

INDEX GUIDELINES

Solactive Emerging Markets Bond Index Series

Version 1.0

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TABLE OF CONTENTS

Introduction	3
1. Index Specifications	4
1.1. Scope of the Index	4
1.2. Identifiers and Publication	4
1.3. Initial Level of the Index	5
1.4. Prices and calculation frequency	5
1.5. Licensing.....	6
1.6. Conflicts of Interest.....	6
1.7. Definitions in respect of Section 1.....	6
2. Index Selection	7
2.1. Selection of the Index components.....	7
2.2. Weighting of the index components	9
2.3. Definitions in respect of Section 2	10
3. Rebalance	12
3.1. Ordinary Rebalance	12
3.2. Extraordinary Rebalance	12
3.3. Definitions in respect of Section 3	12
4. Calculation of the Index	13
4.1. Index formula	13
4.2. Accuracy	15
4.3. Adjustments.....	15
4.4. Corporate actions	16
4.5. Recalculation.....	17
4.6. Market Disruption	17
5. Miscellaneous	18
5.1. Discretion	18
5.2. Methodology Review.....	18
5.3. Changes in calculation method.....	18
5.4. Termination	18
5.5. Oversight	19
Contact.....	20



INTRODUCTION

This document (the "Guideline") is to be used as a guideline with regard to the composition, calculation and maintenance of the Solactive Emerging Markets Bond Index Series (the "Index Series"). Any amendments to the rules made to the Guideline are approved by the Index Committee specified in Section 5.5. The Index Series is owned, calculated, administered and published by Solactive AG ("Solactive") assuming the role as index administrator (the "Index Administrator") under the Regulation (EU) 2016/1011 (the "Benchmark Regulation" or "BMR"). The name "Solactive" is trademarked.

The Guideline and the policies and guidelines referenced herein contain the underlying principles and rules regarding the structure and operation of the Index Series. 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 Emerging Market Index Series is a set of benchmarks to measure the performance of emerging market government bonds issued in local and hard currency. The series is designed to provide a broad coverage of the investible universe of emerging market bonds, and is customizable to fit specific mandates or investment strategies.

The series is sub-divided by currency type: local and hard currency. The hard currency series covers emerging market government and government-related bonds denominated in hard currencies such as United States Dollars (USD) and Euros (EUR). The local currency series covers bonds issued by central governments in their own domestic currency that is not a hard currency.

The classification of a country as Emerging is dependent on the Solactive Country Classification Framework, supplemented in the local currency series by an assessment of the tradability of each market for foreign investors.

The Index Series is rebalanced monthly, and the list of eligible emerging of emerging markets is reviewed annually.

The Index Series is published in EUR and USD, other currency and hedged versions are available. For the hedging methodology, please consult the "Currency-hedged Indices Methodology" document available on the <https://www.solactive.com/documents/> website.

Customized versions of these indices, with additional selection criteria or capping requirements for example are available and are also described in this Guideline.

1.2. IDENTIFIERS AND PUBLICATION

The Index Series is published with the following identifiers:

Name	ISIN	Currency	Type	RIC	BBG ticker
Solactive USD EM Government & Govt Related TR Index	DE000SLA8P99	USD	TR	.SOLEBUB	-
Solactive EUR EM Government & Govt Related TR Index	DE000SLA8QE4	EUR	TR	.SOLEBEB	-
Solactive LCY EM Government TR Index	DE000SLA8QF1	USD	TR	.SOLEBLB	-
Solactive EM USD Govt & Govt Related Bond Select CAD NTR Index	DE000SLA8T46	CAD	NTR	.SOLEHUC	-
Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index	DE000SLA8QG9	CAD	NTR	.SOLEHUS	-
Solactive EM Local Currency Government Bond Select NTR Index	DE000SLA8QH7	CAD	NTR	.SOLEBLS	-

The Index Series is published 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. In the event that data cannot be provided to the price marketing services of Boerse Stuttgart GmbH, the Index Series cannot be published via Boerse Stuttgart GmbH.

