

# **CME CF Spot-Quoted Cryptocurrency Marker**

**Version: 0.1**

**January 2025**

# Contents

<b>1</b>	<b>Version History</b>	3
<b>2</b>	<b>Overview</b>	4
<b>3</b>	<b>Definitions</b>	5
<b>4</b>	<b>Methodology</b>	6
4.1	Qualitative Description . . . . .	6
4.2	Mathematical Representation . . . . .	6
<b>5</b>	<b>Contingency Calculation Rules</b>	8
5.1	Delayed Data and Missing Data . . . . .	8
5.2	Delayed Calculation & Publication . . . . .	8
5.3	Expert Judgment . . . . .	8
5.4	Calculation Failure . . . . .	8
<b>6</b>	<b>Restatement &amp; Republishing</b>	10
<b>7</b>	<b>Parameters</b>	11
<b>8</b>	<b>Reference Rate Specifications</b>	12
<b>9</b>	<b>Methodology Review and Changes</b>	13

# 1 Version History

Version	Date Issued	Summary of Change	Owner
v0.1	14 January 2025	N/A	CF Benchmarks Management

## 2 Overview

The CME CF Spot-Quoted Cryptocurrency Markers (SPOT) are intended to measure the underlying economic reality of the exchange of the base asset for the quote asset and vice versa. The design and implementation of the SPOT lends itself to be used as a daily rate to allow for the orderly functioning and associated cash-flow exchanges of financial products, such as spot-quoted futures contracts.

### 3 Definitions

- **API:** Application programming interface.
- **Calculation Day:** Any day for which a CME CF Spot-Quoted Cryptocurrency Markers is published.
- **Relevant Real Time Index:** The CME CF Cryptocurrency Real Time Index referenced by a CME CF Spot-Quoted Cryptocurrency Marker, as defined in Section 7.
- **Relevant Pair:** The cryptocurrency base asset versus the quote asset  $r$  referenced by the Relevant Real Time Index, as defined in Section 7.
- **Retrieval Time:** One minute after the end of the TWAP Period on a given Calculation Day, as given by the server clock of the Calculation Agent.
- **TWAP Period:** A period of time equal to the TWAP Period Length leading up to the Effective Time, as defined in Section 7.

## 4 Methodology

### 4.1 Qualitative Description

The CME CF Spot-Quoted Cryptocurrency Markers are calculated based on the Relevant [CME CF Cryptocurrency Real Time Indices](#).

Calculation steps on any given Calculation Day are as follows:

1. All Relevant CME CF Cryptocurrency Real Time Index data are added to a joint list, with each entry including both the timestamp and the corresponding index value.
2. The sum of the recorded index values is divided by the total number of entries in the list to produce the final time-weighted reference rate.

### 4.2 Mathematical Representation

The following table shows the symbols used in the mathematical representation of CME CF Spot-Quoted Cryptocurrency Markers:

Symbol	Name	Description	Type
$T$	Effective time	The time as of which the CME CF Spot-Quoted Cryptocurrency Marker is calculated	Parameter
$\tau$	TWAP period length	The length of the time-period prior to the effective time during which real time index values are collected	Parameter
$RTI$	TWAP Period CME CF Real Time Index	The collection of CME CF Real Time Index values (CFRTI) in the TWAP Period	Input
$I$	TWAP Period Index Count	The total number of real time index values in the TWAP Period	Output
$rti_i$ with $rti_i \in RTI$	Real Time Index data point	The $i$ th real time index value in the TWAP Period	Input
$SPOT_T$	CME CF Spot-Quoted Cryptocurrency Marker	The CME CF Spot-Quoted Cryptocurrency Marker at time $T$	Output

The CME CF Spot-Quoted Cryptocurrency Marker as of the effective time  $T$ ,  $SPOT_T$ , is then given by:

$$SPOT_T = \frac{\sum_{i=1}^I rti_i}{I} \quad (\text{Eq. 1})$$

## 5 Contingency Calculation Rules

### 5.1 Delayed Data and Missing Data

Delayed data and missing data are treated according to the following rules:

1. Where Relevant Real Time Index values exist but cannot be retrieved by the Calculation Agent before the Index Publication Time then they will be disregarded from the relevant index calculation for that Calculation Day.
2. If no Relevant Real Time Index value exists on a given Calculation Day, then a Calculation Failure Event shall be declared by the Administrator (see Section 5.5).

