

INDEX GUIDELINE

Solactive Global Bond ESG Climate Indices



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INTRODUCTION

This document (the "GUIDELINE") is to be used as a guideline with regard to the composition, calculation and maintenance of the Solactive Global Bond ESG Climate Index (the "INDEX"). Any amendments to the rules made to the GUIDELINE are approved by the OVERSIGHT COMMITTEE specified in Section 5.5. The INDEX is owned, calculated, administered and published by Solactive AG ("SOLACTIVE") assuming the role as administrator (the "INDEX ADMINISTRATOR") under the Regulation (EU) 2016/1011 (the "BENCHMARK REGULATION" or "BMR"). The name "Solactive" is trademarked.

The text uses defined terms which are formatted with "SMALL CAPS". Such Terms shall have the meaning assigned to them as specified in Section 6 (Definitions).

The GUIDELINE and the policies and methodology documents referenced herein contain the underlying principles and rules regarding the structure and operation of the INDEX. SOLACTIVE does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the INDEX nor the level of the INDEX at any certain point in time nor in any other respect. SOLACTIVE strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for SOLACTIVE – irrespective of possible obligations to ISSUERS – to advise third parties, including investors and/or financial intermediaries, of any errors in the INDEX. The publication of the INDEX by SOLACTIVE does not constitute a recommendation for capital investment and does not contain any assurance or opinion of SOLACTIVE regarding a possible investment in a financial instrument based on this INDEX.



1. INDEX SPECIFICATIONS

1.1. SCOPE OF THE INDEX

The Solactive Global Bond ESG Climate Index is a benchmark to measure the performance of a global investment grade bond universe that is optimized for ESG scores and carbon emissions that includes bonds issued by central governments, government-related issuers, corporates as well as securitized debt instruments. The benchmark is designed to provide a broad coverage of local currency debt from developed and emerging markets according to Solactive's [Bond Market Classification](#).

1.2. IDENTIFIERS AND PUBLICATION

The INDEX is published under the following identifiers:

Name	ISIN	Currency	Type	RIC	BBG ticker
Solactive Global Bond ESG Climate Index	DE000SLOBTG9	USD	TR	SOLGES	-
Solactive Global Bond 1-5YR ESG Climate Index	DE000SLOBTF1	USD	TR	SOLG15	-
Solactive Global Bond ESG Climate EUR Index	DE000SLOBTR6	EUR	TR	SOLGEES	-
Solactive Global Bond 1-5YR ESG Climate EUR Index	DE000SLOCMQ1	EUR	TR	SOLGE15	-
Solactive Global Bond ESG Climate GBP Index	DE000SLOCMT5	GBP	TR	SOLGEGS	-
Solactive Global Bond 1-5YR ESG Climate GBP Index	DE000SLOCMU3	GBP	TR	SOLGG15	-

*TR means that the INDEX is calculated as Total Return index as described in the Bond Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>

The INDEX is published on the website of the INDEX ADMINISTRATOR (www.solactive.com) and is, in addition, available via the price marketing services of Boerse Stuttgart GmbH and may be distributed to all of its affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute or display the INDEX via its information systems.

Any publication in relation to the INDEX (e.g., notices, amendments to the GUIDELINE) will be available at the website of the INDEX ADMINISTRATOR: <https://www.solactive.com/news/announcements/>.



1.3. INITIAL LEVEL OF THE INDEX

The initial level of the INDEX on the LIVE DATE is 1000.

1.4. PRICES AND CALCULATION FREQUENCY

The INDEX is calculated and distributed once every BUSINESS DAY based on the LAST EVALUATED BID PRICES of the INDEX COMPONENTS. Bonds added in a rebalancing (see Section 3) are included in the INDEX at the LAST EVALUATED ASK PRICES on the relevant REBALANCE DAY (as specified in Section 6). Bonds which are excluded from the INDEX in a rebalance are reflected in the calculation of the level of the INDEX for the REBALANCE DAY at the LAST EVALUATED BID PRICES of on the relevant REBALANCE DAY. INDEX analytical values are calculated each BUSINESS DAY using the LAST EVALUATED BID PRICES based on FIXING TIME. Prices of INDEX COMPONENTS not listed in the INDEX CURRENCY are converted using 4 pm London Time WM Fixing quoted by Reuters.

Should there be no current 4 PM London WM Fixing available on Reuters the most recent 4 PM London WM Fixing on Reuters for the preceding Business Day is used.

1.5. LICENSING

Licenses to use the INDEX as the underlying value for financial instruments, investment funds and financial contracts may be issued to stock exchanges, banks, financial services providers, and investment houses by Solactive.



2. INDEX SELECTION

On each SELECTION DAY, all bonds which meet the INDEX COMPONENT REQUIREMENTS (as specified in Section 2.1) are eligible for inclusion in the INDEX and will be added as INDEX COMPONENT on the REBALANCE DAY. Additionally, on each SELECTION DAY, it will be evaluated whether all current INDEX COMPONENTS still meet the INDEX COMPONENT REQUIREMENTS. Each INDEX COMPONENT that does not meet the INDEX COMPONENT REQUIREMENTS will be removed from the INDEX on the next REBALANCE DAY.