Any publication in relation to the Index Series (e.g. notices, amendments to the Guideline) will be available at the website of the Index Administrator.

1.3. INITIAL LEVEL OF THE INDEX

The initial level of each index in the series on the Start Date is 1000. Historical values prior the Live Date will be recorded in accordance with Article 8 of the BMR. Levels of the Index Series published for a period prior to the Live Date have been back-tested. The Start and Live dates for each index are listed in the table below.

Name	Start Date	Live date
Solactive USD EM Government & Govt Related TR Index	Jun 30, 2013	Jun 17, 2019
Solactive EUR EM Government & Govt Related TR Index	Jun 30, 2013	Jun 17, 2019
Solactive LCY EM Government TR Index	Jun 30, 2013	Jun 17, 2019
Solactive EM USD Govt & Govt Related Bond Select CAD NTR Index	Dec 31, 2014	Jun 17, 2019
Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index	Dec 31, 2014	Jun 17, 2019
Solactive EM Local Currency Government Bond Select NTR Index	Dec 31, 2014	Jun 17, 2019

1.4. PRICES AND CALCULATION FREQUENCY

The Index Series 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 the Index Series at the Last Evaluated Ask Price on the relevant Rebalance Day (as specified in Section 3.3). Bonds which are excluded from the Index Series in a rebalancing are reflected in the calculation of the Index Level for the Rebalance Day at the Last Evaluated Bid Price on the relevant Rebalance Day. Index analytical values are calculated each Business Day using the Last Evaluated Bid Price based on Fixing Time. Prices of Index Components not listed in the Index Currency are converted using the 16:00 London Time WM Fixing spot exchange rates. Only for the Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index, prices of Index Components not listed in the Index Currency are converted using the 16:00 NY Time WM Fixing spot exchange rates.

Should there be no current spot foreign exchange rate available, the most recent spot foreign exchange on for the preceding Business Day is used in the calculation.



Name	Fixing Time
Solactive USD EM Government & Govt Related TR Index	16:00 London
Solactive EUR EM Government & Govt Related TR Index	16:00 London
Solactive LCY EM Government TR Index	16:00 London
Solactive EM USD Govt & Govt Related Bond Select CAD NTR Index	16:00 NY
Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index	16:00 NY
Solactive EM Local Currency Government Bond Select NTR Index	16:00 London

1.5. LICENSING

Licenses to use the Index Series 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.

1.6. CONFLICTS OF INTEREST

No conflicts of interest have been identified for this Index Series.

1.7. DEFINITIONS IN RESPECT OF SECTION 1

This section contains defined terms used in Section 1 and, if applicable, other Sections of the Guideline.

"Business Day" means a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealings in foreign exchange and foreign currency deposits) Saturday and Sunday as well as the 24th and 31th of December are not considered Business Days. Any day other than a Saturday or Sunday, as well as the 24th and 31th of December and other than holidays as recommended by SIFMA and Target 2 holidays in Europe.

"Fixing Time" is 16:00 London time for most indices. 16:00 NY time for the Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index.

"Index Calculator" is Solactive or any other appropriately appointed successor in this function.

"Index Component" is any bond that is a current member of the Index Series.

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

"Index" can refer to any individual sub-index in the Solactive Emerging Markets Index Series or the series as a whole.

"Index Series" is the Solactive Emerging Markets Index Series.



"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.

"Last Evaluated Price" the evaluated Bid/Ask/Mid price by the designated Pricing Provider at Fixing Time.

"Live Date" is the date that the Index entered live daily calculation.

"Pricing Provider" is Interactive Data Corporation, part of the ICE group.

"Start Date" is the first date belonging to the index history.

2. INDEX SELECTION

Unless specified otherwise, 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. Some sub-indices may limit the number of Index Components and the details of this procedure, if applicable, will be described in this section.

