



CMBI Single Asset Index Methodology

Version 1.0

Last Revised: December 26, 2019

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0 Change Log

Release	Date	Changes
Version 1.0	December 26, 2019	Finalized CMBI Single Asset Index Methodology

1 Introduction

Coin Metrics' mission is to provide transparent and actionable cryptoasset market and network (on-chain) data. As one of the early providers of both market and network data, Coin Metrics is uniquely positioned to provide investors with a high quality suite of crypto indexes.

The Coin Metrics Bletchley Indexes ("CMBI") are designed to provide cryptoasset markets with a diverse range of market capitalization-weighted, equal-weighted and network data-weighted indexes to measure performance of the largest and most utilized global cryptoassets. CMBI products are operated and calculated by Coin Metrics and are designed to serve as an independent, transparent, and comprehensive measure of cryptoasset market performance.

Indexes are weighted and calculated using a robust and resilient methodology that is resistant to manipulation and adheres to international best practices for financial benchmarks, including the International Organization of Securities Commissions' (IOSCO) Principles for Financial Benchmarks. The Coin Metrics Oversight Committee (the "Oversight Committee") protects the integrity of CMBI and ensures the indexes serve as a source of transparent and independent benchmarking.

This document is intended to be read in conjunction with other Coin Metrics methodologies that inform the data inputs. These include the CM Real-Time Reference Rates Methodology and CM Reference Rates Methodology.

2 Description

The indexes are reflective of the returns an investor would expect by purchasing all of the assets at the corresponding weights for each index. Index prices are quoted in real-time and assets are rebalanced on the first business day of every month at 16:00 ET to account for the inflation rate of each asset, changes in market pricing, changes in network activity, and the addition or deletion of index constituents.

Given the early stages and financial immaturity of the cryptoasset market, there is insufficient trading infrastructure, custody solutions, liquidity, or other financial services to support the long tail of cryptoassets. These factors have gone into the design of CMBI products and the methodology outlined below so as to create a suite of investable indexes. As the ecosystem evolves and becomes more sophisticated, it may be deemed that other indexes become investable.

Detailed index data is provided monthly to licensees of the CMBI products.

3 Eligibility Criteria

The sole criteria to be included as a constituent in any specific CMBI Single Asset Index universe is that the cryptoasset represents the underlying interest of the designated index.

3.1 Bitcoin Index Eligibility

The eligible universe is represented by Bitcoin (BTC). All other digital assets that are not Bitcoin are excluded.

3.2 Ethereum Index Eligibility

The eligible universe is represented by Ether (ETH). All other digital assets that are not Ether are excluded.

4 Index Construction and Maintenance

4.1 Approach

For the CMBI Single Asset Index constituent selection, the asset that meets the criteria as outlined in *Section 3 Eligibility Criteria* is selected as the sole asset within the respective index.

Cryptoassets are traded 24 hours a day, 7 days a week, 365 days a year. The CMBI Single Asset Indexes have one official close that is subject to human review at 16:00 ET.

CMBI Single Asset Indexes are rebalanced monthly on the first business day of the month at 16:00 ET (the “Effective Date”). Business days are defined as Monday to Friday, excluding public holidays, as defined by the New York Stock Exchange (NYSE) holidays and trading hours calendar. To the extent that a forked asset meets the Coin Metrics definition of ‘legitimate’ (as defined in the CMBI Fork Legitimacy Policy), a liquidation event will occur during index rebalancing. Coin Metrics does not deem airdrops as eligible for a liquidation event in any CMBI Single Asset Index. When there is no liquidation event for any fork, the rebalance process will still be conducted but will result in no change to an index.

4.2 Single Asset Indexes

4.2.1 CMBI Bitcoin Index

The rebalancing process is as described below:

1. Universe: The eligible investment universe is Bitcoin.
2. Constituent Selection: The only constituent selected is Bitcoin.
3. Weighting: 100% Bitcoin.

No additions or deletions are made to the index between rebalancings.

4.2.2 CMBI Ethereum Index

The rebalancing process is as described below:

1. Universe: The eligible investment universe is Ether.
2. Constituent Selection: The only constituent selected is Ether.
3. Weighting: 100% Ether.

No additions or deletions are made to the index between rebalancings.

