SOLACTIVE
German Index Engineering

INDEX GUIDELINE

MDD USA 500 Index

Version 1.0

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INTRODUCTION

This document (the "GUIDELINE") is to be used as a guideline with regards to the composition, calculation and maintenance of the MDD USA 500 Index (the "INDEX"). Unless otherwise specified, references to the "INDEX" in this GUIDELINE shall be understood to refer to the INDEX .

Any amendments to the rules made to the GUIDELINE are approved by the INDEX COMMITTEE specified in Section 4.5. The INDEX is owned by Börsenmedien AG (the "INDEX OWNER") The INDEX is 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 5 (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 INDEX is designed to reflect the performance of a systematic options strategy, which provides systematic crisis protection through a combination of long OTM Put Options, short ATM Put Options, and underlying S&P 500 exposure, with dynamic rebalancing.

- Long out-of-the-money (OTM) Put Options (30% OTM, 2-month expiration)
- Short at-the-money (ATM) put options (1-month expiration)
- Underlying S&P 500 exposure

The INDEX allocates 0.2% per month to OTM Put purchases and maintains a fixed ratio of 7:40 between short ATM Put contracts and long OTM Put contracts. The remaining capital is invested in the S&P 500. Cash positions are kept at 0.

The INDEX is calculated on a notional basis. The investment exposure provided by the INDEX is purely synthetic.

1.2. IDENTIFIERS AND PUBLICATION

The INDEX is published under the following identifiers:

Name	ISIN	Index Currency	BBG ticker	RIC
MDD USA 500 Index	DE000SL0RX63	USD	MDDUS Index	.MDDUS

Each 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 START DATE is 23.4011. Levels of the INDEX published prior to the LIVE DATE have been back-tested using EXCHANGE PRICES, and rescaled such that the level of the INDEX on the LIVE DATE is 100. Historical values from the LIVE DATE will be recorded in accordance with Article 8 of the BMR.

1.4. PRICES AND CALCULATION FREQUENCY

The level of the INDEX is calculated in respect of each CALCULATION DAY t and is published at 09:00 a.m. CET on the CALCULATION DAY immediately following CALCULATION DAY t.

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 the INDEX OWNER.

2. INDEX SELECTION

2.1. SELECTION OF INDEX COMPONENTS

On each CALCULATION DAY that is a **REBALANCING DAY** or **SPECIAL REBALANCING DAY,** a set of exchange-listed options is selected and entered into the portfolio in accordance with the process below:

- Roll short ATM Puts (buy back existing short positions, open new position)
- Roll long OTM Puts (sell existing long positions, open new position)
- Adjust UNDERLYING ASSET exposure with remaining capital, keeping $Cash_t$ as close as possible to 0 at all times

The parameters of the INDEX, and the characteristics of the selected options are defined below in: "*Table 1: Index Parameters*" and "*Table 2: Options' Characteristics*"

PARAMETER	DEFINITION
UNDERLYING ASSET	S&P 500 Index
LISTED OPTIONS	Listed Options on the UNDERLYING ASSET
OPTION PORTFOLIO CURRENCY	USD
CALCULATION DAY	Any day on which the EXCHANGE is scheduled to be open for trading
REBALANCING DAY	The calculation day immediately preceding the primary monthly option expiry date, which is the third Friday of each calendar month, or the preceding business day if the third Friday is a holiday.
DISCOUNT RATE	Secured Overnight Financing Rate (SOFR) (RIC: USDSOFR=)
INITIAL VALUE OF CASH POSITION	100
MONTHLY ALLOCATION OTM PUTS	0.2%
CONTRACT RATIO (SHORT ATM : LONG OTM)	7:40

