

INDEX GUIDELINE

Solactive USD Bond Futures Daily Leveraged Index
Family

Version 1.0

29 April 2019

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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 Index Family. Any changes made to the Guideline are initiated by the Committee specified in Section 1.5. The Index Family is calculated and published by Solactive AG. The name "Solactive" is trademarked.

It contains the underlying principles and rules regarding the structure and operation of the Solactive USD Bond Futures Daily Leveraged Index Family (the "Index Family", the "Indices"). Solactive AG shall make every effort to implement the applicable regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Indices nor the Index values at any certain point in time nor in any other respect. The Indices are merely calculated and published by Solactive AG and it strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the Indices. The publication of the Indices by Solactive AG does not constitute a recommendation for capital investment and does not contain any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on these Indices.



1 INDEX SPECIFICATIONS

- > The Indices in the Solactive USD Bond Futures Daily Leveraged Index Family are indices of Solactive AG and are calculated and distributed by Solactive AG.
- > The Indices track the investment performance of a hypothetical fixed leveraged investment in its underlying bond futures and rolling the investment from one contract to the next, taking into account a cash position and transaction costs.
- > The underlying bond future and the corresponding leverage factor can be seen in the Appendix.

1.1 SHORT NAME AND ISIN

The Index Identifiers can be seen in the Appendix.

1.2 INITIAL VALUE

The Index is based on 1000 on the corresponding Index Base Date.

1.3 DISTRIBUTION

The Indices are published via the price marketing services of Boerse Stuttgart AG and are distributed to all affiliated vendors. Each vendor decides on an individual basis as to whether it will distribute/display the Indices via its information systems.

1.4 PRICES AND CALCULATION FREQUENCY

The price of each Index is calculated on each Trading Day based on the settlement prices on the respective Exchanges on which the respective Index Components are listed. The most recent settlement prices of all Index Components are used. Should there be no current settlement price available, the most recent settlement price on Reuters for the preceding Trading Day is used in the calculation.

The Indices are calculated once a Business Day. In the event that data cannot be provided to the pricing services of Boerse Stuttgart AG the Indices cannot be distributed.

1.5 OVERSIGHT

A Committee composed of staff from Solactive AG (the "Committee" or the "Index Committee") is responsible for decisions regarding the composition of the Indices as well as any amendments to the rules.

Members of the Committee can recommend changes to the Guideline and submit them to the Committee for approval.

1.6 PUBLICATION

All specifications and information relevant for calculating the Index are made available on the <http://www.solactive.com> web page and sub-pages.



1.7 HISTORICAL DATA

Historical data will be maintained from the Base Date of the Index.

1.8 LICENSING

Licenses to use the Index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Solactive AG.

2 CALCULATION OF THE INDEX

2.1 INDEX FORMULA

The Index Value on Trading Day t is calculated in accordance with the following formula:

$$I(t) = I(t - 1) + U(L(t), t - 1) * (P(L(t), t) - P(L(t), t - 1)) + U(N(t), t - 1) * (P(N(t), t) - P(N(t), t - 1)) + I(t - 1) * \left(\frac{C(t)}{C(t - 1)} - 1 \right) - TC(t)$$

with:

$I(t)$	= Index Value on Trading Day t
$I(t - 1)$	= Index Value on the Trading Day immediately preceding Trading Day t
$I(0)$	= Index Value on the Index Base Date, i.e. 100
$U(L(t), t - 1)$	= Units of the Lead Contract Month Future in regards to Trading Day t on the Trading Day immediately preceding Trading Day t
$U(N(t), t - 1)$	= Units of the Next Contract Month Future in regards to Trading Day t on the Trading Day immediately preceding Trading Day t
$P(L(t), t)$	= Future Price of the Lead Contract Month Future in regards to Trading Day t on Trading Day t
$P(N(t), t)$	= Future Price of the Next Contract Month Euro-Bund-Future in regards to Trading Day t on Trading Day t
$C(t)$	= Cash on Trading Day t
$TC(t)$	= Transaction costs on Trading Day t

2.2 FUTURE PRICE

The Future Price used under normal market conditions for a Contract Month Future x on Trading Day t $P(x, t)$ is the official Exchange settlement price $SP(x, t)$.

Adjustments under extreme market conditions for (-2x) and (2x) indices only:



In order to avoid a potential total loss on double inverse and leveraged indices, the position will be adjusted intraday such as:

If $MiTP(x, t) \leq SP(x, t - 1) * 0.8$ and the leverage factor of the index is 2:

$$P(x, t) = SP(x, t - 1) * 0.8$$

else if $MaTP(x, t) \geq SP(x, t - 1) * 1.2$ and the leverage factor of the index is -2:

$$P(x, t) = SP(x, t - 1) * 1.2$$

With:

SP(x, t) = Official Exchange Settlement price of the Contract Month Future x on Trading Day t

MiTP(x, t) = Minimum Trade price of the Contract Month Future x on Trading Day t, observed between 9:30 am and 3 pm EST.

