

GUIDELINE

UBS Market Pioneers Index

Version 1.0 dated November 11, 2016



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This document contains the underlying principles and regulations regarding the structure and the operating of the UBS Market Pioneers ("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 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 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 these Indices.

Introduction

This document is to be used as a guideline with regard to the composition, calculation and management of the UBS Market Pioneers Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6 of this document. The Index is owned by UBS AG (London Branch), and is administered, calculated and published by Solactive AG. The name “Solactive” is copyrighted.

The UBS Market Pioneers Index is a multi-asset tactical 5% risk control excess return index that combines the NYSE Zebra Edge U.S. Equity Index , Jim Rogers Global Consumer Commodities Index, and the Solactive U.S Treasury Futures 10 Year Index. The NYSE Zebra Edge U.S. Equity Index was developed by the award winning Prof. Roger Ibbotson and his team at Zebra Capital Management tracks an index of U.S. Large Cap stocks that remove the most historical volatile names and the most popular names. The Jim Rogers Global Consumer Commodities Index was developed by the hedge fund pioneer, world traveller, and author Jim Roger who has found that tracks a global commodity index weighted by global consumption patterns.

1 Index specifications

The UBS Market Pioneers Index is calculated and distributed by Solactive AG.

The index has an annualized volatility target of 5% and is an excess return index. The index therefore notionally invests in a tactical strategy that allocates between the NYSE Zebra U.S. Equity Index, The Jim Rogers Global Consumer Commodities Index, and the Solactive U.S. Treasury Future Index.

The index is published in USD.

1.1 Short name and ISIN

The Indices are distributed under the following identifiers:

Name	ISIN	WKN	Characteristic	Reuters	Bloomberg
UBS Market Pioneers Index	DE000SLA2K17	SLA2K1	Risk Control	.UBSMPI	UBSMPI Index

1.2 Initial value

The Indices are launched with a level of 100 at the close on the start date, February 6, 2001. Data before November 11, 2016 is backtested.

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 UBS Market Pioneers Index via his information systems. The end of day index levels will be published on ubsmarketpioneers.com on a daily basis.

1.4 Prices and calculation frequency

The prices of the Indices are calculated on each Business Day on which the UBS Market Pioneers Index is published. Should there be no price available on Reuters for any Business Day for the 3 month USD LIBOR rate, the most recent price on Reuters for the preceding Business Day is used in the index calculation.

The UBS Market Pioneers Index is calculated every Business at 16:45pm, ET. In the event that data cannot be provided to Reuters or to the pricing services of Boerse Stuttgart AG the Index cannot be distributed.

Any incorrect calculation is adjusted on a retroactive basis.

1.5 Weighting

The weights of the index components can change on a daily basis. The determination of the weights is described in detail in section 3.

1.6 Business days

A business day for the UBS Market Pioneers Index will be when the NYSE, CME Commodities and Interest Rate Trading Floors, and LME are all open for business. The following strategies within the Index will be calculated based upon these schedules:

- The NYSE Zebra Edge U.S. Equity Index (Excess Return) follows the NYSE holiday schedule. (<https://www.nyse.com/markets/hours-calendars>)
- The Tactical Commodity/Equity Tilt follows the NYSE, CME Commodities Trading Floors and LME holiday schedules. (<http://www.cmegroup.com/tools-information>) and (<https://www.lme.com/trading/times-and-dates/>). For purposes of the backtest the strategy will be calculated on business days where both the Jim Rogers Global Consumer Commodities Index and the NYSE Zebra Edge U.S Equity Index disseminated an index value.
- The Tactical Treasury Futures Strategy follows the CME Chicago Interest Rate Trading Floor Schedule (i.e. Columbus and Veterans Day are market holiday).

For purposes of the backtest, the definition of a business day for the strategies within the index is if the index level was calculated for a respective day. The UBS Market Pioneers Index backtest will be calculated when the NYSE Zebra Edge U.S. Equity Index, Jim Rogers Global Consumer Commodities Index and the Solactive 10 Year U.S. Treasury Future Index all have index levels disseminated on that business day.

1.7 Decision-making bodies

A Committee composed of staff from Solactive is responsible any amendments to the rules (in this document referred to as the “Index Committee”).