Table 1: Index Parameters

Option Contracts	GUIDELINES NOTATION	$Long\ Put_t$	$Short\ Put_t$
TRADE DATE	TD_i	EACH CALCULATION DAY t which is a REBALANCING DAY or SPECIAL REBALANCING DAY	
EXPIRATION DATE	ED_i	The second listed monthly expiration date of the listed options falling after CALCULATION DAY t	The first listed monthly expiration date of the listed options falling after CALCULATION DAY t
UNWIND DATE	UD_i	The calculation day immediately preceding the primary monthly option expiry date of the month following the TRADE DATE month, which is the third Friday of that month, or the preceding business day if the third Friday is a holiday.	
STRIKE PRICE	K_i	The listed strike corresponding to EXPIRATION DATE $ED_{i,t}$ that is the closest to $K'_{i,t}$. [Rounded up if both closest strikes are equally distant from $K'_{i,t}$]	
TARGET STRIKE		70%	100%
OPTION TYPE	CP	Put	Put

Table 2: Option Characteristics

Where:

$$K'_{i,t} = TargetStrike \times ULY_t$$

With:

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

In respect of CALCULATION DAY t, a special rebalancing occurs when either of the following conditions are met:

- The previous REBALANCING DAY was less than 28 calendar days ago and the UNDERLYING ASSET CLOSING LEVEL ULY_t dropped 20% since the last REBALANCING DAY and the VOLATILITY INSTRUMENT LEVEL VI_t is greater than 45
- The previous REBALANCING DAY was 28 calendar days or more ago and the VOLATILITY INSTRUMENT LEVEL VI_t is greater than 45

If a special rebalancing occurs on such a day, then that day is regarded as a SPECIAL REBALANCING DAY.

If one or more SPECIAL REBALANCING DAYS occur earlier in a given calendar month prior to that month's regular **REBALANCING DAY**, the regular **REBALANCING** for that month is skipped.

2.1.1. Calculation of Option Units of the Long Put

In respect of each CALCULATION DAY t, the OPTION UNITS $OptUnits_{i,t}$ in respect of the Long Put Option is calculated in accordance with the following formula:

- If CALCULATION DAY t is a REBALANCING DAY or a SPECIAL REBALANCING DAY:

$$OptUnits_{i,t} = \frac{Monthly\ Allocation_t}{Mid_{i,t}}$$

Where:

$$Monthly\ Allocation_t = 0.2\% \times Index_{t-1}$$

- If CALCULATION DAY t is an UNWIND DATE:

$$OptUnits_{i,t} = 0.0$$

- Otherwise:

$$OptUnits_{i,t} = OptUnits_{i,t-1}$$

With:

$Mid_{i,t}$: means the MID PRICE corresponding to OPTION i in respect of CALCULATION DAY t

$Index_{t-1}$: means the INDEX LEVEL of the INDEX on CALCULATION DAY t-1

$t-1$: means the CALCULATION DAY immediately preceding CALCULATION DAY t

2.1.2. Calculation of Option Units of the Short Put

In respect of each CALCULATION DAY t, the OPTION UNITS $OptUnits_{i,t}$ in respect of the Short Put Option is calculated in accordance with the following formula:

- If CALCULATION DAY is a REBALANCING DAY or a SPECIAL REBALANCING DAY:

$$OptUnits_{i,t} = -\frac{7}{40} \times OptionUnits_{i,t}^{long}$$

- If CALCULATION DAY t is an UNWIND DATE:

$$OptUnits_{i,t} = 0.0$$

- Otherwise:

$$OptUnits_{i,t} = OptUnits_{i,t-1}$$

With:

$OptionUnits_{i,t}^{long}$: means the OPTION UNITS of the Long Put Option i in respect of CALCULATION DAY t

2.1.3. Calculation of Units of the Underlying Asset

On each CALCULATION DAY t, the UNITS in respect of the UNDERLYING ASSET $UnderlyingUnits_t$ is calculated in accordance with the following formula:

- In relation to START DATE t_0:

$$UnderlyingUnits_t = 0.0$$

- If CALCULATION DAY is a REBALANCING DAY or a SPECIAL REBALANCING DAY:

$$UnderlyingUnits_t = UnderlyingUnits_{t-1} + \Delta UnderlyingUnits_t$$

Where:

$$\Delta UnderlyingUnits_t = \frac{Cash_{t-1} + RealisedPnL_t + EntryCashFlow_t}{ULY_t}$$

