Compass Crypto Basket Indices

Methodology

May 10th, 2024

Version History

Readers can access other versions of the methodology for the Compass Crypto Basket Indices online when they become available on Compass Financial Technologies website (`www.compass-ft.com`).

Date	Version	Change
31/05/2022	1.0	Methodology Publication
27/04/2023	1.1	OKCoin, ItBit and BitFlyer are removed from the list of eligible exchanges. Effective on April 27th 2023
09/05/2023	1.2	Bittrex is removed from the list of eligible exchanges. Effective on May 10th 2023
27/06/2023	1.3	BinanceUS is removed from the list of eligible exchanges. Effective on June 29th 2023
27/07/2023	1.4	The volume threshold MinVolume for CCBIDIGI will be adjusted to 250'000 USD to reflect current low liquidity market condition. Effective on July 28th 2023
28/09/2023	1.5	DeFiLlama replaces Token Terminal as Fundamental data provider. Effective on September 29th 2023
10/05/2024	1.6	Change of volume data provider

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1 Introduction

The Compass Crypto Basket Indices are a family of diversified digital asset indices designed with the objective to offer exposure to the cryptoassets space and to its sectors.

The Indices are composed of most representative and liquid cryptocurrencies or tokens satisfying eligible requirements defined in Section 3.2. Weightings are based on multiple criteria including liquidity, market capitalization or protocol revenue metrics.

The components have to be selected within the Compass Crypto References Indices (CCRI) registered as benchmarks under the EU benchmark regulations (BMR).

The Compass Crypto Basket Indices combine expertise in cryptocurrency and index engineering to offer investors a diversified exposure to the digital asset class.

Indices may be accessed online on the Compass Financial Technologies website (`www.compass-ft.com`) or on Bloomberg or Refinitiv.

The Compass Crypto Basket Indices are part of the Compass Crypto Family Indices.

The Index Administrator and Calculation Agent is Compass Financial Technologies (France).

2 Data Source

2.1 Volume Data Providers

The daily volumes are sourced from the eligible exchanges.

2.2 Market Capitalization Data Provider

The Circulating Supply is provided by CoinGecko. (`https://www.coingecko.com/`).

CoinGecko: CoinGecko is a cryptocurrency data aggregation and tracking web site that provides 360 degree overview of digital currencies and provides tools for users to fundamentally analyze the market. In addition to tracking price, volume, and market capitalization, CoinGecko tracks community growth, open-source development, major events and on-chain metrics. It was founded in 2014 and is based in Malaysia.

2.3 Fundamental Data Provider

The fundamental data used to define the Weights are provided by DeFiLlama (`https://defillama.com/`).

DefiLlama: DefiLlama is the largest TVL aggregator for DeFi (Decentralized Finance). Their data is fully open-source and maintained by a team of passionate individuals and contributors from hundreds of protocols. Their focus is on accurate data and transparent methodology.

3 Index Underlying Components

3.1 Underlying Components

Compass Crypto Basket Indices invest in single digital asset crypto indices, called Underlying Components.

The prices used to compute the Indices are the Underlying Component Closing Prices. They are based on the Compass Crypto Reference Indices prices.
The Compass Crypto Reference Indices ($CCRI$) have been designed to provide institutional investors with independent and robust cryptocurrency reference prices. Based on a resilient and BMR-ready compliant methodology, they serve as independent and transparent reference prices to value cryptocurrency portfolios or as benchmarks for investors willing to issue investment products tracking cryptocurrencies prices.

More details on the CCRI indices including their methodology are available on the Compass website (`www.compass-ft.com`)

3.2 Underlying Component Eligibility requirements

To be considered as an Eligible Underlying Component, a cryptoasset linked to a $CCRI$ Index needs to satisfy the following criteria:

- Trades in USD
- Is not a stablecoin or a fixed currency token
- Presents favorable protocol tokenomics (taking into consideration supply issuance, distribution of cryptocurrencies/tokens and any parameter which could affect the behaviour of the cryptocurrency/token)
- Has at least a 3 month history of trading on an eligible exchange
- Has no known security vulnerabilities
- Is traded on at least one of the Eligible Exchanges (or equivalent) and supported by one of the Eligible Custodians (or equivalent), described below (Section 3.3)

Outside of exceptional circumstances, Eligible Underlying Components are reviewed every month based on eligibility requirements described above.

3.3 Eligible Exchanges and Custodians

The lists of Eligible Exchanges and Eligible Custodians as of June 29th 2023 are:

Eligible Exchanges
Bitstamp
Bitfinex
Coinbase
Gemini
Kraken
LMAX

Table 1: Eligible Exchanges

Eligible Custodians
BitGo
Coinbase
Gemini
Fidelity

Table 2: Eligible Custodians

4 Compass Crypto Basket Indices

4.1 Compass Crypto Basket Top 5/10 Index

Index Description - Motivation

The Compass Crypto Basket Top 5 & Top 10 Indices are diversified digital asset indices designed with the objective of offering a broad exposure to the market's top cryptoassets, all sectors included, while capping each component exposure to 30%. Weightings are based on liquidity and market capitalization.

As the top market capitalization cryptoassets represent great indicators of market's evolution, motivation here is to measure the global trend of the crypto market.

