

**S&P Dow Jones
Indices**

A Division of **S&P Global**

Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index Guide

May 2023

Table of Contents

1) Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index	4
2) Bond selection rules	5
2.1) Bond type	5
2.1.1) Tender offers and calls	6
2.2) Credit rating	6
2.3) Time to maturity	6
2.4) Amount outstanding	7
2.5) Minimum run	7
2.6) Bond ranking	7
3) Bond classification	8
3.1) Denomination	8
3.2) Issuer	8
3.3) Issuer country	8
3.4) Corporates	8
4) Index calculation	11
4.1) Static data	11
4.2) Bond prices	11
4.3) Rebalancing process	11
4.3.1) Rebalancing procedure	11
4.4) Index weights	11
4.5) Cash	11
4.6) Index data	12
4.7) Index calculus	12
4.8) Treatment of the special intra-month events	13
4.8.1) Full redemptions: exercised calls, puts and buybacks	13
4.8.2) Bonds trading flat of accrued	13
4.8.3) Multi-coupon bonds	13
4.9) Index history	14
4.10) Settlement conventions	14
4.11) Calendar	14
4.12) Publication of the index	14
4.13) Data publication and access	14

5) Governance and regulatory compliance	16
6) Changes to the Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index	17
7) Further information	18
A) ESG Disclosures	19
Disclaimer	20

1) Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index

The Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index is designed to reflect the performance of USD denominated investment grade corporate debt. The index rules aim to offer a broad coverage of the USD investment grade liquid bond universe. The indices are an integral part of the global Markit iBoxx index families, which provide the marketplace with accurate and objective indices by which to assess the performance of bond markets and investments. The index is market-value weighted with an issuer cap of 3% and uses a ranking procedure (section 2.6) to select the Top 150 bonds.

The Index is rebalanced once a month at the month-end (the “rebalancing date”) and consists of investment grade USD denominated bonds issued by corporate issuers and rated by at least one of three rating services: Fitch Ratings, Moody’s Investors Service, or Standard & Poor’s Rating Services.

The bonds in the Index must meet all the criteria described below as of the close of business three business days prior to the rebalancing date provided that the relevant bond data can be verified, at Markit Indices Limited’s sole discretion, as of such date (“bond selection cut-off date”). The new index composition becomes effective on the first business day of the next month. All iBoxx indices are priced based on multiple data inputs. The Index uses multi-source prices as described in the document “Markit iBoxx Pricing Rules” publicly available on www.ihsmarkit.com.

This document covers the index selection rules and calculation methodology.

2) Bond selection rules

The following selection criteria are applied to select the constituents for the Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index:

- Bond type
- Credit rating
- Time to maturity
- Amount outstanding
- Classification
- Lockout period
- Minimum run

2.1) Bond type

Only fixed-rate bonds whose cash flow can be determined in advance are eligible for the indices. The indices are comprised solely of bonds. T-Bills and other money market instruments are not eligible. The index includes only USD denominated bonds.

In particular, bonds with the following characteristics are included:

- Fixed coupon bonds
- Step-up bonds with coupon schedules known at issuance (or as functions of the issuer's rating)
- Sinking funds and amortizing bonds
- Medium term notes ("MTNs")
- Callable bonds
- Puttable bonds
- Senior fix-to-float bonds issued by banks with a call option up to 2 years prior to maturity

The following instrument bond types are specifically excluded from the index:

- Preferred shares
- Optionally and mandatory convertible bonds
- Subordinated bank or insurance debt with mandatory contingent conversion features or with any conversion options before the first call date is ineligible for the index
- Bonds with other equity features attached (e.g., options/warrants)
- 144As
- Private placements
- Perpetual bonds
- Fixed to floater bonds issued by non-financial issuers
- Fixed to floater senior bonds issued by non-banking financial issuers
- Fixed-to-floater subordinate bonds issued by financial issuers
- Pay-in kind bonds (during the pay-in-kind period)
- Zero coupon bonds
- Zero step-ups (GAINS)
- Bonds with differences between accrual and coupon payment periods and monthly-paying 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 IHS Markit's discretion based on the information available at the time of determination. IHS Markit may consult with the specific

Index Advisory Committees to review private placements. Any bond classified as private placement is added to the list of excluded private placements. The list is published on www.ihsmarkit.com under Indices News 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, IHS Markit will analyze the features of such securities in line with the principles set out in 2.1 of this guide. IHS Markit may consult the specific Index Advisory 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.