1.8 Publication

All specifications and information relevant for calculating the Index are made available on the <http://www.solactive.com/?s=umktpnrs&index= DE000SLA2K17> web page and sub-pages.

1.9 Historical data

Historical data will be maintained from the launch of the Index on November 11, 2016. Retrospectively calculated levels will be available from the base date on the index.

As limited historical performance data exists with respect to the Index, any notional investment in the Index may involve greater risk than a notional investment in indices or strategies with a proven track record. The Index will be first calculated on or around the Index Commencement Date and, therefore, lacks historical performance. All such retrospective closing levels are simulated based on backtesting. They must be considered hypothetical and illustrative only.

The actual performance of the Index may be materially different from the results presented in any simulated history relating to the Index. Past performance should not be considered indicative of future performance.

1.10 Licensing

Licences to use the Index as the underlying for investment products issued by insurance companies, stock exchanges, banks, financial services providers and investment houses or for benchmark usage are granted by UBS AG.

2 Composition of the Index

2.1 Selection of the Index Components

The index is composed of the following four underlyings:

- 1) NYSE Zebra Edge U.S. Equity TR Index
- 2) The 3 month ICE USD LIBOR rate
- 3) Jim Rogers Global Consumer Commodities Index
- 4) Solactive 10 Year U.S. Treasury Future Index

2.2 Reference prices

The reference price for the NYSE Zebra Edge TR Index will be the published level or the published official closing level calculated by NYSE Index Group and disseminated on the NYSE Global Index Feed using the ticker NYZUSTR by NYSE. The index methodology is available upon request by NYSE.

The reference price for the JRGCCI Index will be the published level or the published official closing levels calculated by Bloomberg and disseminated on Reuters and the CME Index feed using the ticker .JRGCCI. The index methodology is available upon request by Gladys Holdings.

The reference price for the Solactive 10 Year Future Index will be the published level or the published official closing levels calculated by Solactive AG and disseminated on Reuters using the ticker .SOLUS10T .

The reference price for the ICE Libor 3 Month Rate will be the published level that is calculated by ICE and disseminated on Reuters using the ticker USD3MFSR=.

2.3 Ordinary adjustment

Not applicable

2.4 Extraordinary adjustment

Calculation agent reserves the right to make extraordinary adjustments in case of a Force Majeur event.

3 Calculation of the Index

3.1 Index Definitions

"3MonthLibor" is the underlying cash rate and the 3 month USD LIBOR rate is quoted in percentage terms (as published on Reuters under the RIC: USD3MFSR=)

"Comdty" is the USD value of the Jim Rogers Global Consumer Commodities Index (as published on Reuters under the RIC:.JRGCCI)

"Comdty_Share" is the unit weight of the Jim Rogers Global Consumer Commodities Index within the Tactical Equity/Commodity Tilt Strategy.

"CountUp" is the number of consecutive trading days that the Solactive U.S. Treasury 10 Futures Index is above its 100 day moving average.

"CountDown" is the number of consecutive trading days that the Solactive U.S. Treasury 10 Futures Index is below its 100 day moving average.

"EC_Vol" is the historical twenty day annualized volatility of the equities commodities tilt strategy.

"EC_Weight" Is the percentage weight of the tactical equities commodity tilt strategy applying a 5% risk control target.

"ECTS" Is the USD value of the Tactical Equities Commodities Tilt Strategy prior to applying any risk control overlays.

"Equity" is the USD value of an excess return version of the NYSE Zebra Edge U.S. Equity Index.

"Equity_Weight" is the percentage weight of the NYSE Zebra Edge U.S. Equity Index within the Tactical Equity/Commodity Tilt Strategy. (Excess return).

"Equity_Share" is the unit weight of the NYSE Zebra Edge U.S. Equity Index (Excess Return) within the Tactical Equity/ Commodity Tilt Strategy.

"Index_Fee" is the 0.75% annualized per annum expense fee that is deducted on a daily basis.

"Mkt_Pioneers_Index" is the USD value of the UBS Market Pioneers Index which is a 5% risk control target excess return index (as published on Reuters under the RIC: .UMKTPNRS).

"NYZUSTR" is the USD value of the NYSE Zebra Edge U.S. Equity TR Index (as published on Reuters under the RIC: NYZUSTR).