Index Start Date

January 4$^{\text{th}}$, 2016

Index Code

Compass : CCBI5 Bloomberg : CCBI5 Index Refinitiv : .CCBI5

Compass : CCBI10 Bloomberg : CCBI10 Index Refinitiv : .CCBI10

Index Components Selection

On each Rebalancing Determination Date $RD(t)$, the Selected Underlying Components are defined following the steps below:

1. Select all Eligible Underlying Components
2. Select Eligible Underlying Components meeting the following criteria:

$$\text{MC}_{RD(t)-1,k} >= MinMktCap \quad \& \quad RMC_{RD(t),k} >= MinMktCap \quad \& \quad RTV_{RD(t),k} >= MinVolume$$

Where,

- $MC_{RD(t)-1,k}$ is the USD Market Capitalization of Eligible Underlying Component k at the calculation date preceding $RD(t)$
- $RMC_{RD(t),k}$ is the rolling average USD Market Capitalization over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $RTV_{RD(t),k}$ is the rolling median USD Traded Volume over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $MinMktCap$ is the Minimum Market Cap threshold equal to 250 million USD
- $MinVolume$ is the Minimum Traded Volume threshold equal to 1 million USD
- $MinVolume$ & $MinMktCap$ are set to 1 USD before January 1st, 2020. After this date, the market was liquid enough to apply thresholds defined above.

3. For the selected components, $RMC_{RD(t),k}$ are ranked in descending order
4. Then the Selected Underlying Components are defined as the first 5/10 components obtained via the process above

Weightings definition

- Market Capitalization Weights

Market Capitalization Weights, w_{MktCap}, are computed on every Rebalancing Determination Date using the average Market Capitalization over the last 30 days ($RD(t)$ excluded) for the set of Selected Underlying Components. On each day, Market Capitalization is the USD Market Capitalization based on Circulating Supply provided by CoinGecko. For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{MktCap,RD(t),i} = \frac{RMC_{RD(t),i}}{\sum_{k=1}^{N} RMC_{RD(t),k}} \tag{1}$$

- Volume Traded Weights

Volume Traded Weights, w_{Volume}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated median USD volume over the list of Eligible Exchanges during the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Volume,RD(t),i} = \frac{RTV_{RD(t),i}}{\sum_{k=1}^{N} RTV_{RD(t),k}} \tag{2}$$

- Final Weights

Final Weights, w_{final}, are defined according to the following steps:

1. First, Primary Weights, pw_{final}, are defined as a linear combination of Market Capitalization Weights and Volume Traded Weights.

$$pw_{Final,RD(t)} = w_{MktCap,RD(t)} \times \frac{2}{3} + w_{Volume,RD(t)} \times \frac{1}{3} \tag{3}$$

2. Final Weights are then derived from the Primary Weights by applying the following:

   Primary Weight exceeding the $CapWeight$ ($CapWeight$ =30%) are fixed to $CapWeight$ and the excess weight is allocated proportionately to the Selected Underlying Components with a Final Weight superior to 0 and inferior to $CapWeight$. This process will be repeated iteratively as long as a Final Weight is greater than $CapWeight$.

Index Rebalancing

We define $R(t)$ as the Rebalancing Date preceding t and $RD(t)$ as the Rebalancing Determination Date. $R(t)$ is the first business day of the month and $RD(t)$ is the second business day strictly preceding $R(t)$.

The Index is rebalanced monthly on every Rebalancing Date. The list of Selected Underlying Components may change every month. New weights and Selected Underlying Components are determined on every Rebalancing Determination Date.

Underlying Components Prices

Underlying Component Closing Prices are the 4pm London Time fixings of the Compass Crypto References Indices ($CCRI$).

4.2 Compass Crypto Basket Layer 1 Index

Index Description - Motivation

The Compass Crypto Basket Layer 1 Index is a diversified digital asset index designed with the objective of offering a broad exposure to Layer 1 cryptoassets while capping each component exposure to 30%. Weightings are based on liquidity and market capitalization.

This index offers exposure to the blockchains themselves, the foundations of all the Crypto world. They are the elementary bricks of the blockchain ecosystems. Layer 1 refers to the projects that have their own blockchain and cryptocurrency. As opposed to Layer 2 which are the services and 'Dapps' built on top of the them.

The Index is to be composed of the most representative and liquid Layer 1 cryptoassets. The Index includes up to 10 components.

The Index universe is composed of the "Layer 1" cryptoassets.

Index Start Date

January 4$^{\text{th}}$, 2016

Index Code

Compass : CCBIL1 Bloomberg : CCBIL1 Index Refinitiv : .CCBIL1

Index Components Selection

On each Rebalancing Determination Date $RD(t)$, the Selected Underlying Components are defined following the steps below:

1. Select Eligible Underlying Components classified as Layer 1
2. Select Eligible Underlying Components meeting the following criteria:

$$\text{MC}_{RD(t)-1,k} >= MinMktCap \quad \& \quad RMC_{RD(t),k} >= MinMktCap \quad \& \quad RTV_{RD(t),k} >= MinVolume$$

Where,

- $MC_{RD(t)-1,k}$ is the USD Market Capitalization of Eligible Underlying Component k at the calculation date preceding $RD(t)$
- $RMC_{RD(t),k}$ is the rolling average USD Market Capitalization over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $RTV_{RD(t),k}$ is the rolling median USD Traded Volume over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $MinMktCap$ is the Minimum Market Cap threshold equal to 250 million USD
- $MinVolume$ is the Minimum Traded Volume threshold equal to 1 million USD
- $MinVolume$ & $MinMktCap$ are set to 1 USD before January 1st, 2020. After this date, the market was liquid enough to apply thresholds defined above.

