

Bloomberg Currency Implied Yield 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 Currency Implied Yield 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 Currency Implied Yield Indices aim to reflect the performance of deposits in foreign currency accounts, at interest rates determined using the covered interest rate parity relationship and weighted to each currency following the weights of one of the Bloomberg Global Equity Indices.

Section 1: Calculation

Index Value

With respect to each Index, the Index Value on the Index Base Date shall be the Index Base Value. Thereafter, the Index Value with respect to each Calculation Day, t , is calculated as:

$$I_t = I_r \times \sum_{ccy \in Currencies} W_r^{ccy} \times \left(\frac{Spot_t^{ccy}}{Spot_r^{ccy}} \right) \times \left(1 + CIRate_r^{ccy} \times \frac{Days(r, t)}{DIY} \right) \quad (1)$$

Where:

r means the Rebalance Date immediately preceding t ;

I_t and I_r are the Index Values on Calculation Day t and Rebalance Date r respectively;

$Currencies$ means the set of Member Currencies in the Underlying Index, including the Index Currency;

W_r^{ccy} means, with respect to Rebalance Date r and Member Currency ccy , the total percentage weight of all Index Members of the Underlying Index that are denominated in Member Currency ccy (determined as the proportion in terms of the Index Currency of the total market value of the Underlying Index attributed to the Index Members denominated in such Member Currency) as determined on Determination Date d and calculated in accordance with the following formula:

$$W_r^{ccy} = \frac{MV_{d,adj}^{ccy}}{MV_{d,adj}} \quad (2)$$

Where:

$MV_{d,adj}$ means the market value after implementation of all corporate actions effective on r , as estimated on Determination Date d and calculated in accordance with the following formula:

$$MV_{d,adj} = \sum_{i \in n_{d,r,close}} TF_{i,d} \times CAC_{i,d,post} \times N_{i,d,post} \times P_{i,d,post} \times FX_{i,d} \quad (3)$$

Where:

$n_{d,r}$ means, with respect to Determination Date d , the set of Index Members of the Underlying Index at close on Rebalance Date r ;

$TF_{i,d}$ means the Tilt Factor for stock i on Determination Date d ;

$CAC_{i,d,post}$ means the Corporate Action Coefficient of the stock i after implementation of all corporate actions with effective day r ;

$N_{i,d,post}$ means the number of shares of the stock i after implementation of all corporate actions with effective day r ;

$P_{i,d,post}$ means, with respect to Determination Date d , the closing price of stock i after implementation of all corporate actions with effective day r ;

$FX_{i,d}^{HC}$ means, with respect to the Index Currency and the Member Currency of Index Member i , the FX Fixing Rate from the Member Currency to the Index Currency on Determination Date d ;

$MV_{d,adj}^{ccy}$ means the Market Value of stocks denominated in currency ccy after implementation of all corporate actions effective on r , as determined on Determination Date d , and calculated in accordance with the following formula:

$$MV_{d,adj}^{ccy} = \sum_{i \in N_{d,r,close}} CF_i^{ccy} \times TF_{i,d} \times CAC_{i,d,post} \times N_{i,d,post} \times P_{i,d,post} \times FX_{i,d} \quad (4)$$

Where:

CF_i^{ccy} means ones (1) if the Member Currency of stock i is the same as ccy , otherwise zero (0);

$Spot_t^{ccy}$ and $Spot_r^{ccy}$ mean the Spot Exchange Rate of the Member Currency ccy short against the Index Currency on Calculation Day t and Rebalance Date r , respectively;

$Days(r, t)$ means the number of Calendar Days from and including Rebalance Date r to and excluding Calculation Day t ;

DIY means the Days In Year;

$CIRate_r^{ccy}$ means the covered interest rate for deposits in Member Currency ccy on Rebalance Date r calculated in accordance with the following formula:

$$CIRate_r^{ccy} = \left(\frac{Spot_r^{ccy} \times \left[1 + BaseRate_r \times \left(\frac{Days(r, R_{next}(r))}{DIY} \right) \right]}{FR_r^{Settle(Fwd(r, ccy))}} - 1 \right) \times \left(\frac{DIY}{Days(r, R_{next}(r))} \right) \quad (5)$$