"Port" is the USD portfolio strategy level of the combined equities, commodities, and U.S. Treasury Futures allocation prior to applying a second level of risk control.

"**Port_Vol**" is the historical twenty day annualized volatility of the combined equities, commodities, and U.S. Treasury futures allocations.

"**Port_Weight**" is the risk controlled percentage weight of the combined equities, commodities and U.S. Treasury Futures allocation in the UBS Market Pioneers Index.

"**RS_Rebalance**" is the relative strength rebalance date indicator within the Tactical Equities/Commodity Tilt Strategy.

"**TFI**" is the USD value of the Solactive 10 Year U.S Treasury Future Index (as published on Reuters under the RIC: .SOLUS10T)

"**TFT_Rebalance**" is the relative strength rebalance date indicator within the Tactical Treasury Futures Strategy.

"**Trend**" is the trend signal of the Solactive U.S. 10 Year Future Index based upon the 100 day moving average.

"**Treasury_Futures_Trend_Share**" is the unit weight of the Solactive 10 Year U.S. Treasury Futures Index within the Tactical Treasury Futures Strategy.

"**Treasury_Position**" is the percentage weight within the Tactical Treasury Futures Strategy as determined by the Trend.

"**TTFS**" is the USD value of the Tactical Treasury Futures Strategy.

3.2 Index formula

The Index Value on any Business Day is calculated in accordance with the following formula:

UBS Market Pioneers Index Calculation:

$$Mkt_Pioneers_Index_0 = 100$$

(t=0 for the Market Pioneers Index is on February 6, 2001)

$$\begin{aligned} Mkt_Pioneers_Index_t &= Mkt_Pioneers_Index_{t-1} \\ &\times \left[1 + Port_Weight_t \times \left(\frac{Port_t}{Port_{t-1}} - 1 \right) - IndexFee \times \frac{ACT(t-1, t)}{365} \right] \end{aligned}$$

20 day volatility Internal Risk Control Index:

$$PortVol_t = \sqrt{\frac{252}{19} \times \left\{ \sum_{i=1}^{20} \left[LN \left(\frac{Port_{t-i+1}}{Port_{t-i}} \right) \right]^2 - 20 \times \left[\frac{\sum_{j=1}^{20} LN \left(\frac{Port_{t-j+1}}{Port_{t-j}} \right)}{20} \right]^2 \right\}}$$

Weight on Portfolio Risk Control Index:

$$Port_Weight_t = \min \left\{ 150\%, \frac{5\%}{\max_{t-6 \leq s \leq t-2} \{PortVol_s\}} \right\}$$

Index Fee Rate: $IndexFee = 0.75\%$

Portfolio Strategy Calculation (Equity, Commodities, and U.S. Treasury Futures):

$$Port_0 = 100$$

(t=0 for the Portfolio Strategy is on December 29, 2000)

$$Port_t = Port_{t-1} \times \left[1 + ECWeight_t \times \left(\frac{ECTS_t}{ECTS_{t-1}} - 1 \right) + (1 - ECWeight_t) \times \left(\frac{TTFSt}{TTFSt-1} - 1 \right) \right]$$

20 day volatility Tactical Equity/Commodity Tilt Index:

$$EC_Vol_t = \sqrt{\frac{252}{19} \times \left\{ \sum_{i=1}^{20} \left[LN \left(\frac{ECTS_{t-i+1}}{ECTS_{t-i}} \right) \right]^2 - 20 \times \left[\frac{\sum_{j=1}^{20} LN \left(\frac{ECTS_{t-j+1}}{ECTS_{t-j}} \right)}{20} \right]^2 \right\}}$$

Weight on Tactical Equity/Commodity Tilt Index:

$$ECWeight_t = \min \left\{ 100\%, \frac{5\%}{\max_{t-6 \leq s \leq t-2} \{EC_Vol_t\}} \right\}$$