3. For the selected components, $RMC_{RD(t),k}$ are ranked in descending order
4. Then we defined the Selected Underlying Components as the first 10 Eligible components obtained via the process above

Weightings definition

- Market Capitalization Weights

Market Capitalization Weights, w_{MktCap}, are computed on every Rebalancing Determination Date using the average Market Capitalization over the last 30 days ($RD(t)$ excluded) for the set of Selected Underlying Components. On each day, Market Capitalization is the USD Market Capitalization based on Circulating Supply provided by CoinGecko. For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{MktCap,RD(t),i} = \frac{RMC_{RD(t),i}}{\sum_{k=1}^{N} RMC_{RD(t),k}} \tag{4}$$

- Volume Traded Weights

Volume Traded Weights, w_{Volume}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated median USD volume over the list of Eligible Exchanges during the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Volume,RD(t),i} = \frac{RTV_{RD(t),i}}{\sum_{k=1}^{N} RTV_{RD(t),k}} \tag{5}$$

- Final Weights

Final Weights, w_{final}, are defined according to the following steps:

1. First, Primary Weights, pw_{final}, are defined as a linear combination of Market Capitalization Weights and Volume Traded Weights.

$$pw_{Final,RD(t)} = w_{MktCap,RD(t)} \times \frac{2}{3} + w_{Volume,RD(t)} \times \frac{1}{3} \tag{6}$$

2. Final Weights are then derived from the Primary Weights by applying the following:

   Primary Weight exceeding the $CapWeight$ ($CapWeight$ =30%) are fixed to $CapWeight$ and the excess weight is allocated proportionately to the Selected Underlying Components with a Final Weight superior to 0 and inferior to $CapWeight$. This process will be repeated iteratively as long as a Final Weight is greater than $CapWeight$.

Index Rebalancing

We define $R(t)$ as the Rebalancing Date preceding t and $RD(t)$ as the Rebalancing Determination Date. $R(t)$ is the first business day of the month and $RD(t)$ is the second business day strictly preceding $R(t)$.

The Index is rebalanced monthly on every Rebalancing Date. The list of Selected Underlying Components may change every month. New weights and Selected Underlying Components are determined on every Rebalancing Determination Date.

Underlying Components Prices

Underlying Component Closing Prices are the 4pm London Time fixings of the Compass Crypto References Indices ($CCRI$).

4.3 Compass Crypto Basket Smart Contract Platforms Index

Index Description - Motivation

The Compass Crypto Basket Smart Contract Platforms Index is a diversified digital asset index designed with the objective of offering a broad exposure to cryptoassets linked to Smart Contract Platforms, while capping each component exposure to 30%. Weightings are based on liquidity and market capitalization.

Smart contracts are contracts coded on a blockchain that allow execution of one or several clauses, defined in the code, when conditions are met. The innovation here is that, thanks to the blockchain, these processes are autonomous and don't require a third party to certify or validate anything. Smart contract platforms are the entities that enable users to code and execute these new generation of contracts. Smart contracts are at the heart of the major crypto projects.

The Index is to be composed of the most representative and liquid Smart Contract Platforms cryptoassets. The Index includes up to 10 components.

The Index universe is composed of the "Smart Contract Platforms" cryptoassets.

Index Start Date

November 1st, 2017

Index Code

Compass : CCBISMRT Bloomberg : CCBISMRT Index Refinitiv : .CCBISMRT

Index Components Selection

On each Rebalancing Determination Date $RD(t)$, the Selected Underlying Components are defined following the steps below:

1. Select Eligible Underlying Components classified as Smart Contract Platforms
2. Select Eligible Underlying Components meeting the following criteria:

$$\mathrm{MC}_{RD(t)-1,k} >= MinMktCap \quad \& \quad RMC_{RD(t),k} >= MinMktCap \quad \& \quad RTV_{RD(t),k} >= MinVolume$$

Where,

- $MC_{RD(t)-1,k}$ is the USD Market Capitalization of Eligible Underlying Component k at the calculation date preceding $RD(t)$
- $RMC_{RD(t),k}$ is the rolling average USD Market Capitalization over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $RTV_{RD(t),k}$ is the rolling median USD Traded Volume over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $MinMktCap$ is the Minimum Market Cap threshold equal to 250 million USD
- $MinVolume$ is the Minimum Traded Volume threshold equal to 1 million USD
- $MinVolume$ & $MinMktCap$ are set to 1 USD before January 1st, 2020. After this date, the market was liquid enough to apply thresholds defined above.

3. For the selected components, $RMC_{RD(t),k}$ are ranked in descending order
4. Then we defined the Selected Underlying Components as the first 10 Eligible components obtained via the process above

Weightings definition

- Market Capitalization Weights

Market Capitalization Weights, w_{MktCap}, are computed on every Rebalancing Determination Date using the average Market Capitalization over the last 30 days ($RD(t)$ excluded) for the set of Selected Underlying Components. On each day, Market Capitalization is the USD Market Capitalization based on Circulating Supply provided by CoinGecko. For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{MktCap,RD(t),i} = \frac{RMC_{RD(t),i}}{\sum_{k=1}^{N} RMC_{RD(t),k}} \tag{7}$$

- Volume Traded Weights

Volume Traded Weights, w_{Volume}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated median USD volume over the list of Eligible Exchanges during the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Volume,RD(t),i} = \frac{RTV_{RD(t),i}}{\sum_{k=1}^{N} RTV_{RD(t),k}} \tag{8}$$

- Final Weights

Final Weights, w_{final}, are defined according to the following steps:

1. First, Primary Weights, pw_{final}, are defined as a linear combination of Market Capitalization Weights and Volume Traded Weights.

$$pw_{Final,RD(t)} = w_{MktCap,RD(t)} \times \frac{2}{3} + w_{Volume,RD(t)} \times \frac{1}{3} \tag{9}$$

2. Final Weights are then derived from the Primary Weights by applying the following:

   Primary Weight exceeding the $CapWeight$ ($CapWeight$ =30%) are fixed to $CapWeight$ and the excess weight is allocated proportionately to the Selected Underlying Components with a Final Weight superior to 0 and inferior to $CapWeight$. This process will be repeated iteratively as long as a Final Weight is greater than $CapWeight$.

Index Rebalancing

We define $R(t)$ as the Rebalancing Date preceding t and $RD(t)$ as the Rebalancing Determination Date. $R(t)$ is the first business day of the month and $RD(t)$ is the second business day strictly preceding $R(t)$.

