# Bloomberg Spot FX Indices Methodology

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Bloomberg

## Version Control

| Version | Reviewer | Review Date | Comments |
|---|---|---|---|
| 1 | Jack Wang | 22-June-2022 | First Launch |
| 2 | Clarinda Tsang | 25-July-2022 | Updated with GDP weighting methodology |
| 3 | Clarinda Tsang | 05-August-2022 | Amended the dates in the table in backtest assumptions 1 |
| 4 | Clarinda Tsang | 17-February-2023 | Updated with Trade and Liquidity weighting methodology, and adopting factsheet style |

## Table of contents

## 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 Spot FX 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

This Methodology describes the calculation of the Bloomberg Spot FX Index Family. Each Index replicates the performance of the Spot Exchange Rates under a specified weighting method (described below), on a daily basis.

## Section 1: Calculation

### Index calculation

The Index Level on the Index Base Date shall be 100.0000. The Index Level with respect to each subsequent Index Business Day shall be calculated in accordance with the following formula, subject to Section 1 ("Rounding"):

$$I_t = I_{t-1} \times \left( 1 + \sum_{ccy \in C_d} w_r^{ccy} \times Direction \times \left( \frac{S_t^{ccy}}{S_{t-1}^{ccy}} - 1 \right) \right) \tag{1}$$

Where:
$I_t$ and $I_{t-1}$ mean the Index Value on Index Business Day $t$ and the immediately preceding Index Business Day to $t-1$ respectively;
$ccy$ means a Currency;
$r$ means, with respect to Index Business Day $t$, the immediately preceding Rebalance Date. For the avoidance of doubt, if Index Business Day $t$ is a Rebalance Date, then $r$ shall refer to the immediately preceding Rebalance Date;
$d$ means, with respect to Index Business Day $t$, the immediately preceding Determination Date. For the avoidance of doubt, if Index Business Day $t$ is a Determination Date, then $d$ shall refer to the immediately preceding Determination Date;
$C_d$ means the set of Eligible Currencies on Determination Date $d$;
$w_r^{ccy}$ means, with respect to Rebalance Date $r$, the weight of Currency $ccy$;
$S_t^{ccy}$ and $S_{t-1}^{ccy}$ mean, with respect to Currency $ccy$, the Spot Exchange Rate on Index Business Day $t$ and the immediately preceding Index Business Day $t-1$ respectively.

### Weights calculation

#### *Equal Weight calculation*

If the Weighting of the Index is "Equal", the weight of Currency, $ccy$, shall be calculated in accordance with the following formula:

$$w_r^{ccy} = \frac{1}{|C_d|} \tag{2}$$

Where:
$w_r^{ccy}$ means, with respect to the Currency $ccy$, the weight on Rebalance Date $r$;
$|C_d|$ means the number of Currencies in the set of Eligible Currencies $C_d$ on Determination Date $d$.

#### *GDP Weight calculation*

If the Weighting of the Index is "GDP", the weight of Currency, $ccy$, shall be calculated in accordance with the following formula:

$$w_r^{ccy} = \frac{GDP_d^{ccy}}{\sum_{ccy \in C_d} GDP_d^{ccy}} \tag{3}$$

Where:
$w_r^{ccy}$ means, with respect to the Currency $ccy$, the weight on Rebalance Date $r$;
$GDP_d^{ccy}$ means, with respect to the Currency $ccy$, the GDP Data on a Determination Date $d$;
$C_d$ means the set of Eligible Currencies on Determination Date $d$.

### Trade and Liquidity Weight calculation

If the Weighting of the Index is "Trade and Liquidity", the weight of Currency, $ccy$, shall be calculated in accordance with the following formula:

If $ccy$ is in the set of Selected Currencies, $C_d'$:

$$w_r^{ccy} = avg\left(tw_d^{ccy}, lw_d^{ccy}\right) \tag{4}$$

Else:

$$w_r^{ccy} = 0 \tag{5}$$

Where:
$C_d'$ means the set of Selected Currencies on Determination Date $d$;
$w_r^{ccy}$ means, with respect to the Currency $ccy$, the weight on Rebalance Date $r$;
$tw_d^{ccy}$ means, with respect to the Currency $ccy$, the Trade Weight on Determination Date $d$, calculated in accordance with the following formula:

$$tw_d^{ccy} = \frac{TRD_d^{ccy}}{\sum_{ccy \in C_d'} TRD_d^{ccy}} \tag{6}$$

> Where:
> $TRD_d^{ccy}$ means, the Trade Data of Currency $ccy$, on Determination Date $d$.