2.1.1) Tender offers and calls

Any bond subject to a firm call or tender offer, with the exception of exchange offers, in the month immediately following the rebalancing date will be excluded from the index, provided that IHS Markit is aware of such tender offer or call as of the bond selection cut-off date.

2.2) Credit rating

All bonds in the Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA 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.

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. The methodology can be found on www.ihsmarkit.com under *Methodology*.

In case of an ID change or exchange of a 144A version into a registered bond the ratings from the 144A bond are also used for the registered bond.

2.3) Time to maturity

All bonds must have at the rebalancing day an expected remaining life:

- of at least one year, and
- all new insertions must have an expected remaining life of at least two years.

The expected remaining life is 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 hybrid capital bonds, the first call date is always assumed to be the expected redemption date. The expected remaining life is calculated as the number of days between the last calendar day of the month and the expected redemption 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.

Bonds from the issuer are replaced by a more recently issued bond only if the new bond is at least 2 years younger.

2.4) Amount outstanding

The outstanding face value of a bond must be greater than or equal to the below mentioned thresholds as of the bond selection cut-off date. Partial buybacks or increases affect the outstanding face value of a prospective bond. IHS Markit considers changes to the outstanding face value of a candidate bond as a result of partial or full buybacks or increases, provided that IHS Markit is aware of such changes as of the bond selection cut-off date. In the case of RegS securities that are registered as global securities, the remaining amount of the RegS version and the registered version are recombined if the bond is not exchanged in full and if the remaining amount of the RegS version reduces the amount outstanding below the eligibility threshold.

Sector	Amount Outstanding Threshold
Utilities & Health Care	USD 500 million
Financials	USD 2 billion
Industrials, Oil & Gas, Technology, Telecommunications	USD 1.5 billion
Others	USD 1 billion

2.5) Minimum run

Any bond that enters the Index must remain in the index for a minimum of 12 months provided it is not downgraded to sub-investment grade, defaulted or fully redeemed in that period.

2.6) Bond ranking

The following selection procedure is applied to the bond universe to determine the most liquid bonds for the Index:

1. Bonds are ranked by each category in the following order:
 - > Amount outstanding (prefer higher)
 - > Age (prefer lower)
 - > Expected remaining life (prefer higher)
2. If an Issuer has more than 1 bonds, only the Top 1 bond per Issuer are selected.
3. The Top 150 bonds are selected.

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 IHS Markit, 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 IHS Markit's discretion. IHS Markit will assign the IHS Markit classification according to its evaluation of the business risk presented in the security prospectus and annual reports, if available. IHS Markit will also compare the classification to peers in the potential sectors and may consult with the Index Advisory Committees. Membership lists including classification are published on the FTP server and in the *Indices* section on www.ihsmarkit.com for registered users.

3.1) Denomination

Bonds must be denominated in USD.

3.2) Issuer

The bond must be corporate credit, i.e., debt instruments backed by corporate issuers that are not secured by specific assets. Debt issued by governments, sovereigns, quasi-sovereigns, and government-backed or guaranteed entities is excluded.

For the purposes of selecting candidates for the index, an "issuer" is defined by the Bloomberg ticker (i.e., all bonds sharing a ticker are attributed to the same issuer).

3.3) Issuer country

There is no country restriction.

3.4) 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	Oil & Gas	Oil & Gas	Oil & Gas Producers
			Oil Equipment / Services & Distribution
			Alternative Energy
	Basic Materials	Chemicals	Chemicals
		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

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 *Markit iBoxx Pricing Rules* document, available in the *Methodology* section of the iBoxx Documentation page on www.ihsmarkit.com.

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 taken into account 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.

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.

4.3.1) Rebalancing procedure

In a first step the selection criteria set out in chapter 2 are applied to the universe of the broader Markit iBoxx USD Corporate Investment Grade Index:

- Bond ratings and amount outstanding are used as of the bond selection cut-off date
- Maturity dates remain fixed for the life of the bond
- Only bonds with a first settlement date on or before the rebalancing date are included in the selection process

4.4) Index weights

Once the eligible bond universe has been defined, the weight for each bond is determined and if necessary capped; applying an issuer cap of 3%. The weights and capping factors are determined on the last business day of each month using the end-of-month market values.

