



# DDA Bitcoin Macro Allocation Index

## Methodology

June 10<sup>th</sup>, 2024

## Version History

Readers can access other versions of the methodology online when they become available on Compass Financial Technologies website ([www.compass-ft.com](http://www.compass-ft.com)).

<b>Date</b>	<b>Version</b>	<b>Change</b>
December 5 <sup>th</sup> , 2023	1.0	Methodology Publication
June 6 <sup>th</sup> , 2024	1.1	The share of the portfolio not invested in CCRIBTC is now invested in the CSCRIUSDC. Effective on June 14th 2024

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# 1 Introduction

The DDA Bitcoin Macro Allocation (the *Index*) is a strategy index invested in the Compass Crypto Reference Index Bitcoin according to a quantitative model developed and maintained by the Allocation Provider.

The strategy calculates an investment signal for each of the four biggest macroeconomic factors, by extracting a momentum score from the assets most sensitive to each factor. A final signal is then composed by modulating each sub-signal by the explanatory power of each factor on the Bitcoin price movement over a 6-month rolling window.

The Index can be accessed online on the Compass Financial Technologies website ([www.compass-ft.com](http://www.compass-ft.com)) or on Bloomberg or Refinitiv.

The Index is owned by Deutsche Digital Assets. The Index Administrator and Calculation Agent is Compass Financial Technologies (France).

DDA Bitcoin Macro Allocation Index			
Compass API Code	Index Name	Bloomberg Code	Refinitiv Code
DDAMACRO	DDA Bitcoin Macro Allocation Index	DDAMACRO Index	.DDAMACRO

Table 1: DDA Bitcoin Macro Allocation Index - Publication Codes

## 2 Index Mechanism

### 2.1 Index allocation and composition

The Index invests in 2 Underlying Components based on signals and exposures provided by the Allocation Provider. The allocation can be revised 1 time per day, until 2pm London time. Each new allocation is provided by the Allocation Provider via an Allocation Notice. Once received and validated by the Index Calculation Agent, the Allocation Notice will be implemented, based on the time it is received by the Index Calculation Agent and based on the specific cut off times defined by the Index Calculation Agent.

### 2.2 Underlying Component

The Underlying Components of the Index are the following indices:

Underlying Component	Bloomberg Code	Refinitiv Code	Currency
Compass Crypto Reference Index Bitcoin	CCRIBTC Index	.CCRIBTC	USD
Compass Stablecoin Currency Reference Index USD Coin	CSCRIUSDC Index	.CSCRIUSDC	USD

Table 2: DDA Bitcoin Macro Allocation - Underlying Component

Levels of the Underlying Component used in the determination of the Index are the hourly Compass Crypto Reference Indices and Compass Stablecoin Currency Reference Indices fixing at 4pm London Time, noted  $Ref_{LD}^{4pm}(t)$ .

Compass Crypto Reference Indices and Compass Stablecoin Currency Reference Indices 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 prices to value cryptocurrency portfolio or as benchmarks for investors willing to issue investment products tracking cryptocurrencies prices.

More details on the Compass Crypto Reference Indices and Compass Stablecoin Currency Reference Indices including the methodology are available on the Compass website ([www.compass-ft.com](http://www.compass-ft.com))

### 2.3 Allocation Provider

Deutsche Digital Assets is the Allocation Provider.

### 2.4 Allocation model

From the daily closes of 30 assets from a variety of asset classes, including equities, corporate credit, sovereign bonds, foreign exchange, and commodities, the first four primary components are extracted and will be referred to as macro factors. Next, the partial R2 of the macro factors in relation to the Bitcoin price movement are calculated on a rolling 6-month period

For more information please read the dedicated research report <https://deutschedigitalassets.com/insights/news/cryptoassets-and-the-macroeconomy-can-macro-factors-explain-the-price-of-bitcoin/>.

Next, for each factor, the most sensitive assets are identified, and for each of these assets, a 6 month momentum score is calculated, as well as the percentile of this score over a rolling 4-year period. If the momentum score is among the worst scores in case of positive correlation with Bitcoin or among the best scores in case of negative correlation with Bitcoin, the asset is assigned a contribution of 0.

The signal per factor is the average of the signals assigned to each chosen asset. The score of each factor is then modulated by the rolling partial R2 of the factor in relation to Bitcoin price movement, assigning 1 to the part that is not explained by the 4 factors (residuals). Finally the sum of the 5 components gives a score between 0 and 1 determining the allocation of the model to Bitcoin and the residual into USDC.

