

INDEX GUIDELINE

SOLACTIVE THEMATIC-PURE SECTOR LEVERAGE INDEX
FAMILY

Version 1.2

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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 Thematic-Pure Sector Leverage Index Family (the "**INDEX**"). Any amendments to the rules made to the GUIDELINE are approved by the OVERSIGHT COMMITTEE specified in Section 5.5. The INDEX is owned, 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 6 (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

Category	Description
Asset Class	Equity
Strategy	Each INDEX within the Family replicates the performance of a hypothetical investment in an UNDERLYING INDEX taking into account interest and borrow rates and according to a specific level of leverage.
Regional Allocation	Global
Rebalancing Frequency	Daily

1.2. IDENTIFIERS AND PUBLICATION

The Indices are calculated and published in different currencies, see Section 7.

The 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

See Section 5.3.

1.4. PRICES AND CALCULATION FREQUENCY

The level of the INDEX is calculated intra-day during the CALCULATION TIME based on the AVERAGE OF BID AND ASK PRICES FROM the EXCHANGES on which the INDEX COMPONENTS are listed.

In addition to the intraday calculation a closing level of the INDEX for each CALCULATION DAY is also calculated. This closing level is based on the CLOSING PRICES for the INDEX COMPONENTS on the respective EXCHANGES on which the INDEX COMPONENTS are listed.



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.



2. INDEX SELECTION

The index components are listed in Section 7

3. REBALANCE

Not applicable

4. CALCULATION OF THE INDEX

4.1. INDEX FORMULA

Subject to Section 4.3 below and the occurrence of an INTRADAY RESTRIKE EVENT, the INDEX FIXING LEVEL on BUSINESS DAY t in respect of an INDEX is calculated in accordance with the following formula:

$$I_t = \max \left[I_{t-1} * \left(1 + L * \left(\frac{UL_t}{UL_{t-1}} - 1 \right) - RC_t + ((1 - L) * (r_{t-1} + rs) + L * br_{t-1}) * \frac{DCF(t-1, t)}{360} \right), 0 \right]$$

with:

I_t = INDEX FIXING LEVEL on BUSINESS DAY t.

I_{t-1} = INDEX FIXING LEVEL on BUSINESS DAY t-1.

UL_t = UNDERLYING INDEX'S official CLOSING PRICE at the FIXING TIME on BUSINESS DAY t.

UL_{t-1} = UNDERLYING INDEX'S official CLOSING PRICE at the FIXING TIME on BUSINESS DAY t-1.

L = Leverage Factor, as defined in Section 7.

RC_t = Rebalancing costs on BUSINESS DAY t, calculated as follows:

$$RC_t = L * (L - 1) * \left(\left| \frac{UL_t}{UL_{t-1}} - 1 \right| \right) * TC$$

with:

TC = fixed Transaction Cost, as defined in Section 7.

r_{t-1} = INTEREST RATE on BUSINESS DAY t-1, as defined in Section 7.

rs = INTEREST RATE SPREAD, as defined in Section 7.

br_{t-1} = BORROW RATE on BUSINESS DAY t-1, as defined in Section 7.



$DCF(t-1, t)$ = Number of calendar days from (but excluding) BUSINESS DAY $t-1$ to (and including) BUSINESS DAY t .

4.2. ACCURACY

The level of the INDEX will be rounded to 5 decimal places.

4.3. ADJUSTMENTS

At any given moment θ during a BUSINESS DAY t an INTRADAY RESTRIKE EVENT takes place in respect of an INDEX if the following condition holds:

If $L > 0$

$$\frac{UL_{t,\theta}}{UL_{EA_{i-1}}} < 1 - EAT$$

If $L < 0$

$$\frac{UL_{t,\theta}}{UL_{EA_{i-1}}} > 1 + EAT$$

With

$UL_{t,\theta}$ = UNDERLYING INDEX's price at moment θ on BUSINESS DAY t .

$UL_{EA_{i-1}}$ = UNDERLYING INDEX's price in respect of the immediately preceding INTRADAY RESTRIKE EVENT, provided that if there has been no preceding Intraday Restrike Date in respect of BUSINESS DAY t , UL_{t-1} .