Where:

$BaseRate_r$ means the Base Rate for the Index Currency on Rebalance Date r ;

$R_{next}(r)$ means, with respect to Rebalance Date r , the immediately following Rebalance Date;

$Days(r, R_{next}(r))$ means the number of Calendar Days from and including Rebalance Date r to and excluding Rebalance Date $R_{next}(r)$;

$Fwd(r, ccy)$ means the Forward Position short the Member Currency ccy against the Index Currency, with Trade Date r ;

$Settle(Fwd(r, ccy))$ means the Forward Position Settlement Date of Forward Position $Fwd(r, ccy)$; and

$FR_r^{Settle(Fwd(r, ccy))}$ means the Forward Rate to Forward Position Settlement Date $Settle(Fwd(r, ccy))$ on Rebalance Date r .

Base Rate calculation

The Base Rate for a given Rebalance Date is determined by interpolating between (or extrapolating from) the rates of certain quoted tenors.

With respect to a Rebalance Date, r , the Base Rate for the Index Currency shall be calculated in accordance with the following formula:

If the Short Tenor Rate Instrument is the same as the Long Tenor Rate Instrument:

$$BaseRate_r = Rate_r^{STRI} \quad (6)$$

Otherwise:

$$BaseRate_r = \frac{Rate_r^{STRI} \times Days(R_{next}(r), r + LTRI_r) + Rate_r^{LTRI} \times Days(r + STRI_r, R_{next}(r))}{Days(r + STRI_r, r + LTRI_r)} \quad (7)$$

Where:

$STRI_r$ and $LTRI_r$ mean, with respect to Rebalance Date r , the Short Tenor Rate Instrument and the Long Tenor Rate Instrument respectively;

$Rate_r^{STRI}$ and $Rate_r^{LTRI}$ mean, with respect to Rebalance Date r , the Interest Rates of the Short Tenor Rate Instrument and the Long Tenor Rate Instrument respectively;

$R_{next}(r)$ means, with respect to Rebalance Date r , the immediately following Rebalance Date;

$r + STRI_r$ and $r + LTRI_r$ mean the Rate End Date with respect to Rebalance Date r and the Tenor of the Short Tenor Rate Instrument or Long Tenor Rate Instrument respectively; and

$Days(\alpha, \beta)$, where α and β can take dates $R_{next}(r)$, $r + STRI_r$, or $r + LTRI_r$, means the number of Calendar Days from and including α to and excluding β .

Forward Rate calculation

Forward rates for a given settlement date are determined by interpolating between (or extrapolating from) the rates of certain quoted forward tenors.

With respect to a Forward Position Settlement Date, $Settle(Fwd(r, ccy))$, the Forward Rate for each Rebalance Date, r , shall be calculated in accordance with the following formula:

$$FR_r^{Settle(Fwd(r, ccy))} = \frac{FR_r^{Settle(STFI_r)} \times Days(Settle(Fwd(r, ccy)), Settle(LTFI_r)) + FR_r^{Settle(LTFI_r)} \times Days(Settle(STFI_r), Settle(Fwd(r, ccy)))}{Days(Settle(STFI_r), Settle(LTFI_r))} \quad (8)$$

Where:

$STFI_r$ and $LTFI_r$ mean, with respect to Rebalance Date r , the Short Tenor FX Instrument and Long Tenor FX Instrument respectively;

$Settle(STFI_r)$ and $Settle(LTFI_r)$ mean, with respect to Rebalance Date r , the Forward Instrument Settlement Dates of the Short Tenor FX Instrument and Long Tenor FX Instrument respectively;

$FR_r^{Settle(STFI_r)}$ and $FR_r^{Settle(LTFI_r)}$ mean, with respect to Rebalance Date r , the Forward Rates to the Forward Instrument Settlement Dates of the Short Tenor FX Instrument and the Long Tenor FX Instrument respectively; and

$Days(\alpha, \beta)$, where α and β can take dates $Settle(Fwd(r, ccy))$, $Settle(STFI_r)$ or $Settle(LTr)$, means the number of Calendar Days from and including α to and excluding β .

