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# Bloomberg Futures Tracker Indices Methodology

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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 Futures Tracker 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 Futures Tracker Indices aim to reflect the performance of holding and rolling a Futures Contract in accordance with a defined roll schedule. The Index Value is calculated by tracking the value of the Futures Contract on each Index Business Day.

### **Section 1: Calculation**

### **Index Value**

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

$$I_{(t,f)} = I_{(t-1,close)} + UnitsReturn_{(t,f)}$$
(1)

Where:

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

close means the Closing Fixing;

 $I_{(t,f)}$  and  $I_{(t-1,close)}$  mean the Index Values for Fixing f on Index Business Day t and the Closing Fixing on Index Business Day t-1 respectively;

 $UnitsReturn_{(t,f)}$  means the return attributed to the Units at Fixing f on Index Business Day t, calculated in accordance with the following formula:

$$UnitsReturn_{\langle t,f\rangle} = \sum_{i \in Constituents} U_t^i \times \left( P_{\langle t,f\rangle}^i - P_{\langle t-1,close\rangle}^i \right) \times FX_{\langle t,f\rangle}^i$$
(2)

Where:

Constituents mean the set of Constituents;

i means a Constituent;

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

 $P_{(t,f)}^{i}$  means the Price of Constituent i at Fixing f on Index Business Day t;

 $P_{(t-1,close)}^{i}$  means the Price of Constituent i at the Closing Fixing on Index Business Day t-1; and

 $FX_{(t,f)}^i$  means the Spot Exchange Rate to convert one unit of the Price Currency of Constituent i to the Index Currency at Fixing f on Index Business Day t.

### **Units**

With respect to each Constituent, i, the Units on the Index Base Date shall be 0 (zero). Thereafter, the Units with respect to each Constituent, i, and subsequent Index Business Day, t, shall be calculated in accordance with the following formula:

$$U_t^i = U_{t-1}^i + IU_{t-1}^i \tag{3}$$

Where:

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

 $U_t^i$  and  $U_{t-1}^i$  mean the Units for Constituent i on Index Business Days t and t-1 respectively; and

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

### **Incremental Units**

With respect to each Constituent, i, the Incremental 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:

$$IU_t^i = TU_t^i \tag{4}$$

If Index Business Day t is a Roll Day:

$$IU_t^i = TU_t^i - U_t^i \tag{5}$$

Else:

$$IU_t^i = 0 (6)$$

Where:

 $IU_t^i$  means the Incremental Units for Constituent i on Index Business Day t;

 $TU_t^i$  means the Target Units for Constituent i on Index Business Day t; and

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

# **Target Units**

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

If Index Business Day t is either the Index Base Date or a Roll Day:

If Roll Method is 'Uniform':

$$TU_t^i = \frac{I_{\langle obs, close \rangle} \times RW_t^i}{P_{\langle obs, close \rangle}^i \times FX_{\langle obs, close \rangle}^i}$$
(7)

If Roll Method is 'Price-weighted':

$$TU_t^i = \frac{I_{(obs,close)} \times RW_t^i}{WP_t} \tag{8}$$

Else:

$$TU_t^i = TU_{t-1}^i \tag{9}$$

Where:

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

 $TU_t^i$  and  $TU_{t-1}^i$  mean the Target Units for Constituent i on Index Business Days t and t-1 respectively;

obs means, with respect to Index Business Day t, the Observation Date;

close means the Closing Fixing;

 $I_{(obs,close)}$  means the Index Value for the Closing Fixing on Observation Date obs;

 $RW_t^i$  means the Roll Weight for Constituent i on Index Business Day t;

 $P_{(obs,close)}^{i}$  means the Price of Constituent i for the Closing Fixing on Observation Date obs;

 $FX^{i}_{(obs,close)}$  means the Spot Exchange Rate to convert one unit of the Price Currency of Constituent i to the Index Currency at Closing Fixing on Observation Date obs;

 $\mathit{WP}_t$  means the weighted sum of prices on Index Business Day t determined in accordance with the following formula:

$$WP_{t} = RW_{t}^{Lead_{t}} \times \left(P_{\langle obs, close \rangle}^{Lead_{t}} \times FX_{\langle obs, close \rangle}^{Lead_{t}}\right) + RW_{t}^{Next_{t}} \times \left(P_{\langle obs, close \rangle}^{Next_{t}} \times FX_{\langle obs, close \rangle}^{Next_{t}}\right)$$

$$\tag{10}$$

Where:

 $Lead_t$  and  $Next_t$  mean, with respect to Index Business Day t, the Lead Contract and Next Contract respectively;

 $RW_t^{Lead_t}$  and  $RW_t^{Next_t}$  mean the Roll Weights for Constituents  $Lead_t$  and  $Next_t$ , respectively, on Index Business Day t;

 $P_{(obs,close)}^{Lead_t}$  and  $P_{(obs,close)}^{Next_t}$  mean the Prices of Constituents  $Lead_t$  and  $Next_t$ , respectively, for the Closing Fixing on Observation Date obs; and

 $FX_{(obs,close)}^{Lead_t}$  and  $FX_{(obs,close)}^{Next_t}$  mean the Spot Exchange Rates to convert one unit of the Price Currency of Constituents  $Lead_t$  and  $Next_t$  to the Index Currency respectively, for the Closing Fixing on Observation Date obs.

# **Roll Weights**

With respect to each Constituent, i, the Roll Weights 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:

$$RW_t^i = \begin{cases} 1, & \text{if } i = Lead_t \\ 0, & \text{if } i = Next_t \end{cases}$$
 (11)

Else if Index Business Day t is a Roll Day:

$$RW_{t}^{i} = \begin{cases} max \left( RW_{t-1}^{Lead_{t}} - \frac{RW_{t-1}^{Lead_{t}}}{n_{t}}, 0 \right) &, & if \ i = Lead_{t} \\ min \left( RW_{t-1}^{Next_{t}} + \frac{RW_{t-1}^{Lead_{t}}}{n_{t}}, 1 \right) &, & if \ i = Next_{t} \\ 0 &, & otherwise \end{cases}$$

$$(12)$$

Else:

$$RW_t^i = RW_{t-1}^i \tag{13}$$

Where:

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

 $RW_t^i$  and  $RW_{t-1}^i$  mean the Roll Weights for Constituent i on Index Business Days t and t-1 respectively;

 $n_t$  means the number of Roll Business Days from, and including t, to and including the Roll End Date of the Lead Contract;

 $Lead_t$  and  $Next_t$  mean, with respect to Index Business Day t, the Lead Contract and Next Contract respectively;

# Rounding

The Index Values shall be calculated without rounding and published to 4 decimal places.

# **Section 2: Backtest assumptions**

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

# **Base Date Handling**

For the avoidance of doubt, the index will fully invest in the Lead Contract on the Index Base Date (see formula 11 in the Roll Weights section). The Lead Contract on the Index Base Date is dependent on the set of Eligible Future Contracts. If a Base Priming Date set, Future Contracts having a Roll End Date that is prior to the Base Priming Date are removed from the set of Eligible Future Contracts.

### **Historic Pricing**

Where a price is not available on an historic Pricing Day, the price from the immediately predecing Pricing Day is used.

# Section 3: 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 holding and rolling futures contracts in accordance with a schedule. As with all investing, the Index is exposed to market risk. The value of futures contracts fluctuate with the changes in external factors such as economic forecasts, interest rate policies established by central banks and perceived geo-political risk. The Index does not take into account the cost of replication and as a result, a tracking portfolio's returns will underperform the Index with all else equal. As the Index is designed to measure those markets, it could be materially impacted by market movements, thus significantly impacting the use or usefulness of the fixings for some or all users.