2.1. SELECTION OF THE INDEX COMPONENTS

The initial composition of the INDEX, as well as any selection for a rebalance (as specified in Section 3) is determined using the following rules:

- Bonds from countries included in the Bond Market Classification (<https://www.solactive.com/documents/bond-market-classification-framework/>) and defined as Developed or Emerging Market are eligible. Bonds classified according to the Bond Market Classification as eligible for Local Currency Markets are eligible.
- FIXED COUPON BONDS, ZERO-COUPON BONDS and FIX-TO-FLOAT BONDS are eligible. Fixed coupon MBS, CMBS and ABS are eligible.
- Bonds must be issued by either a corporate, a central government, a government related issuer or an issuer of securitized debt.
- Bonds must have an INVESTMENT GRADE RATING by either S&P or Moody's. For CAD denominated bonds, DBRS Ratings are respected as a third rating agency. For government issuers, the country's issuer rating is relevant for inclusion. For MBS and CMBS the issuer rating is relevant for inclusion if the bond rating is not available. For the avoidance of doubt if one of the rating agencies applies an INVESTMENT GRADE RATING to the bond (non-structured /non-sovereign securities) or the issuer (sovereign / structured securities) respectively it is eligible for inclusion in the index.
- CNY denominated bonds of the following issuers are eligible regardless of their rating: China Development Bank, Export-Import Bank of China, and Agricultural Development Bank of China.
- STEP-UP BONDS, SINKABLE AND AMORTIZED BONDS, PUTTABLE BONDS, CALLABLE BONDS, EURO MTN BONDS, EURO DOLLAR, PERPETUAL BONDS, EXTENDABLE BONDS, COVERED BONDS as well as 144A BONDS are eligible.
- INFLATION LINKED BONDS, CONVERTIBLE BONDS, CERTIFICATE OF DEPOSIT, LOAN PARTICIPATION NOTES, MUNICIPAL BONDS, CONTINGENT CAPITAL SECURITIES, DUAL CURRENCY BONDS, CREDIT LINKED, PREFERRED SECURITIES, PASS-THROUGH CERTIFICATES, MONEY MARKET INSTRUMENTS, BILL & DISCOUNT NOTES, COMMERCIAL PAPERS, PRIVATE PLACEMENTS NOT 144A, COLLATERALIZED DEBT OBLIGATION, TBAS, Fremf Mortgage Trust CMBS, ABS/MBS/CMBS PRIVATE PLACEMENTS, MBS MEGA/PLATINUM POOLS, STRIPS GOVERNMENT BONDS are not eligible.
- In case bonds are issued with 144A AND REGS formats, the REGS bonds will be selected and 144a version are not eligible.



- Danish Mortgage-Backed Securities (Realkreditobligationer / Særligt Dækkede Obligationer & Realkreditobligationer) are not eligible.
- MBS with a 30-year, 15-year or 20-year fixed-rate program are eligible. US Agency CMBS must be issued after July 1, 2014.
- MBS must be issued by the following issuers: GNMA, FHLMC, FNMA.
- For bonds entering the index the EFFECTIVE TIME TO MATURITY must be at least 18 months. Constituents of the index must have an EFFECTIVE TIME TO MATURITY of at least 1 year from the REBALANCE DAY. For MBS, the WEIGHTED AVERAGE MATURITY SHOULD be at least 1 year from the REBALANCE DAY. For ABS & CMBS, the AVERAGE LIFE should be at least 1 year from the REBALANCE DAY.
- All bonds with an extraordinary upcoming call date prior to the REBALANCE DAY + 1 BUSINESS DAY are not eligible.
- Bonds must be issued prior to the SELECTION DAY and not defaulted.
- A price from the PRICING PROVIDER must be available.



- To be eligible, the issue/structured product types must have a minimum amount outstanding as described in the table below:
- For US Treasuries, the amount outstanding is adjusted for central banks holdings.

<i>Region</i>	<i>Currency</i>	<i>Sovereign Issuer</i>	<i>No-Sovereign Issuer</i>
AMERICAS	CAD	1,000,000,000	300,000,000
	USD	1,000,000,000	400,000,000
	CLP	200,000,000,000	400,000,000,000
	COP	1,000,000,000,000	2,000,000,000,000
	MXN	10,000,000,000.00	10,000,000,000
	UYU	70,000,000,000	20,000,000,000
	PEN	1,000,000,000	2,000,000,000
EMEA	CHF	500,000,000	500,000,000
	CZK	10,000,000,000	10,000,000,000
	DKK	5,000,000,000	3,000,000,000
	EUR	1,000,000,000	500,000,000
	GBP	1,000,000,000	250,000,000
	HUF	200,000,000,000	200,000,000,000
	ISK	200,000,000,000	70,000,000,000
	ILS	2,000,000,000	1,500,000,000
	NOK	5,000,000,000	4,000,000,000
	PLN	2,000,000,000	2,000,000,000
	RON	1,000,000,000	2,000,000,000
	RUB	20,000,000,000	35,000,000,000
	SEK	5,000,000,000	1,500,000,000



