Bloomberg Agile Indices Methodology

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Bloomberg

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Introduction

This methodology (the "Methodology") has been made available by Bloomberg Index Services Limited ("BISL") and sets out the rules, criteria, risk factors and other information application to the Bloomberg Agile Indices (the "Indices" and each, an "Index"). Capitalized terms used in this Methodology but not otherwise defined have the meanings set forth in Appendix I (Glossary).

Objectives and Key Features

The Bloomberg Agile Indices aim to reflect the performance of a weighted portfolio of instruments with risk control mechanisms applied.

Section 1: Calculation of the Directional Volatility Target Index

Index Value

With respect to each Index, the Directional Volatility Target Index Value on the Index Base Date shall be the Index Base Value. Thereafter, the Directional Volatility Target Index Value with respect to each subsequent Index Business Day, t, shall be calculated in accordance with the following formula, subject to Section 1 ("Rounding"):

$$I_t = I_{t-1} + UnitsReturn_t - FC_t - TC_{t-1} \quad (1)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

FC_t means the Funding Cost on Index Business Day t;

I_t and I_{t-1} means the Directional Volatility Target Index Values on Index Business Day t and on Index Business Day $t-1$ respectively;

$UnitsReturn_t$ means the return attributed to the Units on Index Business Day $t-1$, calculated in accordance with the following formula:

$$UnitsReturn_t = \sum_{i \in IndexConstituents} U_{t-1}^i \times \left(P_t^i - P_{t-1}^i\right) \quad (2)$$

Where:

i means a Constituent;

U_{t-1}^i means the Units for Constituent i on Index Business Day $t-1$;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

TC_{t-1} means the Transaction Cost on Index Business Day Day $t-1$.

Units

With respect to each Constituent, i, the Units for each Index Business Day, t, shall be calculated in accordance with the following formulae:

If Index Business Day t is the Index Base Date:

$$U_t^i = W_t^i \times \frac{I_B}{P_t^i} \quad (3)$$

Thereafter:

$$U_t^i = W_t^i \times \frac{I_{t-1}}{P_{t-1}^i} \quad (4)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

I_B means the Index Base Value;

I_{t-1} means the Directional Volatility Target Index Value on Index Business Day $t-1$;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

U_t^i means the Units for Constituent i on Index Business Days t;

W_t^i means the Weight for Constituent i on Index Business Day t.

Weights

With respect to each Constituent, i, the Weight for each Index Business Day, t, shall be calculated in accordance with the following formulae:

If Exposure Weight Ceiling or Exposure Weight Floor specified for any Constituent, i:

$$W_t^i = \begin{cases} Dir_{t-1} \times \min\left(R^i, \frac{VT^i}{Vol_t^i}\right) & if\ Dir_{t-1} < EWC\ or\ Dir_{t-1} > EWF \\ 0 & else \end{cases} \quad (5)$$

Otherwise:

$$W_t^i = Dir_{t-1} \times \min(R^i, \frac{VT^i}{Vol_t^i}) \quad (6)$$

Where:

Dir_{t-1} means the Exposure Direction on Index Business Day $t-1$;

EWC means the Exposure Weight Ceiling for the Constituent i;

EWF means the Exposure Weight Floor for the Constituent i;

R^i means the Rapid Risk Volatility Ceiling for Constituent i;

VT^i means the Volatility Target for Constituent i;

VT^i means the Volatility Target for Constituent i;

Vol_t^i means the Constituent Volatility for Constituent i on Index Business Day t;

W_t^i means the Weight for Constituent i on Index Business Day t.

