family uses multi-source prices as described in the document *iBoxx Pricing Methodology* publicly available on <https://www.spglobal.com/spdji/en/> under *Methodology*.

This document covers the index family structure, rules and calculation methodology.

1.1 Index Family Structure

The Markit iBoxx USD Indices are targeted for both domestic and international investors. In order to address the different needs of investors, the overall index is split into three discrete sub-indices. Bonds are classified to conform to other standard iBoxx index families, such as the EUR and GBP indices. The table below shows the iBoxx USD Index structure:

Markit iBoxx USD Overall			
Sovereigns	Non-Sovereigns		
Treasuries	Sovereigns / Sub-Sovereigns	Corporates	Collateralized
<ul style="list-style-type: none"> • Treasuries 	<ul style="list-style-type: none"> • Sovereigns • Sub-Sovereigns <ul style="list-style-type: none"> > Agencies <ul style="list-style-type: none"> – US Agencies – Non-US Agencies > Local governments > Supranationals > Other Sub-Sovereigns 	<ul style="list-style-type: none"> • Financials <ul style="list-style-type: none"> > Senior > Subordinated > Market sector indices <ul style="list-style-type: none"> – Market sub-sector indices • Non-Financials <ul style="list-style-type: none"> > Market sector indices <ul style="list-style-type: none"> – Market sub-sector indices 	<ul style="list-style-type: none"> • Covered <ul style="list-style-type: none"> > Country sub-indices
Rating and Maturity Indices			

The Corporates Index is divided into indices for financial and non-financial issues. In addition, sector indices are calculated for financials and non-financials. Industry, super sector and sector indices are also calculated. The financial sector indices, including banks, insurance, financial services, guaranteed & wrapped and real estate are also split into senior and subordinated debt. The Overall Index is split into a Treasuries Index that includes all domestic government debt, a Sub-sovereign Index with quasi-government debt and Corporates. Each sub-group is split further into sector indices.

Rating and maturity indices are published for most aggregate indices.

The bond classification scheme is shown in Section 3.1 Overall Bond Classification. Level 0 refers to the Overall Index, Level 1 to the market issue of the bond, Level 2 to the split between Treasuries and Non-Treasuries, Level 3 to the Non-Treasuries sub-groups of Corporates and Sub-sovereigns, while Levels 4 to 8 and Debt / Tier indicate the relevant sub-index classifications. Bonds are assigned to an index using the classification levels in Section 3.

1.2 Publication of the index

The Markit iBoxx USD Benchmark 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/spdji/en/> under *iBoxx Indices 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/spdji/en/> for registered users.

2 Bond Selection rules

The following selection criteria are used to determine the index constituents from the USD denominated bond universe:

- Market Issue
- Bond Type
- Rating
- Time to maturity
- Amount outstanding

Additional selection criteria for the three sub-groups Domestic, Eurodollar and Overall Indices are described in sections 2.6 and 2.7.

2.1 Market Issue

The domicile of the issuer is not relevant for bond selection. However, for liquidity reasons, the following market types are excluded from the bond universe:

- Private Placements
- Brady Bonds
- Restructured sovereign and sub-sovereign debt

If the index committee has reasonable cause to believe that a bond is retail bond or private placement, and S&P DJI is unable to determine otherwise from the issuer or lead manager(s), the bond will be excluded from the index.

2.2 Bond Type

General inclusion criteria:

- Bonds with known cash-flows are eligible for the indices

In particular, the following bond types are eligible:

- Taxable municipals
- 144A-version only (i.e. there is no corresponding RegS security)
- Fixed coupon bonds
- Callable and Puttable bonds
- Step-ups and event-driven bonds such as rating-driven or registration-driven bonds

- Amortizing bonds and sinking funds with fixed sinking schedules
- Fixed-to-floaters
 - > Hybrid bank/insurance capital bonds
 - > Senior bonds issued by banks with a call option up to 2 years prior to maturity
 - > Undated fixed – to floaters
- Perpetual Bonds of all types.
- Financial subordinated debt with a contingent conversion feature at the point of non-viability, in line with the capital adequacy requirements of Basel III
- Secured bonds
 - > Secured bonds issued by insurance companies
 - > First mortgaged bonds/ first priority security interest
 - > Covered bonds (please refer to section 3.5.1)
 - > Secured bonds issued by an SPV with known cash-flows

