

CF Digital Asset Category Index

**Market Cap Weight (Capped) Variants
Methodology Guide**

Version:
2.0

Version Date:
06th February 2024

Table of Contents

1	Version History.....	3
2	Introduction.....	4
2.1	Index Aims.....	4
2.2	Requirements.....	4
2.3	Underlying Economic Reality	5
3	Index Parameters	6
3.1	Portfolio Composition.....	6
3.2	Eligible Index Constituents.....	7
3.3	Index Denomination	8
3.4	Index Return Types	8
3.5	Calculation & Publication Frequency.....	8
3.6	Constituent Reviews	8
3.7	Constituent Weighting	8
3.8	Index Constituent Pricing Sources (Input Data).....	9
3.9	Rebalance Frequency	9
3.9.1	Rebalance Determination Point	9
3.9.2	Rebalance Implementation Point.....	9
3.9.3	Rebalance Determination Pricing Sources.....	9
4	Parameter Table	10
4.1	Index Parameter Table.....	10
4.2	Constituent Observation Windows and Partition Lengths.....	17
4.3	Expert Judgement.....	18
5	Index Calculation Method	19
5.1	Definitions	19
5.2	List of Methodologies	20
5.3	Weights Calculation.....	20
5.4	Capping and Flooring	22
5.5	Index Calculation	22
5.6	Metadata	23
6	Contingency Calculation Rules	24
6.1	Delayed Calculation and Dissemination	24
6.2	Calculation Failure	24
7	Restatement & Republishing	26
8	Methodology Review and Changes to the Index.....	27
	Contact Information.....	28

1 Version History

Version	Date Issued	Summary of Change	Owner
V1.0	13 Jan 2022	n/a	CF Benchmarks Management
V1.1	25 Feb 2022	Addition of CF Web3.0 Services Index. Update to Pricing Sources	CF Benchmarks Management
V1.2	18 Mar 2022	Update to Determination Time Definition of Aggregated Weight	CF Benchmarks Management
V1.3	29 July 2022	Parameter Tables: Updated Minimum Full Market Capitalization to Minimum Full Market Capitalization Ratio.	CF Benchmarks Management
V1.4	6 Sept 2022	Update to index constituents and observation windows.	CF Benchmarks Management
V1.5	17 Nov 2022	Change Return Factor equation Update to Constituent List	CF Benchmarks Management
V1.6	8 May 2023	Change eligibility criteria of Smart Contract Platforms Index constituents	CF Benchmarks Management
V1.7	13 Nov 2023	Update to logo & format	CF Benchmarks Marketing
V1.8	14 Nov 2023	Updated parameter tables	CF Benchmarks Management
V1.9	20 Nov 2023	Updated logo (AKC v2)	CF Benchmarks Marketing
V2.0	06 Feb 2024	<p>Updates to the Administrator communication procedures for Delayed Calculation & Publication; Calculation Failure; Restatement & Republishing and Market Failure Events</p> <p>Updates to Restatement & Republishing Section 7</p> <p>Addition of Contact Information Section</p>	CF Benchmarks Compliance Function

2 Introduction

2.1 Index Aims

The CF Blockchain Category Index (the “**Index**”) seeks to track the performance of specific Categories, Sub-Categories or Segments within the **CF Digital Asset Classification Structure (DACS)**, through a portfolio of Digital Assets that are native to the protocols that adhere to the Categories, Sub-Categories or Segments definition described in the sections below.

The Index has been designed to be investible and to be used as a benchmark as defined by the **UK Benchmark Regulations (“UK BMR”)** including for:

- The performance benchmarking of actively managed portfolios of Digital Assets and determine relative performance
- The passive replication in investment funds and financial instruments and products
- The settlement of financial instruments including derivative contracts
- As a means of valuing or “marking to market” portfolio holdings of digital assets.

2.2 Requirements

For the Index to meet its stated aims it must be:

- Representative

To achieve true representation of the **CF DACS** Categories, Sub-Categories or Segments, it is necessary to construct a portfolio that ensures exposure to blockchains associated with delivery of the technology and functionality of the CF Classification Category, Sub-Category or Segment. For example, whilst many observers would associate the “smart contract” phenomenon with their use through sector specific Decentralized Applications (DApps), it is important to note that such “smart contracts” operate on a settlement blockchain, network fees are paid in the token native to a settlement blockchain and the transfer of assets are those that are either native to a settlement blockchain or those that have been tokenised to be compatible for transfer on a settlement blockchain.