Volatility

With respect to each Constituent, i, the Constituent Volatility for each Index Business Day, t, shall be calculated in accordance with the following formulae:

$$Vol_t^i = \frac{Vol\_HL_t^i + Vol\_LH_t^i}{2} \quad (7)$$

Where:

$$Vol\_HL_t^i = \sqrt{ln(\frac{HighSnap_t^i}{LowClose_{t-1}^i})^2 \times 252} \quad (8)$$

$$Vol\_LH_t^i = \sqrt{ln(\frac{LowSnap_t^i}{HighClose_{t-1}^i})^2 \times 252} \quad (9)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$HighClose_{t-1}^i$ means the High Close price for the Constituent i, on Index Business Day $t-1$;

$HighSnap_t^i$ means the High Snap for the Constituent i, on Index Business Day t;

$ln(x)$ means the natural logarithm of a value x;

$LowClose_{t-1}^i$ means the Low Close price for the Constituent i, on Index Business Day $t-1$;

$LowSnap_t^i$ means the Low Snap for the Constituent i, on Index Business Day t;

Vol_t^i means the Constituent Volatility for the Constituent i, on Index Business Day t;

$Vol\_HL_t^i$ means the volatility of high/low for the Constituent i, on Index Business Day t;

$Vol\_LH_t^i$ means the volatility of low/high for the Constituent i, on Index Business Day t.

Exposure Direction

If Exposure Direction Type is Long-only:

$$Dir_t = 1 \quad (10)$$

If Exposure Direction Type is Directional:

$$Dir_t = \begin{cases} -1 & if\ Signal1_t = -1\ and\ Signal2_t = -1 \\ 1 & else \end{cases} \quad (11)$$

Where:

t means the current Index Business Day;

Dir_t means the Exposure Direction on Index Business Day t;

$Signal1_t$ means the value of the SignalType1 on Index Business Day t calculated by the respective formula for SignalType1 in the Signal Type section;

$Signal2_t$ means the value of the SignalType2 on Index Business Day t calculated by the respective formula for SignalType2 in the Signal Type section.

Signal Type

If the Signal Type is Momentum, the value of the signal on Index Business Day t is calculated in accordance with the following formulae:

$$MomSignal_t = \begin{cases} -1 & if\ P_t < P_{t-m} \\ 1 & else \end{cases} \quad (12)$$

Where:

$t-m$ means the m-th Index Business Day immediately preceding t;

m means the Momentum Time Difference;

P_t and P_{t-m} means the Price of an Constituent on Index Business Day t and Index Business Day $t-m$ respectively;

If the Signal Type is Volatility, the value of the signal on Index Business Day t is calculated in accordance with the following formulae:

$$VolSignal_t = \begin{cases} -1 & if\ RV_t > RVAvg_t + \sigma_{RV\,t} \\ 1 & else \end{cases} \quad (13)$$

Where:

$$RV_t = \sqrt{\frac{1}{l} \times \sum_{k=1}^{l} (ln(\frac{P_{t-k+1}}{P_{t-k}}))^2 \times 252} \quad (14)$$

$$RVAvg_t = \frac{1}{w} \times \sum_{k=0}^{w-1} RV_{t-k} \quad (15)$$

$$\sigma_{RV\,t} = \sqrt{\frac{1}{v-1} \times \sum_{k=0}^{v-1} (RV_{t-k} - \frac{\sum_{i=0}^{v-1} RV_{t-i}}{v})^2} \quad (16)$$

Where:

$t-k, t-k+1, t-i,$ means the k-th, (k-1)-th, i-th Index Business Day immediately preceding t respectively;

l means the RV Lookback Window;

$ln(x)$ means the natural logarithm of a value x;

P_{t-k} and P_{t-k+1} means the Price of a Constituent on Index Business Day t and Index Business Day $t-k+1$ respectively;

RV_t means the realized volatility of a Constituent on Index Business Day t;

RV_{t-k} and RV_{t-i} means the realized volatility of a Constituent on Index Business Day $t-k$ and Index Business Day $t-i$ respectively;

$RVAvg_t$ means the average realized volatility of a Constituent on Index Business Day t;

$\sigma_{RV\,t}$ means the volatility of the RV_t on Index Business Day t;

w means the RV Average Window;

v means the RV Sigma Window.