4.3 Currency of Calculation

The CMBI Single Asset Indexes are quoted in U.S. dollars and Bitcoin. For real-time index pricing, the CM Real-Time Reference Rates are used. For end of day pricing, the CM Reference Rates are used. Both the CM Real-Time Reference Rates and CM Reference Rates are quoted in U.S. dollars and can be converted to be quoted in Bitcoin.

4.4 Index Return Types

Coin Metrics calculates two return types which vary in their treatment of legitimate forked assets. For more information on legitimate forked assets, please refer to the CMBI Fork Legitimacy Policy.

- Price Return versions are calculated without crediting any value for a legitimate fork.
- Total Return versions reinvest the value of a legitimate fork without consideration of taxes. For information on the timing of the liquidation of a legitimate fork and value accreditation to the respective index, please refer to the CMBI Fork Legitimacy Policy.

4.5 Historical Availability and Base Values

Index history availability and values are shown in the table below.

Name	Ticker	Return Type	Launch Date	First Value Date	Base Date	Base Value (USD)	Base Value (BTC)
CMBI Bitcoin Index	CMBIBTC	Price return	2020-01-01	2010-07-18	2010-07-18	0.0808	1
	CMBIBTCT	Total return	2020-01-01	2010-07-18	2010-07-18	0.0808	1
CMBI Ethereum Index	CMBIETH	Price return	TBC	2015-08-08	2015-08-08	0.5320	0.00197695
	CMBIETHHT	Total return	TBC	2015-08-08	2015-08-08	0.5320	0.00197695

5 Index Data

5.1 Data Sources

CMBI leverages both Coin Metrics products and external data sources as a means of constructing the indexes and calculating the index level of CMBI products.

5.1.1 Real-Time Index Pricing

Real-time input price data for CMBI products is sourced from Coin Metrics Real-Time Reference Rates. Refer to the Coin Metrics Real-Time Reference Rates Methodology for more information.

5.1.2 End of Day Index Pricing

End of day input price data for CMBI products is sourced from Coin Metrics Reference Rates. Refer to the Coin Metrics Reference Rates Methodology for more information.

6 Index Governance

The Coin Metrics Oversight Committee (the "Oversight Committee") and Coin Metrics Index Committee (the "Index Committee") oversee the integrity of the CMBI products.

6.1 Administration

Coin Metrics serves as the administrator for CMBI products and has primary responsibility for all aspects of the index construction processes, including development, definition, determination, dissemination, operation, and governance. All aspects of index production are carried out by Coin Metrics, however, Coin Metrics relies on a few third party agreements to obtain data inputs for index calculation.

Coin Metrics ensures that transparency in relation to significant decisions and associated rationale are published and made available to external stakeholders. Data contingency and exclusion rules are in place to handle certain extraordinary circumstances and external factors beyond the control of Coin Metrics.

6.2 Index Committees

6.2.1 Coin Metrics Oversight Committee

The Oversight Committee provides independent oversight over the production of CMBI products. The Oversight Committee's responsibilities include regular reviews of the CMBI production process, the CMBI methodologies, the selection of data sources and data inputs, any uses of expert judgment or non-standard procedures, conflicts of interest, the addition or termination of CMBI products, reviewing the results of external and internal audits, and complaints or questions regarding the indexes from external stakeholders. Additional information regarding the responsibilities and membership of the Oversight Committee can be found in the Coin Metrics Governance Committee Charter.

6.2.2 Coin Metrics Index Committee

The Index Committee maintains all CMBI Single Asset Indexes. Committee members are Coin Metrics employees. The committee meets monthly to review any significant market events, revise index policies as required and review any ongoing consultation results. In the daily maintenance of CMBI Single Asset Indexes, the Index Committee reserves the right to apply exceptions and make expert judgements as required to maintain the integrity of the indexes. In such an instance where index determination deviates from the standard methodology or policies as defined in this document or supplemental documents, clients will receive sufficient notice when possible.

At a minimum, the Index Committee will review the CMBI Single Asset Index Methodology annually to ensure that indexes that follow the process and policies stated within this document continue to achieve their stated objectives.

Coin Metrics considers the content discussed at monthly Index Committee meetings to be potentially market moving or material and as such treats minutes as confidential.

For information on expert judgement, please refer to the CMBI Policy Documentation.

7 Index Policy

7.1 Announcements

Index constituent data is analyzed for completeness daily. In the case of any significant foreseeable event for any index constituent, an announcement will be distributed via a monthly index report distributed to all clients. For any anomalies that are detected during the daily quality review process, Coin Metrics will develop a plan to notify, solicit comments from, and consult with external stakeholders via email or another pre defined communication channel.