- Replicable
 - In addition to selection of Index portfolios that fall within specific Categories, Sub-Categories or Segments of the CF DACS, minimum market capitalisations, asset turnover ratios are also employed to minimise any liquidity risks. Furthermore, at index reconstitution buffers are also employed to minimise transaction costs. Index portfolios that are comprised of digital assets falling within specific Categories, Sub-

Categories or Segments may become overly concentrated when weighted by free float market capitalization. Conversely where constituents are equally weighted investors could be exposed to significant liquidity risks for the digital assets with lower market capitalizations. To mitigate these risks index variants will employ weight capping, modified market cap weight or equal weighting for constituents. Each variant is defined in the **Index Parameters** table. To mitigate against transaction costs and liquidity risks constituent buffering is also employed at reconstitution.

- Reliable
 - The Index shall be capable of calculation and administration in a reliable and robust manner in accordance with all CF Benchmarks Administration Policies and the provisions of the **UK BMR**.

2.3 Underlying Economic Reality

The Index is intended to measure the underlying economic reality of the value of the base assets in units of the quoted currency as held in a portfolio weighted to seek to deliver returns of a Category, Sub-Category or Segment of digital assets. This is achieved by observing the exchange of the base assets for the quote asset and vice versa. This is accomplished using transactional input data from Constituent Exchanges, the criteria for eligibility for which are available in the CF Constituent Exchange Criteria.

3 Index Parameters

3.1 Portfolio Composition

The Index Portfolio shall be constituted of digital assets that fall into the relevant CF Classification Categories, Sub-Categories or Segments as detailed in the **CF DACS Methodology**. Such Categories, Sub-Categories or Segments may be updated from time to time in the CF Classification Methodology.

	Category	Sub- Category	Segment
Digital Assets	Sector Applications	Finance	Trading
			Derivatives
			Asset & Wealth Management
			Borrowing & Lending
			Stablecoin Issuance and Management
			Diversified Financial Services
		Culture	
		Industry	
	Services	Infrastructure	Scaling
			Interoperability
			Security
			Computing
		Utility	Oracles
			Identity

			Information & Data Management
			SDK & Tooling
	Settlement	Programmable	
		Non-Programmable	

3.2 Eligible Index Constituents

The Index constituents shall be assets which are eligible under ***CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 2*** for Asset Safekeeping, Liquidity, and Asset Turnover. The parameters of this screening are included in the **Index Parameter Table**.

Additionally, to be eligible for inclusion in the index, Constituents shall have a Full Market Capitalization that is above the **Minimum Full Market Cap** for the Index as defined in the Index Parameters. Full Market Capitalization shall be calculated in accordance with Section 4.2 of ***CF Digital Asset Index Family - Multi Asset Series Ground Rules***.

In accordance with ***CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 3.2*** at Constituent Review dates, buffering for existing index constituents shall be employed to avoid unnecessary portfolio churn. All buffering parameters are published in the **Index Parameter Table**.

Digital Assets that are, by their design, pegged to the value of other assets such as but not limited to fiat currency (“stablecoins”), a physical commodity or another Digital Asset, are not eligible for inclusion. Digital assets whose status is ambiguous or has been questioned by Regulatory and Supervisory Authorities of major jurisdictions including but not limited to the United States of America, the European Union and the United Kingdom are also not eligible for inclusion.

The eligible constituents for a Category, Sub-Category, Segment or combination thereof Index shall include all protocols that are classified as part of such Category, Sub-Category or Segment in accordance with the **CF Digital Asset Classification Methodology** at the time of the index reconstitution.

As per the ***CF Digital Asset Index Family - Multi Asset Series Ground Rules – Section 2*** to be able to reliably determine the pricing of any constituent of the Index any Digital Asset that is not listed on 2 (two) or more constituent exchanges shall not be eligible for inclusion. The value of this parameter can be modified if specified in the **Index Parameter Table**.

3.3 Index Denomination

The Index is denominated in a unique fiat base currency as outlined in the **Index Parameter Table**.

3.4 Index Return Types

The index is available in two return variants:

- **Total Return:** Inclusive of distributions (such as forks, airdrops amongst others) and deductions - the definition and treatment of distributions and deductions are defined in the *CF Digital Asset Index Family - Multi Asset Series Ground Rules – Section 7 Treatment of Distributions & Section 8 Treatment of Deductions*
- **Price Return:** Exclusive of distributions but inclusive of deductions

3.5 Calculation & Publication Frequency

The Index shall be calculated once a day at a time as defined in the Index Parameter Table and published soon after, 365 days a year.

