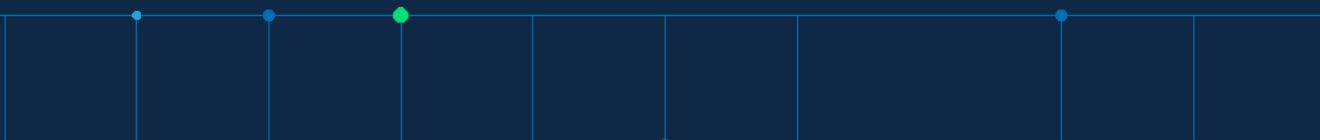


# **CME EBS FX Benchmarks Benchmark Methodology**

CME Group Benchmark Administration Limited

**Version 1.4**

**Publication Date: November 13<sup>th</sup>, 2025**



## Version Control

VERSION	KEY CHANGES	APPROVAL DATE
1.0	Creation of the “benchmark family”	February 9 <sup>th</sup> , 2022
1.1	Update to calculation waterfall	November 17 <sup>th</sup> , 2022
1.2	Annual Review	June 21 <sup>st</sup> , 2024
1.3	Publication & Restatement Policy, Use of Expert Judgement & Cessation Notice Period, Complaints Policy	February 25 <sup>th</sup> , 2025
1.4	Changes to the Oversight Function	November 13 <sup>th</sup> , 2025

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# 1. Introduction

CME EBS FX Benchmarks are a family of benchmarks administered by CME Group Benchmark Administration Limited (“CBA” or the “Administrator”) and intended to represent snapshots of the exchange rate of currency pairs, taken at regular times.

These benchmarks are registered as a “Benchmark Family” under UK Benchmark Regulation (“BMR”).

## 1.1. CME Group and CME Group Benchmark Administration Limited

As a leading and diverse derivatives market operator, CME Group is the parent of four U.S.-based designated contract markets (“DCMs”): Chicago Mercantile Exchange Inc. (“CME”), Board of Trade of the City of Chicago, Inc. (“CBOT”), New York Mercantile Exchange, Inc. (“NYMEX”), and the Commodity Exchange, Inc. (“COMEX”) (collectively, the “CME Group Exchanges”). These exchanges offer a wide range of products available across all major asset classes, including: futures and options based on interest rates, equity indexes, foreign exchange, energy, metals, and agricultural commodities. CME Group offers futures trading through the CME Globex® electronic trading platform (“Globex”), fixed income trading via BrokerTec, foreign exchange trading on the EBS platform, and central counterparty clearing services at CME Clearing, a division of CME. CBA capitalizes on CME Group’s wealth of electronic transaction-based data in the calculation of its indices and benchmarks. CBA is registered under UK Benchmark Regulation and is authorized and regulated by the UK Financial Conduct Authority (“FCA”).

CBA is the administrator of the CME EBS FX Benchmarks, with CME Inc. providing calculation agent and distribution services.

## 1.2. EBS Market

EBS offers access to one of the largest and most liquid FX markets in the world, facilitating international trade and risk management.

EBS Market is a central limit order book trading platform. Spot FX trading on EBS Market is provided by the dealing service operated by EBS Service Company Limited, incorporated in Switzerland.

## 1.3. Regulatory and IOSCO Compliance

The CME EBS FX Benchmarks is a family of benchmarks, designed on the basis of industry best practices and the IOSCO Principles for Financial Benchmarks.

CME EBS FX Benchmarks are available for use under the UK Benchmark Regulation (BMR)<sup>1</sup>.

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<sup>1</sup> <https://www.fca.org.uk/markets/benchmarks/regulation>

## 2. CME EBS FX Benchmarks

CME EBS FX Benchmarks are spot rate fixings for a set of currency pairs, calculated four times a day:

Currency Pairs	Times (Local)	
EUR/USD	London	13:30 UTC
USD/JPY		
USD/CNH	New York	16:00 ET
USD/CHF		
EUR/JPY	Tokyo	15:00 JST
EUR/CHF	Beijing	16:30 CST

A Volume Weighted Average Price (VWAP) or a Time Weighted Average Price (TWAP) is calculated according to a waterfall methodology based on the following hierarchy, as observed during the last 10 minutes (observation window) prior to the above fixing times:

- trades executed on EBS Market
- executable orders readily available on EBS Market
- indicative prices from Morningstar

## 3. EBS CNH Benchmark (USD/CNH)

CME EBS CNH Benchmark is a spot rate fixing for USD/CNH published daily, in line with the onshore USD/CNY fixing, providing a direct comparison between the two currency pairs.

Calculation is based on input data collected during a 5 (five) minute observation window, starting at 14:57:30 CST and ending at 15:02:30 CST; the index value is disseminated as soon as available after calculation.