Tactical Treasury Futures Allocation Strategy:

$$TTFSt_0 = 100$$

(t=0 for the Tactical Treasury Futures Allocation Strategy is June 2, 2000)

$$TTFSt = TTFSt-1 + Treasury_Futures_Trend_Share_t \times (TFI_t - TFI_{t-1})$$

Level of Solactive 10 - Year U.S. Treasury Future Index ER: TFI_t

$$\text{Trend Signal: } Trend_t = \begin{cases} 1 & \text{if } TFI_t > \frac{\sum_{s=1}^{100} TFI_{t-s+1}}{100} \\ 0 & \text{otherwise} \end{cases}$$

$$\text{Up Trend Count: } CountUp_t = \begin{cases} CountUp_{t-1} + 1 & \text{if } Trend_t = 1 \\ 0 & \text{if } Trend_t = 0 \end{cases}$$

$$\text{Down Trend Count: } CountDown_t = \begin{cases} CountDown_{t-1} + 1 & \text{if } Trend_t = 0 \\ 0 & \text{if } Trend_t = 1 \end{cases}$$

$$\text{Treasury Position: } Treasury_Position_t = \begin{cases} 100\% & \text{if } t < 0 \\ 100\% & \text{if } CountUp_t > 4 \\ 25\% & \text{if } CountDown_t > 4 \\ Treasury_Position_{t-1} & \text{otherwise} \end{cases}$$

Treasury Futures Trend Rebalance:

$$TFT_Rebalance_t = \begin{cases} TRUE & \text{if } Treasury_Position_{t-3} \neq Treasury_Position_{t-2} \\ FALSE & \text{otherwise} \end{cases}$$

Treasury Futures Trend Share:

$$\begin{aligned} & Treasury_Futures_Trend_Share_t \\ &= \begin{cases} \frac{Treasury_Position_{t-1} \times TFTS_t}{TFI_0} & \text{if } t = 0 \\ \frac{Treasury_Position_{t-2} \times TFTS_{t-1}}{TFI_{t-1}} & \text{if } t > 0 \text{ and } TFT_Rebalance_t = TRUE \\ Treasury_Futures_Trend_Share_{t-1} & \text{if } TFT_Rebalance_t = FALSE \end{cases} \end{aligned}$$

Tactical Equity/Commodity Tilt Strategy:

$$ECTS_0 = 100$$

(t=0 for the Tactical Equity/Commodity Tilt Strategy is on October 24, 2000)

$$ECTS_t = Equity_Share_t \times Equity_t + Comdty_Share_t \times Comdty_t$$

NYSE Zebra U.S. Equity Index ER: $Equity_t$

$$Equity_0 = 100$$

($t=0$ for the NYSE Zebra U.S. Equity ER Index for purposes of this methodology is on January 4, 2000)

$$Equity_t = Equity_{t-1} \times \left[1 + \left(\frac{NYZUSTR_t}{NYZUSTR_{t-1}} - 1 \right) - 3MonthLibor_{t-1} \times \frac{ACT(t-1, t)}{365} \right]$$

Rogers Commodity Index ER: $Comdty_t$

Relative Strength Rebalance:

$$RS_Rebalance_t = \begin{cases} TRUE & \text{if } t + 1 = 0 \\ TRUE & \text{if } t \text{ if the last business day of March, June, September or December} \\ FALSE & \text{otherwise} \end{cases}$$

Equity Weight:

$$Equity_Weight_t = \begin{cases} 50\% & \text{if } t + 1 = 0 \\ 75\% & \text{if } RS_Rebalance_t = TRUE \text{ and } \frac{Equity_t}{Equity_{t-199}} > \frac{Comdty_t}{Comdty_{t-199}} \\ 25\% & \text{if } RS_Rebalance_t = TRUE \text{ and } \frac{Equity_t}{Equity_{t-199}} \leq \frac{Comdty_t}{Comdty_{t-199}} \\ Weight_{t-1} & \text{otherwise} \end{cases}$$

$$Equity_Share: Equity_Share_t = \begin{cases} \frac{ECTS_{t-1} \times Equity_Weight_{t-2}}{Equity_{t-1}} & \text{if } RS_Rebalance_{t-2} = TRUE \\ Equity_Share_{t-1} & \text{otherwise} \end{cases}$$

$$Commodity_Share: Comdty_Share_t = \begin{cases} \frac{ECTS_{t-1} \times (1 - Equity_Weight_{t-2})}{Comdty_t} & \text{if } RS_Rebalance_{t-2} = TRUE \\ Comdty_Share_{t-1} & \text{otherwise} \end{cases}$$

3.3 Precision

The value of the published Index will be rounded to 4 decimal places. Within the index, calculations will be rounded to 8 decimal places, and the precision of the sub-indices that are inputs in the index will be rounded to the following decimal places:

- NYSE Zebra Edge U.S. Equity TR Index – 2 decimal places
- 3 Month ICE USD Libor Rate – 6 decimal places

- Jim Rogers Global Consumer Commodities Index – 3 decimal places
- Solactive U.S. Treasury Future 10 Year Index – 4 decimal places

3.4 Adjustments

Not applicable.

