

GUIDELINES

Trajectoire Hedge Premia Index

Version 1.1 dated October 11th, 2017



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This document contains the underlying principles and regulations regarding the structure and the operating of the Trajectoire Hedge Premia 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 Index is 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 Index. The publication of the Index 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 regards 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 Index is administrated by Solactive AG (the “Index Administrator”). The name “Solactive” is copyrighted.

Index summary

The Hedge Premia strategy is a strategy which aims at protecting portfolios by preserving returns and reducing downside risk. The index presents strong asymmetric returns and a positive carry through the combination of Short Futures, Short Options and a dynamic Systematic Risk Management which mitigates hedging costs. The Systematic Risk Management aims at identifying in which regime the equity market is (Bullish or Bearish Trend) and also analyzing the flow impact (Dstat) which could lead to downward but also upward exaggeration. These Trend and Dstat signals are statistics derived from prices.

The index is fully systematic, uses highly liquid listed instruments and consists of:

- Short 100% E-mini SPX futures rolled on a quarterly basis
- Short 100% notional of SPX Put Options (2nd month expiry options, closest to 25% Delta) rolled at month-end
- Systematic risk management which is implemented on the Future leg:
 - o in Bullish markets (identified through crossing-moving averages), the Future exposure is set at -50% to alleviate the cost of hedging
 - o in Bearish market, the Future exposure is set at -100% to fully hedge the portfolio
 - o in Bearish market with strong downward exaggeration (happening less than 5% of the time), the Future exposure will be set temporarily from -100% to -50% to avoid the cost of a potential “Bear rally” (important rebound in downward trending markets). This exaggeration is calculated through a proprietary distance statistic which we call Dstat. Once the exaggeration is finished, the strategy reverts to initial Bearish mode with -100% Future exposure
- The different signals are calculated on close and implemented on the next business day at close

1 Index specifications

The Trajectoire Hedge Premia Index (the “Index”) is an Index of Trajectoire Capital Group SA and is administrated by Solactive AG.

This strategy only uses listed and highly liquid instruments: E-mini SPX Futures and traditional monthly SPX Options with expiration on the 2nd maturity.

The Index is calculated and published in US Dollars.

1.1 Short name and ISIN

The Index is distributed under ISIN DE000SLA3N70; the WKN is SLA3N7. The Index is published in Bloomberg under the code <TCGHP 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 value of the Index is calculated on each Trading Day. Futures prices are based on the settlement prices on the respective exchange on which they are listed. The most recent settlement prices of all futures are used.

For options the average of the closing bid and ask provided by OPRA is used. If there is no current bid or ask available, the average of the bid and ask is replaced by the Option Intrinsic Present Value, as calculated under Section 2.5.

The Index is calculated once a Trading Day for the previous Trading Day. In the event that data cannot be provided to Bloomberg or to the pricing services of Boerse Stuttgart AG on any given calendar day, the Index will not be distributed for that calendar day.

Any incorrect calculation will be adjusted on a retrospective basis.

1.5 Weighting

The Weighting of the futures in the index will be calculated in accordance with Section 2.

1.6 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”).

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

1.7 Publication

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

1.8 Historical data

Historical data is available from the Index Base Date. The Index is calculated live as of the Index Live Date.

1.9 Licensing

Licences to use the Index are issued to stock exchanges, banks, financial services providers and investment houses by Trajectoire Capital Group SA.

2 Calculation of the Index

2.1 Rolling Future Strategy Level

The section is detailing the construction of a systematic short future S&P 500 E-mini index where the roll would be performed a given number of Trading Days (eg. 6) before the Future expiry. At each roll, the previous exposure with the old Future contract is maintained with the new Future contract. The number of Future units is then changing at each roll but the same exposure is maintained.

The Rolling Future Strategy Level on Trading Day t is calculated in accordance with the following formula:

$$S_t = S_{t-1} + u_{t-1}^F \cdot (F_t^{k(t-1)} - F_{t-1}^{k(t-1)}) \quad \text{for } t > t_0^F$$

$$S_t = 100 \quad \text{for } t = t_0^F$$

With:

$$k(t) = \begin{cases} LTD(t) & \text{if } t = t_{Roll}^F \\ k(t-1) & \text{otherwise} \end{cases}$$

And:

$$u_t^F = \begin{cases} S_{t-1} / F_{t-1}^{k(t)} & \text{if } t = t_{Roll}^F \text{ and } t > t_0^F \\ u_{t-1}^F & \text{if } t \neq t_{Roll}^F \text{ and } t > t_0^F \end{cases}$$

$$u_t^F = S_t / F_t^{k(t)} \quad \text{if } t = t_0^F$$

Where:

t = Trading Day t

$t-1$ = Trading Day immediately preceding Trading Day t

S_t = Rolling Future Strategy Level on Trading Day t

u_t^F = Number of Future Units in respect of the Future Component and Trading Day t