<i>Region</i>	<i>Currency</i>	<i>Sovereign Issuer</i>	<i>No-Sovereign Issuer</i>
Asia- Pacific	AUD	500,000,000	500,000,000
	CNY	5,000,000,000	10,000,000,000
	HKD	4,000,000,000	3,000,000,000
	IDR	4,000,000,000,000	7,000,000,000,000
	JPY	80,000,000,000	50,000,000,000
	KZT	600,000,000,000	210,000,000,000
	KRW	2,000,000,000,000	600,000,000,000
	MYR	2,000,000,000	2,000,000,000
	NZD	700,000,000	700,000,000
	SGD	500,000,000	700,000,000
	PHP	300,000,000,000	25,000,000,000
	TWD	40,000,000,000	15,000,000,000
	THB	30,000,000,000	15,000,000,000

<i>Deal Size</i>	<i>ABS</i>	<i>CMBS</i>	<i>MBS</i>
<i>USD</i>	1,000,000,000	750,000,000	//
<i>Current Balance or Tranche Size</i>	ABS	CMBS	MBS*
<i>USD</i>	25,000,000	100,000,000	1,000,000,000

*MBS weights are determined with two screenings: See more details in 2.2

The final composition of SOLG15/ SOLGE15 and SOLGE15 is determined using the following rules:

- Bonds must have an EFFECTIVE TIME TO MATURITY for bonds not classified as structured products or Average Life/ Weighted Average Maturity for MBS or Average life for ABS/ CMBS between 1-5 years.

(the "INDEX COMPONENT REQUIREMENTS")]



The determination of the INDEX COMPONENTS is fully rule-based, and the INDEX ADMINISTRATOR has no discretion.

2.2. WEIGHTING OF THE INDEX COMPONENTS

On each SELECTION DAY each INDEX COMPONENT is weighted to match the aggregated weight of the respective sub-universe (Corporates, Government, and remaining bonds) in the Benchmark INDEX. The optimization considers the Northern Trust ESG framework.

The index is optimized based on the Northern Trust ESG framework. For the optimization the index components of the BENCHMARK INDEX are separated into corporate bonds, sovereign bonds, and the remaining securities.

For the remaining securities, the weight of the index will be integrated in the Index as follow:

$$\textit{Weight Index Bond} = \textit{Weight BENCHMARK INDEX Bond}$$

For corporate and sovereign bonds, the weight of the index will result from the weights of the optimization and integrate in the Index as follow:

$$\textit{Weight Index Bond} = \textit{Weight BENCHMARK INDEX Bond} * \left(\frac{\textit{Optimized Weight Index Bond}}{\textit{Weight BENCHMARK INDEX Bond}} \right)$$

1) Optimization for Government bonds

The goal of the objective function is to maximize the weighted Sovereign ESG Score of all sovereign bonds included in the Index under constraints described below. For countries where it is not possible to calculate a Sovereign ESG Score (e.g., due to missing data points), the bonds of the respective country are not eligible. The weight of the securities are optimized based on their exposure to quantitative factors such as:

- Sovereign ESG Score (SovESG) as determined by Solactive using WorldBank data points.
- Emission Database For Global Atmospheric Research or EDGAR (<https://edgar.jrc.ec.europa.eu/>) Carbon Data Points: Carbon Intensity Score and Carbon Risk Rating (=Carbon Transition Score)
- Duration to Worst
- OAS

The Northern Trust ESG Framework for government bond securities gears for good governance, fiscal prudence coupled with a carbon reduction target to hedge climate change risks. The Sovereign ESG score is updated annually with most recent data available in April.



A Sovereign ESG Score (SovESG) per country is calculated:

$$SovESG = 40\% \times \left(-\frac{debt}{GDP}\right) + 20\% \times \left(\frac{deficit}{GDP}\right) + 20\% \times \left(\frac{current\ account\ balance}{GDP}\right) + 20\% \times WGI$$

$(debt/GDP)$ is a ratio strictly positive. The higher the ratio, the more indebted the country.

$(deficit/GDP)$ and $(Current\ Account\ Balance/GDP)$ can be positive or negative. The more the ratio is negative, the more the country has a large deficit or a large CAB.

WGI is a ratio strictly positive. The higher the ratio, the better the country is governed.