If the SignalType is Yield Momentum, the value of the signal on Index Business Day t is calculated in accordance with the following formulae:

$$YieldMom_t = \begin{cases} -1 & if\ \Delta YMA_t > \sigma_{\Delta YMA\,t} \\ 1 & else \end{cases} \quad (17)$$

Where:

$$YMA_t = \frac{1}{l} \times \sum_{k=0}^{l-1} LongYield_{t-k} \quad (18)$$

$$\Delta YMA_t = YMA_t - YMA_{t-m} \quad (19)$$

$$\sigma_{\Delta YMA\,t} = \sqrt{\frac{1}{v-1} \times \sum_{i=0}^{v-1} (\Delta YMA_{t-i} - \frac{\sum_{k=0}^{v-1} \Delta YMA_{t-k}}{v})^2} \quad (20)$$

Where:

$t-k$, $t-m$ and $t-i$ means the k-th, m-th and i-th Index Business Day immediately preceding t respectively;

ΔYMA_t means the change of the moving average of the values of the Yield Component on Index Business Day t;

$LongYield_{t-k}$ means the value of the Yield Component with constituent tag of "Long" on Index Business Day $t-k$;

m means the Momentum Time Difference;

l means the Yield Lookback Window;

$\sigma_{\Delta YMA_t}$ means the standard deviation of ΔYMA_t;

v means the Yield Sigma Window;

YMA_t and YMA_{t-m} means the moving average of the values of the Yield Component on Index Business Day t and Index Business Day $t-m$ respectively.

If the Signal Type is Curve Momentum, the value of the signal on Index Business Day t is calculated in accordance with the following formulae:

$$CurveMom_t = \begin{cases} -1 & if\ \Delta CMA_t < -\sigma_{\Delta CMA_t} \\ 1 & else \end{cases} \quad (21)$$

$$CMA_t = \frac{1}{j} \times \sum_{k=0}^{j-1} (LongYield_{t-k} - ShortYield_{t-k}) \quad (22)$$

$$\Delta CMA_t = CMA_t - CMA_{t-m} \quad (23)$$

$$\sigma_{\Delta CMA_t} = \sqrt{\frac{1}{n-1} \times \sum_{i=0}^{n-1} (\Delta CMA_{t-i} - \frac{\sum_{k=0}^{n-1} \Delta CMA_{t-k}}{n})^2} \quad (24)$$

Where:

$t-k$, $t-m$ and $t-i$ means the k-th, m-th and i-th Index Business Day immediately preceding t respectively;

CMA_t means the moving average of curve values on Index Business Day t;

ΔCMA_t means the change of the moving average of curve values on Index Business Day t;

i means a Constituent;

j means the Curve Lookback Window;

$LongYield_{t-k}$ means the value of the Yield Component with constituent tag of "Long" on Index Business Day $t-k$;

m means the Momentum Time Difference;

n means the Curve Sigma Window;

$ShortYield_{t-k}$ means the value of the Yield Component with constituent tag of "Short" on Index Business Day $t-k$;

$\sigma_{\Delta CMA_t}$ means the standard deviation of the change of the moving average of curve values on Index Business Day t.

Funding Cost

If a Funding Cost Rate is specified then the Funding Cost is calculated in accordance with the following formulae:

If the Index Business Day, t, is the Index Base Date:

$$FC_t = 0 \quad (25)$$

Thereafter:

$$FC_t = \frac{FCR_{t-1}}{100} \times DCFC_{t-1,t} \times \sum_{i \in IndexConstituents} (U^i_{t-1} \times P^i_{t-1}) \quad (26)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$DCFC_{t-1,t}$ means the amount of calendar days from and including Index Business Day $t-1$ to and excluding Index Business Day t, divided by 365;

FCR_{t-1} means the Funding Cost Rate on Index Business Day immediately preceding t. If the Index Business Day immediately preceding t falls on a SIFMA holiday then use the the most recently available rate;

i means a Constituent;

$IndexConstituents$ mean the given Index Constituents;

P^i_{t-1} means the Price of Constituent i on Index Business Day $t-1$;

U^i_{t-1} means the Units for Constituent i on Index Business Day $t-1$.