3.5 Dividends and other distributions

Not applicable.

3.6 Corporate actions

Not applicable.

3.7 Calculation of the index in the event of a market disruption event

The Index is not calculated in the event of a Market Disruption Event or Force Majeure Event. The following events will be deemed a Market Disruption Event:

- NYSE, the index sponsor for the NYSE Zebra Edge U.S. Equity Index, declares that the NYSE Zebra Edge U.S. Equity Index has a market disruption event.
- Bloomberg, the index administrator for the JRGCCI Index, declares that at least one of the potential outcomes and events stated in Section 3.8 occur.
- Solactive, the index sponsor for the Solactive 10-Year Future Index, declares that the Solactive 10 Year Future Index is subject to a market disruption event.

If the Market Disruption Event or Force Majeure Event continues over a period of eight Trading Days, then the Committee will determine the necessary action (including but not limited to taking into account the market conditions prevailing at this point in time, the last quoted Trading Price for each of the Index Components as well as any other conditions that it deems relevant for calculating the Index value) such that the affected securities resulting from the Market Disruption Event are no longer causing such disruption to occur.

3.8 JRGCCI related rebalance disruption events and market disruption events

The Market Pioneers Index will not have any equity/commodity tilt or risk control rebalances for any business day when the following occurs with the JRGCCI:

- The JRGCCI has a 75% weight in the Equity Commodity Tilt Strategy (ECTS), and 7% or more of the commodity contract weights of the JRGCCI Index are either impacted by limits of its trading price range and or other market disruption events.
- The JRGCCI has a 25% weight in the Equity Commodity Tilt Strategy (ECTS), and 25% or more of the commodity contract weights of the JRGCCI Index are either impacted by limits of its trading price range and or other market disruption events.

For the sake of clarification the Tactical Treasury Futures Allocation Strategy could potentially rebalance during the scenarios listed above, and the Market Pioneers Index would be disseminated on these business days. Any rebalances to the ECTS or risk control overlays would occur on the following business day that does not have any rebalance or market disruption events. On this rebalance date, the Equity/Commodity Tilt weight would be based on the signal observed on the last prior day of the quarter, and the risk control signals would be based on the current business day's index calculations.

A market disruption event will occur for the Market Pioneers Index when any one of the following scenarios occurs for the JRGCCI:

- The JRGCCI has a 75% weight in the Equity Commodity Tilt Strategy (ECTS), and if 25% or more of the commodity contract weights of the JRGCCI Index are either impacted by limits of its trading price range and or other market disruption events.

4 Appendix

4.1 Index Administration and Calculation Agent Contact data

Index Administrator and Calculation Agent

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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 Series. 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 Calculator may also make changes to the terms and conditions of the Indices and the method applied to calculate the Indices, 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.

4.3 Market Administrator Code of Conduct

Solactive implements the IOSCO Principles in a manner proportionate to the size of, and risks posed by, each Benchmark. Solactive has developed policies and procedures based on the Principles to develop, administer, calculate and disseminate products and services classified as “Benchmarks”. These are set forth in the Administration Code of Conduct which is available on the Solactive Website: <http://www.solactive.com/wp-content/uploads/2016/02/IOSCO-Alignment1.pdf>

4.4. Complaint Policy

Solactive provides a dedicated system for stakeholders to lodge complaints via email or mail. All complaints are duly investigated and responses provided to the complaint within a reasonable timeframe in accordance with our Solactive Complaints Procedure Policy, which is available on the Solactive Website: http://www.solactive.com/wp-content/uploads/2012/06/Solactive-Complaints-Procedure-Policy_2015_en_Sept_final.pdf