3.6 Constituent Reviews

Constituent Reviews are carried out twice a year as described In the *CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 3 Constituent Review*. Where it is prudent to do so the number of constituents for any index shall be capped and appropriate buffers will be employed, the exact buffering parameters are shown in the Parameter Table.

3.7 Constituent Weighting

The constituents are weighted as follows:

Allocated using a weighting method as outlined in the **Index Parameter Table** across Constituent Eligible protocols within the Classification Category, Sub-Category or Segment to ensure adequate index exposure to a wide range of blockchain activities without hindering replication through the inclusion of small capitalization assets. As the crypto ecosystem matures and more meta data that may be used to inform constituent weights becomes available in the future, the Index Administrator may consider additional metrics in selecting assets to ensure the Index adequately represents the Category, Sub-Category or Segment activities.

3.8 Index Constituent Pricing Sources (Input Data)

The Index Constituent Pricing Source shall be the CF Benchmarks Reference Rates available on www.cfbenchmarks.com or other CF Benchmarks pricing sources that utilise the same calculation methodology as CF Benchmarks single Asset Reference and Settlement Prices - see Parameter table for observation windows and partition lengths.

The respective methodologies for each of these pricing benchmarks is available at <https://www.cfbenchmarks.com/>.

Should these sources become permanently unavailable then *CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 6 Input Data Hierarchy* shall be applied after review by the CF Digital Asset Index Family Oversight Function.

3.9 Rebalance Frequency

The Index shall be rebalanced per the frequency defined in the Index Parameters per the procedures described in the *CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 6 Rebalance Procedure*.

3.9.1 Rebalance Determination Point

16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point.

3.9.2 Rebalance Implementation Point

At the Index Calculation & Publication time on the first business day of Rebalance month.

3.9.3 Rebalance Determination Pricing Sources

The Index Rebalance Determination Pricing Source shall be the CF Benchmarks Reference Rates available on <https://www.cfbenchmarks.com/> or other CF Benchmarks pricing sources that utilise the same calculation methodology as CF Benchmarks single Asset Reference and Settlement Prices - see Parameter table for observation windows and partition lengths.

The respective methodologies for each of these pricing benchmarks is available at <https://www.cfbenchmarks.com/>.

Should these sources become permanently unavailable then *CF Digital Asset Index Family - Multi Asset Series Ground Rules - Section 6 Input Data Hierarchy* shall be applied after review by the CF Digital Asset Index Family Oversight Function.

4 Parameter Table

4.1 Index Parameter Table

Index Name	CF Web 3.0 Smart Contract Platforms Index – London Variant
Ticker (Price Return)	CFSPMWLDN_PR
Ticker (Total Return)	CFSPMWLDN_TR
Inception Date	01 December 2021
Inception Value	1,000
Base Currency	USD
Constituents	All Digital Assets within the Settlement Networks Sub-Category - Programmable, the Services - Infrastructure Segments - Scaling and Interoperability that meet all Eligibility Requirements and existing constituents that fall within the constituent buffering parameter at Index Reconstitution.
Constituent Pricing Sources	CF Benchmarks Pricing Sources
Constituent Selection Method	CF Digital Asset Classification Structure Methodology and the CF Digital Assets Multi-Asset Series Ground Rules
Return Types	<ul style="list-style-type: none"> • Total Return • Price Return
Calculation & Publication Time	Between 16:05 and 16:30 London time
Calculation & Publication Frequency	Once a day, 365 days a year.
Constituent Minimum Full Market Capitalization Ratio	0.10%
Constituent Minimum Liquidity Requirement	0.05%

Constituent Minimum Monthly Asset Turnover	2%
Buffers for Exclusion of an Existing Constituent at Reconstitution	<ul style="list-style-type: none"> - 50% of the Minimum Full Market Cap - 50% of the Minimum Liquidity Ratio - 25% of the Minimum Turnover Ratio
Constituent Weighting	Market Capitalization Weighted
Weighting Caps	22.5%
Weighting Floors	None
Rebalance Frequency / Month	Quarterly – 1 st business day of March, June, Sep, Dec.
Rebalance Determination Time	16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point
Rebalance Implementation Time	On the Calculation & Publication time, on the first business day of Rebalance month.

Index Name	CF Web 3.0 Smart Contract Platforms Index - Brazil Variant
Ticker (Price Return)	CFSPMWBR_TPR
Ticker (Total Return)	CFSPMWBR_TTR
Inception Date	01 December 2021
Inception Value	1,000
Base Currency	USD
Constituents	All Digital Assets within the Settlement Networks Sub-Category - Programmable, the Services - Infrastructure Segments - Scaling and Interoperability that meet all Eligibility Requirements and existing constituents that fall within the constituent buffering parameter at Index Reconstitution.

