

Bloomberg Currency Index Methodology

August 2023

Bloomberg

Version Tracker

Date	Update	Updated By
08/08/2023	Separation of Bloomberg US Dollar Total Return Index from this methodology to it's own, which can be accessed here :	Colin Gallagher
07/22/2022	Updated Sample Weight's tables removed, data sources updated to BFIX for Spot Close and BGN for intraday, updated 1-Month implied yield for TWD to NTN1M and daycount, and updated that Russian Ruble (RUB) is not eligible for Currency Indices effective June 2022 rebalance	Emanuele Di Stefano Giannis Flouris Jas Singh
11/23/2021	Updated Index Memberships and Weightings to include the new rebalance date and the capping limit for the Chinese renminbi for the Bloomberg Dollar Index	Jas Singh Ken Hoefling
4/21/2020	Updated to include ESG disclosure	Mia Motiee-Compliance
10/29/2018	Updated language for EU BMR	Ken Hoefling
4/27/2018	Index Policies and Procedures Updated	Ken Hoefling

Tracking Global Currency Movements

The Bloomberg Currency Indices offer the Bloomberg Dollar Spot Index, the Bloomberg British Pound Index and the Bloomberg Euro Index. Each of these tracks the performance of the underlying currency versus a basket of leading global currencies.

The indices, administered by Bloomberg Index Services Limited ("BISL" or the "Administrator" and, collectively with its affiliates, "Bloomberg"), reflect performance against both developed and emerging market currencies that have the highest liquidity in the currency markets and the biggest trade flows with the given country. The Bloomberg Currency Index family, which has dynamically updated compositions and diversified representations of a breadth of currencies that are important from trade and liquidity perspectives, provides a better measure of the underlying currencies than other currency indices that do not update their compositions or are comprised of only a handful of currencies with concentrated weights.

Index Membership and Weightings

At each annual rebalance, the following steps are followed to determine the index constituent currencies and their target weights:

1. Identify the top 20 currencies in terms of trading activity versus the underlying currency.
 - For U.S. dollar, this is as defined by the Federal Reserve in its Broad Index of the Foreign Exchange Value of the Dollar (Release H.10).
 - For the British Pound and Euro, this is as defined by the International Monetary Fund (IMF) in its yearly total trade (ECTR <Go> on the Bloomberg Professional service).
2. Identify the top 20 currencies from the Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity (Table: Currency Distribution of Global Foreign Exchange Market Turnover).

Build the union of sets of top 10 currencies of both liquidity and trading activity lists, after removing currencies pegged to the underlying currency. For example, currencies pegged to the U.S. Dollar (for example the Hong Kong dollar or Saudi riyal) are removed for the Bloomberg Dollar Spot Index. More information is available on PEG <go> on the Bloomberg Professional Service.
3. The preliminary target weights are determined by assigning an average target weight derived from the trade weight and liquidity weights, for each of the index constituent currencies.
4. The final index target weights are determined by:
 - a. Capping the exposure of Chinese renminbi at 7%¹ for the Bloomberg Dollar Index and 3% for the Euro and the Pound indices and distributing its weight to other currencies in proportion to the average weight determined in step 3.
5. Removing smaller currency positions, defined as any position that has a weight of less than 2%, and distributing their weights to other currencies in proportion to the average weight determined in step 4.

For the U.S. Dollar Index, the Euro and the Pound indices, the rebalanced target weights are applied after the close of the last trading day in June². Trade data and liquidity listed in the following table:

Index	Trade Data	Liquidity Data
U.S. Dollar	Federal Reserve	Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity
Euro	IMF	Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity
Pound	IMF	Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity

¹ Please note prior to the June 2022 rebalance capping for Chinese renminbi was at 3%, and was revised to 7% per the methodology changes [announced](#) in October 2021.

² Please note that the rebalance schedule for the U.S. Dollar Index was adjusted from December to June per the methodology changes [announced](#) in October 2021.

Index Calculation

PR_t is the price return of the index on any day t

$$PR_t = \sum W_{i,Y} * (1 - S_{i,t-1} / S_{i,t})$$

Where:

$S_{i,t}$ = Spot for currency i on day t , expressed in foreign currency per underlying currency terms

$W_{i,Y}$ = Weight of currency i in year Y

The price return index level (IndexPR) on any day t is calculated as $\text{IndexPR}_t = \text{IndexPR}_{t-1} * (1 + PR_t)$

The base level for Bloomberg Currency Indices is set at 1000 on December 31, 2004.

