

INDEX GUIDELINE

*Solactive Global Developed Government Bond
GDP Weighted TR EUR Index*

Version 1

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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 Developed Government Bond GDP Weighted TR EUR Index (the "Index"). Any amendments to the rules made to the Guideline are approved by the Index Committee specified in Section 5.5. The Index 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. 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 Developed Government Bond GDP Weighted TR EUR Index is a rules-based, non-market value weighted, total return index designed to mirror the local currency developed markets government bond market. The index follows the same selection criteria as the Solactive Broad Global Government Bond TR EUR. The underlying index is comprised of local currency, fixed rate debt instruments issued by central governments of countries which are classified as developed markets under Solactive's country classification schema or belong to the Euro area.

The Solactive Global Developed Government Bond GDP Weighted TR EUR Index is selected 6 business days prior to Rebalance day and is rebalanced on a monthly basis.

1.2. IDENTIFIERS AND PUBLICATION

The Index is published under the following identifiers:

Name	ISIN	Currency	Type	RIC	BBG ticker	WKN
Solactive Global Developed Government Bond GDP Weighted TR EUR Index	DE000SLA6Q41	EUR	TR	.SOLGGDP		

The Index 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 cannot be published.

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 Start Date is 1000. Historical values from the Live Date will be recorded in accordance with Article 8 of the BMR. Levels of the Index published for a period prior to the Live Date have been back-tested.



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 the index at the Last Evaluated Ask Price on the relevant Rebalance Day (as specified in Section 3.3). Bonds which are excluded from the Index in a rebalancing are reflected in the calculation of the level of the Index 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 WM 4pm Fixing quoted by Reuters.

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

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.

1.6. CONFLICTS OF INTEREST

There are no conflicts of interest identified for this index.

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 any day other than a Saturday or Sunday and other than common European banking holidays and holidays as defined by the NYSE. Common European banking holidays are: New Year's Day, Good Friday, Easter Monday, Christmas Day and Boxing Day. Holidays as defined by the NYSE are: New Year's Day, Martin Luther King, Jr. Day, Washington's Birthday, Good Friday, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas.

"Fixing Time" is 4pm EST for securities in the "Americas" closing region, 4:15pm GMT for securities in the "Europe" closing region and 7pm AEDT for securities in the "APAC" closing region.

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

"Index Component" is each bond reflected in the Index.

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

"Last Evaluated Ask Price" the last available evaluated ask 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.

"Launch Date" is the 22nd of May 2019.

"Live Date" is the 21st of March 2019.

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

"Start Date" is 31st of October 2010.



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

- Only Central Government debt issued by members of the Eurozone or by countries classified by Solactive as Developed World countries
- Bond Type: Fixed Coupon Bonds are eligible for the index. The following bond types are specifically excluded from the index: Sinkables, Perpetuals, Putables, Floating Rate Notes, Callables, Extendibles, Inflation Linked Bonds, Principal Only Strips and Interest Only Strips as well as private Placements
- Time to maturity: Must have at least 1 year to maturity on each Adjustment Day
- Currency: local currency of the issuing country denominated
- Issue Amount Outstanding:

EUR – 1.5 bn	CAD – 1.5bn
DKK – 15 bn	HKD – 15 bn
ILS – 1.5 bn ¹	JPY – 150 bn
NZD – 1.5 bn	NOK – 15 bn
SGD – 1.5 bn	SEK – 15 bn
CHF – 1.5 bn	GBP – 1.5 bn
USD – 1.5 bn	AUD – 1.5 bn

The selection of the Index Components is fully rule-based and the Index Administrator has no discretion.

¹ Until the adjustment day 30.04.2019 a minimum amount outstanding threshold of 15bn ILS was used.



2.2. WEIGHTING OF THE INDEX COMPONENTS

On each Selection Day each country in the index is weighted based on its five-year average GDP relative to the five-year average GDP of all other index countries. The weight of the bonds within each country are determined by the market capitalization of the instruments. GDP figures are collected from the Worldbank, specifically we use the GDP in constant 2010 U.S. dollar terms (Data I.D. = NY.GDP.MKTP.KD)

Formally country weights are derived using the following set of equations:

$$\text{Country Weight}_{i,t} = \frac{\text{Average GDP}_{i,n}}{\sum_{i=1}^C \text{Average GDP}_{i,n}}$$

$$\text{Average GDP}_{i,n} = \frac{\sum_{l=0}^4 \text{GDP}_{i,n-l}}{5}$$

where:

i = subscript for countries

t = date of effective weight

n = year of latest GDP figures available

l = number of years for average
GDP calculation

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.

"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.

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

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

"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.

Solactive will publish any changes made to the Index Components with sufficient notice before the Rebalance Day on the Solactive webpage under the section "[Announcement](https://www.solactive.com/news/announcements/)", which is available at: <https://www.solactive.com/news/announcements/>.

3.2. EXTRAORDINARY REBALANCE

The Index 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 22:30 CET every Business Day.

"Rebalance Day" is the last business day of every month.



4. CALCULATION OF THE INDEX

4.1. INDEX FORMULA

The Index is calculated as a total return index.

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. Coupon and other cash payments will be reinvested on a monthly basis.

The base market value 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 base market value formula tracks the performance of the Index Components relative to their market value on the immediately preceding Rebalance Day. The market value for a single Index Constituent 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.

The formula is expressed in mathematical terms as follows:

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

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.

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.



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 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. 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:

- 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)



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/), which is incorporated by reference and available on the Solactive website: <https://www.solactive.com/documents/>.

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/), which is incorporated by reference and available on the Solactive website: <https://www.solactive.com/documents/>. 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.

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.

Such change in the Methodology will be announced on the Solactive webpage under the section "Announcements", which is available at address <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.

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. 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".

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