The following bond types are specifically excluded:

- Retail bonds
- Private placements
- Floating Rate Notes
- Zero coupon bonds and zero-coupon step-up bonds
- Dated fixed to floater bonds issued by non-financial issuers
- Dated fixed to floater senior bonds issued by non-banking financial issuers
- Convertibles
- Inflation and other index-linked bonds
- Bonds cum or ex-warrant
- Bonds whose complete coupons are paid at maturity, as they are similar to zero-coupon bonds with only one cash flow
- New bonds entering the index that have already been called prior to rebalancing
- Optional and mandatory convertible bonds
- Subordinated bank or insurance debt with mandatory contingent conversion features that are based on an observable trigger
- Extended bonds as defined under section 'Maturity extension' in this document

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 2.1 of 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.

US treasuries, whose auction results are made available on T-3, T-2 or T-1 settling in the current month, will be added to the preview list scheduled after the issuance announcement with "When Issued" terms. The "When Issued" terms will be replaced with the final details as soon as the results are available.

2.3 Credit rating

All bonds in the Markit iBoxx USD Benchmark Index must have an iBoxx Rating of investment grade. Ratings from the following three credit rating agencies are considered for the calculation of the iBoxx Rating:

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

Investment grade is defined as BBB- or higher from Fitch Ratings and S&P Global Ratings and Baa3 or higher from Moody's Investor Service. Bonds with an RD/SD rating are excluded from the Markit iBoxx USD Benchmark Index .

If a bond is rated by more than one of the above agencies, then the iBoxx rating is the average of the provided ratings. The rating is consolidated to the nearest rating grade. Rating notches are not used. For more information on how the average rating is determined, please refer to the *iBoxx Rating Methodology* document available at <https://www.spglobal.com/spdji/en/> under *Methodology*.

US Treasuries require US sovereign rating. For corporate and sub-sovereigns only issue ratings are considered in the bond selection process. For sovereign issuers the country rating is also taken into account. Issuer ratings or MTN program ratings are not taken into account.

2.4 Time to Maturity

All bonds must have a remaining time to maturity of at least one year at the rebalancing date. Newly issued bonds must meet the minimum initial time to maturity rule. The minimum initial time to maturity as measured from the first settlement date to the maturity date of the bond, must be 18 months or more.

The expected remaining life expressed in years and calculated as follows:

- For plain vanilla bonds, the expected remaining life of the bond is its time to maturity, calculated as the number of days between the last calendar day of the current month and its maturity.
- For dated and undated callable financial hybrid capital bonds, the workout date is assumed to be the first call date.
- For non-financial hybrid capital bonds with an interest rate reset, the workout date is assumed to be the first reset date.
- For soft bullets, the expected remaining life of the bond is its time to the expected maturity and not to its final maturity date.
- For sinking funds and amortizing bonds, the average life is used instead of the final maturity to calculate the remaining time to maturity.

2.5 Amount Outstanding

All bonds require a specific minimum amount outstanding in order to be eligible for the indices, as shown below. The figures indicate minimum issue sizes.

- US Treasuries: USD 1 bn
- Sub-sovereigns: USD 500 m
- Corporates: USD 500 m
- Collateralized: USD 500 m

In the case of 144A/RegS securities that are registered as global securities, the remaining amount of the 144A/RegS version and the registered version are recombined if the bond is not exchanged in full.

RegS bond tap issue amounts, regardless of fungibility status will be added to existing RegS versions to maintain consistency with the treatment of tap issues as reflected under existing 144A versions.

2.6 Additional Information on the Markit iBoxx USD Domestic Indices

2.6.1 Index Structure

Only domestic and global bonds qualify for these indices (Level 1 classification “D” or “G”). In addition to the standard iBoxx Indices, several aggregate indices are calculated. Bonds with a Level 3 classification of “Sovereigns & Sub-sovereigns” or “Corporates” are included in the iBoxx USD Non-Treasuries Index. The iBoxx USD Credit Index includes all Non-Treasuries except “US Agencies”.