The Index is rebalanced monthly on every Rebalancing Date. The list of Selected Underlying Components may change every month. New weights and Selected Underlying Components are determined on every Rebalancing Determination Date.

Underlying Components Prices

Underlying Component Closing Prices are the 4pm London Time fixings of the Compass Crypto References Indices ($CCRI$).

4.4 Compass Crypto Basket Fundamental DeFi Index

Index Description - Motivation

The Compass Crypto Basket Fundamental DeFi Index is a diversified digital asset index designed with the objective of offering a broad exposure to the Decentralized Finance (DeFi) sector while capping each component exposure to 35%.

DeFi refers to all the Financial Dapps (Decentralized-apps) and services built on top of blockchains using smart contracts which rely on no central entity to control or validate transactions. All is done "on chain", thus allowing more safety and less transaction and operational costs compared to traditional finance.

The Index is to be composed of the most representative and liquid DeFi crypto assets. The Index includes up to 10 components.

Weightings are based on liquidity, market capitalization and protocol revenue metrics. The Compass Fundamental DeFi Index combines expertise in cryptocurrency and index engineering to offer investors a diversified exposure to the crypto DeFi world.

The Index universe is composed of the "DeFi" cryptoassets.

Index Start Date

November 2nd, 2020

Index Code

Compass : CCBFDEFI Bloomberg : CCBFDEFI Index Refinitiv : .CCBFDEFI

Index Components Selection

On each Rebalancing Determination Date $RD(t)$, the Selected Underlying Components are defined following the steps below:

1. Select Eligible Underlying Components classified as DeFi
2. Select Eligible Underlying Components meeting the following criteria:

$$\mathrm{MC}_{RD(t)-1,k} >= MinMktCap \quad \& \quad RMC_{RD(t),k} >= MinMktCap \quad \& \quad RTV_{RD(t),k} >= MinVolume$$

Where,

- $MC_{RD(t)-1,k}$ is the USD Market Capitalization of Eligible Underlying Component k at the calculation date preceding $RD(t)$
- $RMC_{RD(t),k}$ is the rolling average USD Market Capitalization over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $RTV_{RD(t),k}$ is the rolling median USD Traded Volume over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $MinMktCap$ is the Minimum Market Cap threshold equal to 250 million USD
- $MinVolume$ is the Minimum Traded Volume threshold equal to 1 million USD
- $MinVolume$ & $MinMktCap$ are set to 1 USD before January 1st, 2020. After this date, the market was liquid enough to apply thresholds defined above.

3. For the selected components, $RMC_{RD(t),k}$ are ranked in descending order
4. Then we defined the Selected Underlying Components as the first 10 Eligible components obtained via the process above

Weightings definition

- Market Capitalization Weights

Market Capitalization Weights, w_{MktCap}, are computed on every Rebalancing Determination Date using the average Market Capitalization over the last 30 days ($RD(t)$ excluded) for the set of Selected Underlying Components. On each day, Market Capitalization is the USD Market Capitalization based on Circulating Supply provided by CoinGecko. For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{MktCap,RD(t),i} = \frac{RMC_{RD(t),i}}{\sum_{k=1}^{N} RMC_{RD(t),k}} \tag{10}$$

- Volume Traded Weights

Volume Traded Weights, w_{Volume}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated median USD volume over the list of Eligible Exchanges during the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Volume,RD(t),i} = \frac{RTV_{RD(t),i}}{\sum_{k=1}^{N} RTV_{RD(t),k}} \tag{11}$$

- Fundamental Weights

Fundamental Weights, w_{Funda}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated average median protocol revenue over the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Funda,RD(t),i} = \frac{FUNDA_{RD(t),i}}{\sum_{k=1}^{N} FUNDA_{RD(t),k}} \tag{12}$$

Where $FUNDA_{RD(t),i}$ is the rolling median of the Fundamental Indicator over the last 30 days ($RD(t)$ excluded) for Selected Underlying Component i.

- Final Weights

Final Weights, w_{final}, are defined according to the following steps:

1. First, Primary Weights, pw_{final}, are defined as a linear combination of Market Capitalization Weights, Volume Traded Weights and Fundamental Weights.

$$pw_{Final,RD(t)} = w_{MktCap,RD(t)} \times \frac{1}{3} + w_{Volume,RD(t)} \times \frac{1}{3} + w_{Funda,RD(t)} \times \frac{1}{3} \tag{13}$$

2. Final Weights are then derived from the Primary Weights by applying the following:

   Primary Weight exceeding the $CapWeight$ ($CapWeight$ =35%) are fixed to $CapWeight$ and the excess weight is allocated proportionately to the Selected Underlying Components with a Final Weight superior to 0 and inferior to $CapWeight$. This process will be repeated iteratively as long as a Final Weight is greater than $CapWeight$.

Index Rebalancing

We define $R(t)$ as the Rebalancing Date preceding t and $RD(t)$ as the Rebalancing Determination Date. $R(t)$ is the first business day of the month and $RD(t)$ is the second business day strictly preceding $R(t)$.

The Index is rebalanced monthly on every Rebalancing Date. The list of Selected Underlying Components may change every month. New weights and Selected Underlying Components are determined on every Rebalancing Determination Date.

Underlying Components Prices

Underlying Component Closing Prices are the average of the 4 hourly fixings of Compass Crypto References Indices ($CCRI$) between 1pm and 4pm, London Time.

4.5 Compass Crypto Basket Digital Economy Index

Index Description - Motivation

The Compass Crypto Basket Digital Economy Index is a diversified digital asset index designed with the objective of offering a broad exposure to the NFT, Gaming & Metaverse ecosystem while capping each component exposure to 30%. Weightings are based on liquidity and market capitalization.