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 each Index, as well as any selection for a rebalance (as specified in Section 3) is determined using the following rules:

Hard Currency (EUR & USD) Series

- Bonds must be issued by a sovereign or a government-related entity which includes regional & local government issuers, majority government-owned entities and government agencies with a public mandate and or a government debt guarantee.
- Bonds must be issued in USD or EUR and the bond coupon and principal are payable in the same currency.
- The country must be classified as an emerging market as defined in Section 2.2 below.
- Fixed or Zero Coupon Bonds and sukuks are eligible.
- Global Depositary Notes ('GDN') are not eligible to be part of the selection.
- The bond must be able to settle on Euroclear, Clearstream or DTCC.
- Instruments must be issued prior to Rebalance Day
- The initial maturity must be at least 18 months and the remaining Effective Time to Maturity must be at least 1 year.



- Bonds must have a minimum amount outstanding of EUR 500 million / USD 500 million.
- REGs and 144a securities are eligible. Bonds must not be predominantly retail focused and non-144a private placements are not eligible.
- When both a REGs and a 144a version of the bond are available, the REGs version will be preferred.
- Treasury bills, Floating Rate Notes, perpetual bonds, Inflation-linked Bonds, hybrid and bank capital bonds and securitized bonds are not eligible.
- Reliable pricing and reference data must be available.

Local Currency Series

- Bonds must be issued by a sovereign in its domestic currency and the bond coupon and principal must be denominated in the same currency.
- The country must be classified as an Emerging Country as defined in Section 2.2 below.
- The issuer must have a local currency rating by either S&P or Moody's.
- Fixed Coupon Bonds or Zero Coupon Bonds are eligible.
- The bond must be able to settle on Euroclear or Clearstream.
- Instruments must be issued prior to Rebalance Day
- The initial maturity must be at least 18 months and the remaining Effective Time to Maturity must be at least 1 year from the Rebalance Day.
- Treasury bills, brady bonds, Floating Rate Notes, Inflation-linked Bonds, bank capital bonds and securitized bonds are not eligible.
- Bonds must not be predominantly retail focused and non-144a private placements are not eligible.
- Reliable pricing and reference data must be available.
- When both a REGs and a 144a version of the bond are available, the REGs version will be preferred.
- The bonds must meet the minimum amount outstanding as shown in the following table for eligible countries as of September 2018.

Country	Currency	Min. Bond Size	Country	Currency	Min. Bond Size
Argentina	ARS	57,500,000,000	Peru	PEN	1,500,000,000
Brazil	BRL	12,000,000,000	Philippines	PHP	30,000,000,000
Chile	CLP	300,000,000,000	Poland	PLN	5,000,000,000
Colombia	COP	4,500,000,000,000	Romania	RON	4,000,000,000
Czech Republic	CZK	30,000,000,000	Russia	RUB	100,000,000,000
Dominican Republic	DOP	25,000,000,000	South Africa	ZAR	20,000,000,000
Hungary	HUF	275,000,000,000	South Korea	KRW	5,000,000,000,000
Indonesia	IDR	15,000,000,000,000	Thailand	THB	30,000,000,000
Malaysia	MYR	3,000,000,000	Turkey	TRY	6,000,000,000



Mexico MXN 30,000,000,000 Uruguay UYU 30,000,000,000

Sub-indices

The Index Series is broken down into several sub-indices, which may have additional criteria listed below.

Name	Currency Type	Additional Requirements	Capping
Solactive USD EM Government & Govt Related TR Index	Hard: USD	N/A	N/A
Solactive EUR EM Government & Govt Related TR Index	Hard: EUR	N/A	N/A
Solactive LCY EM Government TR Index	Local	N/A	N/A
Solactive EM USD Govt & Govt Related Bond Select CAD NTR Index	Hard: USD	Russia and Ukraine non- sovereign issuers are excluded. Countries whose total weight is less than 0.3% of all eligible countries on each annual review in May will be excluded.	Country Weight: Min: 1% Max: 7.5%
Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index	Hard: USD	Russia and Ukraine non- sovereign issuers are excluded. Countries whose total weight is less than 0.3% of all eligible countries on each annual review in May will be excluded.	Country Weight: Min: 1% Max: 7.5%
Solactive EM Local Currency Government Bond Select NTR Index	Local	South Korea is excluded. Countries whose total weight is less than 0.5% of all eligible countries on each annual review in May will be excluded.	Country Weight: Min: 2% Max: 10%