$lw_d^{ccy}$ means, with respect to the Currency $ccy$, the Liquidity Weight on Determination Date $d$, calculated in accordance with the following formula:

$$lw_d^{ccy} = \frac{LIQ_d^{ccy}}{\sum_{ccy \in C_d'} LIQ_d^{ccy}} \tag{7}$$

> Where:
> $LIQ_d^{ccy}$ mean, the Liquidity Data of Currency $ccy$, on Determination Date $d$;

### Currency Selection

With respect to Determination Date $d$, the set of Selected Currencies, $C_d'$, shall be calculated in accordance with the following formula:

$$C_d' = \{ccy \mid ccy \in \left(R_d^{TRD} \cup R_d^{LIQ}\right) \wedge ccy \in \left(C_d^{TRD} \cap C_d^{LIQ}\right)\} \tag{8}$$

$$R_d^{TRD} = \{ccy \in C_d^{TRD} \mid TRank_d^{ccy} \leq 10\} \tag{9}$$

$$R_d^{LIQ} = \{ccy \in C_d^{LIQ} \mid LRank_d^{ccy} \leq 10\} \tag{10}$$

Where:
$C_d'$ means the set of Selected Currencies on Determination Date $d$;
$R_d^{TRD}$ means the ranked sets of Trade Currencies on Determination Date $d$;
$R_d^{LIQ}$ means the ranked sets of Liquidity Currencies on Determination Date $d$;
$C_d^{TRD}$ means, with respect to Determination Date $d$, the set of Trade Currencies, calculated in accordance with the following formula:

$$C_d^{TRD} = \{ccy \mid ccy \in U_d^{TRD} \wedge ccy \notin PEG_d\} \tag{11}$$

> Where:

$PEG_d$ means the set of Pegged Currencies on Determination Date $d$;
$U_d^{TRD}$ means the set of Trade Universe Currencies on Determination Date $d$.

$C_d^{LIQ}$ means, with respect to Determination Date $d$, the set of Liquidity Currencies, calculated in accordance with the following formula:

$$C_d^{LIQ} = \{ ccy \mid ccy \in U_d^{LIQ} \wedge ccy \notin PEG_d \} \tag{12}$$

Where:
$U_d^{LIQ}$ means the set of Liquidity Universe Currencies on Determination Date $d$.

$TRank_d^{ccy}$ means, $Rank_d^{ccy}$ as calculated by running the Ranking Function in Section 1: Calculation, with the Trade Data $TRD_d^{ccy}$ and set of Trade Currencies $C_d^{TRD}$;
$LRank_d^{ccy}$ means, $Rank_d^{ccy}$ as calculated by running the Ranking Function in Section 1: Calculation, with the Liquidity Data $LIQ_d^{ccy}$ and the set of Liquidity Currencies $C_d^{LIQ}$.

## Ranking Function

$Rank_d^{ccy}$ means, with respect to Currency $ccy$, Determination Date $d$, and a data source name $SRC$, the ranking position of Currency $ccy$ in an ordered list containing each Currency under the ordering:

$$\forall a, b \in C_d^{SRC} \text{ such that } a \neq b, \tag{13}$$

$$a < b \text{ if } SRC_d^a < SRC_d^b \tag{14}$$

$$\text{else } a > b \text{ if } SRC_d^a > SRC_d^b \tag{15}$$

$$\text{else } a < b \text{ if } Rank_{dPrev}^a < Rank_{dPrev}^b \tag{16}$$

$$\text{else } a > b \tag{17}$$

Where:
$SRC$ means, a data source;
$dPrev$ means, with respect to Determination Date $d$, the immediately preceding Determination Date;
$Rank_{dPrev}^a$ and $Rank_{dPrev}^b$ mean, with respect to Determination Date $dPrev$, the value of $Rank_d^{ccy}$ where $d = dPrev$ and $ccy = a$ or $ccy = b$ respectively;
$SRC_d^a$ and $SRC_d^b$ mean, with respect to Determination Date $d$, $SRC_d^{ccy}$ where $ccy = a$ or $ccy = b$ respectively;
$SRC_d^{ccy}$ means, with respect to Currency $ccy$, and Determination Date $d$, the data from a data source $SRC$;
$C_d^{SRC}$ means, with respect to a data source $SRC$, and Determination Date $d$, the set of Currencies.

## Rounding

The Index Values shall be calculated without rounding and published to 7 significant figures.