Press releases such as new index creation or significant changes to existing index construction will be released on the Coin Metrics blog (<https://coinmetrics.io/blog/>).

7.2 Holiday Schedule

The CMBI Single Asset Indexes are calculated 24 hours a day, 7 days a week, 365 days a year.

Rebalances are conducted on business days, Monday to Friday, except for holidays as defined by the New York Stock Exchange (NYSE) holidays and trading hours calendar.

A complete holiday schedule is available on request.

7.3 Restatement Policy

For information on the Restatement Policy, please refer to the CMBI Policy Documentation.

7.4 Real-Time Pricing

Real-time index pricing does not update an index's level every time a trade occurs, but rather sources data from CM Real-Time Reference Rates whose methodology stipulates that an assets price is determined using a weighted-median of the most recent trade from each of the constituent markets. Further, index real-time levels will be produced on a predetermined fixed interval (e.g. 15 seconds). At each interval, the CM Real-Time Reference Rates will produce pricing for each constituent asset of an index which will inform index level determination. Real-time intraday index price is provided 24 hours a day, 7 days a week, 365 days a year.

7.5 End of Day Pricing

End of day index pricing sources data from CM Reference Rates, which produce 24 rates daily per asset, one rate at the start of every hour. CMBI Single Asset Indexes utilize the 16:00 ET rate for determination of the end of day index level. The CM Reference Rate Methodology stipulates that an assets price is determined utilizing a time-weighted, volume-weighted median over a 61 minute window of trade data. The 16:00 ET end of day rate is subject to human review.

Index licensees may select to utilize and reference an alternate hourly CM Reference Rate for the end of day price of their product, that may not be subject to human review.

7.6 Calculation and Pricing Disruptions

7.6.1 Real-Time Index Calculation

The CM Real-Time Reference Rates Methodology outlines management of special situations where data is delayed, missing, or unavailable due to periods of illiquidity, extraordinary market circumstances, or outside factors beyond the control of Coin Metrics.

7.6.2 End of Day Index Calculation

The CM Reference Rates Methodology outlines management of special situations where data is delayed, missing, or unavailable due to periods of illiquidity, extraordinary market circumstances, or outside factors beyond the control of Coin Metrics.

7.7 Unexpected Exchange Closures

For information on the treatment of unexpected exchange closures, please refer to the CMBI Policy Documentation.

7.8 Treatment of Forks

For detailed information on the treatment of forks, please refer to the CMBI Fork Legitimacy Policies.

Coin Metrics do not deem airdrops as eligible for a liquidation event in any CMBI Single Asset Index.

7.9 Record Retention

For information on record retention, please refer to the CMBI Policy Documentation.

7.10 Material Changes or Termination

For information on material changes to indexes or termination of indexes, please refer to the CMBI Policy Documentation.

7.11 Conflicts of Interest

For information on Conflicts of Interest, please refer to the Coin Metrics Conflicts of Interest Policy.

7.12 Complaints

Complaints about the calculation methodology of the Indexes or the price of a CMBI product should be submitted in writing to cmbi@coinmetrics.io. Coin Metrics will investigate any complaints and respond to the complainant in a fair and timely manner. Any investigation of the complaint will adhere to the following procedures:

1. The personnel receiving and investigating the complaint will be independent of any personnel who may have been involved in the subject of the complaint.
2. All records and documents submitted by the complainant and related to the investigation into the complaint will be retained for a period of at least five years and submitted to the Oversight Committee for review.

7.13 Internal Audit

The Oversight Committee appoints an independent internal auditor to review the CMBI product's adherence to its stated methodology, compliance with policies, and adherence to the IOSCO's Principles of Financial Benchmarks. The frequency of the independent internal audit is once annually.

7.14 Internal Controls

Coin Metrics has implemented internal controls to protect the integrity of CMBI products. These controls cover the selection of input data sources, the collection of data from input data sources, and maintaining the integrity of collected data. Staff involved with the design, calculation and dissemination of Indexes have been trained in the proper usage of the data and maintain proper segregation of responsibilities. Any exercise of non-standard procedures is subject to dual approval by staff members, and is logged and reported to the Oversight Committee which periodically reviews any incidents. In addition, Coin Metrics maintains a whistleblowing mechanism to facilitate the reporting of any potential misconduct.

8 Contact Information

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