Constituent Pricing Sources	CF Benchmarks Pricing Sources
Constituent Selection Method	CF Digital Asset Classification Structure Methodology and the CF Digital Assets Multi-Asset Series Ground Rules
Return Types	<ul style="list-style-type: none"> • Total Return • Price Return
Calculation & Publication Time	Between 16:05 and 16:30 Brazil time
Calculation & Publication Frequency	Once a day, 365 days a year.
Constituent Minimum Full Market Capitalization Ratio	0.10%
Constituent Minimum Liquidity Requirement	0.05%
Constituent Minimum Monthly Asset Turnover	2%
Buffers for Exclusion of an Existing Constituent at Reconstitution	<ul style="list-style-type: none"> - 50% of the Minimum Full Market Cap - 50% of the Minimum Liquidity Ratio - 25% of the Minimum Turnover Ratio
Constituent Weighting	Market Capitalization Weighted
Weighting Caps	22.5%
Weighting Floors	None
Rebalance Frequency / Month	Quarterly – 1 st business day of March, June, Sep, Dec.
Rebalance Determination Time	16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point
Rebalance Implementation Time	On the Calculation & Publication time, on the first business day of the Rebalance month.

Index Name	CF Web 3.0 Blockchain Infrastructure Index - Brazil Variant
Ticker (Price Return)	CFBSMWBRT_PR
Ticker (Total Return)	CFBSMWBRT_TR
Inception Date	01 April 2022
Inception Value	1,000
Base Currency	USD
Constituents	All Digital Assets within the CF DACS Services Category that meet all Eligibility Requirements and existing constituents that fall within the constituent buffering parameter at Index Reconstitution.
Constituent Pricing Sources	CF Benchmarks Pricing Sources
Constituent Selection Method	CF Digital Asset Classification Structure Methodology and the CF Digital Assets Multi-Asset Series Ground Rules
Return Types	<ul style="list-style-type: none"> • Total Return • Price Return
Calculation & Publication Time	Between 16:05 and 16:30 Brasilia time
Calculation & Publication Frequency	Once a day, 365 days a year.
Constituent Minimum Full Market Capitalization Ratio	0.10%
Constituent Minimum Liquidity Requirement	0.05%
Constituent Minimum Monthly Asset Turnover	2%

Buffers for Exclusion of an Existing Constituent at Reconstitution	<ul style="list-style-type: none"> - 50% of the Minimum Full Market Cap - 50% of the Minimum Liquidity Ratio - 25% of the Minimum Turnover Ratio
Constituent Weighting	Market Capitalization Weighted
Weighting Caps	22.5%
Weighting Floors	None
Rebalance Frequency / Month	Quarterly – 1 st business day of March, June, Sep, Dec.
Rebalance Determination Time	16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point
Rebalance Implementation Time	On the Calculation & Publication time, on the first business day of the Rebalance month.

Index Name	CF Web 3.0 Blockchain Infrastructure Index - London Variant
Ticker (Price Return)	CFBSMWLDN_RR_PR
Ticker (Total Return)	CFBSMWLDN_RR_TR
Inception Date	01 April 2022
Inception Value	1,000
Base Currency	USD
Constituents	All Digital Assets within the CF DACS Services Category that meet all Eligibility Requirements and existing constituents that fall within the constituent buffering parameter at Index Reconstitution.
Constituent Pricing Sources	CF Benchmarks Pricing Sources

Constituent Selection Method	CF Digital Asset Classification Structure Methodology and the CF Digital Assets Multi-Asset Series Ground Rules
Return Types	<ul style="list-style-type: none"> • Total Return • Price Return
Calculation & Publication Time	Between 16:05 and 16:30 London time
Calculation & Publication Frequency	Once a day, 365 days a year.
Constituent Minimum Full Market Capitalization Ratio	0.10%
Constituent Minimum Liquidity Requirement	0.05%
Constituent Minimum Monthly Asset Turnover	2%
Buffers for Exclusion of an Existing Constituent at Reconstitution	<ul style="list-style-type: none"> - 50% of the Minimum Full Market Cap - 50% of the Minimum Liquidity Ratio - 25% of the Minimum Turnover Ratio
Constituent Weighting	Market Capitalization Weighted
Weighting Caps	22.5%
Weighting Floors	None
Rebalance Frequency / Month	Quarterly – 1 st business day of March, June, Sep, Dec.
Rebalance Determination Time	16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point
Rebalance Implementation Time	On the Calculation & Publication time, on the first business day of the Rebalance month.