- Otherwise:

$$UnderlyingUnits_t = UnderlyingUnits_{t-1}$$

With:

$Cash_{t-1}$: means the CASH POSITION LEVEL in respect of CALCULATION DAY t-1

$RealisedPnL_t$: means the REALISED PNL of the INDEX in respect of CALCULATION DAY t

$EntryCashFlow_t$: means the ENTRY CASH FLOW of the INDEX in respect of CALCULATION DAY t

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

$t-1$: means the CALCULATION DAY immediately preceding CALCULATION DAY t

3. CALCULATION OF THE INDEX

3.1. INDEX FORMULA

The INDEX LEVEL $Index_t$ is calculated in accordance with the following formula:

- In relation to START DATE t_0:

$$Index_t = 100$$

- On each following CALCULATION DAY t:

$$Index_t = OptionMtM_t + ULYVal_t + Cash_t$$

Where:

$Index_t$: means the INDEX LEVEL of the INDEX on CALCULATION DAY t

$OptionMtM_t$: means the OPTION PORTFOLIO MARK-TO-MARKET in respect of CALCULATION DAY t

$ULYVal_t$: means the MARKET VALUE OF THE UNDERLYING ASSET EXPOSURE in respect of CALCULATION DAY t

$Cash_t$: means the CASH POSITION LEVEL in respect of CALCULATION DAY t

3.1.1. Option Mark-To-Market

In relation to CALCULATION DAY t, the OPTION MARK-TO-MARKET $OptionMtM_t$ is calculated in accordance with the following formula:

$$OptionMtM_t = \sum_{i \in COP_t} OptUnits_{i,t} \times Mid_{i,t}$$

Where:

COP_t: each OPTION O comprising the CONTINUING OPTION PORTFOLIO in respect of CALCULATION DAY t, as described in Section 3.1.4

$OptUnits_{i,t}$: the OPTION UNITS of the OPTION i in respect of CALCULATION DAY t as defined in Section 2.1.1 and Section 2.1.2

$Mid_{i,t}$: means the MID PRICE corresponding to OPTION i in respect of CALCULATION DAY t

3.1.2. Market Value of the Underlying Asset Exposure

In relation to CALCULATION DAY t, the MARKET VALUE OF THE UNDERLYING ASSET EXPOSURE $ULYVal_t$ is calculated in accordance with the following formula:

$$ULYVal_t = UnderlyingUnits_t \times ULY_t$$

Where:

$UndelyingUnits_t$: the number of units in respect of the UNDERLYING ASSET as of CALCULATION DAY t as defined in Section Error! Reference source not found.

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

3.1.3. Cash Position Level

In relation to CALCULATION DAY t, the CASH POSITION LEVEL $Cash_t$ is calculated in accordance with the following formula:

- In relation to START DATE t_0:

$$Cash_t = 100$$

- If CALCULATION DAY is a REBALANCING DAY or a SPECIAL REBALANCING DAY:

$$Cash_t = Cash_{t-1} + RealisedPnL_t + EntryCashFlow_t - ULY_t \times (UnderlyingUnits_t - UnderlyingUnits_{t-1})$$

- Otherwise:

$$Cash_t = Cash_{t-1}$$

With:

$Cash_{t-1}$: means the CASH POSITION LEVEL in respect of CALCULATION DAY t-1

$RealisedPnL_t$: means the REALISED PNL of the INDEX in respect of CALCULATION DAY t

$EntryCashFlow_t$: means the ENTRY CASH FLOW of the INDEX in respect of CALCULATION DAY t

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

$UndelyingUnits_t$: the number of units in respect of the UNDERLYING ASSET as of CALCULATION DAY t as defined in Section Error! Reference source not found.

$UndelyingUnits_{t-1}$: the number of units in respect of the UNDERLYING ASSET as of CALCULATION DAY t-1 as defined in Section Error! Reference source not found.