MaTP(x, t) = Maximum Trade price of the Contract Month Future x on Trading Day t, observed between 9:30 am and 3 pm EST.

2.3 UNIT CALCULATION

The Units on Trading Day t is calculated in accordance with the following formula:

$$U(x(t), t) = \frac{W(x(t), t) * I(t) * factor}{SP(x(t), t)}$$

with

x(t) = variable representing the corresponding contract month future in regards to Trading Day t, so either L for lead contract month future or N for next contract month future.

factor = leverage factor, see the Appendix for each individual factor

W(x, t) = Roll Weight of the corresponding future contract on Trading Day t, calculated as follows:

$$W(N, t) = 1 - W(L, t)$$

If t falls in the Roll Period:

$$W(L, t) = 1 - \frac{RD}{TRD}$$

Otherwise:

$$W(L, t) = 1$$

with:

TRD = Total Number of Roll Days, i.e. 5



RD = Number of Trading Days from the Roll Period Start Date (inclusive) to the current Trading Day t (exclusive)

After the Roll Period End Date, the Next contract month future becomes the Lead contract month future

2.4 TRANSACTION COST CALCULATION

The Transaction cost on Trading Day t is calculated in accordance with the following formula:

$$TC(t) = ABS[U(L(t), t - 1) - U(L(t), t - 2)] * FS(L(t), t - 1) + ABS[U(N(t), t - 1) - U(N(t), t - 2)] * FS(N(t), t - 1)$$

with:

$FS(x(t), t)$ = half bid and ask of the corresponding L or N futures contract in regards to Trading Day t, observed at 3pm EST.

2.5 CASH CALCULATION

The Cash on Trading Day t is calculated in accordance with the following formula:

$$C(t) = C(t - 1) * \left(1 + \frac{r(t - 1)}{100} * \frac{DCF}{360}\right)$$

with:

$C(t - 1)$ = Cash on the Trading Day immediately preceding Trading Day t

$r(t - 1)$ = Interest Rate on the Trading Day immediately preceding Trading Day t

DCF = Number of calendar days between the second Trading Day immediately following Trading Day t (inclusive) and the third Trading Day immediately following Trading Day t (exclusive).

2.6 ROLL PERIOD

As futures expire, the Rolling Futures Strategy needs to regularly roll its exposure from one future to the next one. This is done during the Roll Period. A Roll Period happens quarterly. The first day of the roll (the "Roll Period Start Date") is five Trading Days preceding the Roll Determination Date. The Roll Determination Date is the last Trading Day of the months February, May, August and November.

The Total Number of Business Days in a Roll Period is five, where the exposure is shifted in 20% steps from the Lead Month Contract Future to the Next Contract Month Future. Therefore, the last day of the roll (the "Roll Period End Date") is the Business Day four Business Days following the Roll Period Start Date.

2.7 ACCURACY

- > The value of the Indices will be rounded to four decimals for the purpose of publication for indices with a negative leverage factor and will be rounded to three decimals for the purpose of publication for indices with a positive leverage factor.



2.8 MISCELLANEOUS

2.8.1 Recalculation

Solactive AG makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Solactive AG adheres to its publicly available [Correction Policy](#).

3 DEFINITIONS

"Trading Day" means any day in which the Exchange is open and publishes a Contract Settlement Price for the Designated Relevant Contracts.

"Roll Period" is defined in Section 2.5.

"Exchange" means the Chicago Mercantile Exchange.

"Extraordinary Event" is referring to the case if one or more futures cease to exist.

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

The "Index Currency" is USD.

The "Base Date" is the 4th January 2010.

"Interest Rate" means the Federal Funds Effective Rate.

"Settlement Price" is daily settlement price published by the Exchange at around 3:00pm EST.

"Lead Contract Month future" means the future contract with the earliest last trading day equal or greater than the current Trading Day.

"Next Contract Month future" means the future contract with the earliest last trading day equal or greater than the last trading day of the Lead Contract Month future.

4 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 INDEX FAMILY SPECIFICATIONS

NAME	ISIN	TICKER	RIC	Leverage Factor
Solactive 10Y US Treasury Futures Daily (-2x) Inverse Index	DE000SLA8QX4	SODI2TYF	.SODI2TYF	-2

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