2.6.2 Additional Selection Criteria for iBoxx USD Domestic Indices

Market Issue

The following market issues from the full universe are ineligible:

- Eurodollar and Euro MTN (including RegS)

2.7 Additional Information on the Markit iBoxx USD Eurodollar Indices

2.7.1 Selection Criteria

Only Eurodollar, EuroMTN and global bonds qualify for these indices (Level 1 classification “E” or “G”). In addition to the standard sub-indices, bank subordinated debt is further detailed into the Tier of subordination.

2.7.2 Additional Selection Criteria for iBoxx USD Eurodollar Indices

Market Issue

The following market issues from the full universe are not eligible:

- US Domestic, Domestic MTN and Yankees

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.

3.1 Treasuries

Bonds issued by the US government and denominated in USD.

3.2 Sovereigns

Bonds issued by a central government and denominated in USD.

3.3 Sub-sovereigns

Bonds issued by entities with explicit or implicit government backing due to legal provision, letters of comfort, or the public service nature of the issuer's business. The issuer requires a strong central government ownership/relationship if its bonds are not explicitly guaranteed by the central government.

The four main sub-sovereign sectors are:

- **Agencies:** Bonds issued by entities with a major focus on government-sponsored, public, non-competitive services. The issuers are financial in nature and carry out government policies through special development programs, often explicitly government-backed or with a business scope defined by a specific law.
- **Supranationals:** Bonds issued by supranational entities, i.e. entities that are owned by more than one central government (e.g. World Bank, EIB).
- **Local Government:** Bonds issued by local governments (e.g. Province of Manitoba, Canada).
- **Other Sub-Sovereigns:** All remaining bonds considered sub-sovereign, classified into the following three main categories:
 - > **Non-Financials:** Bonds issued by entities from the non-financial sector with an explicit or strong implicit debt guarantee from the state. The issuer's credit rating is closely correlated to the sovereign rating and expresses a strong credit uplift based on a high level of government support. S&P DJI expects the issuer's credit rating to be no worse than on par or two notches below the sovereign rating. A 'strong implicit guarantee' means the issuer is 100% owned by the state or public sector with its debt consolidated into state public debt, or the issuer has preexisting access to government financing or funding derived from tax revenues. State-owned issuers that are profit-

oriented, provide competitive services, and operate under a regulatory framework are considered Corporates.

- > *Guaranteed Financials*: A specific bond issued by a private sector financial institution that is irrevocably guaranteed by a government. Most of these bonds are issued under programs set-up after the 2008 financial crisis.
- > Bonds issued by unguaranteed institutions with an irrevocable and explicit guarantee by a central government that covers amount and timeliness of all interest and principal payments until the maturity of the bond.

3.4 Collateralized

3.4.1 Covered bonds

Bonds which are secured by a general pool of assets in case the issuer becomes insolvent, in particular bonds conforming to the criteria specified in UCITS 22.4 or similar directives, e.g. CAD III. In addition, bonds with a structure affording an equivalent risk and credit profile that are considered by the market as covered bonds are also included in the indices.

3.5 Corporates

Bonds issued by public or private corporations. Bonds secured by a 'floating charge' over some or all assets of the issuer are considered corporate bonds. Corporate bonds are further classified into Financials and Non-Financials bonds and then into their multiple-level economic sectors, according to the issuer's business scope. The category Guaranteed & Wrapped is added under Financials for corporate bonds whose timely coupon and/or principal payments are guaranteed by a non-affiliated insurer or through a letter of credit from a non-affiliated bank. Each bond in the index is assigned to one of the following sectors.

Table 1: Overview of Markit iBoxx Corporates Sectors

	Economic Sector	Market Sector	Market Sub-Sector
Financials	Core Financials	Banks	Banks
		Insurance	Life Insurance
			Nonlife Insurance
	Financial Services	Financial Services	General Financial
			Equity Investment Instruments
			Nonequity Investment Instruments
		Guaranteed & Wrapped	*
	Real Estate	Real Estate	Real Estate Investment & Services
Real Estate Investment Trusts			
Non-Financials	Energy	Oil & Gas	Oil & Gas Producers
			Oil Equipment / Services & Distribution
		Renewable Energy	Renewable Energy
	Basic Materials	Chemicals	Chemicals

