GUIDELINE

Solactive Monthly Short BTP Futures Index

Version 1.1 dated August 28th, 2018

Contents

This document contains the underlying principles and regulations regarding the structure and the operating of the Solactive Monthly Short BTP Futures Index (the “Index”)**.** Solactive AG shall make every effort to implement regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the Index value 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 is no 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 this Index.

Introduction

This document is to be used as a guideline with regard to the composition, calculation and management of the Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Indices are calculated and published by Solactive AG. The name “Solactive” is copyrighted.

1 Index specifications

The Solactive Monthly Short BTP Futures Index (the **“**Index**”**) is an Index of Solactive AG and is calculated and distributed by Solactive AG.

The Index replicates the performance of a hypothetical short investment in an underlying rolling futures index based on the front BTP future taking into account interest rates and transaction costs.

The Index is calculated and published in Euro.

1.1 Short name and ISIN

The Index is distributed under the following identifiers:

Name	ISIN	WKN	RIC	BBG
Solactive Monthly Short BTP Futures Index	DE000SLA5665	SLA566	.SOLMSBTP	SOLMSBTP Index

1.2 Initial value

The Index is based on 100.00 at the close of trading on the Base Date.

1.3 Distribution

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

1.4 Prices and calculation frequency

The level of the Underlying Rolling Futures Strategy and therefore the Index is calculated on each Business Day based on the most recent settlement prices of the respective underlying asset.

The Index is calculated once on each Business Day at 6pm CET. In the event that data cannot be provided to the pricing services of Boerse Stuttgart AG the Index cannot be distributed.

Any incorrect calculation is adjusted on a retrospective basis.

1.5 Decision-making bodies

A Committee composed of staff from Solactive AG is responsible for decisions regarding the composition of the Index as well as any amendments to the rules (in this document referred to as the **"**Committee**"** or the **"**Index Committee**"**). The Committee shall also decide about the future composition of the Index if any Extraordinary Events should occur, and the implementation of any necessary adjustments.

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.de web page and sub-pages.

1.7 Historical data

Historical data is available from the Base Date.

1.8 Licensing

Licences 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**.**

1.9 Backtest information

Before the Index Live Date, due to the unavailability of data, the Bid-Ask Spread was calculated

- From the Index Base Date to end of August 2011 with a fixed value of 0.01
- From September 2011 to the Index Live Date, by using end of day Bid and Ask values

2 Calculation of the Index

2.1 Index formula

The Index value on Business Day t is calculated in accordance with the following formula:

$$I_0 = 100$$

$$I_t = I_{t-1} * \frac{SI_t}{SI_{t-1}} - TC_t$$

with:

I_t = Index value on Business Day t

I_{t-1} = Index value on the Business Day immediately preceding t

SI_t = Short Index value on Business Day t

TC_t = Transaction cost on Business Day t

I_0 = Index value on the Index Base Date

2.2 Short Index formula

The Short Index value on Business Day t is calculated in accordance with the following formula:

$$SI_0 = 100$$

$$SI_t = SI_R * \left(1 - \left(\frac{RFS_t}{RFS_R} - 1\right) + \left(\frac{C_t}{C_R} - 1\right)\right)$$

with:

SI_t = Short Index value on Business Day t

SI_R = Short Index value on the Rebalancing Day or Intramonth Rebalancing Day immediately preceding t

RFS_t = Rolling Futures Strategy value on Business Day t

C_t = Cash value on Business Day t

2.3 Rolling Futures Strategy formula

The Rolling Futures Strategy value on Business Day t is calculated in accordance with the following formula:

$$RFS_0 = 100$$

$$RFS_t = u_{f,t} * P_{f,t} + u_{b,t} * P_{b,t}$$

with:

RFS_t = Rolling Futures Strategy value on Business Day t

$u_{f,t}$ = Futures Units on Business Day t for the Front Future

$P_{f,t}$ = Front Future settlement price on Business Day t

$u_{b,t}$ = Futures Units on Business Day t for the Back Future

$P_{b,t}$ = Back Future settlement price on Business Day t

The Future Units are calculated according to the following formula:

$$u_{f/b,t} = \frac{RW_{f/b,t} * RFS_{t-1}}{P_{f/b,t-1}}$$

with:

$u_{f/b,t}$ = Futures Units on Business Day t for the Front/Back Future respectively

$RW_{f/b,t}$ = Roll Weight on Business Day t for the Front/Back Future respectively

The Roll Weights are calculated according to the following formula:

If Business Day t > t_{RE} and t <= t_{E_f}:

$$RW_{n,t} = 1$$

$$RW_{f,t} = 0$$

If Business Day t > t_{RS} and t <= t_{RE}:

$$RW_{n,t} = \frac{\mathrm{RD_t}}{TRD}$$

$$RW_{f,t} = 1 - RW_{n,t}$$

Otherwise:

$$RW_{n,t} = 0$$

$$RW_{f,t} = 1$$

with:

t_{RS} = Roll Period Start Day for the current roll period

t_{RE} = Roll Period End Day for the current roll period

t_{E_f} = Front Future First Notice Day equal to or immediately preceding Business Day t

RD_t = Number of Business Day between t_{RS} (excluding) and t (including)

TRD = Total number of Business Days in the Roll Period, i.e. 5

For the avoidance of doubt, after t_{E_f} the Back Future becomes the Front Future.

2.3.1 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 Day**") is eight Business Days preceding the Roll Determination Date. The Roll Determination Date is the Business Day equal to the 10^{th} calendar day of the months March, June, September and December. If the 10^{th} calendar day of these months is not a Business Day, the Roll Determination Date is the first Business Day immediately following the 10^{th} calendar day of these months.

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

If an Intramonth Rebalancing of the Short Index, see Section 2.7, happens during a Roll Period, the Roll Period End Day is adjusted to the Business Day immediately following the Intramonth Rebalancing Day, and the Total Number of Business Days in this Roll Period is adjusted to be equal to the Number of Business Day from the Roll Period Start Day to the Roll Period End Day.

2.4 Cash formula

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

$$C = 100$$

$$C_t = C_{t-1} * \left(1 + \frac{r_{t-1}}{100} * DCF_{t+2,t+3}\right)$$

with:

r_{t-1} = interest rate value on Business Day t-1

$DCF_{t+2,t+3}$ = Number of calendar day between the Business Day two Business Day following t (excluding) and the Business Day three Business Day following t (including) divided by 360

2.5 Transaction Cost formula

The Transaction Cost value on Business Day t is calculated in accordance with the following formula:

If Business Day t >= t_{RS} and t <= t_{RE} or t-1 is a Rebalancing Day or t-1 is an Intramonth Rebalancing Day:

$$TC_t = \text{abs}(U_{f,t} - U_{f,t-1}) * S_{f,t-1} + \text{abs}(U_{b,t} - U_{b,t-1}) * S_{b,t-1}$$

Otherwise

$$TC_t = 0$$

with:

$U_{f/b,t}$ = Future Units of the Front/Back Future in the Short Index on Business Day t

$S_{f/b,t-1}$ = Bid-Ask Spread of the Front/Back Future on Business Day t-1

2.5.1 Futures Units in the Short Index formula

The Futures Units in the Short Index on Business Day t are calculated in accordance with the following formula:

$$U_{f/b,t} = -1 * \frac{SI_R}{RFS_R} * \frac{I_{t-1}}{SI_{t-1}} * u_{f/b,t}$$

2.6 Accuracy

The value of the Index will be rounded to three decimal places for publication purposes.

2.7 Extraordinary Adjustment

If on any Business Day t which is not a Rebalancing Day the following condition

$$\frac{RFS_t}{RFS_R} - 1 > 0.25$$

is true, the immediately following Business Day will be deemed an Intramonth Rebalancing Day.

3. Definitions

"Back Future" means the BTP futures contract listed on the Exchange with the First Notice Date immediately following the First Notice Date closest to but equal or greater than Business Day t.

The **"Index Base Date"** is 4th January 2010.

"Bid-Ask Spread" is the difference between the Ask and the Bid price of a future which is quoted on the Exchange immediately preceding 5:15pm CET, divided by two.

"Business Day" means any weekday except Saturday and Sunday where the Exchange is scheduled to publish a settlement price for the BTP futures.

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

"Exchange" is referring to the EUREX Exchange.

"Front Future" means the BTP futures contract listed on the Exchange with the First Notice Date closest to but equal or greater than Business Day t.

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

The **"Index Currency"** is EUR.

The **"Index Live Date"** is the 18th July 2018.

"**Interest rate**" means the EONIA Rate as displayed under the Reuters RIC "EONIA=".

"Intramonth Rebalancing" is defined in Section 2.7.

"**Rebalancing Day**" is the fourth Business Day preceding the Business Day which is the 10th calendar day of each month. If the 10th calendar day of a month is not a Business Day, the Rebalancing Day is the fourth Business Day preceding the Business Day immediately following the 10th calendar day of each month.

"Roll Period" is defined in Section 2.3.1.

"Settlement Price" is daily settlement price published by the Exchange at around 5:15pm CET.

4 Appendix

4.1 Contact data

Information regarding the Index concept

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4.2 Calculation of the Index – change 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, which he 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.