WGI: The Worldwide Governance Indicators (WGI) are a research dataset summarizing the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from several survey institutes, think tanks, non-governmental organizations, international organizations, and private sector firms. The WGI is updated annually. The six scores applied to every broad indicator is equally aggregated weighted in a single resulting Governance score. For a detailed description of these scores please refer to: <http://info.worldbank.org/governance/wgi/>

The constraints are defined as follows:

- The weighted average of the CARBON INTENSITY SCORE of the government bonds must be minimum 10% lower than the weighted CARBON INTENSITY SCORE of the government bonds in the BENCHMARK INDEX.
- The weighted average of the CARBON EMISSION of the government bonds must be minimum 20% lower than the weighted CARBON EMISSION of the government bonds in the BENCHMARK INDEX.
- The weighted average of the CARBON TREND SCORE of the government bonds must be minimum 10% lower than the weighted CARBON TREND SCORE of the government bonds in the BENCHMARK INDEX.
- Absolute and relative weighting of countries compared to the BENCHMARK INDEX. We define a maximum and minimum weighting per country by looking at an ABSOLUTE COUNTRY WEIGHT deviation and a Relative Country Weight deviation. The stricter constraint represents the



maximum / minimum deviation. Absolute Country Weight – the weight of each country in the

INDEX may deviate by +/-5% from the weight of the country weight in the BENCHMARK INDEX.

Relative Country Weight – the weight of each country in the INDEX may range from 150% to -50% compared to the country weight in the BENCHMARK INDEX.

- Currency Weight – the weight of each currency in the INDEX may deviate by +/-5% from the currency weight of the BENCHMARK INDEX.
- Government Bond Yield – The weighted average yield of the government bonds in the INDEX may deviate by +/-1% compared to the weighted average government bond yield in the BENCHMARK INDEX.
- Duration to Worst– the weighted average duration to worst of the government bonds in INDEX may deviate by +/-0.5 to the weighted average duration to worst of the government bonds in the BENCHMARK INDEX.
- Turnover - The turnover of the INDEX is limited to exceed the monthly turnover of the BENCHMARK INDEX by 3%. Turnover is calculated using all information as of SELECTION DAY.

In case the optimization is unable to find a feasible solution the constraints are loosened step wise to reach solution for optimization while respecting the constraints as good as possible.

2) Optimization for Corporate bonds

The goal for the corporate bond part of the index is to adjust the universe by including environmental, social and governance characteristic. The weight of the securities are optimized based on their exposure to quantitative factors such as:

- ESG VECTOR SCORE as determined by Northern Trust Investment's proprietary methodology
- Institutional Shareholder Services ESG Data: Carbon Intensity Score and Carbon Risk Rating (=Carbon Transition Score)
- Duration to Worst
- OAS

The goal of the objective function is to maximize the weighted ESG VECTOR SCORE of all corporate bonds included in the Index under constraints described below. For bonds unmapped to a ESG VECTOR SCORE (e.g., due to missing data points), the bonds will be eligible and will receive 0.5 as a ESG VECTOR SCORE.



Bonds listed on the NT EXCLUSION LIST, will be excluded from the index universe. Exclusions are based on controversial sectors as the weapons or tobacco producers as well as involvement in ESG controversies.

The constraints are defined as follows:

- The weighted average of the CARBON INTENSITY SCORE of the corporate bonds must be minimum 50% lower than the weighted CARBON INTENSITY SCORE of the corporate bonds in the BENCHMARK INDEX. For Bonds where no CARBON INTENSITY SCORE IS available the relevant Sector Harmonized Mean is used.
- The weighted average of the CARBON TRANSITION SCORE of the corporate bonds must be minimum 10% higher than the weighted CARBON TRANSITION SCORE of the corporate bonds in the BENCHMARK INDEX. For Bonds where no CARBON TRANSITION SCORE is available, the relevant Sector Harmonized Mean is used.
- OAS – The weighted average OAS of the corporate bonds in the INDEX may deviate by +/-0.001% compared to the weighted average OAS corporate in the BENCHMARK INDEX.
- Duration to Worst– the weighted average duration to worst of the corporate bonds in INDEX may deviate by +/-0.01% to the weighted average duration to worst of the government bonds in the BENCHMARK INDEX.
- Currency Bucket – the weight of each currency reflected in the corporate bonds may deviate by +/-5% from the respective weight of the currency in the BENCHMARK INDEX.
- Country Bucket – the weight of each country reflected by corporate bonds may deviate by +/- 5% from the respective weight in the BENCHMARK INDEX.
- Sector Bucket – the weight of each sector represented by corporate bonds may deviate by +/- 2% from the respective weight the BENCHMARK INDEX.
- Maturity Bucket – the weight of each maturity bucket (1-3 Years, 3-5 Years, 5-7 Years, 7-10 Years, 10-20 Years, 20+ Years) reflected by corporate bonds may deviate by +/- 1% from the respective weight in the BENCHMARK INDEX.
- Turnover - The turnover of the INDEX is limited to exceed the monthly turnover of the BENCHMARK INDEX by 3%. Turnover is calculated using all information as of SELECTION DAY.