Economic Sector	Market Sector	Market Sub-Sector	
	Basic Resources	Industrial Metals	
		Mining	
		Forestry & Paper	
	Industrials	Construction & Materials	Construction & Materials
		Industrial Goods & Services	Aerospace & Defense
			Electronic & Electrical Equipment
			General Industrials
			Industrial Engineering
			Industrial Transportation
			Support Services
	Consumer Goods	Automobiles & Parts	Automobiles & Parts
		Food & Beverage	Beverages
			Food Producers
		Personal & Household Goods	Household Goods
			Personal Goods
			Tobacco
			Leisure Goods
	Health Care	Health Care	Pharmaceuticals & Biotechnology
			Health Care Equipment & Services
	Consumer Services	Retail	Food & Drug Retailers
			General Retailers
Media		Media	
Travel & Leisure		Travel & Leisure	
Education		Academic & Educational Services	
Telecommunications	Telecommunications	Integrated Telecommunications	
		Wireless Telecommunications	
Utilities	Utilities	Electricity	
		Gas / Water & Multiutilities	
Technology	Technology	Software & IT Services	
		Technology Hardware & Equipment	

3.6 Additional classification

Corporate debt is further classified into senior and subordinated debt. Bank senior debt structure additionally differentiates between Bail-in and Preferred bonds. The Bail-in classification captures all senior notes which are subject to write-down or conversion into a subordinated instrument on the occurrence of a resolution event, as well as senior bank debt issued by bank holding companies.

Hybrid capital issued by banking and insurance institutions is further detailed into the respective tiers of subordination.

The market information on the tier of subordination for insurance capital is often less standardized and clear than the equivalent issues by banks. In these cases, the classification is based on the maturity, coupon payment and deferral provisions of the bond from the offering circulars of the bonds. The table below displays the seniority classification of debt issued by both financial and non-financial sectors.

Table 2: Overview of seniority levels

Market Sector	Seniority Level 1	Seniority Level 2	Seniority Level 3	
Bank	SEN	Preferred	*	
		Bail-in	*	
	SUB	T2 (post-Jan '13 issuances)	T2 callable	
			T2 non-callable	
		T2 (pre-Jan '13 issuances)	LT2 callable	
			LT2 non-callable	
			UT2	
		T1	T1 step	
			T1 non-step	
Insurance	SEN	*	*	
	SUB	T3	*	
		T2 dated	T2 dated callable	
			T2 dated non-callable	
		T2 perpetual	*	
		T1	*	
Other sectors	SEN	*	*	
	SUB	Other	Hybrid**	
			Non-hybrid	

** Bonds will be required to fulfil the following criteria to be considered hybrids:

- Subordinated
- Deferrable coupons
- First non-call period \geq 5 years
- Either perpetual or 'long-dated', where 'long-dated' is defined as $>$ 25 years of the time to maturity at issuance

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 index is rebalanced monthly on the last business day of the month. Any inclusion after the index cut-off day (t-3) will not be considered in the rebalancing process but will become effective at the end of the following month. New bonds issued are considered if they are publicly known to settle until the last calendar day of the month, inclusive, and if their rating and amount outstanding has become known at least three trading days before the end of the month.

Preview lists of eligible bonds are published on a weekly basis starting on the first Friday that is three business days after the previous month-end rebalance, as well as on the 6th calendar day of the month (or next index publication day if the 6th calendar day falls on a non-business day). Preview lists of eligible bonds are additionally published on T-4, T-3 trading days before the end of the month. Final components are published two business days before the end of the month (T-2).

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 US Dollar 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.

4.4 Index data

The calculation of the index is based on bid prices. New securities are included in the index at their respective ask prices when they enter the index family. If 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.

A sub-index is calculated if at least one bond matches all inclusion criteria. If no bonds qualify for an index, then its level remains constant. If at least one bond becomes available again, the index calculation resumes and is chained to the last calculated level. All bonds are assigned to sub-indices according to their classification. The assignment of a bond to a certain maturity bucket is based on its expected remaining life. All bonds remain in their maturity bucket for the entire month. All top-level indices are computed and disseminated Monday to Friday (except during common US trading holidays). They are based on US end of day prices. The indices are also calculated on the last calendar day of each month irrespective of holidays and weekends. If the indices are calculated on a day that is a non-business day,

then the prices from the previous trading day will be carried forward and the index will be calculated using those prices and the current accrued interest and coupon payment data.