$F_t^{k(t)}$ = Settlement Price in respect of the Future Component with Last Trading Day $k(t)$ and Trading Day t

$LTD(t)$ = Last Trading Day of the Future Component which expiry is the closest to the following Trading Day t

t_{Roll}^F = Future Component Roll Day

t_0^F = Rolling Futures Strategy Base Date

2.2 Intraday Rolling Future Strategy Level

The Intraday Rolling Future Strategy Level on Trading Day t is calculated in accordance with the following formula:

$$S_t^{\text{int}} = S_{t-1} + u_{t-1}^F \cdot (F_t^{\text{int},k(t-1)} - F_{t-1}^{k(t-1)})$$

Where:

S_t^{int} = Intraday Rolling Future Strategy Level on Trading Day t

$F_t^{\text{int},k(t)}$ = Earliest available price in the period from 3.00pm to 4.00 pm New York time in respect of the Future Component with Last Trading Day $k(t)$ and Trading Day t

2.3 Trend Signal Level

The global Systematic Risk Management is implemented only through the Future leg for cost reason and here is a summary of the different conditions:

- in Bullish markets (identified through crossing-moving averages), the Future exposure is set at -50% to alleviate the cost of hedging
- in Bearish market, the Future exposure is set at -100% to fully hedge the portfolio
- in Bearish market with strong downward exaggeration (happening less than 5% of the time), the Future exposure will be set temporarily from -100% to -50% to avoid the cost of a potential “Bear rally” (important rebound in downward trending markets). This exaggeration is calculated through a proprietary distance statistic which we call Dstat. Once the exaggeration is finished, the strategy reverts to initial Bearish mode with -100% Future exposure

Trend signal T is then set at +1 if the S&P500 Future is in Bullish regime and 0 if in Bearish regime and is calculated on a weekly basis (each last day of the week).

When Risk Management signal RM is set at +1 (if Bullish or Downward exaggeration in Bearish market) then the Future exposure is set at -50% instead of -100%

When T is set at 0 (classic Bearish market with no exaggeration) then the Future exposure is set at -100%

The different signals are implemented on the next business day at close.

The Risk Management signal on Trading Day t is calculated in accordance with the following formulas:

$$RM_t = \begin{cases} +1 & \text{if } T_t = 0 \text{ and } DSTAT_t < \text{Percentile}(DSTAT_s, 5) \\ & s \in [t - 1259, t] \\ +1 & \text{if } T_t = 1 \\ 0 & \text{otherwise} \end{cases}$$

With:

$$DSTAT_t = \frac{S_t^{\text{int}} - SMA_{t-1}^{21}}{SMA_{t-1}^{21} \cdot RV_t^{63}}$$

And:

$$SMA_t^n = \frac{1}{n} \cdot \sum_{i=0}^{n-1} S_{t-i}$$

And:

$$RV_t^n = \sqrt{\frac{252}{n-1} \cdot \left(\sum_{i=1}^{n-1} \left(\ln \left(\frac{S_{t-i}}{S_{t-i-1}} \right) - RA_t^n \right)^2 + \left(\ln \left(\frac{S_t^{\text{int}}}{S_{t-1}} \right) - RA_t^n \right)^2 \right)}$$

And:

$$RA_t^n = \frac{1}{n} \cdot \left(\sum_{i=1}^{n-1} \ln \left(\frac{S_{t-i}}{S_{t-i-1}} \right) + \ln \left(\frac{S_t^{\text{int}}}{S_{t-1}} \right) \right)$$

And:

If t is the last Trading Day of the week:

$$T_t = \begin{cases} +1 & \text{if } SMA_{t-1}^{10} > SMA_{t-1}^{200} \\ 0 & \text{otherwise} \end{cases}$$

Otherwise:

$$T_t = T_{t-1}$$

Where:

SMA_t^n = the “n”-Day Simple Moving Average of the Rolling Future Strategy Level on Trading Day t

$DSTAT_t$ = the Deviation Statistic of the Rolling Future Strategy Level on Trading Day t

$Percentile(X_t, p)$
 $t \in [t_1, t_2]$ = the “p”-th percentile of the “X” data series from Trading Day t_1 to Trading Day t_2 (both included)

RV_t^n = annualized “n”-Day Realized Volatility of the Rolling Future Strategy Level on Trading Day t

T_t = Trend signal on Trading Day t

2.4 Available Option Set

The Available Option Set on Trading Day t corresponds to the set of options of the Option Component on Trading Day t for which there exists both a Bid and Ask strictly superior to zero.