4.5) Cash

Cash is invested intra-month at LIBOR - 12.5 basis points.

4.6) Index data

The calculation of the indices is based on mid prices. New bonds are included in the indices at their respective mid prices when they enter the index family. In the event that no price can be established for a particular bond, 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, IHS Markit may consult the specific Index Advisory Committees at the following rebalancing date. To ensure consistency, decisions taken are made publicly available on a timely basis and IHS Markit has the ability to refer back to previous cases.

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

4.7) Index calculus

The components of the total return are price changes, accrued interest, coupon payments, and reinvestment income on cash flows received during the composition month.

$$TR_t = TR_{t-s} \frac{\sum_{i=1}^n (P_{i,t} + A_{i,t} + XD_{i,t-s} \cdot (CP_{i,t} + G_{i,t})) \cdot N_{i,t-s} + CASH_{t-1} \cdot (1 + SOFR_{t-2USBD} \cdot days_{ACT/360}(t-1, t))}{\sum_{i=1}^n (P_{i,t-s} + A_{i,t-s} + XD_{i,t-s} \cdot CP_{i,t-s}) \cdot N_{i,t-s}}$$

where,

$A_{i,t}$	is the accrued interest of bond i on calculation day t
$A_{i,t-s}$	is the accrued interest of bond i on rebalancing day t-s
$CASH_{t-1}$	is the cash on the previous business day
$CP_{i,t}$	is the value of the next coupon payment of bond i during an ex-dividend period. Outside the ex-dividend period, this value is 0
$G_{i,t}$	is the value of any coupon payment received from bond i at time t. If there is no payment the value is 0
$N_{i,t-s}$	is the amount outstanding of bond i on the previous rebalancing day t-s
$days_{ACT/360}(t-1, t)$	is the number of days between the previous calculation date (t-1) and the current calculation date t
$P_{i,t}$	is the closing price of bond i on the last business day on or before the previous rebalancing day
$P_{i,t-s}$	is the closing price of bond i on the last business day on or before the previous rebalancing day
$SOFR_{t-2USBD}$	is the SOFR rate falling two U.S. Government Securities Business Days prior to the calculation day i
TR_t	is the total return index level on day t
TR_{t-s}	is the closing total return index level on the previous rebalancing day
$XD_{i,t-s}$	is ex dividend indicator flag. The value is 0, if the bond enters the index at the ex-dividend period. The value is 1, if (a) coupon payments are not ex-dividend, (b) has not entered the index

For specific index formulae please refer to *Markit iBoxx Bond Calculus* document, available on www.ihsmarkit.com under *Methodology*.

4.8) 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, IHS Markit will estimate the approximate value based on the available data at the time of calculation.

4.8.1) 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.

4.8.2) 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).

4.8.3) 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.

4.9) Index history

The Index history starts on 31 August 2010. The index has a base value of 100 on that date.

4.10) Settlement conventions

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

4.11) Calendar

IHS Markit publishes an index calculation calendar in the *iBoxx Calendars* section of the iBoxx Documentation page on www.ihsmarkit.com. This calendar provides an overview of the index calculation holidays of the iBoxx bond index families in a given year.

4.12) Publication of the index

The Markit iBoxx USD Liquid Investment Grade 150 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 www.ihsmarkit.com 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 www.ihsmarkit.com for registered users.

4.13) Data publication and access

The table below summarizes the publication of the Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index in the *Indices* section of the IHS Markit website www.ihsmarkit.com for registered users and on the FTP server.

Table 2: Publication types and access

Frequency	File Type	Access
Daily	Underlying files – Bond level	IHS Markit FTP Server
	Indices files – Index level	IHS Markit FTP Server / IHS Markit website/ Bloomberg for 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)	Forward Files	IHS Markit FTP Server
Monthly	End of Month Components	IHS Markit FTP Server / IHS Markit website
	XREF files	IHS Markit FTP Server

Below is a summary of the IDs for each publication channel:

Index Name	ISIN	SEDOL	BBG	RIC
Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Total Return Index	GB00BYWZMC64	BYWZMC6	IBXXLMD3	.IBXXLMD3
Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Clean Price Index	GB00BYWZMD71	BYWZMD7	IBXXLMD4	.IBXXLMD4

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, including external committees
- 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 Investment Grade 150 Mid Price TCA Index