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

$t-1$: means the CALCULATION DAY immediately preceding CALCULATION DAY t

3.1.4. Continuing Option Portfolio

In relation to CALCULATION DAY t, the CONTINUING OPTION PORTFOLIO COP_t is the set comprising of each OPTION i that satisfies the following criteria:

- TRADE DATE (TD_i) in respect of OPTION i falls on or prior to CALCULATION DAY t
- UNWIND DATE (UD_i) in respect of OPTION i falls after CALCULATION DAY t

3.1.5. New Option Portfolio

In relation to CALCULATION DAY t, the NEW OPTION PORTFOLIO NOP_t is the set comprising of each OPTION i that satisfies the following criteria:

- TRADE DATE (TD_i) in respect of OPTION i falls on CALCULATION DAY t

3.1.6. Realised PnL

The REALISED PNL $RealisedPnL_t$ is calculated in accordance with the following formula:

$$RealisedPnL_t = \sum_{i \in COP_{t-1}} \left(OptUnits_{i,t-1} - OptUnits_{i,t}\right) \times Mid_{i,t}$$

Where:

COP_{t-1}: each OPTION O comprising the CONTINUING OPTION PORTFOLIO in respect of CALCULATION DAY t-1, as described in Section 3.1.4

$OptUnits_{i,t}$: the OPTION UNITS of the OPTION i in respect of CALCULATION DAY t as defined in Section 2.1.1 and Section 2.1.2

$OptUnits_{i,t-1}$: the OPTION UNITS of the OPTION i in respect of CALCULATION DAY t-1 as defined in Section 2.1.1 and Section 2.1.2

$Mid_{i,t}$: means the MID PRICE corresponding to OPTION i in respect of CALCULATION DAY t

3.1.7. Entry Cash Flow

The ENTRY CASH FLOW $EntryCashFlow_t$ is calculated in accordance with the following formula:

$$EntryCashFlow_t = \sum_{i \in NOP_t} - OptUnits_{i,t} \times Mid_{i,t}$$

Where:

NOP_t: each OPTION O comprising the NEW OPTION PORTFOLIO in respect of CALCULATION DAY t, as described in Section 3.1.4

$OptUnits_{i,t}$: the OPTION UNITS of the OPTION i in respect of CALCULATION DAY t as defined in Section 2.1.1 and Section 2.1.2

$Mid_{i,t}$: means the MID PRICE corresponding to OPTION i in respect of CALCULATION DAY t

3.2. OPTION PRICING METHODOLOGY

3.2.1. Payout

In relation to OPTION i, the PAYOUT $Payout_i$ is calculated in accordance with the following formula:

$$Payout_i = max(0, CP \times (\ ULY_t - K_i))$$

Where:

CP : whether the OPTION O is **OPTION TYPE** is Call ($CP = 1$) or **OPTION TYPE** is Put ($CP = -1$)

max: means the MAXIMUM FUNCTION

ULY_t : means the UNDERLYING ASSET CLOSING LEVEL as of CALCULATION DAY t

K_i : the STRIKE PRICE of OPTION i

3.2.2. Theoretical Price

In relation to CALCULATION DAY t, the THEORETICAL PRICE $PX_{i,t}$ of OPTION i is calculated in accordance with the following formula:

$$PX_{i,t} = BlackOptionPrice\left(t, CP, Fwd_t, ED_i, K_i, \sigma_{t,K_i^{'},ED_i}\right)$$

Where:

$BlackOptionPrice\left(t, CP, Fwd_t, ED_i, K_i, \sigma_{t,K_i^{'},ED_i}\right)$: is the BLACK SCHOLES PRICE of OPTION O of an **OPTION TYPE** CP, with a STRIKE PRICE K_i, an EXPIRATION DATE ED_i, an **IMPLIED VOLATILITY** σ_{t,K_i,ED_i} and a FORWARD Fwd_t, which is calculated in accordance with the following formula:

$$BlackOptionPrice\left(t, CP, Fwd_t, ED_i, K_i, \sigma_{t,K_i,ED_i}\right) = \exp\left(-r_{t-1} \times DCF_{t,ED}\right) \times CP \times \left(Fwd_t \times N\left(CP \times d_{1,K_i,ED_i,t}\left(\sigma_{t,K_i,ED_i}\right)\right) - K_i \times N\left(CP \times d_{2,K_i,ED_i,t}\left(\sigma_{t,K_i,ED_i}\right)\right)\right)$$