Index Name	CF Web 3.0 Blockchain Infrastructure Index - US Variant
Ticker (Price Return)	CFBSMWUS_RR_PR
Ticker (Total Return)	CFBSMWUS_RR_TR
Inception Date	01 April 2022
Inception Value	1,000
Base Currency	USD
Constituents	All Digital Assets within the CF DACS Services Category that meet all Eligibility Requirements and existing constituents that fall within the constituent buffering parameter at Index Reconstitution.
Constituent Pricing Sources	CF Benchmarks Pricing Sources
Constituent Selection Method	CF Digital Asset Classification Structure Methodology and the CF Digital Assets Multi-Asset Series Ground Rules
Return Types	<ul style="list-style-type: none"> • Total Return • Price Return
Calculation & Publication Time	Between 16:05 and 16:30 New York time
Calculation & Publication Frequency	Once a day, 365 days a year.
Constituent Minimum Full Market Capitalization Ratio	0.10%
Constituent Minimum Liquidity Requirement	0.05%
Constituent Minimum Monthly Asset Turnover	2%

Buffers for Exclusion of an Existing Constituent at Reconstitution	<ul style="list-style-type: none"> - 50% of the Minimum Full Market Cap - 50% of the Minimum Liquidity Ratio - 25% of the Minimum Turnover Ratio
Constituent Weighting	Market Capitalization Weighted
Weighting Caps	22.5%
Weighting Floors	None
Rebalance Frequency / Month	Quarterly – 1 st business day of March, June, Sep, Dec.
Rebalance Determination Time	16:00:00 UTC on the day which is 8 business days prior to the Rebalance Implementation Point
Rebalance Implementation Time	On the Calculation & Publication time, on the first business day of the Rebalance month.

4.2 Constituent Observation Windows and Partition Lengths

Index Calculation Time Zone:

- London Variant: British Standard Time (BST)
- Brazil Variant: Brasilia Standard Time (BRT)
- US Variant: US Eastern Standard Time (EST)

CF Web 3.0 Smart Contract Platforms	Partition Length	Partition Count	Index Calculation Time Zone	
			Window Start	Window End
ETH	5 mins	12	15:00	16:00
ADA	5 mins	12	15:00	16:00
SOL	5 mins	12	15:00	16:00
DOT	5 mins	12	15:00	16:00
ALGO	5 mins	12	15:00	16:00

XTZ	5 mins	12	15:00	16:00
ATOM	5 mins	12	15:00	16:00
AVAX	5 mins	12	15:00	16:00
EOS	10 mins	9	14:30	16:00
ETC	5 mins	12	15:00	16:00
ICP	5 mins	12	15:00	16:00
HBAR	5 mins	12	15:00	16:00

CF Web 3.0 Blockchain Infrastructure	Partition Length	Partition Count	Index Calculation Time Zone	
			Window Start	Window End
GRT	5 mins	12	15:00	16:00
LINK	5 mins	12	15:00	16:00
MATIC	5 mins	12	15:00	16:00
LRC	5 mins	12	15:00	16:00
QNT	5 mins	12	15:00	16:00
IMX	5 mins	12	15:00	16:00

4.3 Expert Judgement

The Administrator does not utilise expert judgment in the day-to-day calculation of the index. In extraordinary circumstances Expert Judgement may be exercised by the Administrator in the calculation, constituent review and rebalance procedure for the index. This will be done in accordance with its codified policies and processes which are available upon request.

5 Index Calculation Method

5.1 Definitions

Symbol	Name	Description
t	Effective time	The time at which the index is calculated
r_i	Rebalance Determination Time	The time when the rebalance parameters are determined for the i^{th} rebalance
k_i	Rebalance Implementation Time	The time when the rebalance parameters are implemented for the i^{th} rebalance
$c \in C_i$	Index Constituents	The list of constituents that are determined to be index constituents for the i^{th} rebalance
p_t^c	Constituent Pricing Source	The price of constituent c at time t
q_t^c	Determination Price	The price of constituent c used at time t used for rebalance, distribution and deduction. Note that this may be different from the Constituent Pricing Source
$w_{k_i}^c$	Initial weight	The weight of constituent c before capping and flooring
$w'_{k_i}^c$	Modified weight	The weight of constituent c after capping and flooring
$g_{k_i}^c$	Relative supply	The relative supply of constituent c before capping and flooring
$g'_{k_i}^c$	Modified relative supply	The relative supply of constituent c after capping and flooring
d_{k_i}	Divisor	Divisor used for the i^{th} rebalance
R_t	Return factor	Return factor at time t
A_{r_i}	Return amount	Return amount used for the i^{th} rebalance
I_t	Index value	Index value at time t
C	Capping percentage	The maximum weight of a constituent in %
F	Flooring percentage	The minimum weight of a constituent in %