30-Jun-2022	Monthly forward start date updated from 10th calendar day to 6th calendar day
31-Mar-2022	Implementation of Annual Index Review 2021 <ul style="list-style-type: none"> • Introduction of new market sector classification "Education" with market sub-sector classification "Academic & Educational Services"
31-Dec-2021	Cash re-investment reference rate changed to SOFR
01-Sep-2021	update of monthly forward start date from 12th calendar day to 10th calendar day
01-Mar-2021	Governance and Regulatory Compliance section added
28-Feb-2021	Implementation of Annual Index Review 2020 <ul style="list-style-type: none"> • Updated Insurance classification
31-Jul-2020	Implementation of Annual Index Review 2019 <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
28-Sept-2018	Additional clarifications on Bond Type (Rule 2.1)
03-Jan-2018	Inclusion criteria of senior Fix-to-floater bonds issued by banks (bail-in)
31-Aug-2015	Launch of the Markit iBoxx USD Liquid Investment Grade 150 Mid Price TCA Index

7) Further information

Glossary of key terms

The Markit iBoxx Glossary document of key terms is available in the *Methodology* section of the iBoxx *Documentation* page on www.ihsmarkit.com.

Contractual and content issues

For contractual or content issues please contact:

Markit Indices GmbH Friedrich-Ebert-Anlage 35-37 60327 Frankfurt am Main Germany email: indices@ihsmarkit.com web: www.ihsmarkit.com

Technical issues and client support

For technical issues and client support please contact:

E-mail:	indices@ihsmarkit.com		
Phone:	Asia Pacific	Japan: Singapore:	+81 3 6402 0127 +65 6922 4210
	Europe	General: UK:	+800 6275 4800 +44 20 7260 2111
	USA	General:	+1 877 762 7548

Licences and data

iBoxx is a registered trademark of Markit Indices GmbH. Markit Indices GmbH owns all iBoxx data, database rights, indices and all intellectual property rights therein. A licence is required from Markit Indices GmbH to create and/or distribute any product that uses, is based upon or refers to any iBoxx index or iBoxx data.

Ownership

Markit Indices GmbH is a wholly-owned subsidiary of IHS Markit Limited.

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 in 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. 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).

Intellectual Property Notices/Disclaimer

© 2023 S&P Dow Jones Indices. All rights reserved. S&P, S&P 500, SPX, SPY, The 500, US500, US 30, S&P 100, S&P COMPOSITE 1500, S&P 400, S&P MIDCAP 400, S&P 600, S&P SMALLCAP 600, S&P GIVI, GLOBAL TITANS, DIVIDEND ARISTOCRATS, Select Sector, S&P MAESTRO, S&P PRISM, S&P STRIDE, GICS, SPIVA, SPDR, INDEXOLOGY, iTraxx, iBoxx, ABX, ADBI, CDX, CMBX, MBX, MCDX, PRIMEX, HHPI, and SOVX are registered trademarks of S&P Global, Inc. ("S&P Global") or its affiliates. DOW JONES, DJIA, THE DOW and DOW JONES INDUSTRIAL AVERAGE are trademarks of Dow Jones Trademark Holdings LLC ("Dow Jones"). These trademarks together with others have been licensed to S&P Dow Jones Indices LLC. Redistribution or reproduction in whole or in part are prohibited without written permission of S&P Dow Jones Indices LLC. This document does not constitute an offer of services in jurisdictions where S&P DJI does not have the necessary licenses. Except for certain custom index calculation services, all information provided by S&P DJI is impersonal and not tailored to the needs of any person, entity, or group of persons. S&P DJI receives compensation in connection with licensing its indices to third parties and providing custom calculation services. Past performance of an index is not an indication or guarantee of future results.

It is not possible to invest directly in an index. Exposure to an asset class represented by an index may be available through investable instruments based on that index. S&P DJI does not sponsor, endorse, sell, promote or manage any investment fund or other investment vehicle that is offered by third parties and that seeks to provide an investment return based on the performance of any index. S&P DJI makes no assurance that investment products based on the index will accurately track index performance or provide positive investment returns. S&P DJI is not an investment advisor, commodity trading advisor, fiduciary, "promoter" (as defined in the Investment Company Act of 1940, as amended) or "expert" as enumerated within 15 U.S.C. § 77k(a), and S&P DJI makes no representation regarding the advisability of investing in any such investment fund or other investment vehicle. A decision to invest in any such investment fund or other investment vehicle should not be made in reliance on any of the statements set forth in this document. S&P DJI is not a tax advisor. Inclusion of a security, commodity, crypto currency, or other asset within an index is not a recommendation by S&P DJI to buy, sell, or hold such security, commodity, crypto currency, or other asset, nor is it considered to be investment or trading advice.