If no Funding Cost Rate is specified then the Funding cost is calculated in accordance with the following formulae:

$$FC_t = 0 \quad (27)$$

Transaction Cost

The Transaction Cost for each Index Business Day, t, is calculated in accordance with the following formulae:

If the Index Business Day, t, is the Index Base Date:

$$TC_t = 0 \quad (28)$$

Thereafter:

$$TC_t = TCR^i \times \sum_{i \in IndexConstituents} abs(U^i_t - U^i_{t-1}) \times P^i_t \quad (29)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$abs(x)$ means the absolute values of x;

i means a Constituent;

$IndexConstituents$ mean the given Index Constituents;

P^i_t means the Price of Constituent i on Index Business Day t;

TCR^imeans the Transaction Cost for Constituent i;

U^i_t and U^i_{t-1} means the Units for Constituent i on Index Business Day t and Index Business Day $t-1$ respectively.

Rounding

The Index Values shall be calculated without rounding and published to 3 decimal places.

Section 2: Calculation of the Agile Index

Index Value

With respect to each Index, the Agile Index Value on the Index Base Date shall be the Index Base Value. Thereafter, the Agile Index Value with respect to each subsequent Index Business Day, t, shall be calculated in accordance with the following formula, subject to Section 2 ("Rounding"):

$$J_t = J_{t-1} + UnitsReturn_t - TC_{t-1} \quad (1)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

J_t and J_{t-1} means the Agile Index Values on Index Business Day t and on Index Business Day $t-1$ respectively;

$UnitsReturn_t$ means the return attributed to the Units on Index Business Day t, calculated in accordance with the following formula:

$$UnitsReturn_t = \sum_{i \in IndexConstituents} U_{t-1}^i \times \left(P_t^i - P_{t-1}^i\right) \quad (2)$$

Where:

$IndexConstituents$ mean the given Index Constituents;

i means a Constituent;

U_{t-1}^i means the Units for Constituent i on Index Business Day $t-1$;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

TC_{t-1}means the Transaction Cost on Index Business Day Day $t-1$.

Units

With respect to each Constituent, i, the Units for each Index Business Date, t, shall be calculated in accordance with the following formulae:

If Index Business Day t is the Index Base Date:

$$U_t^i = W^i \times \frac{J_B}{P_t^i} \quad (3)$$

If Index Business Day t is a Basket Rebalance Day:

$$U_t^i = W^i \times \frac{J_{t-1}}{P_{t-1}^i} \quad (4)$$

Thereafter:

$$U_t^i = U_{t-1}^i \quad (5)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

i means a Constituent;

J_B means the Index Base Value;

J_{t-1} means the Agile Index Value on Index Business Day $t-1$;

W^i means the Basket Weight for Constituent i;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

U_t^i mean the Units for Constituent i on Index Business Days t;

U_{t-1}^i mean the Units for Constituent i on Index Business Days $t-1$.

Transaction Cost

The Transaction Cost (TC_t) is calculated in accordance with the following formulae:

If Index Business Day t is the Index Base Date:

$$TC_t = 0 \tag{6}$$

Thereafter:

$$TC_t = TCR^i \times \sum_{i \in IndexConstituents} abs(U_t^i - U_{t-1}^i) \times P_t^i \tag{7}$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$abs(x)$ means the absolute value of x;

i means a Constituent;

$IndexConstituents$ mean the given Index Constituents;

U_t^i means the Units for Constituent i on Index Business Day t;

U_{t-1}^i means the Units for Constituent i on Index Business Day $t-1$;

P_t^i means the Price of Constituent i on Index Business Day ;

TCR^i means the Transaction Cost Rate for Constituent i.

Rounding

The Index Values shall be calculated without rounding and published to 3 decimal places.

Section 3: Calculation of the Agile Volatility Target Index

Index Value

With respect to each Index, the Agile Volatility Target Index Value on the Index Base Date shall be the Index Base Value. Thereafter, the Agile Volatility Target Index Value with respect to each subsequent Index Business Day, t, shall be calculated in accordance with the following formula, subject to Section 3 ("Rounding"):

$$K_t = K_{t-1} + UnitsReturn_t - MF_t \tag{1}$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

K_B means the Index Base Value;

K_t and K_{t-1} mean the Agile Volatility Target Index Values on Index Business Day t and on Index Business Day $t-1$ respectively;

$UnitsReturn_t$ means the return attributed to the Units on Index Business Day t, calculated in accordance with the following formula:

$$UnitsReturn_t = \sum_{i \in IndexConstituents} U_{t-1}^i \times \left(P_t^i - P_{t-1}^i\right) \tag{2}$$