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

4.5 Index calculus

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

4.6 Treatment of the 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.

4.6.1 Index and analytics weights

The Markit iBoxx USD Benchmark Index is market-value-weighted, with the bond's amount outstanding as the weighting factor. The amount outstanding of a bond is only adjusted at the monthly rebalancing process at the end of each month. However, scheduled redemption payments for amortizing bonds and sinking funds are taken into account from the date they occur, as they have a significant influence on index return and analytical values. In addition, bonds that are fully redeemed intra-month are also taken into account immediately. Therefore, the indices are based on adjusted amount outstanding, derived from the amount issued and closely related to the amount outstanding of a bond. The concept is summarized below.

Definitions:

- *Amortizing bonds*: Bonds whose face value is redeemed according to a schedule at more than one redemption date. Interest payments are made on the basis of the remaining value of the bond.
- *Sinking funds*: Bonds, for which money is applied periodically to redeem part of the outstanding before maturity. At the redemption dates the appropriate amount of bonds may either be retired randomly from the outstanding bonds, or purchased on the open market and thus retired. Interest payments are made on the remaining outstanding bonds.
- *Fully redeemed bonds*: Bonds that are fully called or completely repurchased prior to or at the calculation date.

The amount issued of a bond does not change when coupons are paid and bonds are redeemed. However, additional tranches and unscheduled repurchases have to be taken into account to arrive at a suitable basis for index and analytics calculations. Therefore the adjusted amount outstanding is the common basis on which all calculations are based.

In addition, incoming bond prices are linked to the amount outstanding, rather than to the amount issued. This ensures a common basis (to the nominal value of 100), on which all bonds are priced and the indices are calculated.

4.6.2 Funged bonds

Bonds may be issued in several tranches. The different tranches are initially legally separate and therefore trade independently for a certain period. On and after the fudge date, the tranches will be combined into one bond, i.e. the parent tranche will contain the original security, as well as the additional notional(s) from

the new tranche(s). After the funge date, the prices for both the securities are the same, because they constitute one uniform bond. This is reflected in the indices as follows:

4.6.2.1 Parent and new tranche are both index constituents

- After the funge date, the price from the parent tranche is used for the funged tranche; no price for the funged bond
- Funged tranche leaves the index at the next rebalancing and parent amount outstanding increases accordingly

4.6.2.2 Parent is an index constituent, but the new tranche is not

- No special intra-month treatment necessary
- Parent amount outstanding increases at the next rebalancing

4.6.2.3 Parent is not an index constituent but the new tranche is

- No special intra-month treatment necessary
- Funged tranche leaves the index; parent tranche enters the index at the next rebalancing

4.6.3 Full redemptions: exercised calls, puts and buybacks

If a bond is fully redeemed intra-month, the bond effectively ceases to exist. In all calculations, the redeemed bond is treated as cash based on the last price, the call price or repurchase price, as applicable. The redemption factor, redemption and the redemption price are used to treat these events in the index and analytics calculation. In addition, the clean price of the bond is set to the redemption price, and the interest accrued until the redemption date is treated as an irregular coupon payment.

4.6.4 Bonds trading flat of accrued

If a bond is identified as trading flat of accrued, the accrued interest of the bond is set to 0 in the total return index calculation and is excluded from the calculation of all bond and index analytical values.

Bonds will be considered trading flat of accrued in any of the following situations:

- a bond has been assigned a default rating and/or
- issuer has announced a failure to pay a coupon and/or
- issuer has announced an intention not to make a payment on an upcoming coupon (grace period).

4.6.5 Multi-coupon bonds

Some bonds have pre-defined coupon changes that lead to a change in the annual coupon over the life of the bond. In all instances, the coupon change must be a fixed amount on top of a fixed coupon, i.e. floating coupon bonds are not eligible for the indices. The two main categories of bonds are step-up bonds and event-driven bonds.