Where:

$$d_{1,K,ED,t}(\sigma) = \frac{\log\left(\frac{Fwd_t}{K}\right) + \frac{\sigma^2}{2} \times BDCF_{t,ED}}{\sigma \times \sqrt{BDCF_{t,ED}}}$$

and

$$d_{2,K,ED,t}(\sigma) = d_{1,K,ED,t}(\sigma) - \sigma \times \sqrt{BDCF_{t,ED}}$$

With:

Fwd_t: the FORWARD in relation to CALCULATION DAY t as defined in Section 3.2.6

σ_{t,K_i',TE_i}: means the **IMPLIED VOLATILITY** σ as of CALCULATION DAY t in respect of LISTED OPTION with the corresponding EXPIRATION DATE ED_i and **OPTION TYPE** CP the same as that of OPTION i and the STRIKE PRICE K_i' a which is immediately higher LISTED STRIKE than K_i

$DCF_{t,ED}$: the DAY COUNT FRACTION in respect to EXPIRATION DATE ED as of CALCULATION DAY t as defined in Section 3.2.4

$BDCF_{t,ED}$: the BUSINESS DAY COUNT FRACTION in respect to EXPIRATION DATE ED as of CALCULATION DAY t as defined in Section 3.2.5

r_{t-1}: The DISCOUNT RATE as of the CALCULATION DAY immediately preceding CALCULATION DAY t

K_i : the STRIKE PRICE of OPTION i

ED_i: the EXPIRATION DATE of OPTION i

$N(x)$: CUMULATIVE DISTRIBUTION FUNCTION of the Standard Normal Distribution, being a value computed according to the following formula:

$$N(x) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{x} e^{-\frac{u^2}{2}} du$$

$\log(.)$: The NATURAL LOGARITHM FUNCTION

$\exp(.)$: EXPONENTIAL FUNCTION to the Basis of Euler's number e.

3.2.3. Implied Volatility

The IMPLIED VOLATILITY in relation to a LISTED OPTION i with STRIKE PRICE K and EXPIRATION DATE ED on any CALCULATION DAY t is calculated as follows:

- If EXPIRATION DATE ED is an ELIGIBLE EXPIRATION DATE in relation to CALCULATION DAY t and STRIKE PRICE K is the STRIKE PRICE of an ELIGIBLE LISTED OPTION, then the IMPLIED VOLATILITY σ is defined as the solution of the equation:

$$Mid_{i,t} = BlackOptionPrice\left(t, CP, Fwd_t, ED_i, K_i, \sigma_{t,K_i,ED_i}\right)$$

Where:

$Mid_{i,t}$: is the OPTION MID PRICE in respect of CALCULATION DAY t of the LISTED OPTION i

$PX_{i,t}$: The BLACK SCHOLES PRICE of OPTION i as of CALCULATION DAY t as determined in accordance with Section 3.2.2.

CP: The OPTION TYPE of LISTED OPTION i expiring on EXPIRATION DATE ED with a STRIKE PRICE K

Fwd_t: the FORWARD in relation to CALCULATION DAY t as defined in Section 3.2.6

$\exp(.)$: EXPONENTIAL FUNCTION to the Basis of Euler's number e.