Where:

i means a Constituent;

$IndexConstituents$ mean the given Index Constituents;

P_t^i and P_{t-1}^i means the Price of Constituent i on Index Business Day t and Index Business Day $t-1$ respectively;

U_{t-1}^i means the Units for Constituent i on Index Business Day t-1;

MF_t means the Management Fee on Index Business Day t;

Units

With respect to each Constituent, i, the Units for each Index Business Day, t, shall be calculated in accordance with the following formulae:

If Index Business Day t is the Index Base Date:

$$U_t^i = W_t^i \times \frac{K_B}{P_t^i} \quad (3)$$

Thereafter:

$$U_t^i = W_{t-1}^i \times \frac{K_{t-1}}{P_{t-1}^i} \quad (4)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

i means a Constituent;

K_B means the Index Base Value;

K_{t-1} means the Agile Volatility Target Index Value on Index Business Day $t-1$;

W_t^i means the Basket Weight for Constituent i on Index Business Day t;

W_{t-1}^i means the Basket Weight for Constituent i on Index Business Day $t-1$;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

Weights

With respect to each Constituent, i, the Weight for each Index Business Day, t, shall be calculated in accordance with the following formulae:

$$W_t^i = \min\left(A^i, \frac{VT^i}{Vol_t^i}\right) \quad (5)$$

Where:

A^i means the Agile Weight Ceiling for Constituent i on Index Business Day t;

Vol_t^i means the Constituent Volatility for Constituent i on Index Business Day t;

VT^i means the Agile Volatility Target for Constituent i;

W_t^i means the Weight for Constituent i on Index Business Day t.

Volatility

With respect to each Constituent, i, the Constituent Volatility for each Index Business Day, t, shall be calculated in accordance with the following formulae:

$$Vol_t^i = \max(VolST_t^i, VolLT_t^i) \quad (6)$$

Where:

$$VolST_t^i = \sqrt{VarST_t^i \times 252} \quad (7)$$

$$VolLT_t^i = \sqrt{VarLT_t^i \times 252} \quad (8)$$

Where:

$$VarST_t^i = \lambda_{ST} \times VarST_{t-1}^i + (1 - \lambda_{ST}) \times ln(\frac{P_t^i}{P_{t-1}^i})^2 \quad (9)$$

$$VarLT_t^i = \lambda_{LT} \times VarLT_{t-1}^i + (1 - \lambda_{LT}) \times ln(\frac{P_t^i}{P_{t-1}^i})^2 \quad (10)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

λ_{ST} means the Short Term Volatility Constant;

λ_{LT} means the Long Term Volatility Constant;

P_t^i means the Price of Constituent i on Index Business Day t;

P_{t-1}^i means the Price of Constituent i on Index Business Day $t-1$;

$VarST_t^i$ and $VarST_{t-1}^i$ means the short-term variance of Constituent i on Index Business Day t;

$VarLT_t^i$ and $VarLT_{t-1}^i$ means the long-term variance of Constituent i on Index Business Day t;

$VolST_t^i$ means the short-term volatility of Constituent i on Index Business Day t;

$VolLT_t^i$ means the long-term volatility of Constituent i on Index Business Day t.

Management Fee

The Management Fee for each Index Business Day, t, is calculated in accordance with the following formulae:

If Index Business Day t is the Index Base Date:

$$MF_t = 0 \quad (11)$$

Thereafter:

$$MF_t = MFR \times DCFC_{t-1,t} \times K_{t-1} \quad (12)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$DCFC_{t-1,t}$ means the amount of calendar days from and including Index Business Day $t-1$ to and excluding Index Business Day t, divided by 365;

K_{t-1} means Agile Volatility Target Index Value on Index Business Day $t-1$;

MFR means the Management Fee Rate.

Rounding

The Index Values shall be calculated without rounding and published to 3 decimal places.

Section 4: Backtest assumptions

The rules outlined above are applied historically, however the following assumptions have been made:

Unless otherwise specified, the calendars and pricing used at the time of calculating the backtest are assumed to reflect those available at the time. Also, where a price is not available on an historic Pricing Day, the price from the immediately preceding Pricing Day is used.