2.1.1 ELIGIBLE COUNTRIES

The list of eligible emerging markets is reviewed once a year for the June selection in May and takes into account the following factors:

- The classification under the Solactive Country Classification Framework. Countries which are classified as Developed will not normally be classified as an Emerging Market.
- Whether the country is a member of the Eurozone or the G10 group of currencies (USD, EUR, JPY, GBP, CAD, AUD, SEK, NOK, DKK, NZD).
- The existence of credit ratings by internationally recognized credit rating agencies.
- The trading in the bonds of a country or a specific issuer within that country must not be subject to UN, US or EU sanctions.
- The bond market size and liquidity. Accessibility for foreign investors, including the presence of capital controls, currency convertibility, availability and transparency of market data, registration restrictions, limits on foreign ownership and taxation policies.

2.2. WEIGHTING OF THE INDEX COMPONENTS

On each Selection Day each Index Component is weighted using the market value based on the Last Evaluated Prices, as described in Section 1.4 and accrued interest as of the Selection Day in order to achieve the aim of the Index.



Some indices within the Index Series may be subject to a cap, where the weight of individual bonds, countries or issuers have upper or lower limits on their weight. The caps if applicable, are listed in section 2.1.

Any capping will be carried out on the business day following each Selection Day, using the market values as of the Selection Day. If a constituent breaches a cap to the upside (downside), its weight will be lowered (raised) until its weight meets the capping constraint, increasing (decreasing) the weight of all the other constituents proportional to their market value weights. This procedure is carried out iteratively until all the capping conditions have been met.

2.3. DEFINITIONS IN RESPECT OF SECTION 2

This section contains defined terms used in Section 2 and, if applicable, other Sections of the Guideline.

"Bank Capital Bonds" are bonds with features similar to convertible bonds but employed by Banks to raise their capital in times of stress derived from mechanical or discretionary triggers

"Country of Incorporation" is defined by Solactive based on the assessment of market data providers as the country where the issuing company is incorporated or legally registered.

"Country of Domicile" is defined by Solactive based on the assessment of market data providers as the location of the issuing company's management board.

"Country of Risk" is defined by Solactive based on the assessment of market data providers as the country in which the issuing company would be influenced the most by potential changes in the business environment.

"Effective Time to Maturity" is the minimum of the next call or put date and the final maturity date.

"Emerging Countries" refers to the countries in the list of emerging countries as determined by Solactive in accordance with the Solactive Country Classification Framework. The framework and the country list is available at <https://www.solactive.com/documents/solactive-country-classification/>

"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, as

"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 and Fitch or Baa3 by Moody's Investors Service or BBB by DBRS.

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

"Securitized Bonds" are bonds backed by a pool of assets and paid by the cash flows derived from the securities backing the bonds.



"Selection Day" is 6 Business Days before the Rebalance Day.

"Spot" is the spot foreign exchange rate to convert the Index Currency into the denomination currency of the Underlying Index Component.

"Step-Up Coupon Bonds" are bonds whose coupons increase while the bond is outstanding. The coupon amounts are determined at issuance.

"Zero Coupon Bonds" means bonds which do not pay interest but are issued at a discount.



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.

A detailed description of the rebalance procedure can be found in the Bond Index Methodology which is incorporated by reference and available at <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 available at <https://www.solactive.com/news/announcements/>

3.2. EXTRAORDINARY REBALANCE

The Index Series is not rebalanced extraordinarily.

3.3. DEFINITIONS IN RESPECT OF SECTION 3

This section contains defined terms used in Section 3 and, if applicable, other Sections of the Guideline.