- If EXPIRATION DATE ED is an ELIGIBLE EXPIRATION DATE in relation to CALCULATION DAY t but the STRIKE PRICE K is not the STRIKE PRICE of an ELIGIBLE LISTED OPTION:

  (i) if STRIKE PRICE K is lower than the lowest STRIKE PRICE of ELIGIBLE LISTED OPTION in respect of CALCULATION DAY t and EXPIRATION DATE ED:

  $$\sigma_{t,K,ED} = \sigma_{t,K_{min},ED}; \text{ and}$$

  (ii) if STRIKE PRICE K is higher than the highest STRIKE PRICE of ELIGIBLE LISTED OPTION in respect of CALCULATION DAY t and EXPIRATION DATE ED:

  $$\sigma_{t,K,ED} = \sigma_{t,K_{max},ED}; \text{ and}$$

  (iii) otherwise, if sub-paragraph (i) or (ii) do not apply:

  $$\sigma_{t,K,ED} = \sigma_{t,K_1,ED} + \frac{(K - K_1) \times \left(\sigma_{t,K_2,ED} - \sigma_{t,K_1,ED}\right)}{(K_2 - K_1)}$$

  With:

  K_{min}: means the lowest STRIKE PRICE of ELIGIBLE LISTED OPTIONS in respect to CALCULATION DAY t expiring on EXPIRATION DATE ED

  K_{max}: means the highest STRIKE PRICE of ELIGIBLE LISTED OPTIONS in respect to CALCULATION DAY t expiring on EXPIRATION DATE ED

  K_1: means the STRIKE PRICE, in respect of CALCULATION DAY t, for which the MID PRICE of the ELIGIBLE LISTED CALL OPTION minus the MID PRICE of the ELIGIBLE LISTED PUT OPTION is the least non-negative amount

  K_2: means the STRIKE PRICE, in respect of CALCULATION DAY t, for which the MID PRICE of the ELIGIBLE LISTED CALL OPTION minus the MID PRICE of the ELIGIBLE LISTED PUT OPTION is the least positive amount

3.2.4. Day Count Fraction

The DAY COUNT FRACTION in respect of EXPIRATION DATE ED as of CALCULATION DAY t is the number of CALCULATION DAYS from (and including) CALCULATION DAY t to (but excluding) EXPIRATION DATE ED; *divided by* 365

3.2.5. Business Day Count Fraction

The BUSINESS DAY COUNT FRACTION in respect of EXPIRATION DATE ED as of CALCULATION DAY t is the number of CALCULATION DAYS from (and including) CALCULATION DAY t to (but excluding) EXPIRATION DATE ED; *divided by* 252

3.2.6. Forward

The Forward F_t is calculated with respect to any LISTED OPTION i on any CALCULATION DAY t according to the following formula:

$$F_t = \exp\left(r_{t-1} \times DCF_{t,ED}\right) \times \left[Mid_t^{C_{ED,t}^{ATM}} - Mid_t^{P_{ED,t}^{ATM}}\right] + ATMK_t^{i_{ED,t}^{k}}$$

With:

r_{t-1}: The DISCOUNT RATE as of the CALCULATION DAY immediately preceding CALCULATION DAY t

$DCF_{t,ED}$: the DAY COUNT FRACTION in respect to EXPIRATION DATE ED as of CALCULATION DAY t as defined in Section 3.2.4

$Mid_t^{C_{m,t}^{ATM}}$: The MID PRICE of the Call Option Contract $C_{m,t}^{ATM}$ as of CALCULATION DAY t

$C_{ED,t}^{ATM}$: The Call Option Contract with EXPIRATION DATE ED and Strike Price $ATMK_t^{i_{ED,t}^{k}}$ as of CALCULATION DAY t

$Mid_t^{P_{m,t}^{ATM}}$: The MID PRICE of the Put Option Contract $P_{m,t}^{ATM}$ as of CALCULATION DAY t

$P_{m,t}^{ATM}$: The Put Option Contract with EXPIRATION DATE ED and Strike Price $ATMK_t^{i_{ED,t}^{k}}$ as of CALCULATION DAY t

$ATMK_t^{i_{ED,t}^{k}}$: At-The-Money Strike with respect to LISTED OPTION i on CALCULATION DAY t, which is the strike closest to the ATM spot level of the UNDERLYING ASSET. In case such ATM Spot level is equidistant from the two nearest strikes, the lowest strike will be selected.