NFT, Gaming & Metaverse are three key sectors of the global digital space's economy. They are fast growing and have great potential on becoming part of our life on daily basis.

- NFT, Non Fungible Token : these are unique tokens that rely on their associated Blockchain to ensure security and authenticity. This allow digital property for everyone. They are commonly used by artists and creators, giving them the opportunity to expand their visibility across the whole community while keeping their copyrights unviolated.
- Gaming: growing sector mostly thanks to the 'play-to-earn' games. This sector now represents billions in USD and just keeps growing
- Metaverse: projects that aim to create an alternative, digital universe that will be online and will rely on the blockchain technology to operate. It's the hottest topic of these times. Most of all tech giants decided to create their own Metaverse. This industry is now also worth billions.

They are all intrinsically connected, that's why we decided to combine them under one single and methodically thought out Index that will reflect this whole economy.

The Index is to be composed of the most representative and liquid NFT, Gaming & Metaverse cryptoassets. The Index includes up to 10 components.

The Index universe is composed of the "NFT", "GameFi" & "Metaverse" cryptoassets.

Index Start Date

August 2nd, 2021

Index Code

Compass : CCBIDIGI Bloomberg : CCBIDIGI Index Refinitiv : .CCBIDIGI

Index Components Selection

On each Rebalancing Determination Date $RD(t)$, the Selected Underlying Components are defined following the steps below:

1. Select Eligible Underlying Components classified as NFT, Gaming or Metaverse
2. Select Eligible Underlying Components meeting the following criteria:

$$\mathrm{MC}_{RD(t)-1,k} >= MinMktCap \quad \& \quad RMC_{RD(t),k} >= MinMktCap \quad \& \quad RTV_{RD(t),k} >= MinVolume$$

Where,

- $MC_{RD(t)-1,k}$ is the USD Market Capitalization of Eligible Underlying Component k at the calculation date preceding $RD(t)$
- $RMC_{RD(t),k}$ is the rolling average USD Market Capitalization over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded
- $RTV_{RD(t),k}$ is the rolling median USD Traded Volume over the last 30 days of Eligible Underlying Component k, $RD(t)$ excluded

- $MinMktCap$ is the Minimum Market Cap threshold equal to 250 million USD
- $MinVolume$ is the Minimum Traded Volume threshold equal to 250'000 USD
- $MinVolume$ & $MinMktCap$ are set to 1 USD before January 1st, 2020. After this date, the market was liquid enough to apply thresholds defined above.

3. For the selected components, $RMC_{RD(t),k}$ are ranked in descending order
4. Then we defined the Selected Underlying Components as the first 10 Eligible components obtained via the process above

Weightings definition

- Market Capitalization Weights

Market Capitalization Weights, w_{MktCap}, are computed on every Rebalancing Determination Date using the average Market Capitalization over the last 30 days ($RD(t)$ excluded) for the set of Selected Underlying Components. On each day, Market Capitalization is the USD Market Capitalization based on Circulating Supply provided by CoinGecko. For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{MktCap,RD(t),i} = \frac{RMC_{RD(t),i}}{\sum_{k=1}^{N} RMC_{RD(t),k}} \tag{14}$$

- Volume Traded Weights

Volume Traded Weights, w_{Volume}, are defined on every Rebalancing Determination Date for the set of Selected Underlying Components using the aggregated median USD volume over the list of Eligible Exchanges during the last 30 days ($RD(t)$ excluded). For each Selected Underlying Component i, Rebalancing Determination Date $RD(t)$ and the number of Selected Underlying Components N, we have :

$$w_{Volume,RD(t),i} = \frac{RTV_{RD(t),i}}{\sum_{k=1}^{N} RTV_{RD(t),k}} \tag{15}$$

- Final Weights

Final Weights, w_{final}, are defined according to the following steps:

1. First, Primary Weights, pw_{final}, are defined as a linear combination of Market Capitalization Weights and Volume Traded Weights.

$$pw_{Final,RD(t)} = w_{MktCap,RD(t)} \times \frac{2}{3} + w_{Volume,RD(t)} \times \frac{1}{3} \tag{16}$$

2. Final Weights are then derived from the Primary Weights by applying the following:

   Primary Weight exceeding the $CapWeight$ ($CapWeight$ =30%) are fixed to $CapWeight$ and the excess weight is allocated proportionately to the Selected Underlying Components with a Final Weight superior to 0 and inferior to $CapWeight$. This process will be repeated iteratively as long as a Final Weight is greater than $CapWeight$.

Index Rebalancing

We define $R(t)$ as the Rebalancing Date preceding t and $RD(t)$ as the Rebalancing Determination Date. $R(t)$ is the first business day of the month and $RD(t)$ is the second business day strictly preceding $R(t)$.

The Index is rebalanced monthly on every Rebalancing Date. The list of Selected Underlying Components may change every month. New weights and Selected Underlying Components are determined on every Rebalancing Determination Date.

Underlying Components Prices

Underlying Component Closing Prices are the 4pm London Time fixings of the Compass Crypto References Indices ($CCRI$).

5 Indices Calculation

5.1 Calculation date - business day

A calculation date t means any calendar day.
A business day means any day other than a Saturday, a Sunday, January 1st, Good Friday, Easter Monday or December 25th.