Usage of Parameters between Variants: Parameters q_i^c , p_t^c , R_{k_i} , A_{r_i} and I_t are different between variants of this index family. Each section shall apply to each variant

independently, except for those equations which have parameters marked with the variant label:

Type	Label
Spot Rate	RTI
Settlement Price	RR
Total Return	TR
Price Return	PR

5.2 List of Methodologies

The index value is some factors times the sum for all constituents of the products of the constituent's supply and price:

$$I_i^B = \frac{R_t}{d_i} \sum_{c \in C_1} price(c, i) * supply(c, i)$$

Where B is a basket index.

Where R_t is to account for distributions and deductions.

Where d_i is the divisor needed for the index value to be continuous. More precision on the formula in Section 5.3.5.

The constituents' prices are given by the rebalance pricing source described in Section 3.8.

The Index weighting methodology must be one of the following:

1. Fix weight for all constituents.
2. Free Float Market Capitalisation for all constituents.

5.3 Weights Calculation

The relative supply $g_{k_i}^c$ and the weight $w_{r_i}^c$ relation is the following:

$$\{ g_{k_1}^c p_{k_1}^{c, RTI} = w_{k_1}^c I_{k_1} \quad i \geq 2, \quad g_{k_i}^c q_{k_i}^c = w_{r_i}^c \sum_{a \in C_i} g_{k_{i-1}}^a q_{k_i}^a \quad (1)$$

The same relation is also valid between the modified relative supply $g_{k_i}^{'c}$ and the modified weight $w_{k_i}^{'c}$:

$$\{ g'_{k_1} p_{k_1}^{c,RTI} = w'_{k_1} I_{k_1} \quad i \geq 2, \quad g'_{k_i} \varrho_{k_i}^c = w'_{r_i} \sum_{a \in C_i} g'_{k_{i-1}} \varrho_{k_i}^a \quad (2)$$

The Index initial value is $I_{k_1} = 1000$ if not specified otherwise in the Index Parameter Table.

Case 1: Fix Weights

The fix initial weights are given as inputs. The modified weights are given by capping and flooring the initial weights. The modified relative supply is inferred using the equation (2) above.

Case 2: Free Float Market Capitalisation

The Free Float Market Capitalisation is based on the Total Supply Likely to be Available for Trading as detailed in **CF Benchmarks Multi Asset Index Ground Rules – Section 4 Constituent Weighting**.

The initial weights are inferred using equation (1). The modified weights are given by capping and flooring the initial weights. The modified relative supply is inferred using the equation (2) above.

Example:

Fixed weight index composed of two asset A and B with the following parameters:

$\{ w^A = 50\% \quad w^B = 50\% \}, \{ p_{k_1}^{A,RTI} = 50 \quad p_{k_1}^{B,RTI} = 25 \}, I_{k_1}^{RTI} = 1000, C=100\% \text{ and } F=0\%.$

The modified weights are equal to the initial weights as there is no capping or flooring:

$$\{ w'^A = 50\% \quad w'^B = 50\%$$

At $T=k_1$:

$$\begin{aligned} \text{using (eq 2): } \{ g'_{t_1} = \frac{w'^A * I_{k_1}^{RTI}}{p_{k_1}^{A,RTI}} &= \frac{0.5 * 1000}{50} = 10 \text{ (unit A)} \quad g'_{t_1} = \frac{w'^A * I_{k_1}^{RTI}}{p_{k_1}^{B,RTI}} \\ &= \frac{0.5 * 1000}{25} = 20 \text{ (unit B)} \end{aligned}$$

At $T=k_2$:

The suppose the rebalancing price is now:

$$\{q_{k_2}^A = 50 \ q_{k_2}^B = 40$$

The index value before rebalancing is the following:

$$\sum_{c \in C_1} g'_{k_1}{}^c q_{k_2}^c = 10 * 50 + 20 * 40 = 1300$$

Hence the new relative supply is:

$$\begin{aligned} \text{using (eq 2): } \{g'_{k_2}{}^A &= \frac{w'^A * \sum_{c \in C_1} g'_{k_1}{}^c q_{k_2}^c}{q_{k_2}^A} = \frac{0.5 * 1300}{50} = 13 \quad g'_{k_2}{}^B \\ &= \frac{w'^B * \sum_{c \in C_1} g'_{k_1}{}^c q_{k_2}^c}{q_{k_2}^B} = \frac{0.5 * 1300}{40} = 16.25 \end{aligned}$$

5.4 Capping and Flooring

All methodology can apply a cap and floor on the constituents' weights. The case where no cap and floor are used is equivalent to a floor of 0% and a cap of 100%. Therefore, the following methodology is unique whether a cap and/or floor is applied.