EAT = Extraordinary Adjustment Threshold, as defined under Section 7.

In case an INTRADAY RESTRIKE EVENT takes place, θ is deemed to be an INTRADAY RESTRIKE EVENT TIME and the UNDERLYING INDEX's price is defined in respect of such INTRADAY RESTRIKE EVENT i (" UL_{EA_i} ") as follows:

(i) If $L > 0$

$$UL_{EA_i} = \min_{v \in [\theta, \theta^+]} [UL_{t,v}]$$

(ii) If $L < 0$

$$UL_{EA_i} = \max_{v \in [\theta, \theta^+]} [UL_{t,v}]$$

With

$UL_{t,v}$ = UNDERLYING INDEX's price at time v on BUSINESS DAY t .

$\min_{v \in [\theta, \theta^+]} [UL_{t,v}]$ = the minimum value of $UL_{t,v}$ during the relevant INTRADAY RESTRIKE EVENT OBSERVATION PERIOD.



$\max_{v \in [\theta, \theta^+]}$ = the maximum value of $UL_{t,v}$ during the relevant INTRADAY RESTRIKE EVENT OBSERVATION PERIOD.

In such case the level of the INDEX shall be calculated at each CALCULATION TIME w on BUSINESS DAY t (including, for the avoidance of doubt in respect of the INDEX FIXING LEVEL on BUSINESS DAY t) in accordance with the following formulae:

$$I_{t,w} = \max \left[I_{EA_i} * \left(1 + L * \left(\frac{UL_{t,w}}{UL_{EA_i}} - 1 \right) \right), 0 \right]$$

With:

$$I_{EA_1} = \max \left[I_{t-1} * \left(1 + L * \left(\frac{UL_{EA_1}}{UL_{t-1} - D_t} - 1 \right) - L * (L - 1) * \left(\frac{UL_{EA_1}}{UL_{t-1}} - 1 \right) * TC \right. \right. \\ \left. \left. + ((1 - L) * (r_{t-1} + rs) + L * br_{t-1}) * \frac{DCF(t-1, t)}{360} \right), 0 \right]$$

And for $i > 1$:

$$I_{EA_i} = \max \left[I_{EA_{i-1}} * \left(1 + L * \left(\frac{UL_{EA_i}}{UL_{EA_{i-1}}} - 1 \right) - L * (L - 1) * \left(\frac{UL_{EA_i}}{UL_{EA_{i-1}}} - 1 \right) * TC \right), 0 \right]$$

The period $[\theta, \theta^+]$ is the INTRADAY RESTRIKE EVENT OBSERVATION PERIOD.

If the INTRADAY RESTRIKE EVENT OBSERVATION PERIOD would not end by the FIXING TIME, the RESTRIKE EVENT OBSERVATION PERIOD will be shortened so that the end time coincides with such FIXING TIME.

4.4. CORPORATE ACTIONS

As the INDEX are based on the respective Underlying Index, it could be that the Indices needs to be adjusted due to Corporate Actions or Extraordinary Corporate Actions.

Adjustments to the INDEX to account for corporate actions will be made in compliance with the Equity Index Methodology, which is available on the SOLACTIVE website: <https://www.solactive.com/documents/equity-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 the treatment of corporate actions as generic and transparent as possible and in line with regulatory requirements, it retains the right in accordance with the Equity 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 the INDEX over time.



SOLACTIVE considers the following, but not conclusive, list of corporate actions as relevant for the INDEX maintenance:

- > Cash Distributions (e.g. payment of a dividend)
- > Stock distributions (e.g. payment of a dividend in form of additional shares)
- > Stock distributions of another company (e.g. payment of a dividend in form of additional shares of another company (e.g. of a subsidiary))
- > Share splits (company's present shares are divided and therefore multiplied by a given factor)
- > Reverse splits (company's present shares are effectively merged)
- > Capital increases (such as issuing additional shares)
- > Share repurchases (a company offer its shareholders the option to sell their shares to a fixed price)
- > Spin-offs (the company splits its business activities into two or more entities and distributes new equity shares in the created entities to the shareholders of the former entity)
- > Mergers & Acquisitions (transaction in which the ownership of a company (or other business organizations) are transferred or consolidated with other entities, e.g. fusion of two or more separate companies into one entity)
- > Delistings (company's shares are no longer publicly traded at a stock exchange)
- > Nationalization of a company (effective control of a legal entity is taken over by a state)
- > Insolvency

4.5. RECALCULATION

SOLACTIVE makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the 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, 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, 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 made in accordance with strict rules regarding the exercise of discretion or expert judgement.