- **Step-up bonds:** These are bonds with a pre-defined coupon schedule that cannot change during the life of the bond. The coupon schedule is used in all bond calculations.
- **Event-driven bonds:** These are bonds whose coupon may change upon occurrence (or non-occurrence) of pre-specified events, such as rating changes, e.g. rating-driven bonds, failure to register (register-driven bonds), or failure to complete a merger (merger-driven bonds). In the calculation of the indices and the analytics, the coupon schedule as of the calculation date is used. That is to say, any events occurring after the calculation date are ignored in the determination of

the applicable coupon schedule. *Example of an event-driven bond:* A bond's rating changes on 31 December 2003 from A- to BBB+ and the coupon steps up from 6% to 6.25% from 1 March 2004 onward. The coupon dates are 1 October and 1 April each year. The correct coupon schedule for the bond and index calculations is date dependent. The index calculation on 20 December 2003 uses the 6% coupon for the whole life of the bond, while the calculation on 31 January 2004 uses a 6% coupon for the current coupon period to 29 February 2004, and a 6.25% coupon for all later interest payments. The index calculation on 20 March uses a 6% coupon until 29 February, a 6.25% coupon for the remainder of the current coupon period and a 6.25% coupon for all future coupon payments. The index calculation after 1 April uses a 6.25% coupon.

4.6.6 Ex-dividend conventions

Some markets have ex-dividend conventions. Ex-dividend means that the next coupon is detached from the bond several days in advance of the coupon payment date. The date on which the next coupon is detached is the ex-dividend date and the period between the ex-dividend date and the coupon payment date is the ex-dividend period. If a bond is in the ex-dividend period, the next coupon payment will not be paid to a buyer of this bond, but will be paid to the original bond holder.

The indices and analytics calculations take ex-dividend conventions into account. During the ex-dividend period, the accrued interest of the bond is negative, while the next coupon payment is held separate in the variable coupon adjustment. If the bond enters the index during the ex-dividend period, then the next coupon payment and the coupon adjustment will not accrue to the index. However, if the bond was already in the index, the next coupon payment needs to be included in the total return calculations. This is controlled via the ex-dividend indicator which is 0 if the bond enters the index during the current ex-dividend period and 1 if not. The same treatment is also applied to all analytics calculation, i.e. the first cash flow is excluded from the calculations if the bond enters during the current ex-dividend period.

4.6.7 Maturity extension

4.6.7.1 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

4.6.7.2 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.

4.7 Index history

The Index history starts on 31 December 1998. The index has a base value of 100 on that date.

4.8 Settlement conventions

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

4.9 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.

4.10 Data publication and access

The table below summarizes the publication of Markit iBoxx USD Benchmark Index in the *Indices* section of the webpage for registered users and on the FTP server.

Table 3: Data publication frequency, file types and access

Frequency	File Type	Access
Daily	Underlying file – Bond level	FTP Server
	Indices files – Index level	FTP Server / website / Bloomberg (index levels only)
Daily from the 6th calendar day of the month (or the next index publication day if the 6th calendar day falls on a non-business day)	Forwards files	FTP Server / website
Weekly (On Friday)**	Preview components	FTP Server / website
T - 4	Preview components	FTP Server / website
T - 3	Preview components	FTP Server / website
Monthly	End of month components	FTP Server / website
	XREF files	FTP Server

**Previews will be published on the first Friday that is three business days after the previous month-end rebalance.

4.11 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 Markit iBoxx USD Benchmark Index family

01 May 2024	<p>Annual Index Review 2023</p> <ul style="list-style-type: none"> ● Update to Agencies' Classification Definition <ul style="list-style-type: none"> > Updated definition of 'Agencies' > Updated definition for 'Other Sub-Sovereigns'
30 Jun 2023	<p>Annual Index Review 2022</p> <ul style="list-style-type: none"> ● Introduction of 'Maturity extension' section ● Index eligibility of bonds with extended workout dates ● Creation of 'Renewable Energy Sector' within the 'Corporates' classification ● Inclusion of Taxable Municipals ● Inclusion of 144A only bonds (with no corresponding RegS bond)
31 Jul 2022	<ul style="list-style-type: none"> ● Monthly forward start date updated from 10th calendar day to 6th calendar day
31 Mar 2022	<p>Annual Index Review 2021</p> <ul style="list-style-type: none"> ● Introduction of new market sector classification "Education" with market sub-sector classification "Academic & Educational Services"
01 Sep 2021	<ul style="list-style-type: none"> ● Monthly forward start date updated from 12th calendar day to 10th calendar day
28 Feb 2021	<p>Annual Index Review 2020</p> <ul style="list-style-type: none"> ● Updated Insurance classification ● RegS and 144A tap issuance update
31 Jan 2021	<ul style="list-style-type: none"> ● Governance and Regulatory Compliance section added
22 Oct 2020	<ul style="list-style-type: none"> ● Update US Municipal Market Bonds from Municipal Bonds under heading Market issue