## Section 2: Backtest assumptions

For the simulation of the hypothetical historical performance, BISL relied on the following assumptions:

1.  Historically, the Eligible Currencies for "EM" Region are different to the list under 'Index Specification' in the Bloomberg Spot FX Indices factsheets. The Currencies on and after the dates are listed as below:

| Date | Currencies for EM Region |
|------|--------------------------|
| 2008/06/30 | ARS, BRL, CLP, COP, CZK, EGP, HRK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RUB, THB, TRY, ZAR |
| 2011/07/07 | BRL, CLP, COP, CZK, EGP, HRK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RUB, THB, TRY, ZAR |
| 2013/04/05 | BRL, CLP, COP, CZK, EGP, HRK, HUF, IDR, ILS, KRW, MXN, MYR, NGN, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |
| 2014/04/07 | BRL, CLP, COP, CZK, HUF, IDR, ILS, KRW, MXN, MYR, NGN, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |
| 2016/02/05 | BRL, CLP, COP, CZK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |
| 2017/08/07 | ARS, BRL, CLP, COP, CZK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |
| 2019/04/05 | ARS, BRL, CLP, CNY, COP, CZK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |
| 2020/01/07 | BRL, CLP, CNY, COP, CZK, HUF, IDR, ILS, KRW, MXN, MYR, PEN, PHP, PLN, RON, RUB, THB, TRY, ZAR |

On and after 7th Apr 2022, the Currencies for "EM" Region are the ones listed under 'Index Specification' in the Bloomberg Spot FX Indices factsheets.

2.  The Euro Area GDP from the GDP Data Source does not reflect the point in time Eurozone members. Hence, the historical Euro Area GDP on each GDP Data Reference Date is calculated by taking the sum of the countries' GDP listed under 'The Eurozone' in the Bloomberg Spot FX Indices factsheets. On and after 31st Dec 2015, the Euro Area GDP from the GDP Data Source is used, as it accurately reflects the existing 19 Eurozone members.

3.  For the GDP weighting methodology, the GDP data captured on each GDP Data Snapshot Date before 13 Jun 2022 may not reflect the point in time values. The GDP Data Source constantly changes the data in line with the updated values that it receives, and the first published GDP data is no longer available. On and after 13 Jun 2022, the GDP data is captured on GDP Data Snapshot Date and will remain unchanged even if GDP Data Source updates its values after the GDP Data Snapshot Date.

## Section 3: 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, the Indices calculated with spot exchange rates are impractical to replicate by investors. They are for the indicative purpose.

In particular, the Index measures FX markets for different Regions. As with all investing, the Index is exposed to market risk. The value of FXs fluctuate with the changes in 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

BISL uses three primary committees to provide overall governance and effective oversight of its benchmark administration activities:

- The Product, Risk & Operations Committee ("**PROC**") is responsible for the first line of control over the creation, design, production and dissemination of benchmark indices, strategy indices and fixings administered by the BISL.

- The oversight function is provided by Bloomberg's Benchmark Oversight Committee ("**BOC**"). The BOC is independent of the PROC and is responsible for the review and challenge of the Board and the PROC regarding relevant aspects of the provision of Benchmarks by BISL, as set out in the UK BMR.

- The Risk Committee ("**RiskCo**") advises the Board, the PROC and the BOC on the Company's overall risk appetite, tolerance and strategy and oversees the Company's risk exposure and risk strategy

On a quarterly basis, the PROC reports to the BOC on governance matters, including but not limited to client complaints, the launch of new benchmarks, operational incidents (including errors & restatements), major announcements and material changes concerning the benchmarks, the results of any reviews of the benchmarks (internal or external) and material stakeholder engagements.

### Index and data reviews

The Index Administrator will review the Indices (both the rules of construction and data inputs) on a periodic basis, not less frequently than annually, to determine whether they continue to reasonably measure the intended underlying market interest, the economic reality or otherwise align with their stated objective. More frequent reviews may result from extreme market events and/or material changes to the applicable underlying market interests.

In addition to material changes, BISL may from time to time terminate one or more Indices ("Discontinued Indices"), whether due to changes in market structure, a lack of requisite data, insufficient usage, or for other regulatory or practical concerns. The process for terminating such Discontinued Indices is as follows: The PROC will review proposed terminations, taking into account the reasons for termination, the impact on users (if any), the availability of alternative products and other such factors. If termination is approved, users will be provided as much prior notice as is reasonable under the circumstances, typically 90 days. In the event there is little or no known usage identified, the Discontinued Indices may be terminated with less (or no) notice, as applicable. In the event the Discontinued Indices are licensed for use as the basis of an ETF or other widely-available financial product or is otherwise determined by BISL to be an important benchmark without reasonable substitutes, the notice period may be extended, as warranted. Any advance notice period is subject to BISL being reasonably able to continue administering and calculating such benchmark during such period (for example, BISL has access to requisite data on commercially reasonable terms, is not subject to any litigation or other claims, has adequate internal resources and capabilities, etc.). Terminations and associated user engagement decisions made by the PROC are subject to review by BISL's oversight function, the BOC.