Forward Position Settlement Date calculation

The settlement date of each Forward Position is set such that it matches what would be the settlement date of a spot transaction entered into on the next Rebalance Date.

With respect to a Forward Position, $Fwd(r, ccy)$, the Forward Position Settlement Date shall be determined in accordance with the following method:

$$Settle(Fwd(r, ccy)) = SpotSettle(R_{next}(r), ccy) \quad (9)$$

Where:

$R_{next}(r)$ means, with respect to Rebalance Date r , the immediately following Rebalance Date; and

$SpotSettle(R_{next}(r), ccy)$ means, with respect to Rebalance Date $R_{next}(r)$, the Spot Settlement Date for Member Currency short against the Index Currency.

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:

- For Indices whose Rebalance Method is 'Equity Rebalance Aligned': Prior to June 2021, the Rebalance Dates are determined by adding one month to the previous Rebalance Date and rolling forward until the condition that both the selected date and previous calendar day are both NYSE Trading Days is met. If the selected date is then within 15 calendar days of a Global Equity Index rebalance date, then such rebalance date is selected.
- Historically, Forward Rates may not be available for all Member Currencies. In these cases it is assumed that the Forward Rate for a given day is the same as the Spot Rate for the deposit rate calculations.

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 Global Equity and FX markets. As with all investing, the Index is exposed to market risk. The value of currencies fluctuate with the changes in economic forecasts, interest rate policies established by central banks and perceived geopolitical 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 [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

Available FX Instrument	The FX instruments used in the Index.
Available Rate Instrument	The Interest Rate instruments used in the Index.
Base Rate	The interest rate assumed for deposits made in the Index Currency as determined by interpolation using the Available Rate Instruments.
Calculation Day	The days on which the Index is calculated.
Calendar Day	Any day.
Corporate Action Coefficient	As defined in the Bloomberg Global Equity Indices Methodology.
Days In Year	The number of days assumed to be in a year.
Determination Date	With respect to a Rebalance Date, the Calculation Day immediately prior to such Rebalance Date.
Forward Position	With respect to a Trade Date, the FX forward contract short the Member Currency against the Index Currency entered into on such Trade Date.
Forward Position Settlement Date	With respect to a Forward Position, its settlement date.
Forward Rate	With respect to a Forward Position Settlement Date and a Calendar Day, the outright rate for an FX forward contract entered into on such Calendar Day for settlement on the Forward Position Settlement Date as determined by interpolation using the Available FX Instruments.
FX Data Source	BISL Derived FX Data as defined in the BISL Derived FX Data Methodology
FX Fixing Rate	As defined in the Bloomberg Global Equity Indices Methodology.
FX Instrument Settlement Date	With respect to a Calculation Day, the settlement date of an Available FX Instrument.
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 Commencement Date	The date on which the Index is first published.
Index Currency	The currency in which the Index is denominated.
Index Member	With respect to an Underlying Index, as defined in the Bloomberg Global Equity Indices Methodology
Index Value	The value of the Index on a Calculation Day.
Interest Rate	An annualized percentage of interest as determined from the Interest Rate Data Source.
Interest Rate Data Source	The data source for Interest Rates used in the Index.
Long Tenor FX Instrument	With respect to a Forward Position Settlement Date and a Calculation Day, the Available FX Instrument having an FX Instrument Settlement Date that is the same as the Forward Position Settlement Date, if one exists, otherwise, the Available FX Instrument with the earliest FX Instrument Settlement Date that is later than the FX Instrument Settlement Date of the Short Tenor FX Instrument.
Long Tenor Rate Instrument	With respect to a Calculation Day, the Available Rate Instrument having an Rate End Date that is the same as the immediately following Rebalance Date, if one exists, otherwise, the Available Rate Instrument with the earliest Rate End Date that is later than the Rate End Date of the Short Tenor Rate Instrument.
Market Value	The free float adjusted market capitalization, adjusted for the Tilt Factor and Corporate Action Coefficient.
Member Currency	With respect to an Index Member, the currency in which such Index Member is denominated.
NYSE Trading Day	Days on which the New York Stock Exchange is scheduled to be open for a full day of trading.
Rate End Date	With respect to a Calculation Day and a Tenor: (a) if the Tenor is one (1) week (1W), two (2) weeks (2W) or three (3) weeks (3W), the Calendar Day that is seven (7), fourteen (14) or twenty one (21) Calendar Days immediately following such Calculation Day, rolled forward to the next Calculation Day if such resulting Calendar Day is not an Calculation Day; (b) if the Tenor is one (1) month (1M) or two (2) months (2M), the Calendar Day that is on the same day of the month as such Calculation Day in the month that is one (1) or two (2) month immediately following such Calculation Day, rolled forward to the next Calculation Day under a modified following convention if such resulting Calendar Day is not an Calculation Day. For the avoidance of doubt, if the target month does not contain the day of the month as such Calculation Day, it shall be the last Calculation Day of such target month;