The Capping value C and Flooring value F is given in the **Index Parameter Table**. The minimum capping and maximum flooring are: 1/ number of constituents.

Any constituent whose weight is greater than C is capped at C. Similarly, any constituent whose weight is smaller than F is floored at F. The **Aggregated Weight** to distribute is the difference between the weights lost due to capping and the weights added due to flooring.

Where the **Aggregated Weight** is positive, it shall be distributed proportionately on the constituents that are not capped. Where the **Aggregated Weight** is negative, it shall be subtracted proportionately from the constituents that are not floored.

This process is repeated until all constituents' weights are above or equal to F and below or equal to C.

5.5 Index Calculation

The index value at time t where $k_i \leq t < k_{i+1}$ is given by

$$I_t = \frac{R_t}{d_{k_i}} \sum_{c \in C_i} g'_{k_i}{}^c p_t^c$$

About R_t :

If the application point of distribution and deduction events is at time t , where $k_i \leq t < k_{i+1}$, let the Return Amount A_t be the sum of all Distribution Proceeds and Deductions Amounts from said events. Then the distribution adjustment factor shall be

$$R_t = R_{t-1} \left(1 + \frac{A_t}{\sum_{c \in C_i} g_t^c q_t^c} \right) \#(12)$$

Otherwise $R_t = R_{t-1}$.

About d_{k_i} :

The divisor is used to scale the index so that the value of the index is fixed at inception and continuous at each rebalancing. The divisor factor shall be:

$$\{d_{k_1} = \frac{1}{I_{k_1}} \sum_{c \in C_1} g_{r_1}^c p_{k_1}^c \forall i \geq 2, d_{k_i} = d_{k_{i-1}} \cdot \frac{\sum_{c \in C_i} g_{k_i}^c q_{k_i}^c}{\sum_{c \in C_{i-1}} g_{k_{i-1}}^c q_{k_{i-1}}^c}$$

5.6 Metadata

The *index share* of a constituent is defined as the number of units of a constituent one needs to buy such that the composition of all constituents reproduces the value of the index.

Example:

The index value is 1000. Assume a return factor of 1.6.

$$share_i^c = \frac{R_{k_i}}{d_{k_i}} g_{k_i}^c$$

Constituent	Price	Weight	Relative supply	Index share
A	\$5	50%	62.5	100
B	\$2	50%	156.25	250

6 Contingency Calculation Rules

There may be instances where the Index cannot be calculated according to the calculation methodology.

6.1 Delayed Calculation and Dissemination

Where any Constituent Pricing Source for the calculation of the index is delayed, missing or otherwise not available for any index calculation time the index value shall be deemed delayed, where no index value will be published. The index shall resume publication when valid Constituent Pricing Source(s) are published.

Where any Determination Price for the calculation of the index is delayed, missing or otherwise not available for a Rebalance, Distribution or Deduction Implementation Point, the index values(s) on and subsequent from Rebalance Implementation Point shall be deemed delayed, where no index value(s) will be published. The index shall resume publication when valid Determination Price(s) are published.

Where for the above or any reason the Administrator is not able to calculate and publish the index 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 Index for that Calculation Day as soon as it is able to.

6.2 Calculation Failure

If the index cannot be calculated for a given Calculation Day before 23:59:59 London time, for instance because:

- A Constituent Pricing Source for the calculation time is not published, or published but not retrieved by the Calculation Agent before 23:59:59 London time
- A Determination Price for the Rebalance, Distribution or Deduction Implementation Point is not published, or published but not retrieved by the Calculation Agent before 23:59:59 London time
- Any other reason or circumstance that prevents the orderly calculation of the index

Then the index value for that calculation day is given by the index value on the previous calculation day and this index value shall be published with a marker of (*).

The occurrence of any index calculation failure is reported to the CF Oversight Function. Any Calculation Failure events will be clearly communicated to all licensees via Statuspage.