5.2 Indices Calculation

Compass Crypto Basket Indices are formulated as Weighted baskets of cryptocurrencies or tokens. Weights are the Final Weights w_{Final} defined for each Index in their respective *Final Weights* section. The Indices price base level is set to 100 [1]:

$$\text{Index}_{t_0} = 100 \tag{17}$$

The Indices' price level on day t from their starting base date onwards is calculated as:

$$\text{Index}_t = \left(1 + \sum_{i \in N_{c,t}} w_{Final,i,RD(t)} \times \left(\frac{P_{i,t}}{P_{i,R(t)}} - 1\right)\right) \times \text{Index}_{R(t)} \tag{18}$$

Where,

- $N_{c,t}$ is the set of the Selected Underlying Components of each index on day t
- $R(t)$ is the most recent Index Rebalancing Date preceding t
- $RD(t)$ is the most recent Index Rebalancing Determination Date preceding t
- $P_{i,t}$ is the Underlying Component Closing Price representing the USD price of cryptocurrency or token i on day t
- $P_{i,R(t)}$ is the Underlying Component Closing Price representing the USD price of cryptocurrency or token i on the Rebalancing Date preceding t
- $w_{Final,i,RD(t)}$ is the Final Weight of Selected Underlying Component i of each index, on the last Rebalancing Determination Date preceding t
- Index_t is the Index price level on t
- $\text{Index}_{R(t)}$ is the Index price level on $R(t)$

5.3 Rounding of Data

Indices values are computed with all decimals available and are published with a precision of 2 decimals [2].

5.4 Calculation Frequency and Dissemination

The Compass Crypto Basket Indices are computed and published on every calendar day at 4:20pm London Time.
Indices levels are published on the Compass Financial Technologies website (`www.compass-ft.com`) and are distributed to Bloomberg and Refinitiv.

[1] Compass Crypto Basket Fundamental DeFi Index level at t_0 is 1000
[2] Compass Crypto Basket Fundamental DeFi Index levels are published and rounded with a precision of 4 decimals

5.5 Hard Fork policy

Hard fork policy

A hard fork occurs when a change is made to the transaction validation rules of a crypto asset's underlying blockchain protocol in a way that is not compatible with its earlier version. Nodes that wish to continue to participate are expected to upgrade to the new version of the protocol's software. Usually such a fork is planned and accepted by the overwhelming majority of nodes. However, where the fork is contentious enough that a non-negligible number of nodes continue to run the old version of the software, a chain split occurs.

The Steering Committee will evaluate all upcoming hard forks. The treatment of hard forks will be led by decisions of exchanges with respect to the ticker symbols used to represent the resulting crypto assets and the markets that they maintain. Concretely, suppose some crypto asset traded under ticker COIN is expected to undergo a hard fork resulting in an original chain Chain with crypto asset C and a modified chain Chain' with crypto asset C'. There are a few scenarios to consider:

- C continues to trade under ticker symbol COIN while C' starts trading under a newly-created ticker symbol COIN' . In this case, C continues as a constituent of the Index. C' is not eligible to become a constituent of the Index (as it does not have enough price history) and does not contribute to the Index value. C' may be sold by stakeholders tracking the Index as an excess return; the precise decision of when (or whether) to sell will be a matter of judgment for the tracking investment products.
- C' trades under ticker symbol COIN while C starts trading under a new ticker symbol COIN'. In this case, C' replaces C as a constituent of the Index. The pricing history for C' is taken as being that of C prior to the fork. C is no longer a constituent of the Index, does not contribute to the Index value and may be sold by stakeholders tracking the Index as an excess return.
- There is significant disagreement amongst exchanges as to the ticker symbols that C' and C should trade under. It is expected that this situation would apply to Index constituents only in very rare circumstances. In this case, an extraordinary meeting of the Steering Committee will be organized in order to decide on an appropriate course of action which may include replacing C by the next eligible crypto asset or rebalancing across the remaining constituent crypto assets.

Airdrop policy

An "airdrop" occurs when a blockchain project distributes free crypto assets to investors in the hopes of attracting more people to use their platform. Requirements to qualify for an airdrop may vary; in some cases the participant has to hold the crypto asset in their wallet while other times they have to promote the project on an online forum. Indices do not incorporate potential airdrop values in their computation process. Stakeholders tracking Indices may sell valuable airdrops at their earliest convenience, thus contributing to deliver excess returns over the base Index.

Staking

A staking reward is granted to holders of a crypto asset when they lock up that asset as collateral to secure fairness when validating transactions or other network actions. Staking rewards require agency on the part of crypto asset holders and also introduce liquidity restrictions since the act of staking includes locking up coins for a period of time. Indices do not incorporate the value of staking rewards in their computation process Stakeholders tracking Indices may use the value of the resulting staking to deliver excess returns over the base Index.

5.6 Market Disruption Adjustments

A Market Disruption event occurs when the trading activity of an Index constituent is disrupted or the fair determination of its price is obstructed. Such scenarios take place when:

- An Index constituent is not open for trading on the specific day on all eligible exchanges

- All eligible exchanges suspend their trading for an Index constituent at a time prior to the Index published closing time with no prior notice on

The occurrence of a Market Disruption Event is determined by the Steering Committee.

If a Market Disruption Event occurs during a rebalancing date, the constituents involved are not rebalanced and their respective weights are equal to those they had on the first business day preceding the Market Disruption Event. The rebalancing period for the involved constituents will be postponed until the next available business day upon which no Market Disruption Event occurs them.

If a Market Disruption Event occurs on any other date, the affected weights are calculated as expressed in 19:

$$w_{Final,i}(t) = \begin{cases} w_{i,\text{WFD}(t)} & \text{if } R_i(t) = R(t) \\ w_{i,R(t)} \times \frac{P_{i,R(t)} \times \text{Index}_{R(R(t))}}{P_{i,R(R(t))} \times \text{Index}_{R(t)}} & \text{if } R_i(t) < R(t) \end{cases} \tag{19}$$

Where,

- WFD(t) is the Weight Fixing Date with respect to date t, i.e. the first weekday preceding or equal to the 4th calendar day before the end of the month
- $w_{Final,i,\text{WFD}(t)}$ is the weight of asset i on date t, determined on WFD(t)
- $R(t)$ is the most recent index Rebalancing Date preceding t
- $R(R(t))$ is the second most recent index Rebalancing Date preceding t
- $R_i(t)$ is with respect to constituent i and date t, the first calculation date equal to or following $R(t)$, but strictly preceding date t on which the constituent i is unaffected by a Market Disruption Event. If such a date does not exist, $R_i(t)$ is the first date equal to or following $R(R(t))$ but strictly preceding date t on which on which the constituent i is unaffected by a Market Disruption Event
- $P_{i,t}$ is the price of constituent i at date t
- Index_t is the index value at date t

If, after a period of five business days, no settlement price has been made available by the exchange, the Steering Committee will determine, in good faith, the closing prices necessary for the rolling of the contracts and for the calculation of the Index.