If a Synthetic High Low Level Change Date is specified, the High Close and Low Close values for the Index Constituents prior to such date are derived using the formulae outlined in Appendix III: Synthetic High/Low Levels.

Before the Snap Switch Date, High Snap for the Constituent i, on Index Business Day t refers to the High Close for the Constituent i, on Index Business Day t; Low Snap for the Constituent i, on Index Business Day t refers to the Low Close for the Constituent i, on Index Business Day t.

Section 5: Stakeholder engagement, risk, and limitations

Limitations of the index

Though the Index is designed to be representative of the markets it measures or otherwise aligns with its stated objective, it may not be representative in every case or achieve its stated objective in all instances. It is designed and calculated strictly to follow the rules of this Methodology, and any Index level or other output is limited in its usefulness to such design and calculation.

Markets can be volatile, including those market interests that the Index measures or upon which the Index is dependent to achieve its stated objective. For example, illiquidity can have an impact on the quality or amount of data available to the administrator for calculation and may cause the Index to produce unpredictable or unanticipated results.

In addition, changes to the availability and/or accuracy of trade, liquidity or forward rates data, may render the objective of the Index unachievable or to become impractical to replicate by investors. They are for the indicative purpose.

In particular, the Index measures the performance of a weighted portfolio of instruments. The Indices are therefore subject to the effectiveness of such investment strategy.

Section 6: Benchmark oversight and governance

Benchmark governance, audit, and review structure

Please refer to the BISL Benchmark Procedures Handbook available here.

Index and Methodology Changes

Please refer to the BISL Benchmark Procedures Handbook available here.

Expert judgement and Discretion

Please refer to the BISL Benchmark Procedures Handbook available here.

Conflicts of interest

Please refer to the BISL Benchmark Procedures Handbook available here.

Restatement policy

Please refer to the BISL Benchmark Procedures Handbook available here.

Cessation Policy

Please refer to the BISL Benchmark Procedures Handbook available here.

Appendix I: Glossary

Agile Index Value	The index level produced by Section 2: Calculation of the Agile Index.
Agile Volatility Target Index Value	The index level produced by Section 3: Calculation of the Volatility Controlled Agile Index.
Agile Volatility Target	The intended target volatility for the Agile Volatility Target Index.
Agile Weight Ceiling	The maximum value of the weight for a Constituent of the Agile Volatility Target Index.
Basket Rebalance Day	For an Index Business Day, the date on which Units are calculated for each Constituent within the basket and correspond to
Basket Weight	The relative weight of the Constituent in the basket in the Agile Index.
Constituent	An Underlying Index.
Constituent Volatility	The volatility of the given Constituent.
Curve Lookback Window	The integer value of which defines the lookback window of Index Business Days for the Spread calculation.
Curve Sigma Window	The integer value of which defines the lookback window of Index Business Days for the Spread Sigma calculation.
Directional Volatility Target Index Value	The index level produced by Section 1: Calculation of the Directional Volatility Target Index.
Equity Index Component	The single given Constituent for the Directional Volatility Target Index with Asset Class equal to Equity.
Exposure Direction	The exposure signal that is calculated dependent on the Exposure Direction Type.
Exposure Direction Type	The types of Exposure Direction calculation to be used in the index, including Long-only and Long-short.
Fixed Weight	For each Constituent, its specified weight.
Funding Cost Rate	The given rate of cost of financing.
Funding Cost	The cost of financing.
High Close	The high close values of a Constituent.
High Snap	The high snap values of a Constituent.
Index	Has the meaning set forth in the Introduction.
Index Base Date	The first date on which an Index publishes a value.
Index Base Value	The value of an Index on and prior to the Index Base Date.
Index Business Day	The days on which the Index is calculated.
Index Commencement Date	The date on which an index is first published.
Index Constituents	All the Constituents for an Index.
Index Currency	The currency in which an index is published.
Index Value	The value of the Index at a given Fixing on an Index Business Day.
Long Term Volatility Constant	A constant used to scale long term contributions to the Agile volatility calculation.
Low Close	The low close values of a Constituent.
Low Snap	The low snap values of a Constituent.
Market Disruption Event	A situation wherein markets cease to function in a regular manner. See Appendix II: Market Disruptions.
Management Fee	The fee that is applied on Agile Volatility Target Index.
Management Fee Rate	The management fee rate of the index on a given Index Business Day.
Market Close Time	The given time of market closure for a given Constituent.
Momentum Time Difference	The integer value day difference that a momentum signal is calculated upon.
Observation Business Days	The days from which data used for making determinations may be taken.
Price	The value of such Constituent as determined from the Price Source.
Rapid Risk Weight Ceiling	The maximum weight that can be achieved by a Constituent in the Directional Volatility Target Index.
RV Average Window	The integer value of which defines the lookback window of Index Business Days for the RV Average calculation.
RV Lookback Window	The integer value of which defines the lookback window of Index Business Days for the RV calculation.
RV Sigma Window	The integer value of which defines the lookback window of Index Business Days for the RV Sigma calculation.