5.2. METHODOLOGY REVIEW

The methodology of the INDEX is subject to regular review, at least annually. 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 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 "[Announcement](https://www.solactive.com/news/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.

5.3. 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.



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 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.

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

5.5. OVERSIGHT

An oversight committee composed of staff from SOLACTIVE and its subsidiaries (the "**OVERSIGHT 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 OVERSIGHT 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/>.



6. DEFINITIONS

“**BENCHMARK REGULATION**” shall have the meaning as defined in Section “Introduction”.

“**BMR**” shall have the meaning as defined in Section “Introduction”.

“**BORROW RATE**” is a rate which a market participant needs to pay for lending an UNDERLYING INDEX. Such a borrow rate is an equally-weighted average of the BORROW RATES of the stocks comprising the UNDERLYING INDEX as provided by **DATA PROVIDER** and adjusted on the following BUSINESS DAY after the GBS REBALANCE DAY. If due to any reason, there is no GBS Rebalance taking place for a given quarter, the BORROW RATE is to be adjusted on the following BUSINESS DAY after the GBS REBALANCE DAY as defined in the scope of this GUIDELINE. The Committee may adjust the BORROW RATE intra-quarter to the extent it deems necessary, acting in good faith and a commercially reasonable manner, to reflect actual rates a market participant may need to pay.

“**BUSINESS DAY**” means any weekday except Saturday and Sunday where the respective EXCHANGE is scheduled to be open for trading for its regular trading session.

“**CALCULATION DAY**” means any weekday except Saturday and Sunday where the respective EXCHANGE is scheduled to be open for trading for its regular trading session.

“**CALCULATION TIME**” means, in respect of each BUSINESS DAY and each INDEX, the time period during which the INDICES are calculated, see Section 5.3.

“**CLOSING CALCULATION**” means, in respect of a BUSINESS DAY, the calculation of the INDICES at the relevant FIXING TIMES.

The “**CLOSING PRICE**” in respect of an INDEX COMPONENT and a TRADING DAY is a security's final regular-hours TRADING PRICE published by the EXCHANGE and determined in accordance with the EXCHANGE regulations. If the EXCHANGE has no or has not published a CLOSING PRICE in accordance with the EXCHANGE rules for an INDEX COMPONENT, the last TRADING PRICE will be used.

“**DATA PROVIDER**” is S3 Partners LLC.

“**ELIGIBLE GBS REBALANCE DAY**” is each day that is a TRADING DAY at the New York Stock Exchange, the London Stock Exchange, the EUREX Exchange, and the Tokyo Stock Exchange.

“**EXCHANGE**” means, in respect of each INDEX, as defined in Section 7.

“**FIXING TIME**” means, in respect of each INDEX, as defined in Section 7.

“**GBS REBALANCE DAY**” is the first Wednesday in February, May, August and November. If that day is not an ELIGIBLE GBS REBALANCE DAY, the GBS REBALANCE DAY will be the following ELIGIBLE GBS REBALANCE DAY.

“**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 COMPONENT**” is each security reflected in the INDEX (UNDERLYING STOCK).

“**INDEX CURRENCY**” is the currency specified in the column “Currency” in the table in Section 5.3.

“**INDEX FIXING LEVEL**” is defined in Section 4.3.

“**INTRADAY RESTRIKE EVENT**” is defined in Section 4.3.

“**INTRADAY RESTRIKE EVENT TIME**” is defined in Section 4.3.

“**INTEREST RATE**” is defined in Section 7.

“**INTEREST RATE SPREAD**” is defined in Section 7.