- Bond Bucket - is determined based on the ESG VECTOR SCORE.
 - o 5 linear quintiles are built representing the best issuer ESG VECTOR SCORE (first quintile) to the worst (last quintile). For bonds without an ESG VECTOR SCORE, the median ESG corporate rating is applied (0,5).
 - o The corporate bond weight in the INDEX may range as follows:

$$\begin{aligned}
 & \textit{Upper Branch Corporate Bond Weight} \geq \\
 & \textit{Corporate Bond Benchmark Weight} \\
 & \geq \textit{Lower Branch Corporate Bond Weight}
 \end{aligned}$$

- o The Corporate Bond Benchmark Weight will be separately multiplied by the upper and lower branch factors to define the minimum and maximum bond weights.
- o Unique Upper and Lower factors are calculated for each Bond Bucket. For the Lower Factor / Lower Branch, the Corporate Bond Benchmark Weights (CBBw) will be taking into consideration. Depending about the value of BBw, the Lower Factor will be determined according to the below table.

<u>Buckets</u>	<i>Upper Branch (UPB)</i>	<i>Lower Branch (LPB)</i>	<i>Corporate Bond Benchmark weights (CBBw)</i>
<u>B1</u>	5x	If BBw is true, then LPB = 0; if false then LPB = 0.5x	BBw <=0.001%
<u>B2</u>	4x	If BBw is true, then LPB = 0; if false then LPB = 0.5x	BBw <=0.001%
<u>B3</u>	3x	If BBw is true, then LPB = 0; if false then LPB = 0.2x	BBw <=0.00005%
<u>B4</u>	2x	If BBw is true, then LPB = 0; if false then LPB = 0.2x	BBw <=0.00005%
<u>B5</u>	1x	0X	



In case the optimization is unable to find a feasible solution the constraints are loosened step wise to reach solution for optimization while respecting the constraints as good as possible.

3) Non-Corporate / non-Sovereign Universes (remaining bonds)

The bonds issued by the issuers other than corporate, sovereign, or structured products, which are not part of the NT EXCLUSION LIST, will be included in the index with the same aggregated weight as the aggregated weight of the corresponding bonds in the Benchmark Index. All of the structured products will be included in the index with the same aggregate weight with the same aggregated weight as the aggregated weight of the corresponding bonds in the Benchmark Index.

The final weight of MBS securities eligible for the index is geared towards a market weight based on a smaller amount outstanding and accounting for MBS MEGA/PLATINUM POOLS. This way MBS instruments get a representation in the index according to their market weight. Thus, the MBS securities in the index can be seen as a sampled representation in the index.

3. REBALANCE

3.1. ORDINARY REBALANCE

In order to reflect the new selection of the INDEX COMPONENTS determined on the SELECTION DAY (in accordance with Section 2.1) the INDEX is adjusted on the REBALANCE DAY after CLOSE OF BUSINESS.

For more information on the rebalance procedure please refer to the Bond Index Methodology, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>.

SOLACTIVE will publish any changes made to the INDEX COMPONENTS with sufficient notice before the REBALANCE DAY on the SOLACTIVE webpage under the section, which is available at <https://www.solactive.com/news/announcements/>

3.2. EXTRAORDINARY REBALANCE

The INDEX is not rebalanced extraordinarily.



4. CALCULATION OF THE INDEX

4.1. INDEX FORMULA

The INDEX is calculated as a Total Return index and follow the Periodic Reinvestment approach.

The calculation is performed according to the Bond Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>.

A Total Return (TR) index seeks to replicate the overall return from holding an index portfolio, thus considering both coupon payments and Corporate Action proceeds in addition to the price changes adjusted for any accrued interest. Cash payments will be accumulated and reinvested with each rebalancing.

The periodic reinvestment formula implies a periodic reinvestment in the INDEX of proceeds resulting from corporate actions and coupon payments in respect of the INDEX COMPONENTS on the next regular REBALANCE DAY following such events. For the period until reinvestment the proceeds are held in a cash component. On the REBALANCE DAY the proceeds are reinvested in the INDEX proportionately to the weights of the INDEX COMPONENTS. The periodic reinvestment formula tracks the performance of the INDEX COMPONENTS relative to the index market value on the immediately preceding REBALANCE DAY. The market value for an individual INDEX COMPONENT on a REBALANCE DAY is based on the price for the respective bond and its face value on the SELECTION DAY associated with the REBALANCE DAY.

A more detailed description of the mechanics of the periodic reinvestment formula can be found in the Bond index Methodology under Section 1.2.2, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>.

4.2. ACCURACY

The level of the Index will be rounded to 2 decimal places. Foreign exchange rates will be rounded to six decimal places.

4.3. ADJUSTMENTS

Under certain circumstances, an adjustment of the INDEX may be necessary between two regular REBALANCE DAYS. Basically, such adjustment is need to be made if a corporate action (as specified in Section 4.4 below) in relation to an INDEX COMPONENT occurs. Such adjustment may need to be done in relation to an INDEX COMPONENT and/or may also affect the number of INDEX COMPONENTS and/or the weighting of certain INDEX COMPONENTS and will be made in compliance with the Bond Index Methodology, which is available which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>.