5.7 Exceptional Circumstances

In exceptional circumstances, the Committee governing the Indices may trigger an exceptional rebalancing to adjust the composition of any of them if it considers that some of the Selected Underlying Components do break one or more of the requirements defined in Section 3.2

The calculations of the Compass Crypto Basket Indices are obstructed when there are no price available for one of the Underlying Component $CCRI$ at the official time of publication. If no closing price is available for the calculation date t, the Compass Crypto Basket Indices will use the last available closing price for their Underlying Components.

The $CCRI$ methodology outlines management of extraordinary circumstances where data used in the $CCRI$ computation is delayed or missing. In the event of failure to retrieve the official closing prices for the Underlying Components, the Steering Committee will do its best effort to determine relevant Underlying Component prices from alternative providers that are readily available.

6 Index Governance

6.1 Index Administrator

Compass Financial Technologies (France) is the Administrator of the Index ("the Index Administrator"). The Index Administrator is responsible for the day-to-day management of the Index and is also responsible for decisions regarding the interpretation of these rules.

6.2 Index Calculation Agent

Compass Financial Technologies is the Calculation Agent of the Compass Crypto Family Indices. It is responsible for the day-to-day management of Indices computation according to this methodology.

6.3 Index Committees – Supervisor

Compass Financial Technologies has established governance functions to review and provide challenges on all aspects of the Indices determination process. Governance functions are managed by the Compass Oversight Committee and by the Compass Crypto Strategy Indices Steering Committee.

Compass Oversight Committee:

The Compass Oversight Committee oversees all areas of the benchmark determination processes. It is responsible for supervising and controlling the Index operations team on all Compass Indices. It is also responsible for:

1. Periodic review of incidents
2. Making final decisions in case the Index operations team are not capable or allowed to take decisions
3. Defining and implementing organisation procedures for the Index operations team
4. Defining and overseeing measures that allow for mitigation of operational risks
5. Supervising internal or external audit results
6. The implementation and supervision of the potential codes of conduct that have to be implemented

The Committee is comprised of senior representatives of Compass Financial Technologies and external industry experts.

Compass Crypto Strategy Indices Steering Committee (the Steering Committee):

The Compass Crypto Strategy Indices Steering Committee is responsible for:

1. Determining the calculation methodology and the rules governing the publication of the Compass Crypto Basket Indices
2. Making periodic reviews of the Compass Crypto Basket Indices to validate the robustness of the methodology and to analyse the impact of methodology changes
3. Organising consultation with Crypto Basket Indices stakeholders if necessary
4. Ensuring that Crypto Basket Indices offers a reliable and representative view of the market

The Compass Crypto Strategy Indices Steering Committee is composed of members from Compass and from other entities. The Committee may include individuals or representatives of companies, academics, external counsels, or market participants.

The Compass Crypto Strategy Indices Steering Committee assembles once a year in April. However, at the request of a member of the committee, the Committee may meet on any other day of the year to discuss potential "market emergency" and "force majeure" events or any other situation, which makes an extraordinary meeting necessary.

All Committee decisions will be published without delay following the Committee decision.

The Compass Crypto Strategy Indices Steering Committee members as of April 2023 are:

- Edouard Mouton, Compass Financial Technologies
- Guillaume Le Fur, Compass Financial Technologies
- William Knottenbelt, Imperial College
- Laurence Black, The Index Standard
- Michael Petch, CoinShares

As of May 31st, 2023, Edouard Mouton chairs the Steering Committee.

Notwithstanding the eligible criteria in Section 3.2, the Compass Crypto Strategy Indices Steering Committee reserves the right to further exclude any assets based on one or more factors, including but not limited to, its review of general reputational, fraud, manipulation, or security concerns connected to the asset.

6.4 Cases Not Covered in Rules

In certain cases which are not covered by these rules, operational adjustments will take place in respect of the aim of the Indices. Operational adjustments may also take place if, in the opinion of the Index Administrator, it is desirable to do so to maintain a fair and orderly market in derivatives on these Indices and/or this is in the best interests of the investors in products based on these Indices and/or the proper functioning of the markets. The Index Administrator will report to the Supervisor if it took a decision about a case which is not specifically covered in the rules for comments and review.

7 Methodology Changes - Maintenance

This methodology may be supplemented, amended in whole or in part, revised or withdrawn at any time. Supplements, amendments, revisions and withdrawals may also lead to changes in the way these Indices are compiled or calculated or affect these Indices in another way.
In the absence of exceptional circumstances affecting the Indices calculation or methodology, this Methodology is reviewed annually. The review will includes, inter alia, the following points:

1. Verify if the methodology and computation are still in line with the original purpose of the Indices
2. Make sure the quality and quantity of the input data remain sufficient

Changes made to this methodology are published after the review date and implemented on a reasonable time horizon.

Compass Financial Technologies may terminate any of the Compass Crypto Basket Indices due to certain extraordinary market circumstances.