Signal Type	The type of signal calculation to be used in the Exposure Direction calculation, including Momentum, Volatility, Yield Momentum, and Curve Momentum.
Short Term Volatility Constant	A constant used to scale short term contributions to the Agile volatility calculation.
Snap Start Time	The start time used for the snap data acquisition.
Snap End Time	The end time used for the snap data acquisition.
Snap Switch Date	The date at which intraday snaps are used as the pricing source for HighSnap and LowSnap.
Synthetic High Low Level Change Date	The date in which to switch to the default HighClose and LowClose pricing specification.
Trading Day	The days on which an index considers that a Constituent can be traded.
Transaction Cost	The estimated expenses of executing transactions.
Transaction Cost Rate	The transaction cost rate of the index on a given Index Business Day.
Underlying Index	An index that is a Constituent of the Index.
Units	The number of units of each Constituent held on an Index Business Day.
Volatility Target	The intended target volatility for the index.
Weight	The intended weight of a Constituent that an Index uses to determine the Target Units.
Yield Component	The component used to obtain the yield of the Index Constituent.
Yield Lookback Window	The integer value of which defines the lookback window of Index Business Days for the Yield calculation.
Yield Sigma Window	The integer value of which defines the lookback window of Index Business Days for the Yield Sigma calculation.

Appendix II: Market Disruptions

Please refer to the BISL Benchmark Procedures Handbook available here.

Appendix III: Synthetic High/Lows Levels

To produce historical high/low values, the below calculation framework is used to translate available adjusted high/low values from a Base Index to a Target Index.

The synethetic high/low values are calculated for the Taget Index, for each Index Business Day, t, using the following formulae:

$$HighTarget_t = CloseTarget_t * \left(1 + HighBaseRet_t \times Beta(CloseTargetRet_{t-l+1,t}, CloseBaseRet_{t-l+1,t})\right) \quad (1)$$

$$LowTarget_t = CloseTarget_t * \left(1 + LowBaseRet_t \times Beta(CloseTargetRet_{t-l+1,t}, CloseBaseRet_{t-l+1,t})\right) \quad (2)$$

Where, with respect to the Base Index:

$$CloseBaseRet_t = (CloseBase_t / CloseBase_{t-1}) - 1 \quad (3)$$

$$HighBaseRet_t = (HighBase_t / CloseBase_t) - 1 \quad (4)$$

$$LowBaseRet_t = (LowBase_t / CloseBase_t) - 1 \quad (5)$$

Where, with respect to the Target Index:

$$CloseTargetRet_t = (CloseTarget_t / CloseTarget_{t-1}) - 1 \quad (6)$$

And:

$$Beta(CloseTargetRet_{t-l+1,t}, CloseBaseRet_{t-l+1,t}) = \frac{Cov(CloseTargetRet_{t-l+1,t}, CloseBaseRet_{t-l+1,t})}{Var(CloseBaseRet_{t-l,t})} \quad (7)$$

$$Cov(CloseTargetRet_{t-l+1,t}, CloseBaseRet_{t-l+1,t}) = \frac{1}{l-1}\sum_{i=0}^{l-1}(CloseTargetRet_{t-i} - \overline{CloseTargetRet_{t-l+1,t}})(CloseBaseRet_{t-i} - \overline{CloseBaseRet_{t-l+1,t}}) \quad (8)$$