4.4. CORPORATE ACTIONS

As part of the INDEX maintenance SOLACTIVE will consider various events – also referred to as corporate actions – which result in an adjustment to the INDEX between two regular REBALANCE DAYS. Such events have a material impact on the price, weighting or overall integrity of INDEX COMPONENTS. Therefore, they need to be accounted for in the calculation of the INDEX. Corporate actions will be implemented from the cum-day to the ex-day of the corporate action, so that the adjustment to the INDEX coincides with the occurrence of the price effect of the respective corporate action.

Adjustments to the INDEX to account for corporate actions will be made in compliance with the Bond Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>. This document contains for each corporate action a brief definition and specifies the relevant adjustment to the INDEX variables.

While SOLACTIVE aims at creating and maintaining its methodology for treatment of corporate actions as generic and transparent as possible and in line with regulatory requirements, it retains the right in accordance with the Bond Index Methodology to deviate from these standard procedures in case of any unusual or complex corporate action or if such a deviation is made to preserve the comparability and representativeness of the INDEX over time.

Solactive considers following, but not conclusive, list of corporate actions as relevant for INDEX maintenance:

- > Early Redemption (an event that leads to a redemption of a bond before the regular maturity date)
- > Flat Trading (e.g., a bond ISSUER fails to meet its coupon payment obligation)
- > Bond Default (e.g., when the ISSUER fails to meet its coupon payment obligation or repay the principal at maturity)
- > Tender Offers (a holder of a bond is invited to tender the bond for a specific price at a specific time before the regular maturity date)
- > Exchange Offers (type of a tender offer where the ISSUER offers its bondholders to exchange their existing bonds for an asset other than cash)
- > Distressed Debt Exchange (form of debt exchange when bondholders agree to reduce the principal amount of debt securities in order to obtain higher payment priority in the form of secured debt)
- > Bond Funge (bond issue that is attached to an existing one (parent bond). On a defined date the parent bond absorbs the funged bond)
- > Payment-in-Kind Bonds (a situation where a bond pay interest in additional bonds rather than in cash)
- > Conversion of [CoCo] Bonds



- > Debt Issuance
- > Bond Maturity

4.5. RECALCULATION

SOLACTIVE makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the determination process may occur from time to time for variety reasons (internal or external) and therefore, cannot be completely ruled out. SOLACTIVE endeavors to correct all errors that have been identified within a reasonable period of time. The understanding of "a reasonable period of time" as well as the general measures to be taken are generally depending on the underlying and is specified in the Solactive Correction Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/correction-policy/>.

4.6. MARKET DISRUPTION

In periods of market stress SOLACTIVE calculates its indices following predefined and exhaustive arrangements as described in the Solactive Disruption Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/disruption-policy/>. Such market stress can arise due to a variety of reasons, but generally results in inaccurate or delayed prices for one or more INDEX COMPONENTS. The determination of the INDEX may be limited or impaired at times of illiquid or fragmented markets and market stress.

5. MISCELLANEOUS

5.1. DISCRETION

Any discretion which may need to be exercised in relation to the determination of the INDEX (for example the determination of the INDEX COMPONENTS or any other relevant decisions in relation to the INDEX) shall be made in accordance with strict rules regarding the exercise of discretion or expert judgement established by the INDEX ADMINISTRATOR.

5.2. METHODOLOGY REVIEW

The methodology of the INDEX is subject to regular review, at least annually. In case a need of a change of the methodology has been identified within such review (e.g. if the underlying market or economic reality has changed since the launch of the INDEX, i.e. if the present methodology is based on obsolete assumptions and factors and no longer reflects the reality as accurately, reliably and appropriately as before), such change will be made in accordance with the Methodology Policy, which is incorporated by reference available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.



Such change in the methodology will be announced on the SOLACTIVE webpage under the Section "Announcement", which is available at <https://www.solactive.com/news/announcements/>. The date of the last amendment of this INDEX is contained in this GUIDELINE.

5.3. CHANGES IN CALCULATION METHOD

The application by the INDEX ADMINISTRATOR of the method described in this document is final and binding. The INDEX ADMINISTRATOR shall apply the method described above for the composition and calculation of the INDEX. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The INDEX ADMINISTRATOR may also make changes to the terms and conditions of the INDEX and the method applied to calculate the INDEX that it deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The INDEX ADMINISTRATOR is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the INDEX ADMINISTRATOR will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.

5.4. TERMINATION

SOLACTIVE makes the greatest possible efforts to ensure the resilience and continued integrity of its indices over time. Where necessary, SOLACTIVE follows a clearly defined and transparent procedure to adapt index methodologies to changing underlying markets (see Section 5.2 "Methodology Review") in order to maintain continued reliability and comparability of the indices. Nevertheless, if no other options are available the orderly cessation of the INDEX may be indicated. This is usually the case when the underlying market or economic reality, which the INDEX is set to measure or to reflect, changes substantially and in a way not foreseeable at the time of inception of the INDEX, the INDEX rules, and particularly the selection criteria, can no longer be applied coherently or the INDEX is no longer used as the underlying value for financial instruments, investment funds and financial contracts.