Changes or termination will be subject to the review and approval of the Steering Committee which will receive all the information related to the change or termination. In case of material changes, a notice will be provided at least two weeks in advance.
The results of the Compass Crypto Strategy Indices Steering Committee meetings will be published in a press release on Compass Financial Technologies website and distributed timely to data vendors and major news sources.

8 Expert Judgment

The Compass Crypto Basket Indices are based on written and transparent rules and procedures with the purpose of minimising as much as possible the exercise of discretion and expert judgment.

The Compass Crypto Basket Indices are built from input data that is not interpolated, extrapolated or adjusted. In case of lack of data, the last available data is employed.

Nevertheless, the exercise of expert judgment may become necessary in case of errors and Index restatements, delayed and missing data, hard forks, airdrops, or unexpected situations arising from market stress.

In the event that expert judgment is exercised, this will be done by resorting to the written procedures reported in the methodology and by communicating the decisions taken to the Compass Crypto Strategy Indices Steering Committee and the Internal Compliance Function in order to prevent conflicts of interest and to protect the integrity and the independence of the Indices determinations. In addition, the interest of the Indices users and the market integrity will be taken into account.

9 Errors and Recalculations

Even though the process of each Index calculation is completely automated and pre-defined, an error can be discovered after the publication of the Indices.

In case of a material error, the Indices will be redetermined, and the Indices clients will be notified about the error and the date of the publication of the redetermined Indices. An error is considered material on the basis of its size, the dates of its discovery and of its occurrence, and the impact of the Indices redetermination on the users. The discovery of any error is reported to the Compass Crypto Strategy Indices Steering Committee.

In the case where a material error is discovered and the Administrator recognises a manipulation or an attempted manipulation of any of the Indices' level or the input data, it will be reported to the regulator.

10 Potential Limitations

The issues presented in the following non-exhaustive list may limit the ability of some of the Indices to represent the market they are intended to measure, the ease of replication by investors, and more generally the usefulness of the Indices to users.

- All the markets these Indices are meant to measure are volatile. In particular, cryptocurrencies may be subject to much more market movements than traditional asset classes such as stocks and bonds as a consequence of illiquidity, market trends and changes to market structure.
- The input data providers may fail to provide accurate and timely data.
- Cryptocurrency prices are derived from several trading venues, each of which is characterised by a different market structure and the price of a cryptocurrency may sometimes be different across different trading venues. In addition, cryptocurrency exchanges may suffer problems that usually do not affect regulated asset exchanges, such as distributed denial-of-service, trading halt, hacking of private keys, lack of standards comparable to those of regulated exchanges, rapidly evolving technology and uncertain legal frameworks. Finally, the publication of the Indices may cease. Should this occur, the regulation regarding user transitions will be followed, but the existence of a suitable substitute is not assured.

11 Cases not covered in rules

In cases which are not expressly covered in these rules, operational adjustments will take place along the lines of the aim of every index of the Compass Crypto Basket Indices family. Operational adjustments may also take place if, in the opinion of the Index Administrator, it is desirable to do so to maintain a fair and orderly market in derivatives on these Indices and/or this is in the best interests of the investors in products based on these Indices and/or the proper functioning of the markets. The Index Administrator will report to the Supervisor if it took a decision about a case which is not specifically covered in the rules for comments and review.

12 Liability

The Index Administrator and the Supervisor are not liable for any losses resulting from supplementing, amending, revising or withdrawing the rules for every index of the Compass Crypto Basket Indices family. The Administrator will do everything within its power to ensure the accuracy of the composition, calculation, publication and adjustment of these Indices in accordance with relevant rules. However, neither the Index Administrator, nor the Supervisor are liable for any inaccuracy in the Indices composition, calculation and the publication of the Indices levels, the information used for making adjustments to the Indices and the actual adjustments. Furthermore, the Index Administrator and the Supervisor do not guarantee the continuity of the composition of any of the Compass Crypto Basket Indices family, the continuity of the method of calculation of the Indices, the continuity of the dissemination of the Indices levels, and the continuity of the calculation of the Indices.

Appendix - List of Compass Crypto Basket Indices

Compass Crypto Basket Indices				
Index	**Compass API Code**	**Bloomberg Code**	**Refinitiv Code**	**Round**
Compass Crypto Basket Top 5 Index	CCBI5	CCBI5	.CCBI5	2
Compass Crypto Basket Top 10 Index	CCBI10	CCBI10	.CCBI10	2
Compass Crypto Basket Layer 1 Index	CCBIL1	CCBIL1	.CCBIL1	2
Compass Crypto Basket Smart Contract Platforms Index	CCBISMRT	CCBISMRT	.CCBISMRT	2
Compass Crypto Basket Fundamental DeFi Index	CCBFDEFI	CCBFDEFI	.CCBFDEFI	4
Compass Crypto Basket Digital Economy Index	CCBIDIGI	CCBIDIGI	.CCBIDIGI	2

Table 3: Compass Crypto Basket Indices - Publication Codes and Rounding policy

13 Disclaimer

Nothing contained herein shall constitute or shall be deemed to constitute a financial, legal, tax or other advice of any kind, or a solicitation to purchase, sell or invest in any financial products or to engage in any financial strategy. Compass Financial Technologies SA or any of its affiliates ("Compass") (i) does not guarantee the adequacy, the accuracy, the timeliness, the completeness, the evolution and/or the movements of its indices or any data included therein (the "Indices" or the "Index"), (ii) shall not have any liability for any errors, omissions, delays or interruptions therein and (iii) makes no warranty, express or implied, as to results to be obtained by owners of any securities, or by any other person or entity from the use of the Indices. Compass does not make any express or implied warranties, and expressly disclaims, all warranties of merchantability or fitness for a particular purpose or use with respect to the Indices. Without limiting any of the foregoing, in no event shall Compass have any liability for any lost profits or indirect, punitive, special or consequential damages or losses, even if notified of the possibility thereof.

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