### 5.2 Delayed Calculation & Publication

Where for any reason the Administrator is not able to calculate and publish a CME CF Spot-Quoted Cryptocurrency Marker within the Dissemination Time on any given Calculation Day then the Administrator shall clearly communicate to all licensees via Statuspage that calculation and publication has been delayed. The Administrator will seek to publish the CME CF Spot-Quoted Cryptocurrency Marker for that Calculation Day as soon as it is able to. Should the Administrator not be able to calculate and publish a CME CF Spot-Quoted Cryptocurrency Marker by 23:59:59 London time then the provisions of Rule 5.5 shall come into effect.

### 5.3 Expert Judgment

The Administrator does not utilise expert judgment in the day-to-day calculation of the Reference Rates. In extraordinary circumstances Expert Judgement may be exercised by the Administrator in accordance with its codified policies and processes which are available upon request.

### 5.4 Calculation Failure

If a CME CF Spot-Quoted Cryptocurrency Marker cannot be calculated for a given Calculation Day before 23:59:59 London time, for instance because:

- no Relevant Real Time Index value exist on that Calculation Day, or
- one or more Relevant Real Time Indices exist but for any reason cannot be retrieved by the Calculation Agent, or

- any other reason or circumstance that prevents the orderly calculation of a CME CF Spot-Quoted Cryptocurrency Marker,

then the CME CF Spot-Quoted Cryptocurrency Marker for that Calculation Day is given by the CME CF Spot-Quoted Cryptocurrency Marker published on the previous Calculation Day and this Reference Rate value shall be published with a marker of (\*). Any Calculation Failure events will be clearly communicated to all licensees via Statuspage.

## 6 Restatement & Republishing

The Administrator may restate and republish the index value where the published value is found to be incorrect. This will only occur if both the below conditions are met:

1. Timeliness – where the Administrator can RESTATE and REPUBLISH the index value before 23:59:59 of the given Calculation Day.
2. Materiality – where the RESTATED index value average has an absolute variance greater than 0.10% for the average value for the given Calculation Day.

Example:

- The index on a given Calculation Day is published as 1234.56
- The index will only be RESTATED if the average is:
  - Greater than 1235.79
  - OR
  - Less than 1233.33

Where the above conditions are met the Administrator shall clearly communicate to all licensees via Statuspage that a restatement and republishing of the CME CF Spot-Quoted Cryptocurrency Marker will take place for that Calculation Day.

The Administrator shall restate the impacted CME CF Spot-Quoted Cryptocurrency Marker as soon as possible and shall do so by overwriting the previously published CME CF Spot-Quoted Cryptocurrency Marker. This restated CME CF Spot-Quoted Cryptocurrency Marker will carry no mark when published and will be final and not subject to any further change or republication.

## 7 Parameters

Parameter	<b>CME CF Spot-Quoted Bitcoin Marker</b>
Ticker Symbol	BTCSпотNY
Relevant Pair	Bitcoin vs. U.S. Dollars
Relevant Real Time Index	CME CF Bitcoin Real Time Index (BRTI)
Effective Time ( $T$ )	4:00:00 p.m. New York Time
TWAP Period Length ( $\tau$ )	60 seconds
TWAP Period	3:59:01 p.m. to 4:00:00 p.m. New York Time

Parameter	<b>CME CF Spot-Quoted Ether Marker</b>
Ticker Symbol	ETHspotNY
Relevant Pair	Ether vs. U.S. Dollars
Relevant Real Time Index	CME CF Ether-Dollar Real Time Index (ETHUSD_RTI)
Effective Time ( $T$ )	4:00:00 p.m. New York Time
TWAP Period Length ( $\tau$ )	60 seconds
TWAP Period	3:59:01 p.m. to 4:00:00 p.m. New York Time

## 8 Reference Rate Specifications

	<b>CME CF Spot-Quoted Bitcoin Marker</b>	<b>CME CF Spot-Quoted Ether Marker</b>
Administrator	CF Benchmarks Ltd	
Calculation Agent	CF Benchmarks Ltd	
Description	U.S. Dollar price of one Bitcoin as of 4:00 p.m. New York time	
Calculation Methodology	Arithmetic average of real time index values during the TWAP period	
Dissemination Time	Once per day, every day, between 4:00 p.m. and 4:30 p.m. New York time	
Dissemination Precision	0.01 U.S. Dollars	

## 9 Methodology Review and Changes

This methodology is subject to internal review by the Administrator at least annually.

All material changes to the methodology shall only be implemented after a consultation process with users and relevant stakeholders that shall be conducted according to the Administrator's policies.

Should the Administrator deem it necessary to cease providing any of the Reference Rates it shall only do so after a consultation process with users and relevant stakeholders that shall be conducted according to the Administrator's policies.

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