"Close of Business" is a time stamp when an Index is calculated. This occurs at 23:00 CET every Business Day.

"Rebalance Day" is the close of the last Business Day of each month.



4. CALCULATION OF THE INDEX

4.1. INDEX FORMULA

Name	Currency	Type	Formula
Solactive USD EM Government & Govt Related TR Index	USD	TR	Periodic Reinvestment
Solactive EUR EM Government & Govt Related TR Index	EUR	TR	Periodic Reinvestment
Solactive LCY EM Government TR Index	USD	TR	Periodic Reinvestment
Solactive EM USD Govt & Govt Related Bond Select CAD NTR Index	CAD	NTR	Direct Reinvestment
Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index	CAD	NTR	Hedged
Solactive EM Local Currency Government Bond Select NTR Index	CAD	NTR	Direct Reinvestment

Solactive USD EM Government & Govt Related TR Index, Solactive EUR EM Government & Govt Related TR Index and Solactive LCY EM Government TR Index are the Total Return (TR) indices and follow the Periodic Reinvestment approach. A total return 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 formula is expressed in mathematical terms as follows:

$$Index_t = Index_n \cdot \frac{MarketValue_t + Cash_t}{BaseValue_n}$$

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

Solactive EM USD Govt & Govt Related Bond Select CAD Hedged NTR Index and Solactive EM Local Currency Government Bond Select NTR Index are the Net Total Return (NTR) indices and follow the Direct Reinvestment approach. A net total return index seeks to replicate the overall after-tax 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 and for taxes. The tax rates to be used are the rates corresponding to the country of issuance of the securities.

The Direct Reinvestment index formula implies a daily reinvestment in the Index of proceeds resulting from corporate actions and coupon payments in respect of the Index Components on the effective date of such events. The reinvestment will be undertaken proportionately to the weights of the Index Components. The Direct Reinvestment index formula stipulates further that the Index Level changes based on the change of the prices of its Index Components taking into account their weight in the Index.



The formula is expressed in mathematical terms as follows:

$$Index_t = Index_{t-1} \cdot \left(1 + \sum_{i=1}^a (TotalReturn_{i,t} \cdot Weight_{i,t-1})\right)$$

$$TotalReturn_{t,i} = \frac{Price_{t,i} + AI_{t,i} \cdot [1 - WHT_RATE] + PaidNETCash_{t,i}}{Price_{t-1,i} + AI_{t-1,i}} \cdot \frac{FX_{t,i}}{FX_{t-1,i}} \cdot \frac{SinkingFactor_{i,t}}{SinkingFactor_{i,t-1}} - 1$$

$$Weighting_{t,i} = \frac{MarketValue_{t,i} \cdot Cap_{SD,i}}{\sum_{i=1}^a MarketValue_{t,i} \cdot Cap_{SD,i}} = \frac{(Price_{t,i} + AI_{t,i} \cdot [1 - WHT_RATE]) \cdot Amt_{SD,i} \cdot SinkingFactor_{i,t-1} \cdot Cap_{SD,i} \cdot FX_{t,i}}{\sum_{i=1}^a (Price_{t,i} + AI_{t,i} \cdot [1 - WHT_RATE]) \cdot Amt_{SD,i} \cdot SinkingFactor_{i,t-1} \cdot Cap_{SD,i} \cdot FX_{t,i}}$$

Where:

<i>a</i>	Number of bonds in the Index
<i>AI_{t,i}</i>	Interest accrued of bond <i>i</i> on Business Day <i>t</i>
<i>Amt_{t,i}</i>	Amount Outstanding of bond <i>i</i> on Business Day <i>t</i>
<i>CAP_{t,i}</i>	Capitalization Rate of bond <i>i</i> on Business Day <i>t</i> (only relevant for Capitalizing Bonds, otherwise the default value is zero)
<i>CF_{i,SD}</i>	Capping factor of bond <i>i</i> on Selection Day: Fixed on the immediately preceding Selection Day and defined as a parameter used to scale the weight of the bond
<i>PaidNetCash_{t,i}</i>	a) Value of the coupon payment for bond <i>i</i> on trading day <i>t</i> , after applying the withholding tax. b) If a bond <i>i</i> will be removed from the index, the resulting payment of the bond will be included in the paid cash component
<i>FX_{t,i}</i>	Exchange rate of bond <i>i</i> currency against the Index Currency on Business Day <i>t</i>
<i>MarketValue_t</i>	Market Value of Index on Business Day <i>t</i>
<i>n</i>	Last Rebalance Day