3.3. ACCURACY

The level of the INDEX will be rounded to 4 decimal places for publication.

3.4. RECALCULATION

The INDEX ADMINISTRATOR makes the greatest possible efforts to accurately calculate and maintain the INDEX. However, errors in the determination process may occur from time to time for a variety of reasons (internal or external) and therefore cannot be completely ruled out in respect of any INDEX. The INDEX ADMINISTRATOR 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 generally depend 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/.

3.5. MARKET DISRUPTION

In periods of market stress the INDEX ADMINISTRATOR shall calculate the INDEX 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.

4. MISCELLANEOUS

4.1. 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 made in accordance with strict rules regarding the exercise of discretion or expert judgement by the INDEX ADMINISTRATOR.

4.2. METHODOLOGY REVIEW

The methodology of the INDEX is subject to regular review, at least annually. If 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 or 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 SOLACTIVE 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 website under the Section "Announcements", which is available at https://www.solactive.com/news/announcements/. The date of the last amendment of this INDEX is contained in this GUIDELINE.

4.3. 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 and 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.

4.4. TERMINATION

The INDEX ADMINISTRATOR makes the greatest possible efforts to ensure the resilience and continued integrity of its indices over time. Where necessary, the INDEX ADMINISTRATOR shall follow a clearly defined and transparent procedure to adapt INDEX methodologies to account for changing underlying markets (see

Section 4.2 "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 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.

The INDEX ADMINISTRATOR 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 SOLACTIVE Termination Policy, which is incorporated by reference and available on the SOLACTIVE website: https://www.solactive.com/documents/termination-policy/.

4.5. INDEX COMMITTEE

An index committee composed of staff from the INDEX ADMINISTRATOR 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 Methodology Policy, which is available on the SOLACTIVE website: https://www.solactive.com/documents/methodology-policy/.

5. DEFINITIONS

"ASK PRICE" shall mean the official close ask quote, as published by the relevant exchange.

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

"BID PRICE" shall mean the official close bid quote, as published by the relevant exchange

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

"BUSINESS DAY COUNT FRACTION" has the meaning given to it in Section 3.2.5

"CALCULATION DAY" means a weekday on which the exchange XCBO identified by its MIC is open for business.

"CASH POSITION LEVEL" has the meaning given to it in Section 3.1.3

"CUMULATIVE DISTRIBUTION FUNCTION" defines the standard normal distribution.

"CONTINUING OPTION PORTFOLIO" has the meaning given to it in Section 3.1.4.

"DAY COUNT FRACTION" has the meaning given to it in Section 3.2.4

"DISCOUNT RATE" on any CALCULATION DAY t, if Section 2.1 specifies a DISCOUNT RATE, then the DISCOUNT RATE is the value published on the relevant rate specified in Section 2.1. If no value is published on the relevant CALCULATION DAY, then the last available value shall be used

"ELIGIBLE LISTED OPTION" in relation to a CALCULATION DAY t is any listed option identified by its chain RIC 0#SPX*.U identified by the three-tuple of type of Call or Put, the EXPIRATION DATE ED, and a STRIKE PRICE K. The EXPIRATION DATE ED needs to be after CALCULATION DAY t. Such an option shall have a non-null BID PRICE and a non-null ASK PRICE where the bid price is lower or equal to the ask price.

"ELIGIBLE LISTED CALL OPTION" in relation to a CALCULATION DAY t is an ELIGIBLE LISTED OPTION of type Call.

"ELIGIBLE LISTED PUT OPTION" in relation to a CALCULATION DAY t is an ELIGIBLE LISTED OPTION of type Put.

"ELIGIBLE EXPIRATION DATE" in relation to a CALCULATION DAY t is any EXPIRATION DATE of an ELIGIBLE LISTED OPTION which happens to occur after CALCULATION DAY t.

"ENTRY CASH FLOW" shall have the meaning as defined in Section 3.1.7

"EXCHANGE" means the Chicago Board Options Exchange ("CBOE").