SOLACTIVE has established and maintains clear guidelines on how to identify situations in which the cessation of the INDEX is unavoidable, how stakeholders are to be informed and consulted and the procedures to be followed for a termination or the transition to an alternative index. Details are specified in the Solactive Termination Policy, which is incorporated by reference and available on the SOLACTIVE website: <https://www.solactive.com/documents/termination-policy/>.

5.5. OVERSIGHT

An oversight committee composed of staff from SOLACTIVE and its subsidiaries (the "OVERSIGHT COMMITTEE") is responsible for decisions regarding any amendments to the rules of the INDEX. Any such amendment, which may result in an amendment of the GUIDELINE, must be submitted to the OVERSIGHT COMMITTEE for prior



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approval and will be made in compliance with the Methodology Policy, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/methodology-policy/>.



6. DEFINITIONS

"144A BONDS" is a bond available to American Investors with or without registration rights. In opposition of Reg S (Regulation S) where only non-US investors are allowed to buy the bond.

"REGS" is a bond issued in the Eurobond Market.

"ABS" are securities backed by the cash flows of a pool of assets.

"BILL & DISCOUNT NOTES" are short term obligations issued at a discount to par.

"BENCHMARK REGULATION" shall have the meaning as defined in Section "Introduction".

"BENCHMARK INDEX" "represents all the eligible bonds from either "INDEX COMPONENT REQUIREMENTS "or "INDEX 1_5Y COMPONENT REQUIREMENTS "before applying the "NT EXCLUSION LIST".

"BMR" shall have the meaning as defined in Section "Introduction".

"BUSINESS DAY" is any day Monday to Friday in relation to the index is each day, Monday to Friday, except banking holidays as defined by the New York Stock Exchange (NYSE) and SIFMA.

"CALLABLE BONDS" is a bond with a call option.

"CARBON EMISSIONS" is expressed as the country's total carbon emission production in million CO2 per year.

"CARBON TREND SCORE" is a score calculated with the average of the last three ROLLING CARBON INTENSITY. Score is update and take on each "SELECTION DAY".

"CARBON INTENSITY SCORE" is a factor identifies the issuer's total (Scope 1 + Scope 2) carbon emissions intensity. Carbon intensity is expressed as the issuer's total carbon emissions per million USD of revenue as a proxy of the carbon efficiency per unit of output. Score is update and take on each "SELECTION DAY".

"CARBON TRANSITION SCORE" OR "CARBON RISK RATING" is a factor that provides a numeric score from 0 to 100 for the rated entity's overall carbon risk. For corporate issuers this score is based on an assessment of over 100 industry-specific indicators and a carbon risk classification at the industry and sub-industry levels. Score is update and take on each "SELECTION DAY".

"CERTIFICATE OF DEPOSIT" is a type of saving account you leave untouched with a fixed rate and term. These time deposit accounts can be found at banks and credit unions and pay interest on the money you invest.

"CMBS" for Commercial Mortgage-Backed Securities are ABS which are collateralised by a commercial real estate asset.

"COLLATERALIZED DEBT OBLIGATION" is a type of ABS that represents different loans bundled together and sold by the lender in the market.

"COMMERCIAL PAPERS" is a money market security issued by large companies to pay his short-term debt.

"COUNTRY OF INCORPORATION" is defined by SOLACTIVE based on the assessment of market data providers as the country where the company is incorporated or legally registered.



"COUNTRY OF RISK" is defined by SOLACTIVE based on the assessment of market data providers as the country in which the company would be influenced the most by potential changes in the business environment.

"COVERED BONDS" are bonds backed by a ring-fenced pool of assets such as mortgages or public-sector loans. The ISSUER retains the responsibility to maintain the quality of the underlying asset pool.

"CONVERTIBLE BONDS" are bonds that can be converted to issuer's common equity share.

"CONTINGENT CAPITAL SECURITIES" are CONVERTIBLE BONDS used/issued in the banking industry.

"CREDIT LINKED" is a security with an attached credit default swap contract.

"DUAL CURRENCY" is bond with a different principal and coupon currency.

"EARLY REDEMPTION" includes every event that leads to a redemption of a bond before the actual maturity date.

"EX-DIVIDEND" means that the next coupon is detached from the bond several days in advance of the coupon payment date.

"ESG VECTOR SCORE" is a ESG rating provided by Northern Trust. Score is update and take on each "SELECTION DAY".

"EFFECTIVE TIME TO MATURITY" is the minimum the fix to float date if available or the maturity date. For bonds without a fix to float or maturity dates, the next call date will apply.

"NT EXCLUSION LIST" is a list of bonds that not eligible due to the implementation of ESG exclusion criteria. List is update and take on each "SELECTION DAY".

"EURO MTN BONDS / EMTN" is a medium-term debt security that is traded and issued outside of the United States and Canada. Is a note that usually matures between 5-10 years.

"EURO DOLLAR BONDS" are bonds denominated in USD issued by a non-American company outside of the United State and the issuer's home country.