$$Var(CloseBaseRet_{t-l+1,t}) = \frac{1}{l-1}\sum_{i=0}^{l-1}(CloseBaseRet_{t-i} - \overline{CloseBaseRet_{t-l+1,t}})^2 \quad (9)$$

$$\overline{CloseTargetRet_{t-l+1,t}} = \frac{1}{l}\sum_{k=0}^{l-1} CloseTargetRet_{t-k} \quad (10)$$

$$\overline{CloseBaseRet_{t-l+1,t}} = \frac{1}{l}\sum_{k=0}^{l-1} CloseBaseRet_{t-k} \quad (11)$$

Where:

$t-1$ means the Index Business Day immediately preceding t;

$t-l+1$ and $t-k$ means the (l-1)th and k-th Index Business Day immediately preceding t respecrtively;

Base Index means the index in which historical high/low prices are available as well as the close index levels;

Target Index means the index in which historical high/low prices are not available but the close index levels are available;

$CloseBase_t$ and $CloseBase_{t-1}$ means the close values that are corporate actions adjusted for the Base Index on Index Business Day t and Index Business Day $t-1$ respectively;

$CloseTarget_t$ and $CloseTarget_{t-1}$ means the close values that are corporate actions adjusted for the Target Index on Index Business Day t and the Target Index on Index Business Day $t-1$ respectively;

$HighBase_t$ means the high values that are corporate actions adjusted for the Base Index on Index Business Day t;

$LowBase_t$ means the low values that are corporate actions adjusted for the Base Index on Index Business Day t;

l means beta lookback windows, which is set as 252.

Appendix IV: ESG Disclosures

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY	
1. Name of the benchmark administrator.	Bloomberg Index Services Limited ("BISL")
2. Type of benchmark	Other Benchmark
3. Name of the benchmark or family of benchmarks.	Bloomberg Agile Indices
4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	No
5. Where the response to Item 4 is positive, please list below, for each family of benchmarks, those ESG factors that are taken into account in the benchmark methodology, taking into account the ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816. Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets. The ESG factors shall be disclosed at an aggregated weighted average value at the level of the family of benchmarks.	
a) List of environmental factors considered:	Selection, weighting or exclusion: N/A
b) List of social factors considered:	Selection, weighting or exclusion: N/A
c) List of governance factors considered:	Selection, weighting or exclusion: N/A
6. Where the response to Item 4 is positive, please list below, for each benchmark, those ESG factors that are taken into account in the benchmark methodology, taking into account the ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816, depending on the relevant underlying asset concerned. Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets. The ESG factors shall not be disclosed for each constituent of the benchmark, but shall be disclosed at an aggregated weighted average value of the benchmark. Alternatively, all of this information may be provided in the form of a hyperlink to a website of the benchmark administrator included in this explanation. The information on the website shall be easily available and accessible. Benchmark administrators shall ensure that information published on their website remains available for five years	
a) List of environmental factors considered:	Selection, weighting or exclusion: N/A
b) List of social factors considered:	Selection, weighting or exclusion: N/A
c) List of governance factors considered:	Selection, weighting or exclusion: N/A

7. Data and standards used.	
a) Data input. *(i) Describe whether the data are reported, modelled or, sourced internally or externally.* *(ii) Where the data are reported, modelled or sourced externally, please name the third party data provider.*	N/A
b) Verification of data and guaranteeing the quality of those data. *Describe how data are verified and how the quality of those data is ensured.*	N/A
c) Reference standards *Describe the international standards used in the benchmark methodology.*	N/A
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Beijing
+86 10 6649 7500

Dubai
+971 4 364 1000

Frankfurt
+49 69 9204 1210

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+852 2977 6000

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+44 20 7330 7500

Mumbai
+91 22 6120 3600

New York
+1 212 318 2000

San Francisco
+1 415 912 2960

São Paulo
+55 11 2395 9000

Singapore
+65 6212 1000

Sydney
+61 2 9777 8600

Tokyo
+81 3 4565 8900