"EXCHANGE PRICE" shall refer to the applicable prices utilized in the calculation of the INDEX including the MID PRICE of ELIGIBLE LISTED OPTIONS, the UNDERLYING ASSET CLOSING LEVEL , and the VOLATILITY INSTRUMENT LEVEL.

"EXPIRATION DATE" is defined in relation to an OPTION and is the date on which such instrument expires.

"EXPONENTIAL FUNCTION" means the exponential function to the basis of Euler's Number e.

"FORWARD" has the meaning given to it in Section 3.2.6

"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 COMMITTEE" shall have the meaning as defined in Section 4.5

"INDEX COMPONENTS" means, with respect to the **INDEX** and a Calculation Day, all the **OPTIONS** in the CONTINUING OPTION PORTFOLIO and the **UNDERLYING ASSET** on such day.

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

"IMPLIED VOLATILITY" has the meaning given to it in Section 3.2.3

"**LISTED OPTION** " means an OPTION that is listed on an **EXCHANGE**.

"**LISTED STRIKE** " means the strike price of a LISTED OPTION.

"LIVE DATE" shall be 15th October 2025

"MARKET VALUE OF THE UNDERLYING ASSET EXPOSURE" has the meaning given to it in Section 3.1.2

"MAXIMUM FUNCTION" means, when followed by a series of amounts inside brackets, whichever is the larger of the amounts separated by a comma inside those brackets.

"MID PRICE" in relation to a CALCULATION DAY t and OPTION i, shall mean (i) the average of BID PRICE and ASK PRICE, if the OPTION i is an **ELIGIBLE LISTED OPTION** calculated; or (ii) otherwise, the price estimated in accordance with Section 3.2.2

"MINIMUM FUNCTION" means, when followed by a series of amounts inside brackets, whichever is the smallest of the amounts separated by a comma inside those brackets.

"NATURAL LOGARITHM FUNCTION" is the inverse of the EXPONENTIAL FUNCTION.

"NEW OPTION PORTFOLIO" has the meaning given to it in Section 3.1.5

"OPTION" means a derivative that securitizes the right but not the obligation to buy (being **OPTION TYPE** Call or a "CALL OPTION") or sell (being **OPTION TYPE** Put or a "PUT OPTION") a pre-defined reference instrument relating to a position in respect of the UNDERLYING ASSET, on a pre-defined day (being EXPIRATION DATE ED), for a pre-defined price (being STRIKE PRICE K).

"OPTION MARK-TO-MARKET" has the meaning given to it in Section 3.1.1

"OPTION TYPE" shall mean the type of OPTION i, which can be either "Call" or "Put".

"PAYOUT" has the meaning given to it in Section 3.2.1

"REALISED PNL" has the meaning given to it in Section 3.1.6

"REBALANCING DAY" shall have the meaning as defined in Section 2.1 Table 1: Index Parameters

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

"SPECIAL REBALANCING DAY" shall have the meaning as defined in Section 2.1

"START DATE" means 17th January 2018.

"STRIKE PRICE" is defined in relation to an OPTION and is the strike price specified in respect of such OPTION.

"TRADE DATE" shall have the meaning as defined in Section 2.1. Table 2: Option Characteristics

"**UNDERLYING ASSET**" means the asset specified in Table 1: Index Parameters

"UNDERLYING ASSET CLOSING LEVEL" in relation to a CALCULATION DAY t means the official closing level of the UNDERLYING ASSET on that day

"UNWIND DATE" shall have the meaning as defined in Section 2.1 Table 2: Option Characteristics

"USD" means United States Dollars.

"VOLATILITY INSTRUMENT" means the CBOE Volatility Index, identified by its RIC .VIX

"VOLATILITY INSTRUMENT LEVEL" in relation to a CALCULATION DAY t means the official closing level of the VOLATILITY INSTRUMENT on that day

6. VERSIONING

VERSION	DATE	DESCRIPTION
1.0	September 22nd, 2025	Initial Guideline creation (*initial version*)

Table 3 Versioning

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