"EXTENDABLE BONDS" is a long term fixed income bonds that includes an option to extend its initial maturity date

"FIXED COUPON BONDS" are bonds with a coupon rate that is fixed throughout their life, as opposed to bonds with floating, or variable coupons.

"FLOATING RATE NOTES" are bonds with a floating coupon rate, i.e., the coupon payments fluctuate in line with the underlying level of a pre-specified interest rate.

"FIXING TIME" is the time when the prices for the INDEX COMPONENTS are fixed for index calculation. [This is specified in the Bond Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/bond-index-methodology/>].

"GUIDELINE" shall have the meaning as defined in Section "Introduction".

"INDEX" shall have the meaning as defined in Section "Introduction".



"INDEX ADMINISTRATOR" shall have the meaning as defined in Section "Introduction".

"INDEX CALCULATOR" is SOLACTIVE or any other appropriately appointed successor in this function.

"INDEX COMPONENT" is each bond reflected in the INDEX.

"INDEX COMPONENT REQUIREMENTS" shall have the meaning as defined in Section 2.1.

"INDEX CURRENCY" is the currency specified in the column "Currency" in the table in Section 1.2.

"INFLATION-LINKED BONDS" are bonds whose principal and coupon payments are indexed to inflation.

"INVESTMENT GRADE" are all ratings of at least BBB- by Standard & Poor's/DBRS or Baa3 by Moody's Investors Service.

"ISSUER" is the issuing entity of the respective bond.

"LOAN PARTICIPATION NOTE " is a debt security that allows investors to purchase part of loan or loan package that are still unpaid.

"LAST EVALUATED ASK PRICE" the last available evaluated ask price by the designated PRICING PROVIDER.

"LAST EVALUATED BID PRICE" the last available evaluated bid price by the designated PRICING PROVIDER.

"LAST EVALUATED MID PRICE" is the average between LAST EVALUATED ASK PRICE and LAST EVALUATED BID PRICE.

"LIVE DATE" is 31/07/2022.

"MBS" for Mortgage-Backed Securities are ABS which are collateralised by a mortgage or collection of mortgages.

"MBS MEGA/PLATINUM POOLS" is formed by combining individual agency MBS security and/or other mega/platinum pool into a new single entity.

"MONEY MARKET INSTRUMENTS" are short-term financing instruments aiming to increase the financial liquidity of businesses. They are usually traded over the counter.

"MUNICIPAL BONDS" are debt issued by states, cities, countries, or other government entities to fund day-to-day obligations and of finance capital projects. In general, they Interest is tax free.

"OVERSIGHT COMMITTEE" shall have the meaning as defined in Section 5.5.

"PAYMENT-IN-KIND BONDS" are a type of bonds that pay interest in additional bonds rather than in cash.

"PASS-THROUGH CERTIFICATES" is a certificate that is given to an investor against certain mortgaged-backed securities that lie with the issuer.

"PERPETUAL BONDS" are a bond without a maturity date.

"PREFERRED SECURITIES" combine both debt and equity characteristics.

"PRICING PROVIDER" is available <https://www.solactive.com/documents/bond-pricing-provider/>

"PRIVATE PLACEMENT" are bonds sold to pre-selected investors and institutions rather than in an open market.



"PUTABLES BONDS" Puttable bond (put bond, putable or retractable bond) is a bond with an embedded put option. The holder of the puttable bond has the right, but not the obligation, to demand early repayment of the principal. The put option is exercisable on one or more specified dates.

"REBALANCE DAY" is the last BUSINESS DAY of the month.

"AVERAGE LIFE" is the length of time the principal of a debt issue is expected to be outstanding. Average Life is calculated using the weighted average time to the receipt of all future cash flows.

"ROLLING CARBON INTENSITY" is a score calculated with the average of the last two-year CARBON INTENSITY.

"SELECTION DAY" is 8 BUSINESS DAYS before the scheduled REBALANCE DAY, disregarding any potential change of the REBALANCE DAY.

"SINKABLE / AMORITIZED BONDS" are bonds that are backed by a fund that sets aside money on a regular basis. A sinkable bond issuer is required to buy a certain amount of the bond back from the purchaser at various points throughout the life of the bond.

"SOLACTIVE" shall have the meaning as defined in Section "Introduction".

"STEP-UP COUPON BONDS" are bonds whose coupons increase while the bond is outstanding. The coupon amounts are determined at issuance.

"STRIPS GOVERNMENT BONDS" are bonds where the interest and the principal payments are spitted into different separated parts. The Strips holders will not receive any interest income.

"TBAS OR TO BE DETERMINED" Are MBS that trade in the future. TBA are forward selling contracts.

"ZERO COUPON BONDS" means bonds which do not pay interest but are issued at a discount.



7. HISTORY OF INDEX CHANGES

Version	Date	Description
1.0	01 June 2022	Index Guideline creation (<i>initial version</i>)
1.1	30/05/2023	Clarification regarding the deal size for ABS: change from 300 million to 1 billion.

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