For Bloomberg Dollar Total Return Index please refer to this methodology:

<https://assets.bbhub.io/professional/sites/10/US-Dollar-Total-Return-Index-Methodology.pdf>

Data

The price return indices are available in real-time, while the total return index is only available as end-of-day³.

Index	Price Return
Bloomberg Dollar Spot Index	BBDXY
Bloomberg British Pound Index	POUND
Bloomberg Euro Index	EURO

Data Providers and Data Extrapolation

The Currency Indices are 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. As further discussed below, the Indices use defined data backups and/or level carry-forwards rather than interpolation or extrapolation, but the Administrator will update this Methodology and its internal procedures should either become necessary.

In addition, the Administrator 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 Indices require no 'contributors' to produce and no codes of conduct with any such sources are required.

End of Day Index Levels

End of Day index levels are derived using the New York 4:00 pm BFIX.

"BFIX" refers to BISL's family of daily currency fixing rates generated throughout the trading day at fixed, half-hourly intervals. The BFIX rates are created by taking a Time-Weighted Average Price (TWAP) of the arithmetic mid-rates of Bloomberg Generic (BGN) and or Bloomberg Generic Price Executable (BGNE) prices leading up to and following the fixing time. The BGN is a sophisticated pricing algorithm that produces accurate indications of bid and ask quotes that are derived from hundreds of quality sources, including indicative, executable and executed price quotes from money-center and regional banks, broker-dealers, inter-dealer brokers, and trading platforms. The BGNE uses purely executable data from Bloomberg's FXGO platform delivering greater transparency into current market liquidity. They are received from a diverse universe of sources who provide them for the primary purpose of soliciting actual FX transactions from the market. For more information on BFIX and its methodology, see [here](#):

Real-time Index Levels

The intraday price levels for the Bloomberg Currency Indices are calculated primarily by using the BGN. All real-time currency index levels are considered indicative. In the event a real-time index level cannot be published due to data inadequacy or other issues, the Administrator will not resort to alternative data sources, will leave the level blank or carry it forward, and will not restate

³ Please note that the Bloomberg Inverse Total Return Index (BBDXI) will be discontinued effective August 26, 2022, as outlined in the announcement posted on INP <GO> on the Bloomberg Terminal

or correct blank or carried-forward levels. More information regarding the BGN, including its inputs and algorithms, is available in the BFIX methodology document linked above.

Historic Index Levels

Effective as of the end of May 2013, for BBDXY, the currency for China was replaced from the domestic spot (CNY) to the offshore spot (CNH) in view of the increasing liquidity of the CNH market and its greater ease of access to foreign market participants. For the British Pound Index, the switch from CNY to CNH was effective as of the end of March 2014. All index level prior to the index launch are consider pro-forma.

Currency	Intraday Spot	Closing Spot	Day Count
AUD	AUD BGN	AUD F160	365
CAD	CAD BGN	CAD F160	365
CHF	CHF BGN	CHF F160	360
CNH	CNH BGN	CNH F160	365
EUR	EUR BGN	EUR F160	360
GBP	GBP BGN	GBP F160	365
JPY	JPY BGN	JPY F160	360
KRW	KRW BGN	KRW F160 ⁴	365
MXN	MXN BGN	MXN F160	360
SGD	SGD BGN	SGD F160	365
TWD	TWD BGN	TWD F160	360
BRL	BRL BGN	BRL F160	360
SEK	SEK BGN	SEK F160	360
NOK	NOK BGN	NOK F160	360
USD	USD BGN	USD F160	360
TRY	TRY BGN	TRY F160	360
RUB ⁵	RUB BGN	RUB F160	360
INR	INR BGN	INR F160	360

Index Calendar Schedule

Effective January 3, 2017, Bloomberg Currency Indices follows a holiday schedule which excludes Christmas Day (and observed), New Year's Day (and observed), and Good Friday as business days.

Data Hierarchy and Data Input Review

The indices strive to be reflective of the currency markets they are designed to measure. They therefore favor, consistent with market practice, the following hierarchy of input data:

(1) executable prices and (2) indicative prices.

BFIX and BGN are aligned with this hierarchy and only use such prices.

⁴ As of June 6, KRW uses BFIX (end-of-day) and BGN (intra-day) as data sources (prior to this change it used CMFN)

⁵ Russian Ruble (RUB) is not eligible for the Bloomberg Currency Index family, and was removed from the POUND and the EURO Index during 2022 index rebalance

Active Markets

In selecting to measure against the top 20 currencies by measure of liquidity, the indices are focused on presenting only those most liquid and active currency markets. Also, BFIX as inputs to the indices, will only produce prices where an active market exists.