31 Jul 2020	<p>Annual Index Review 2019</p> <ul style="list-style-type: none"> • Introduction of updated corporate classification schema • Implementation of updated Bank Tier Classification • Updates as part of the changes in definition and treatment of hybrid bonds
29 Apr 2020	<ul style="list-style-type: none"> • Updated Data publication and access to incorporate current schedule
31 Jan 2020	<ul style="list-style-type: none"> • Definition update of Guaranteed and Wrapped • Definition update of Other Sub-Sovereign classification as part of Annual Index Review 2019
21 Dec 2018	<ul style="list-style-type: none"> • Rating clarification for US Treasuries (Rule 2.3) • Make changes in Corporate Sectors (Rule 3.6) • Added seniority levels (Rule 3.7) • Inclusion criteria for Perpetual Bonds (Rule 2.2)
03 Jan 2018	<ul style="list-style-type: none"> • Inclusion criteria of senior Fix-to-floater bonds issued by banks (Rule 2.2) • Updated additional selection criteria for iBoxx USD Domestic Indices (Rule 2.6.2) • Additional senior bank debt classification based on TLAC regulation (Rule 3.7) • Clarification on Rebalancing cut-off for bonds within the existing iBoxx USD universe (Rule 4.3)
16 Sep 2016	<ul style="list-style-type: none"> • Inclusion and exclusion criteria added for COCO and inclusion criteria for "When Issued" US Treasury (Rule 2.2) • Clarification on amount outstanding of the exchanged bonds (Rule 2.5)
20 Apr 2016	<ul style="list-style-type: none"> • Removed classification for Insurance wrapped (Rule 3.6) • Added Singapore, UK and Contractual Covered Bonds (Rule 3.5.1)
22 Mar 2016	<ul style="list-style-type: none"> • Added classification for Guaranteed and wrapped
15 Mar 2016	<ul style="list-style-type: none"> • Rebalancing process (Rule 4.3) • Sub-Sovereign (Rule 3.4)
04 Dec 2015	<ul style="list-style-type: none"> • Additional clarifications on Bond Type (Rule 2.2)
11 Jul 2015	<ul style="list-style-type: none"> • Additional clarifications on Bond Type (Rule 2.2)
01 Oct 2014	<ul style="list-style-type: none"> • Index restatement, complaints section added • Additional clarifications on Bond eligibility, classification and corporate actions • Classification change for Real Estate bonds
31 Mar 2013	<ul style="list-style-type: none"> • Markit iBoxx USD Indices will be based on the pricing methodology described in the document 'Markit iBoxx Pricing Rules'
14 Jan 2013	<ul style="list-style-type: none"> • Introduction of Markit iBoxx USD Covered Indices
01 Nov 2008	<ul style="list-style-type: none"> • Clarification of the rules for guaranteed financial debt
01 Oct 2008	<ul style="list-style-type: none"> • Exclusion of new bonds from entering the index that have been called prior to rebalancing (Rule 2.2)
01 Jul 2008	<ul style="list-style-type: none"> • Exclusion of bonds from the index for which index committee has reasonable cause to believe that the bond is a retail bond

	or private placement, and S&P DJI is unable to determine otherwise from the issuer or lead manager(s) (Rule 2.1)
01 Jan 2008	<ul style="list-style-type: none"> • Change of rating method to average rating method to determine a bond's index rating for Markit iBoxx investment grade indices
01 May 2007	<ul style="list-style-type: none"> • Launch of four new iBoxx USD Domestic Subordinated Indices
28 Jun 2005	<ul style="list-style-type: none"> • Launch of iBoxx USD Index Family

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

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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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