“**OVERSIGHT COMMITTEE**” shall have the meaning as defined in Section 5.5.

“**INTRADAY RESTRIKE EVENT OBSERVATION PERIOD**” is in respect of an INTRADAY RESTRIKE EVENT, the period starting on (but excluding) the INTRADAY RESTRIKE EVENT TIME and finishing on (and including) the time falling 10 minutes after the INTRADAY RESTRIKE EVENT TIME θ .

“**SOLACTIVE**” shall have the meaning as defined in Section “Introduction”.

“**TRADING DAY**” is with respect to an INDEX COMPONENT a day on which the relevant EXCHANGE is open for trading (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the scheduled EXCHANGE closing time and days on which the EXCHANGE is open for a scheduled shortened period. The INDEX ADMINISTRATOR is ultimately responsible as to whether a certain day is a TRADING DAY.

The “**TRADING PRICE**” in respect of an INDEX COMPONENT and a TRADING DAY is the most recent published price at which the INDEX COMPONENT was traded on the respective EXCHANGE.

“**UNDERLYING INDEX**” means, in respect of each INDEX, an INDEX as defined in Section 7.



7. APPENDIX

Index Name	ISIN	RIC	Underlying Index	Currency	Exchange	Initial Level
Solactive Daily Leveraged 1x long FAANG Index	DE000SLOATU2	.SOFAANIL	.SFAANGEN	USD	NASDAQ	100
Solactive Daily Leveraged 1x short FAANG Index	DE000SLOATV0	SO.FAANIS	.SFAANGET	USD	NASDAQ	100
Solactive Daily Leveraged 3x long FAANG Index	DE000SLOBNF4	.SOFAAN3L	.SFAANGEN	USD	NASDAQ	100
Solactive Daily Leveraged 3x short FAANG Index	DE000SLOBNG2	.SOFAAN3S	.SFAANGET	USD	NASDAQ	100
Solactive Daily Leveraged 1x long GAFAM Index	DE000SLOBNB3	.SOGAFAIL	.SOGAFAMN	USD	NASDAQ	100
Solactive Daily Leveraged 1x short GAFAM Index	DE000SLOBNC1	.SOGAFAIS	.SOGAFAMT	USD	NASDAQ	100
Solactive Daily Leveraged 3x long GAFAM Index	DE000SLOBND9	.SOGAFA3L	.SOGAFAMN	USD	NASDAQ	100
Solactive Daily Leveraged 3x short GAFAM Index	DE000SLOBNE7	.SOGAFA3S	.SOGAFAMT	USD	NASDAQ	100
Solactive Daily Leveraged 1x long FATANG Index	DE000SLOB2W2	.SOFTNGIL	.FATANGEN	USD	NASDAQ	100
Solactive Daily Leveraged 1x short FATANG Index	DE000SLOB2X0	.SOFTNGIS	.FATANGET	USD	NASDAQ	100
Solactive Daily Leveraged 3x long FATANG Index	DE000SLOB2Y8	.SOFTNG3L	.FATANGEN	USD	NASDAQ	100
Solactive Daily Leveraged 3x short FATANG Index	DE000SLOB2Z5	.SOFTNG3S	.FATANGET	USD	NASDAQ	100

RIC	Leverage Factor	EAT in %	Interest Rate	Interest Rate Spread	Initial Borrow Rate	Calculation Time	Fixing Time	Transaction Cost
.SOFAANIL	1	50	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
SO.FAANIS	-1	50	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0
.SOFAAN3L	3	16.67	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
.SOGAFA3S	-3	16.67	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0
.SOGAFAIL	1	50	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
.SOGAFAIS	-1	50	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0
.SOGAFA3L	3	16.67	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
.SOGAFA3S	-3	16.67	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0
.SOFTNGIL	1	50	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
.SOFTNGIS	-1	50	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0
.SOFTNG3L	3	16.67	FEDFUNDS	0.005	-	9:30am – 5:00pm EST	4:52pm EST	0
.SOFTNG3S	-3	16.67	FEDFUNDS	-	0.003	9:30am – 5:00pm EST	4:52pm EST	0

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