An active market is one in which (a) BFIX has received from BGN or BGNE at least one bid and ask price in the fixing window, and (b) the bid and ask are within 30 seconds of each other. In no event will BFIX take a BGN or BGNE price that is from a single source. In no event will BGN or BGNE produce a price, or BFIX produce a fixing, that can be reverse engineered.

If no qualified BGN or BGNE price can be produced within a fixing window, the previous fix will be carried forward.

Stress Events

If a BFIX rate is unavailable due to market holidays or unforeseen events, the end-of-day Bloomberg Currency Indices will be calculated using the previous day's New York 4:00 pm BFIX rate. If a New York 4:00 pm BFIX currency rates are unavailable for more than ten consecutive business days, escalation to the Benchmark Governance and Operations Committee ("BGOC"), as further discussed below, will be made to determine whether to use the previous BFIX rate, or remove the currency from the index (in the case of a BFIX). Any such removal will be subject to Benchmark Oversight Committee ("BOC") review, as well as the transition policies of the Administrator.

Limitations of the Index

Though the Indices are designed to be representative of the markets they measure or otherwise align with their stated objective, they may not be representative in every case or achieve their stated objective in all instances. They are 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 which the Indices intend to measure or upon which the Indices are dependent in order to achieve their 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 Indices to produce unpredictable or unanticipated results.

In addition, market trends and changes to market structure may render the objective of the Index unachievable or to become impractical to replicate by investors.

In particular, the Indices aims to track the performance of a basket of global currencies versus the underlying index (U.S. dollar, euro, and British pound). The Indices are therefore subject using the previous days BFIX rates for the individual constituent, if the current day's BFIX rate is unavailable for daily calculation.

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**") provides direct governance and is responsible for the first line of controls over the creation, design, production and dissemination of benchmark indices, strategy indices and fixings administered by BISL, including the Indices.
- 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.

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.

Index and Data Reviews

BISL 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). Where the constituents of the Indices are themselves other index levels or values, as in this Methodology, whether or not the underlying market is active is determined solely by reference to whether an official level or value is published in accordance with such underlying index's methodology.

There are no minimum liquidity requirements for Index constituents and/or minimum requirements or standards for the quantity or quality of the input data.

The review will be conducted by product managers of the Indices in connection with the periodic rebalancing of the Indices or as otherwise appropriate.

Any resulting change to the Methodology deemed to be material (discussed below) 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 in Benchmark Governance, Audit and Review Structure.

Material 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. BISL 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 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.

Stakeholder Engagement

BISL is in constant and ongoing engagement with its users through various channels, including via help desks, sales personnel and direct communication with product personnel. To help ensure the Index remains an accurate representation of the currency markets, it endeavors to meaningfully incorporate these engagements into improvements in processes and service.

Expert Judgment

The Indices are rules-based, and their 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:

- 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 this Methodology 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 PROC, BISL's governance committee, which operates under the supervision of BISL's oversight function, the 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.

Error Corrections/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 the expected date of a revised publication, if warranted.

BISL considers the following factors to determine whether to restate. Not all conditions need to be present to warrant a restatement, and certain factors may be more determinative than others depending on the circumstances of the given error.

- The relative importance of the data field impacted by the error;
- 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.

Administrator Transparency

The Administrator does not use any third parties in:

- 1) data collection or analysis (other than market data vendors and/or others performing simple data aggregation or data delivery services);
- 2) computation or calculation of the official Index Levels; or
- 3) dissemination of the Index (other than any redistribution of official Index Levels).

In the event it does determine to use third parties in the performance of such roles, the Administrator will provide details of their function in this Methodology and establish appropriate controls in its internal procedures.

Dividends and coupon payments play no role in this Methodology, and are therefore not accounted for by the Index.

Environmental, Social and Governance Disclosure

EXPLANATION OF HOW ENVIRONMENTAL, SOCIAL AND GOVERNANCE (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
3. Name of the benchmark or family benchmarks.	Bloomberg Currency 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. 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:	N/A
b) List of social factors considered:	N/A
c) List of governance factors considered:	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. 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:	As above
b) List of social factors considered:	As above
c) List of governance factors considered:	As above
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:	21 April 2020, Initial publication of disclosure

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