## 4. Use of Expert Judgement

Expert judgement is not used in the ordinary day to day determination of CME EBS FX Benchmarks. The benchmark calculation methodology is rules-based and designed to consistently produce robust and reliable values which do not rely on expert judgement. However, CBA, in its capacity as Administrator of the CME EBS FX Benchmarks, may exercise such expert judgement in unforeseen and extraordinary circumstances when deemed necessary to maintain the integrity, accuracy and reliability of the benchmark. These circumstances can include, but are not limited to: index restatements, periods of market stress or disruptions, or periods where data sources may be absent or become unreliable. Where such circumstances arise, a notice will be published on the [CBA Notice Page](#).

The elements of the calculation of the benchmark in relation to which expert judgement may be exercised, can include, but are not restricted to, the following: (i) excluding certain input data from the calculation; (ii) adjusting/varying any component of the benchmark calculation; or (iii) delaying/estimating the value of input data.

Any exercise of expert judgement by the Administrator can only be carried out by suitably experienced, qualified staff members who have the authority to exercise such judgement as part of their function. The exercise of expert judgement by the Administrator will be reported to the BMR Joint Oversight Committee and the CME Group Benchmark Administration (CBA) Product Advisory Committee (together the Oversight Committees) to ensure that it has been applied consistently and in accordance with the applicable benchmark administration standards and benchmark methodology. The Administrator will retain all internal records detailing the use of expert judgement and the rationale for its use to allow for any ex-post review.

## 5. Calculation Methodology

The CME EBS FX Benchmarks are calculated using the following waterfall methodology, based on availability of input data during the observation windows. The calculation methodology utilises a five level waterfall. The details of the waterfall and input data used in each level are set out below:

### **Level 1 – EBS Transactions**

Utilises trades executed in the eligible currency pair, during the observation window, sourced from EBS Market.

Level 1 calculation requires at least 1 (one) executed trade during the relevant observation window; a VWAP of the entire trade population is calculated as per the following formulae:

$$VWAP = \frac{\sum price_i \times volume_i}{\sum volume_i}$$

Where  $price_i$  and  $volume_i$  are the executed prices and the notional of eligible trades.

### **Level 2 – EBS Orders**

If a Level 1 VWAP cannot be calculated due to the lack of trades for the specified currency pair during the observation window, available order data are used to calculate a TWAP.

Utilises best Bid-Offer of the Executable Orders book from EBS Market, taken every 500ms during the observation window, with the following exclusions:

- Executable Orders where Bid > Offer
- Executable Orders where: (Offer – Bid) / Bid > 0.05 (to exclude stale/outliers quotes)

The weighting at the beginning of the observation window is zero; during the observation window the time weight is calculated according to the following steps:

1. Count the units of time for each time slice (a time slice is a collection of half second intervals) before and up to the effective time starting from the beginning of the observation window as:

$$n = 0, 1, 2, 3, \dots, N - 1, N$$

2. Calculate the total counts before the effective time

$$C_{Total} = \frac{N*(N+1)}{2}$$

3. The unit weight is calculated as

$$w_u = \frac{1}{C_{Total}}$$

4. The weight of each slice for the period before the effective time will be

$$w_n = n * w_u \quad (n = 0, 1, 2, 3, \dots, N)$$

5. The TWAP is calculated as

$$TWAP = \sum_{n=0}^N price_n \times w_n$$

Where:

$n$  = time slice within interval

$w_u$  = unit weight

$w_n$  = weight at time slice  $n$

$price_n$  = price at time slice  $n$

### **Level 3 – EBS Cross Rate**

If the currency pair lacks executed transactions and the order book has no executable quotes, the currency pair will be calculated as a cross taken from other EBS currency pairs which have successfully calculated under Level 1 or Level 2. The following prioritisation of crosses is followed:

1. USD based cross
2. EUR based cross
3. GBP based cross

#### **Level 4 – Premium FX Feed Indicative Data**

If the currency pair is unable to be calculated from a cross rate, indicative data provided by Premium FX Feed are applied to the TWAP methodology as in Level 2.

#### **Level 5 – Indicative Cross**

If the currency pair is unable to be calculated from Premium FX Feed indicative data, the rate will be calculated as a cross rate of other currency pairs which have successfully calculated under Level 1, Level 2, Level 3 or Level 4. The following prioritisation of crosses is followed:

1. USD based cross
2. EUR based cross
3. GBP based cross

## **6. Validation Checks**

Calculation values of EBS FX Benchmarks are subject to validation checks to assess the quality of the input data.

Each calculated VWAP or TWAP day-on-day change is assessed for breaches of either of:

1. A change in excess of 5%
2. A change outside the 99.5% confidence interval  $(\text{Abs}(\text{Rtn}-\text{Avg}) > 2.576 \times \text{Stdev})$ , based on 180 days history, including the current day.