7 Restatement & Republishing

The Administrator implemented CF Benchmarks Multi Asset Index Restatement Policy (“the Policy”) which outlines circumstances; materiality thresholds and timing for the Administrator’s restatement and republishing process. The Policy has been approved by the CF Cryptocurrency Index Family Oversight Function.

Where circumstances require to restate the stated index settlement price it will be restated and republished before 23:59:59 London time of that Calculation Day. For clarity where an error was identified on Day 1 but the process of investigating and agreeing corrective measures was concluded on Day 3 then it will be the Day 3 index settlement price that will be restated and republished before 23:59:59 London time of that Calculation Day. Restatement and Republishing announcements shall be clearly communicated to all licensees via Statuspage.

The Policy is subject to an internal review by the Administrator and the CF Cryptocurrency Index Family Oversight Function at least annually. It will also be reviewed in line with business changes and changes to regulation.

The latest Policy document is available [here](#).

8 Methodology Review and Changes to the Index

This methodology is subject to internal review by the Administrator and the CF Digital Asset Index Family Oversight Function at least annually.

Any changes to this methodology are overseen by the CF Digital Asset Index Family Oversight Function, and in accordance with UK BMR Article 13.

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 and overseen by the CF Digital Asset Index Family Oversight Function.

Should the Administrator deem it necessary to cease providing the Index it shall only do so after a consultation process with users and relevant stakeholders that shall be conducted according to the Administrator's policies and overseen by the CF Digital Asset Index Family Oversight Function.

Contact Information

CF Benchmarks Ltd

Address	Contact
CF Benchmarks Ltd 6th Floor One London Wall London EC2Y 5EB	Web: https://www.cfbenchmarks.com Phone: +44 20 8164 9900 Email: contact@cfbenchmarks.com
	Formal complaints or concerns regarding any CF Digital Asset Index Family products must be submitted by Email: complaints@cfbenchmarks.com Further details can be found on https://blog.cfbenchmarks.com/about/

Notice and Disclaimer

CF Benchmarks Ltd is registered in England with registered number 11654816 and registered office at 6th Floor One London Wall, London EC2Y 5EB, United Kingdom. CF Benchmarks is authorised by the UK Financial Conduct Authority as a registered Benchmark Administrator (FRN 847100).

This document and all of the information contained in it, including without limitation all methods, processes, concepts, text, data, graphs, charts (collectively, the "Information") is the property of CF Benchmarks Ltd or its licensors, direct or indirect suppliers or any third party involved in making or compiling any Information (collectively, with CF Benchmarks Ltd, the "Information Providers") and is provided for informational purposes only. The Information may not be reproduced or disseminated in whole or in part without prior written consent from CF Benchmarks Ltd.

The Information may not be used to create derivative works or to verify or correct other data or information without prior written consent from CF Benchmarks Ltd. For example (but without limitation), the Information may not be used to create indices, databases, risk models, analytics, software, or in connection with the issuing, offering, sponsoring, managing or marketing of any securities, portfolios, financial products or other investment vehicles utilizing or based on, linked to, tracking or otherwise derived from the Information or any other CF Benchmarks Ltd data, information, products or services.

The user of the Information assumes the entire risk of any use it may make or permit to be made of the Information. CF BENCHMARKS DOES NOT MAKE ANY EXPRESS OR IMPLIED WARRANTIES OR REPRESENTATIONS WITH RESPECT TO THE INFORMATION (OR THE RESULTS TO BE OBTAINED BY THE USE THEREOF), AND TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IT EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES (INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF ORIGINALITY, ACCURACY, TIMELINESS, NON-INFRINGEMENT, COMPLETENESS, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) WITH RESPECT TO ANY OF THE INFORMATION.

Without limiting any of the foregoing and to the maximum extent permitted by applicable law, in no event shall CF Benchmarks have any liability regarding any of the Information for any direct, indirect, special, punitive, consequential (including lost profits) or any other damages even if notified of the possibility of such damages. The foregoing shall not exclude or limit any liability that may not by applicable law be excluded or limited, including without limitation (as applicable), any liability for death or personal injury to the extent that such injury results from the negligence or wilful default of itself, its servants, agents or sub-contractors.

None of CF Benchmarks Ltd's products or services recommends, endorses, approves or otherwise expresses any opinion regarding any issuer, securities, financial products or instruments or trading strategies and none of CF Benchmarks Ltd's products or services is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision and may not be relied on as such.

Any use of or access to products, services or information of CF Benchmarks Ltd requires a license from CF Benchmarks Ltd.