2.5 Option Implied Volatility

The Option Implied Volatility on Trading Day t and option j which is part of the Available Option Set on the Index Rebalancing Day immediately preceding Trading Day t is determined recursively so that the following condition is satisfied:

$$OIV_t^j : OMid_t^j = BS_t^j(\sigma := OIV_t^j)$$

With:

$$BS_t^j(\sigma) = Ind^j \cdot DF_t^j \cdot \left[F_t^{k(t-1)} \cdot N(Ind^j \cdot d_t^j) - K^j \cdot N(Ind^j \cdot (d_t^j - \sigma \cdot \sqrt{Tb_t^j})) \right]$$

And:

$$d_t^j = \frac{\ln(F_t^{k(t-1)} / K^j) + 0.5 \cdot \sigma^2 \cdot Tb_t^j}{\sigma \cdot \sqrt{Tb_t^j}}$$

And:

$$Ind^j = \begin{cases} +1 & \text{if option j is a call} \\ -1 & \text{if option j is a put} \end{cases}$$

And:

$$DF_t^j = (1 + r_t \cdot Tc_t^j)^{-1}$$

Where:

OIV_t^j = Option Implied Volatility of option j on Trading Day t

$OMid_t^j$ = average of closing bid and ask price of option j, as defined in section 1.4

$BS_t^j(\sigma)$ = Black-Scholes price of option j on Trading Day t given an implied volatility equal to σ

Ind^j = Put-Call Indicator of option j

DF_t^j = Discount Factor of option j on Trading Day t

K^j = strike of option j

Tb_t^j = Number of Trading Days from Trading Day t (including) to the Expiry Day of option j (excluding) divided by 252. If the Expiry Day of option j is not a Trading Day, then the immediately preceding Trading Day is used.

Tc_t^j = Number of calendar days from Trading Day t (including) to the Expiry Day of option j (excluding) divided by 360. If the Expiry Day of option j is not a Trading Day, then the immediately preceding Trading Day is used.

r_t = fixing level of the interest rate as published on Reuters on Trading Day t, divided by 100. If the fixing level is not available on t, then the fixing level on the immediately preceding Trading Day is used.

$N(x)$ = Standard Normal Cumulative Distribution Function

2.6 Option Intrinsic Present Value

The Option Intrinsic Present Value of an option j as part of the Available Option Set in respect of the Index Rebalancing Day immediately preceding Trading Day t is calculated in accordance with the following formula:

$$OIPV_t^j = DF_t^j \cdot \max \left\{ 0, Ind^j \cdot (F_t^{k(t-1)} - K^j) \right\}$$

With:

$OIPV_t^j$ = Option Intrinsic Present Value of option j on Trading Day t

2.7 Option Delta

The Option Delta on Trading Day for option j which is part of the Available Option Set on the Index Rebalancing Day immediately preceding Trading Day t is determined in accordance with the following formula:

$$ODelta_t^j = \begin{cases} DF_t^j \cdot N(d_t^j) & \text{if option j is a call} \\ -DF_t^j \cdot N(-d_t^j) & \text{if option j is a put} \end{cases}$$

With:

$ODelta_t^j$ = Option Delta of option j on Trading Day t

2.8 Short Put Expiry Day

The Short Put Expiry Day for a short put position entered into on any Index Rebalancing Day t^R corresponds to the second nearest Expiry Day of options in the Available Options Set in respect of Index Rebalancing Day t^R .

2.9 Short Put Strike

The Short Put Strike for a short put position entered into on any Index Rebalancing Day t^R corresponds to the strike of the put option in the Available Options Set in respect of Index Rebalancing Day t^R with Expiry Day equal to the relevant Short Put Expiry Day and Option Delta closest to -25%. If Option Delta of two put options is equally close to -25%, the lower strike will be selected.

2.10 Short Put Price

The Short Put Price for a short put position entered into on any Index Rebalancing Day t^R and exited on the immediately following Index Rebalancing Day t^{R+} on Trading Day t is determined in accordance with the following formula:

$$P_t^{t^R} = OMid_t^{t^R}$$

2.11 Index Closing Level

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

$$ICL_t = ICL_{t-1} + U_{t-1}^P \cdot (P_t^{t^R} - P_{t-1}^{t^R}) + U_{t-1}^S \cdot (S_t - S_{t-1}) \quad \text{for } t > t_0^I$$

$$ICL_t = 100$$

for $t = t_0^I$

$$ICL_t = ICL_{t-1}$$

if $ICL_{t-1} < 20$

With:

$$U_t^P = \begin{cases} -ICL_{t-1} / F_t^{k(t)} & \text{if } t = t^R \text{ and } t > t_0^I \\ U_{t-1}^P & \text{if } t < t^R \text{ and } t > t_0^I \end{cases}$$

$$U_t^P = -ICL_t / F_t^{k(t)} \quad \text{if } t = t_0^I$$

And:

$$U_t^S = \bar{U}_t^S - 50\% \cdot RM_t \cdot \bar{U}_t^S$$

$$\bar{U}_t^S = \begin{cases} -ICL_{t-1} / S_t & \text{if } t = t^R \text{ and } t > t_0^I \\ \bar{U}_{t-1}^S & \text{if } t < t^R \text{ and } t > t_0^I \end{cases}$$

$$\bar{U}_t^S = -ICL_t / S_t \quad \text{if } t = t_0^I$$

Where:

t_0^I = Index base date

t^R = Index Rebalancing Day immediately preceding Trading Day t

U_t^P = Short Put Units on Trading Day t

2.11 Accuracy

The Index Closing Level will be rounded to 2 decimal places.

3 Disruption Events, Modification and Recalculation

3.1 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](#).

3.2 Disruption Events

In periods of market stress Solactive AG calculates its indices following predefined and exhaustive arrangements set out in its publicly available [Disruption Policy](#).

3.3 Modification

Any Modification to the rules and any extraordinary decision by the Index Committee will be published on the Solactive website.

4 Definitions

“**Available Option Set**” has the meaning attributed to it in Section 3.3.

“**CBOE**” means the Chicago Board Options Exchange.

“**Deviation Statistic**” has the meaning attributed to it in Section 2.2

“**Discount Factor**” has the meaning attributed to it in Section 2.4

“**Exchange**” means the Chicago Mercantile Exchange.

“**Expiry Date**” means the date, whether a Trading Date or not, on which an option expires.

“**Future Contract Roll Day**” is the Trading Day which is six Trading Days prior to the last Trading Day of the future contract with the closest Expiry Date after the current Trading Day.

“**Future Component**” means the SPX E-mini futures contract having a last trading day in the quarterly cycle Mar-Jun-Sep-Dec, available for trading on the Exchange, as published on Reuters.

“**Future Units**” means the portion or number of future contracts

“**Index Base Date**” is December 31, 2007.

The “**Index Administrator**” is Solactive AG or any other appropriately appointed successor in this function.

“**Index Closing Level**” has the meaning attributed to it in Section 2.10.

“**Index Component**” are any Future Component and Option Component currently included in the Index.

“**Index Constituents**” mean the securities or indices which are taken into account for the index calculation

The “**Index Currency**” is USD.

“**Index Live Date**” is the 15th August 2017.

“**Index Rebalancing Day**” is the Index Base Date and thereafter the last Trading Day of each calendar month that is not a Disruption Day. In the event the last Trading Day of a given calendar month is also a Disruption Day, the Index Rebalancing Day shall be the immediately following Trading Day that is not a Disruption Day.

“**Index Value**” means the level of the index (beginning with of 100 as of the base date).

“**Interest Rate**” means the 1-month USD Libor as published on Reuters on the RIC “USD1MFSR=”.

“**Option Component**” means the SPX Index option with am-settlement and Expiry Date in the standard monthly cycle, as published on Reuters by OPRA.

“**Option Delta**” has the meaning attributed to it in Section 2.5.

“**Option Implied Volatility**” has the meaning attributed to it in Section 2.4.

“**Realized Volatility**” has the meaning attributed to it in Section 2.2.

“**Risk Management Signal**” has the meaning attributed to it in Section 2.2.

“**Rolling Future Strategy Base Date**” is January 3, 2000.

“**Rolling Future Strategy Level**” has the meaning attributed to it in Section 2.1.

“**Settlement Price**” has the meaning attributed to it in Section 2.2

“**Short Put Price**” has the meaning attributed to it in Section 2.9.

“**Short Put Strike**” has the meaning attributed to it in Section 2.8.

“**Short Put Units**” means the portion or number of options shorted

“**Simple Moving Average**” means arithmetic average calculated on a given time-window

A “**Trading Day**” is any calendar day on which the Exchange is scheduled to be open for trading in SPX E-mini futures and the CBOE is scheduled to be open for trading in SPX index options.

“**Trend Signal**” has the meaning attributed to it in Section 2.2.

5 Appendix

5.1 Contact data

Information regarding the Index administration

Solactive AG
Guiollettstr. 54
60325 Frankfurt
Germany

Information regarding the Index licensing

Trajectoire Capital Group SA
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Switzerland

5.2 Calculation of the Index – change 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, 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, which 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.