The calculation agent provides the Administrator with a weekly report of any breaches of the values above, for further consideration.

## **7. Publication and Restatement Policy**

### **7.1. Benchmark Publication**

CME EBS FX Benchmarks are calculated and published every business day, at the times specified in Section 2 and Section 3 of this Methodology, with the following exceptions:

Date	Publication
24 <sup>th</sup> December	No publication after 21:00UTC
25 <sup>th</sup> December	No publication until 23:00UTC
31 <sup>st</sup> December	No publication after 21:00UTC
1 <sup>st</sup> January	No publication until 23:00UTC



Benchmarks are published to the following decimal precision:

Currency pair	Decimals
EUR/USD	5
USD/JPY	3
USD/CNH	4
USD/CHF	5
EUR/JPY	3
EUR/CHF	5

If any CME EBS FX Benchmark cannot be calculated under any of the five levels of the waterfall, the last valid publication remains valid.

CBA may, with notification to the market, choose not to publish the EBS FX Benchmarks on any given Business Day, in accordance with the [CME Globex Trading Schedule](#).

The EBS FX Benchmarks are published on the CME Group website and on licensed data vendor platforms.

## 7.2. Restatement Policy

The Administrator takes the utmost care to ensure that input data and calculations are accurate. During the calculation process and prior to publication, the Administrator performs additional validation checks (as in [Validation Checks](#)) to identify possible inaccuracy, and if required, will swiftly recalculate and revalidate EBS FX Benchmarks prior to publication.

All exceptions or warning alerts are reviewed and analysed by the Administrator. In the event that an alert is raised by a data or process error, and is identified before publication, benchmark analysts will correct the error before official publication.

In the instance an inaccuracy is not identified and resolved before benchmark calculation and publication, or if input data received is revised retrospectively, the Administrator will review the impact on any affected benchmark and determine if the inaccuracy is material and whether it warrants a re-publication of the benchmark value.

In the event that there is a material inaccuracy in the publication of the benchmark that requires a re-publication of the benchmark value, users will be informed via the CME Globex system utilising the [GCC System Alerts](#) and via the publication of a notice to the [CME Notice Page](#).

The Administrator will take into consideration, without limitation, the below criteria when determining whether a restatement is warranted:

- The time elapsed between the initial publication and the identification of the inaccuracy;
- The number of benchmark levels affected;

- Whether the impacted benchmarks have tradable products referencing them;
- The magnitude of the inaccuracy;
- The impact of restatement on clients relative to the magnitude of the inaccuracy.

Any decisions to amend and/or republish a benchmark value by the Administrator can only be carried out by suitably experienced, qualified staff members who have the authority to make such decision as part of their function. Instances of restatements will be reported to the Oversight Committees for review retrospectively and will also be reported to the Board of the Administrator. The Administrator will retain all internal records detailing instances of restatement and the rationale for its decision to allow for any ex-post review.

### 7.3. Publication Alerts

In the event of disruptions to the standard benchmarks' publication process, CBA, where it deems necessary, will release publication alerts with respect to issues impacting the availability of the index. Publication alerts will be made available via the CME Globex system utilising the [GCC System Alerts](#).

### 7.4. Consultations and Notices

CBA will inform the users and stakeholders of any announcements relating to republication, restatements or consultations via the [CBA Notice Page](#).

In addition, CBA may, at its discretion, release information notices with respect to issues impacting the availability of the EBS FX Benchmarks, via the [CBA Notice Page](#).

## 8. Governance

The Administrator operates under a comprehensive Risk and Control Framework, providing clear policies on Governance, Oversight, Benchmark Design and Calculation, Outsourcing, Operations, Reporting of Infringements and Business Continuity.

CBA has in place a "Three Lines of Defence" model, enabling close cross-monitoring of the governance process - this being business, compliance and audit who all have a key role in ensuring that CBA meets its regulatory requirements.

### 8.1 Oversight Committees

The Administrator has implemented a tiered oversight committee structure, which in combination, performs the overall duties of the Oversight Function, as defined under Article 5 UK and EU BMR (collectively, the "BMR"). The purpose of the Oversight Function is to review the accuracy, reliability, representativeness and integrity of benchmarks provided by CBA by providing independent oversight and challenge to the Administrator.

Please see a description of these Oversight Committees below:

- The BMR Joint Oversight Committee ("JOC") is responsible for the overall direction and coordination of the Oversight Function and for interaction with the management body of CBA. The JOC is supported by and is an escalation point for the CME Group Benchmark Administration (CBA) Product Advisory Committee. Please refer to the JOC Terms of Reference for full details of the responsibilities of the JOC. They are available on the [CBA Benchmark Governance website](#).