These materials have been prepared solely for informational purposes based upon information generally available to the public and from sources believed to be reliable. No content contained in these materials (including index data, ratings, credit-related analyses and data, research, valuations, model, software or other application or output therefrom) or any part thereof ("Content") may be modified, reverse engineered, reproduced, or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written permission of S&P DJI. The Content shall not be used for any unlawful or unauthorized purposes. S&P DJI and its third-party data providers and licensors (collectively "S&P Dow Jones Indices Parties") do not guarantee the accuracy, completeness, timeliness, or availability of the Content. S&P Dow Jones Indices Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN "AS IS" "WHERE IS" BASIS. S&P DOW JONES INDICES PARTIES DISCLAIMS ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall S&P Dow Jones Indices Parties be liable to any party for any

direct, indirect, incidental, exemplary, compensatory, punitive, special, or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

Credit-related information and other analyses, including ratings, research and valuations are generally provided by licensors and/or affiliates of S&P Dow Jones Indices, including but not limited to S&P Global's other divisions such as S&P Global Market Intelligence. Any credit-related information and other related analyses and statements in the Content are statements of opinion as of the date they are expressed and not statements of fact. Any opinion, analyses and rating acknowledgement decisions are not recommendations to purchase, hold, or sell any securities or to make any investment decisions, and do not address the suitability of any security. S&P Dow Jones Indices does not assume any obligation to update the Content following publication in any form or format. The Content should not be relied on and is not a substitute for the skill, judgment and experience of the user, its management, employees, advisors and/or clients when making investment and other business decisions. S&P DJI does not act as a fiduciary or an investment advisor. While S&P DJI has obtained information from sources it believes to be reliable, S&P DJI does not perform an audit or undertake independent verification of any information it receives. S&P DJI reserves the right to vary or discontinue any index at any time for regulatory or other reasons. Various factors, including external factors beyond S&P DJI's control might necessitate material changes to indices.

To the extent that regulatory authorities allow a rating agency to acknowledge in one jurisdiction a rating issued in another jurisdiction for certain regulatory purposes, S&P Global Ratings reserves the right to assign, withdraw or suspend such acknowledgement at any time and in its sole discretion. S&P Dow Jones Indices, including S&P Global Ratings, disclaim any duty whatsoever arising out of the assignment, withdrawal, or suspension of an acknowledgement as well as any liability for any damage alleged to have been suffered on account thereof. Affiliates of S&P Dow Jones Indices LLC, including S&P Global Ratings, may receive compensation for its ratings and certain credit-related analyses, normally from issuers or underwriters of securities or from obligors. Such affiliates of S&P Dow Jones Indices LLC, including S&P Global Ratings, reserve the right to disseminate its opinions and analyses. Public ratings and analyses from S&P Global Ratings are made available on its Web sites, www.standardandpoors.com (free of charge), and www.ratingsdirect.com and www.globalcreditportal.com (subscription), and may be distributed through other means, including via S&P Global Ratings publications and third-party redistributors. Additional information about our ratings fees is available at www.standardandpoors.com/usratingsfees.

S&P Global keeps certain activities of its various divisions and business units separate from each other to preserve the independence and objectivity of their respective activities. As a result, certain divisions and business units of S&P Global may have information that is not available to other business units. S&P Global has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process.

In addition, S&P Dow Jones Indices provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions, and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate, or otherwise address.

Some indices use the Global Industry Classification Standard (GICS[®]), which was developed by, and is the exclusive property and a trademark of, S&P Global and MSCI. Neither MSCI, S&P DJI nor any other party involved in making or compiling any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability, or fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P DJI, any of their affiliates or any third party involved in making or compiling any GICS classifications have any liability for any direct,

indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

S&P Dow Jones Indices products are governed by the terms and conditions of the agreements under which they may be provided. A license is required from S&P Dow Jones Indices to display, create derivative works of and/or distribute any product or service that uses, is based upon and/or refers to any S&P Dow Jones Indices and/or index data.