Criteria for data inputs include reliable delivery and active underlying markets. Whether an applicable market is active depends on whether there are sufficient numbers of transactions (or other indications of price, such as indicative quotes) in the applicable constituents (or similar underlying constituent elements) that a price (or other value, as applicable) may be supplied for such constituent(s).

Any resulting change to this Methodology will be subject to the review of the PROC under the oversight of the BOC, each of which committees shall be provided all relevant information and materials it requests relating to the change. Details regarding the PROC and BOC are described above. Any relevant changes will be reflected and tracked in updated versions of this Methodology.

Material changes related to the Indices will be made available in advance to affected stakeholders whose input will be solicited. The stakeholder engagement will set forth the rationale for any proposed changes as well as the timeframe and process for responses. The Index Administrator will endeavour to provide at least two weeks for review prior to any material change going into effect. In the event of exigent market circumstances, this period may be shorter. Subject to requests for confidentiality, stakeholder feedback and the Index Administrator's responses will be made accessible upon request.

In determining whether a change to an Index is material, the following factors shall be taken into account:
- The economic and financial impact of the change;
- Whether the change affects the original purpose of the Index; and/or
- Whether the change is consistent with the overall objective of the Index and the underlying market interest it seeks to measure.

**Internal and external reviews**

BISL's Index administration is also subject to Bloomberg's Compliance function which periodically reviews various aspects of its businesses in order to determine whether it is adhering to applicable policies and procedures, and assess whether applicable controls are functioning properly. In addition, Bloomberg may from time to time appoint an independent external auditor with appropriate experience and capability to review adherence to benchmark regulation. The frequency of such external reviews will depend on the size and complexity of the operations and the breadth and depth of the Index use by stakeholders.

**Expert judgement**

The Index is rules-based, and its construction is designed to consistently produce values without the exercise of expert judgment or discretion. Nevertheless, BISL may use expert judgment or discretion with regards to the following:

- Index restatements

- Extraordinary circumstances during a market emergency

- Data interruptions, issues, and closures

When expert judgment or discretion is required, BISL undertakes to be consistent in its application, with recourse to written procedures outlined in the methodology of the Indices and internal procedures manuals. In certain circumstances exercises of expert judgment or discretion are reviewed by senior members of BISL management and Bloomberg Compliance teams, and are reported to the Product, Risk & Operations Committee (PROC), BISL's governance committee, which operates under the supervision of BISL's oversight function, the Benchmark Oversight Committee (BOC). BISL also maintains and enforces a code of ethics to prevent conflicts of interest from inappropriately influencing index construction, production, and distribution, including the use of expert judgment or discretion.

**Data providers and data extrapolation**

The Index is rules-based, and its construction is designed to consistently produce Index levels without the exercise of discretion. The Indices are produced without the interpolation or extrapolation of input data.

In addition, BISL seeks to avoid contributions of input data that may be subject to the discretion of the source of such data and instead seeks to use input data that is readily available and/or distributed for a number of non-index or benchmark creation purposes. Accordingly, the index requires no 'contributors' to produce and no codes of conduct with any such sources are required.

**Conflicts of interest**

The Index confers on BISL discretion in making certain determinations, calculations and corrections from time to time. In making those determinations, calculations and corrections, the Index Administrator has no obligation to take the needs of any Product Investor or any other party into consideration. BISL is committed to avoiding and, where necessary, managing actual or potential conflicts of interest in the BISL decision-making process and has established a Conflicts of Interest Policy to minimise or resolve actual or potential conflicts of interest. BISL does not create, trade or market Products.

**Restatement policy**

BISL strives to provide accurate calculation of its indices. However, to the extent a material error in Index Values is uncovered following publication and dissemination, a public notification will be made alerting of such error and what course of action will be undertaken and when. In such situations, BISL may decide to:

1) Not correct until the next index review;
2) Apply a correction going forward with advance notification; or
3) Restate the historical indices

In some cases, BISL may apply discretion and determine that a restatement is required. The decision will take into consideration the following factors (not listed in order of importance):

- The relative importance of the data field impacted by the error
- Whether the indices were replicable
- When the error occurred and when it was discovered
- The number of indices and sub-indices affected
- Whether the impacted indices are linked to tradable products
- The magnitude of the error

- The burden of restatement on client re-processing relative to the impact of the error
- The impact of the restatement on analytical tools

A decision to restate any Index results in the restatement of all impacted Indices. Real-time indices are not considered for restatement, all real-time dissemination is considered indicative. Discrepancies discovered after 12 months will not be corrected.