$PriceReturn_{i,t}$	Price Return of bond i on Business Day t
$Price_{i,t}$	Clean Price of bond i on Business Day t
SD	Last Selection Day
$SinkPayment_t$	Value of the early repayment of Sinkable Bond i on Business Day t . The Sink Payment is calculated as: $Sink\ Payment_{i,t} = (SinkingFactor_{i,t-1} - SinkingFactor_{i,t}) \cdot Price_{i,t}$
$SinkingFactor_{i,t}$	Sinking Fund Factor of bond i on Business Day t (only relevant for Sinkable Bonds, otherwise default value is one)
t	Business Day which is between two regular Rebalance Days
$TotalReturn_{i,t}$	Total Return of bond i on Business Day t
$Weight_{i,t}$	Weight of bond i on Business Day t
$WHT_RATE_{i,t}$	is the with holding tax rate, set at the index level.

4.2. ACCURACY

The Index Level will be rounded to 2 decimal places. The Amount Outstanding per bond instrument will be rounded to 0 decimal places. The Last Evaluated Price of a bond instrument will be rounded to 4 decimal places, when expressed as a percentage of par (for example 99.17542466 will be rounded to 99.1754). The accrued interest per bond instrument will be used according to market convention for each Index Component.

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 of 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 at <https://www.solactive.com/documents/bond-index-methodology/>



4.4. CORPORATE ACTIONS

As part of the Index maintenance Solactive will consider various events relating to the current Index Components – also referred to as corporate actions – which may 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 price effect of the respective corporate action taking effect.

Adjustments to the Index to account for corporate actions will be made in compliance with the Bond Index Methodology, which is available at <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 an Index over time.

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

- Regular and Early Redemption (an event that leads to a redemption of a bond before the regular maturity date)
- Bond Default (e.g. when the issuer fails to meet its coupon payment obligation or repay the principal at maturity) or Flat Trading (e.g. a bond issuer fails to meet its coupon payment obligation)
- 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)



4.5. RECALCULATION

Solactive makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the index 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](https://www.solactive.com/documents/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](https://www.solactive.com/documents/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 Universe (if applicable), the selection of the Index Components (if applicable) or any other relevant decisions in relation to the Index) shall be in accordance with the Solactive's Discretion Policy, which is available at <https://www.solactive.com/documents/>.

5.2. METHODOLOGY REVIEW

The methodology of the Index is subject to regular review. 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 and 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 Calculator of the method described in this document is final and binding. The Index Calculator 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 Calculator 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 Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes, the Index Calculator 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 an index may be indicated. This is usually the case when the underlying market or economic reality, which an 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 an 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 Termination Policy, which is incorporated by reference and available on the Solactive website:

<https://www.solactive.com/documents/termination-policy/>.

5.5. OVERSIGHT

An index committee composed of staff from Solactive and its subsidiaries (the "Index Committee") is responsible for decisions regarding any amendments to the rules of the Index Series. Any such amendment, which may result in an amendment of the Guideline, must be submitted to the Index Committee for prior approval and will be made in compliance with the "Solactive Methodology Policy", which is available at

<https://www.solactive.com/documents/methodology-policy/>

CONTACT

Solactive AG
German Index Engineering

Guiollettstr. 54
60325 Frankfurt am Main
Germany

Tel.: +49 (0) 69 719 160 00

Fax: +49 (0) 69 719 160 25

Email: info@solactive.com

Website: www.solactive.com

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