# **Section 4: 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 <u>here</u>.

# **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 <u>here</u>.

# **Appendix I: Glossary**

Base Priming Date	Optional parameter used to select the Lead Contract on the Index Base Date by specifying the earliest Roll End Date that may be associated with a Future Contract in
base I IIIIIII Date	the set of Eligible Future Contracts.
Closing Fixing	The Fixing corresponding to the end of day valuation.
Closing Index Value	The value of the Index on any given Index Business Day at the Closing Fixing.
Constituents	
Contract Forward Shift	The Eligible Future Contracts for the specified Underlying Instrument.  A number of calendar months.
Contract Forward Shift	
Contract Month	The month used in the specification of a Future Contract to specify its delivery and trading schedule.
Contract Shifted Month	The month occurring the Contract Forward Shift number of months prior to the Contract Month.
Determination Business Days	The days on which an index may make determinations with respect to changing weights or units.
Determination Date	For an Index Business Day, the Determination Business Day occurring the Determination Lag number of Determination Business Days prior.
Determination Lag	The number of Determination Business Days before any determinations made by an index should become effective.
Eligible Future Contracts	The set of Future Contracts that the index may hold.
Exchange	The primary exchange or quotation system on which the Futures Contracts are traded.
Fixing	A given time specified with respect to a location or time zone.
Future Contract	The derivative financial contract in an Underlying Instrument.
	The unique set of characters at the start of each Bloomberg ticker used for Futures
Future Contract Ticker Prefix	Contracts on an Underlying Instrument listed on a given Exchange.
FX Data Source	The source of FX data for a Fixing.
Incremental Units	The difference in Units attributed to an action or activity on a Fixing.
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 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.
Lead Contract	For an Index Business Day, the Eligible Future Contract whose Roll End Date is either on such Index Business Day or is chronologically next.
Market Disruption Cut-off Date	The date on which an ongoing Market Disruption Event shall be deemed to have ended for the purpose of applying the Roll Disruption Rule.
Market Disruption Event	A situation wherein markets cease to function in a regular manner. See Appendix II: Market Disruptions.
Next Contract	For an Index Business Day, the Eligible Future Contract whose Roll Start Date is chronologically next after that of the Lead Contract.
Observation Business Days	The days from which data used for making determinations may be taken.
Observation Date	For an Index Business Day, the Observation Business Day occurring the Observation Lag number of Observation Business Days prior.
Observation Lag	The number of Observation Business Days prior to the effective date of a determination from which data used for such determination should be taken.
Price	On a Pricing Day, the value of a Constituent as determined from the Price Source with respect to the Fixing. Otherwise, the value of such Constituent as determined from the Price Source with respect to the Closing Fixing on the immediately preceding Pricing Day.
Price Currency	The currency in which the Prices of the Constituents are quoted.
Price Source	The source of pricing to be used for each Constituent and Fixing.
Pricing Day	The days on which Prices for a Constituent are considered to be available.
Roll Business Days	A day that is both an Index Business Day and a Trading Day.
Roll Day	Each day within a Roll Period that is a Roll Business Day.
Non Day	Lach day Main a North Cried that is a North Dasiness Day.

Roll Disruption Rule	The set of rules by which a roll will be adjusted in the event of certain Market Disruption Events. See Appendix II.
Roll End Date	For each Future Contract, the Roll Business Day occurring the 'Roll Length minus one' number of Roll Business Days after its Roll Start Date.
Roll Length	The number of Roll Business Days over which a roll is performed.
Roll Method	The set of rules by which weights are to be distributed between Future Contracts during a Roll Period.
Roll Offset	The number of Roll Business Days offset from the Roll Reference Date of each Eligible Future Contract on which a Roll Period starts.
Roll Period	The set of Roll Business Days from, and including, each Roll Start Date to, and including, the corresponding Roll End Date.
Roll Reference Date	The contract specification date from which the Roll Start Date is determined.
Roll Start Date	For each Future Contract, the Roll Business Day that is:  (i) the Roll Offset number of Roll Business Days prior to, if the Roll Offset is negative, otherwise  (ii) the Roll Offset number of Roll Business Days after, the Roll Reference Date.
Roll Weight	The intended weight of a Constituent that an Index uses to determine the Target Units.
Spot Exchange Rate	The rate used to convert one unit of a Price Currency into the Index Currency at a given Fixing on an Index Business Day as determined from the FX Data Source.
Target Units	The Units of a Constituent that an index intends to hold after trading activities are performed.
Trading Day	The days on which an index considers that a Constituent can be traded.
Underlying Instrument	The asset referenced by the Futures Contract.
Units	The number of units of each Constituent held on opening of an Index Business Day.

# **Appendix II: Market Disruptions**

A Market Disruption Event means the occurrence, in respect of a Futures Contract used in the calculation of the Index, of one or more of the following events, as determined by BISL:

- (i) A failure by the Exchange associated to the Futures Contract to report or announce a Price for the relevant Futures Contract when required by the Index on a Futures Business Day and/or a Roll Day;
- (ii) Trading is suspended for a Futures Contract of the Index;
- (iii) The Price published by the relevant Exchange for one (or more) Futures Contracts is a "limit price". which typically means that the Exchange published settlement price for such Contract for a trading day has increased or decreased from the previous trading day's settlement price by the maximum amount permitted under applicable rules of the Exchange;
- (iv) Any other event, if BISL reasonably determines that the event materially interferes with the ability of market participants to trade the Index.