## Appendix I: Glossary

| | |
|---|---|
| Adopted From Date | The date on which such Eurozone state adopted the euro (EUR) as its National Currency. |
| Base Currency | The first currency stated in a currency pair quote. |
| Currency | A medium of exchange for goods and services. |
| Eligible Currencies | The set of Currencies selected for each Index. |
| Determination Date | The day the Index calculates the new weights. |
| Direction | Means going 'long' (1) or 'short' (-1). |
| Eurozone | A monetary union of 19 of the 27 European Union member states that have adopted the euro (EUR) as their National Currency. |
| FX Data Source | The derived FX data for London 4 P.M. FX fixing as defined in the BISL Derived FX Data Methodology |
| GDP Data | The final market value of all goods and services rounded to the nearest million produced within such country in the calendar year, if such value is not available for a given country on a Determination Date, then the last available value shall be used. |
| GDP Data Source | The source used for GDP Data. |
| GDP Data Reference Date | The latest date that the GDP Data gets referenced. |
| GDP Data Snapshot Date | The date for which the GDP Data, as of the GDP Data Reference Date, is taken as a snapshot. |
| Index Base Date | The first date on which an Index has a value |
| Index Business Day | A weekday. |
| Index Commencement Date | The date such Index is first made available on the relevant Bloomberg Page. |
| Index Currency | The currency such Index is represented in. |
| Index Value | The value of the Index calculated in accordance with the methodology. |
| Liquidity Currency | The Currency that is an element of the Liquidity Universe Currencies, and is also not an element of the set of Pegged Currencies. |
| Liquidity Data | The daily average of the over-the-counter foreign exchange turnover of a currency, quoted as a percentage share. |
| Liquidity Data Source | The source used for Liquidity Data. |
| Liquidity Data Reference Date | The latest date that the Liquidity Data gets referenced. |
| Liquidity Data Snapshot Date | The date for which the Liquidity Data, as of the Liquidity Data Reference Date, is taken as a snapshot. |
| Liquidity Ranking Position | The ranking position of the Liquidity Currency. |
| Liquidity Universe Currencies | The universe of currencies from the Liquidity Data Source. |
| Liquidity Weight | The percentage weight of the Liquidity Currency. |
| Pegged Currencies | Currencies that are pegged to the US Dollar, as listed on PEG <GO>. |
| Quote Currency | The second currency stated in a currency pair quote. |
| Rebalance Date | The day the Index gets rebalanced. |
| Region | A region that groups countries into business regions like EMEA (Europe, Middle East and Africa), NA (North America), LATAM (Latin America) and APAC (Asia-Pacific). |

| | |
|---|---|
| Selected Currencies | The set of Currencies that are included in the calculation of the Trade Weight and Liquidity Weight. |
| Spot Exchange Rate | The spot rate for a Base Currency against the Quote Currency from the FX Data Source. |
| Trade Currency | The Currency that is an element of the Trade Universe Currencies, and is also not an element of the set of Pegged Currencies. |
| Trade Data | The trade weight of a Currency in the broad index of the foreign exchange value of the Dollar. |
| Trade Data Source | The source used for Trade Data. |
| Trade Data Reference Date | The latest date that the Trade Data gets referenced. |
| Trade Data Snapshot Date | The date for which the Trade Data, as of the Trade Data Reference Date, is taken as a snapshot. |
| Trade Ranking Position | The ranking position of the Trade Currency. |
| Trade Universe Currencies | The universe of currencies from the Trade Data Source. |
| Trade Weight | The percentage weight of the Trade Currency. |
| Weighting | The weighting method for the Index. |

## Appendix II: 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 | FX |
| **3**. Name of the benchmark or family of benchmarks. | Bloomberg Spot FX Index Family |
| **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: |
|---|---|
| b) List of social factors considered: | Selection, weighting or exclusion: |
| c) List of governance factors considered: | Selection, weighting or exclusion: |

**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: |
|---|---|
| b) List of social factors considered: | Selection, weighting or exclusion: |
| c) List of governance factors considered: | Selection, weighting or exclusion: |

| 7. Data and standards used. | |
|---|---|
| a) Data input.<br><br>*(i) Describe whether the data are reported, modelled or, sourced internally or externally.*<br><br>*(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.<br><br>*Describe how data are verified and how the quality of those data is ensured.* | N/A |
| c) Reference standards<br><br>*Describe the international standards used in the benchmark methodology.* | N/A |
| **Date on which information has been last updated and reason for the update:** | 7 March 2023, initial launch. |

## Disclaimer