- The CME Group Benchmark Administration (CBA) Product Advisory Committee (“PAC”) presides over major methodology developments and changes relating to specific index families as well as cessation and/or consultation decisions. The PAC provides technical oversight of the operation of the benchmarks as well as the underlying market and how changes could impact the continued representativeness and integrity of the benchmarks. The PAC provides its views and recommendations to both the JOC and the CBA Management. Please see the Terms of Reference for the Product Advisory Committees for further information. They are available on the [CBA Benchmark Governance website](#).

## 8.2 Review of the Methodology

The Administrator monitors the Benchmark Methodology and its consistency with the stated objectives. The Benchmark Methodology is reviewed and approved annually by the Administrator and reviewed annually by the Oversight Committees.

The Oversight Committees review proposed material changes to the Benchmark Methodology including, but not limited to, the structure of the Benchmark, input data used and all aspects of the Calculation Methodology.

The Oversight Committees may direct the Administrator to consult on any changes to the methodology with Stakeholders and the wider market.

## 8.3 Consultation Process

Where material changes to the Benchmark become necessary, the Administrator will engage stakeholders and users by way of a public consultation.

Changes to the Methodology are deemed material on the basis of an assessment conducted by the Administrator and submitted to the Oversight Committees for advice and feedback.

The Administrator will publish notice of the consultation on its website, inviting feedback from stakeholders and the wider market. Where practicable, notice of a consultation will be posted at least 1 (one) month prior to the deadline for responses. The notice will include the details of the proposed material change, the timeline and the rationale for the change.

Findings of the consultation process and proposed changes to the Benchmark Methodology, recommended as a result of the consultation, will be presented by the Administrator to the Oversight Committees for their consideration.

Feedback to a consultation is considered confidential. The Administrator will publish an anonymized summary with its conclusions, as soon as it is practical, and before implementation of any changes.

## 8.4 Cessation

The Administrator constantly monitors the representativeness of the Benchmark. If the Benchmark is deemed to be unrepresentative of the underlying economic reality due to paucity of input data or systemic changes in the related markets, the Administrator will engage the Oversight Committees at the earliest opportunity. These cessation arrangements are designed to mitigate cessation and transition risks.

The Oversight Committees are responsible for reviewing and approving procedures for cessation of the benchmark, to the extent required under BMR, based on the type, complexity, use and vulnerability of the benchmark.

The Oversight Committee may request the Administrator to consult with Stakeholders as described in the [Consultation Process section](#).

As a last resort, if no alternative arrangements are feasible, the Oversight Committees may advise the Administrator to discontinue the Benchmark, providing Stakeholders reasonable notice and assistance to explore alternative reference instruments.

The Administrator will endeavour to identify alternative benchmarks; however, this might not always be possible due to regulation, market conditions or a lack of suitable alternatives.

Users of the benchmark are recommended to ensure that they have adequate fallback policies and procedures in the event of the Benchmark becoming unrepresentative of its economic interest.

## 8.5 Record Retention

The Administrator has in place policies for the retention of any relevant evidence and documentation related to the determination and dissemination of the Benchmark, either in paper or in electronic format, for at least the mandatory term of 5 (five) years.

## 8.6 Auditing

An audit process is undertaken regularly, to ensure adherence to the stated Methodology, the IOSCO principles and regulatory requirements.

External audits can be requested at any time by the Administrator's Board, the JOC or the internal audit function.

## 8.7 Data Licensing and Distribution

The Benchmark is made available subject to execution of an Information License Agreement (ILA) with CME Inc. together with the appropriate Schedules. Market participants that intend to subscribe to the benchmark should contact the Administrator at the following email address: [datasales@cmegroup.com](mailto:datasales@cmegroup.com)

## 8.8 Complaints Procedures

The [CBA Complaints Procedures](#) set out details on the management of customer complaints to ensure that they are handled fairly and effectively, in a prompt and transparent manner and in accordance with applicable regulatory requirements.

Complaints will be dealt with by a senior member of staff not directly involved with the benchmark calculation and dissemination.

Information related to complaints will be stored in a restricted access area and kept for a period of at least 5 (five) years following the date when the complaint was first lodged. Complaints can be submitted at [internationalcompliance@cmegroup.com](mailto:internationalcompliance@cmegroup.com)

## 9. Appendix I – Key Terms & Definitions

TERM	DESCRIPTION
<b>Administrator</b>	CME Group Benchmark Administration Limited
<b>BMR</b>	UK Benchmark Regulation (Regulation (EU) 2016/2011, as retained in UK law under the EUWA)
<b>CBA</b>	CME Group Benchmark Administration Limited
<b>RTS</b>	Regulatory Technical Standard (in the context of the EU BMR means Regulation (EU) 2018/1643)
<b>TWAP</b>	Time Weighted Average Price
<b>VWAP</b>	Volume Weighted Average Price
<b>JOC</b>	BMR Joint Oversight Committee
<b>PAC</b>	Product Advisory Committee