### **Market Disruption Events during a Roll Period**

If a Market Disruption Event occurs on a Roll Day for either the Lead Contract or the Next Contract, then the roll will be postponed according to one of the following Roll Disruption Rules:

If the Roll Disruption Rule is 'Window Extension':

On a disrupted Roll Day that is not also a Market Disruption Cut-off Date, t:

• The Incremental Units for both the Lead and Next Contracts are set to zero:

$$IU_t^{Lead_t} = 0$$

$$IU_t^{Next_t} = 0$$

• The Roll Weights of the Constituents are carried over from the immediately preceding Roll Business Day, t-1:

$$\forall i \in Constituents, RW_t^i = RW_{t-1}^i$$

The Roll End Date of the Lead Contract is updated to be the earliest of the Roll Business Day immediately
following the current Roll End Date and, if one is currently set, the Market Disruption Cut-off Date.

On a Market Disruption Cut-off Date, t:

• The Roll Weights are updated to fully complete any incomplete roll:

$$RW_t^{Lead_t} = 0$$

$$RW_t^{Next_t} = 1$$

If the Roll Disruption Rule is 'Catch-up':

On a disrupted Roll Day that is not also a Market Disruption Cut-off Date, t:

• The Incremental Units for both the Lead and Next Contracts are set to zero:

$$IU_t^{Lead_t} = 0$$

$$IU_t^{Next_t} = 0$$

• The Roll Weights of the Constituents are carried over from the immediately preceding Roll Business Day, t-1:

$$\forall i \in Constituents, RW_t^i = RW_{t-1}^i$$

• If Roll Day t is the Roll End Date of the Lead Contract and not also a Market Disruption Cut-off Date, then the Roll End Date of the Lead Contract is updated to be the Roll Business Day immediately following the current Roll End Date, extending the Roll Period by an additional Roll Business Day.

On a non-disrupted Roll Business Day that immediately follows a disrupted Roll Business Day:

• The Roll Weight is calculated in order to include any portions of the roll that would have already been applied had there not been a disruption. The Roll Weights are calculated as:

$$RW_t^i = \begin{cases} \min\left(\frac{n_t - 1}{RollLength}, RW_{t-1}^i\right) &, & if \ i = Lead_t \\ \max\left(1 - \left(\frac{n_t - 1}{RollLength}\right), RW_{t-1}^i\right) &, & if \ i = Next_t \\ 0 &, & otherwise \end{cases}$$

Where RollLength is the Roll Length.

On a Market Disruption Cut-off Date, t:

• The Roll Weights are updated to fully complete any incomplete roll:

$$RW_t^{Lead_t} = 0$$

$$RW_t^{Next_t} = 1$$

The Market Disruption Cut-off Date is determined by BISL. In determining such date, BISL may take into account factors including (but not limited to) the objective of the Index, the expiry dates of the Futures Contracts that are affected by the Market Disruption Event and market practice.

### Other situations during Market Disruption Event

Outside of these aforementioned situations, if on any Index Business Day, a Market Disruption Event occurs or is occurring that BISL determines, in its sole discretion, materially affects the Index, the impact of the market disruption will be assessed, and actions are determined as per the rules stated in Section 4: Benchmark oversight and governance.

# **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")	
<b>2</b> . Type of benchmark	Other Benchmark	
3. Name of the benchmark or family of benchmarks.	Bloomberg Futures Tracker Indices	
4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	No	
<b>5</b> . Where the response to Item 4 is positive, please list below, for benchmark methodology, taking into account the ESG factors li	or each family of benchmarks, those ESG factors that are taken into account in the isted 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 a		
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	
· · · · · · · · · · · · · · · · · · ·	or each benchmark, those ESG factors that are taken into account in the benchmark ex II to Delegated Regulation (EU) 2020/1816, depending on the relevant	
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.	ne benchmark, but shall be disclosed at an aggregated weighted average value of	
	orm of a hyperlink to a website of the benchmark administrator included in this vailable and accessible. Benchmark administrators shall ensure that information	
a) List of environmental factors considered:	N/A	
b) List of social factors considered:	N/A	
c) List of governance factors considered:	N/A	
7. Data and standards used.		
a) Data input.	N/A	
b) Verification of data and guaranteeing the quality of those data.	N/A	
c) Reference standards	N/A	
Describe the international standards used in the benchmark methodology.		
Date on which information has been last updated and reason for the update:	October 2023, initial publication.	

# **Version History**

Version	Date	Notes
1.0	October 2023	Initial release.

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