Rebalance Date	If the Rebalance Method is 'Equity Rebalance Aligned', the first Calculation Day on or immediately following the second Wednesday of each month that satisfies the condition that both such Calculation Day and the immediately preceding Calculation Day are both NYSE Trading Days, else if the Rebalance Method is 'End of Month', the first Calculation Day on or immediately preceding the last Calendar Day of each month that satisfies the condition that both such Calculation Day and the immediately preceding Calculation Day are both NYSE Trading Days.
Rebalance Method	The set of rules by which the Rebalance Date is being determined. For avoidance of doubt, the Rebalance Methods are 'Equity Rebalance Aligned' or 'End of Month', and unless otherwise specified, the Rebalance Method is 'Equity Rebalance Aligned'.
Short Tenor FX Instrument	With respect to a Forward Position Settlement Date and a Calculation Day, the Available FX Instrument that has the latest FX Instrument Settlement Date from the Available FX Instruments having an FX Instrument Settlement Date that is either on or before the Forward Position Settlement Date, if there is an Available FX Instrument having an FX Instrument Settlement Date that is either on or before the Forward Position Settlement Date, otherwise, the Available FX Instrument that has the earliest FX Instrument Settlement Date.
Short Tenor Rate Instrument	With respect to a Calculation Day, the Available Rate Instrument that has the latest Rate End Date from the Available Rate Instruments having a Rate End Date that is either on or before the immediately following Rebalance Date, if there is an Available Rate Instrument having a Rate End Date that is either on or before the immediately following Rebalance Date, otherwise, the Available Rate Instrument that has the earliest Rate End Date.
Spot Exchange Rate	The spot rate for a Member Currency short against the Index Currency from the FX Data Source.
Spot Settlement Date	The settlement date for the spot rate of a Member Currency against the Index Currency from the FX Data Source.
Tenor	The time to expiry of a financial instrument.
Tilt Factor	As defined in the Bloomberg Global Equity Indices Methodology.
Trade Date	The date on which an FX forward contract was entered into.
Underlying Index	A Bloomberg Global Equity Index.

Appendix II: Market Disruptions

If on any Calculation 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 III: 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 Currency Implied Yield Indices
4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	No
<p>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.</p> <p>Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets.</p> <p>The ESG factors shall be disclosed at an aggregated weighted average value at the level of the family of benchmarks.</p>	
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
<p>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.</p> <p>Please explain how those ESG factors are used for the selection, weighting or exclusion of underlying assets.</p> <p>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.</p> <p>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</p>	
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>(i) Describe whether the data are reported, modelled or, sourced internally or externally.</i> <i>(ii) Where the data are reported, modelled or sourced externally, please name the third party data provider.</i>	N/A
b) Verification of data and guaranteeing the quality of those data. <i>Describe how data are verified and how the quality of those data is ensured.</i>	N/A
c) Reference standards <i>Describe the international standards used in the benchmark methodology.</i>	N/A
Date on which information has been last updated and reason for the update:	12 January 2024, initial launch.

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Beijing

+86 10 6649 7500

Dubai

+971 4 364 1000

Frankfurt

+49 69 9204 1210

Hong Kong

+852 2977 6000

London

+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