In order to smooth the series, a ten-days moving average is applied on the final signal, the signal is forced to 1 if the final value is above 0.67, and daily variations of the signal are capped at 10%.

### 3 Index Calculation

#### 3.1 Definition

- $Q_t^{BTC}$  is the quantity of CCRIBTC invested at 4pm London time on  $t$  as defined in section 3.2.5
- $Q_t^{USDC}$  is the quantity of CSCRIUSDC invested at 4pm London time on  $t$  as defined in section 3.2.5
- $UCL_t^{BTC}$  is the Underlying Component Level of the CCRIBTC on  $t$
- $UCL_t^{USDC}$  is the Underlying Component Level of CSCRIUSDC on  $t$
- $t_{CB}$  is with respect to an underlying component the Underlying Component Base Date
- $IL(t)$  is the official Index Level on  $t$
- $t_0$  is the index start date equal to January 2<sup>nd</sup>, 2017
- $W_t$  is the target exposure included in the allocation notice on  $t$
- *cut\_off\_time* on  $t$  is 2:00 pm London time
- index currency : USD
- Allocation Notice is any notice sent by the Allocation Provider to the Index Calculation Agent which includes the date on which the allocation should be implemented and the new weight allocated to the Underlying Component which should be implemented

#### 3.2 Index Calculation formula

##### 3.2.1 Index Level

On each Calculation Date  $t$ , the Index level ( $IL(t)$ ) is computed using the formula below.

If  $t = t_0$ ,

$$IL_{t_0} = 100$$

Else,

$$IL_t = \max(0, IL_{t-1} + Q_{t-1}^{BTC} \times (UCL_t^{BTC} - UCL_{t-1}^{BTC}) + Q_{t-1}^{USDC} \times (UCL_t^{USDC} - UCL_{t-1}^{USDC}))$$

##### 3.2.2 $Q_t$ computation

If  $t=t_0$ ,

$$Q_t^{BTC} = \frac{IL_{t_0}}{UCL_{t_0}}$$

$$Q_t^{USDC} = 0$$

Else if  $t > t_0$  and a valid allocation notice has been received for  $t$ ,

$$Q_t^{BTC} = \frac{IL_{t-1}}{UCL_{t-1}^{BTC}} \times W_t$$

$$Q_t^{USDC} = \frac{IL_{t-1}}{UCL_{t-1}^{USDC}} \times (1 - W_t)$$

Otherwise,

$$Q_t^{BTC} = Q_{t-1}^{BTC}$$

$$Q_t^{USDC} = Q_{t-1}^{USDC}$$

### **3.3 Calculation Date**

In respect of the Index, a Calculation Date means any day other than a Saturday or a Sunday.

### **3.4 Rounding of Data**

Indices values are computed with all decimals available and are published with 2 decimals.

### **3.5 Calculation frequency and dissemination**

The Index is calculated and published once a day on every Calculation Date.

Index levels are published on the Compass Financial Technologies website ([www.compass-ft.com](http://www.compass-ft.com)) and are distributed to Bloomberg and Refinitiv under the ticker symbols listed in table 1.

## 4 Index Governance

### 4.1 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.

### 4.2 Index Calculation Agent

Compass Financial Technologies (France) is the Calculation Agent of the DDA Indices. It is responsible for the day-to-day management of the Index computation according to this methodology.

### 4.3 Index Committees – Supervisor

Compass Financial Technologies (France) has established governance functions to review and provide challenges on all aspects of the Index determination process. Governance functions are managed by the Compass Oversight Committee and by the Compass DDA 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 DDA Steering Committee (the Steering Committee):**

The Steering Committee is responsible for:

1. Determining the calculation methodology and the rules governing the publication of the Index
2. Making periodic reviews of the Index to validate the robustness of the methodology and to analyse the impact of methodology changes
3. Organising consultation with Index stakeholders if necessary

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

The Steering Committee assembles once a year in November. However, at the request of a member of the committee, the Steering 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 Steering Committee members as of December 2023 are:



- Edouard Mouton, Compass Financial Technologies
- Guillaume Le Fur, Compass Financial Technologies
- Marc Des Ligneris, DDA
- Romain Bensoussan, DDA

As of December 5<sup>th</sup>, 2023, Guillaume Le Fur chairs the Steering Committee.

## 5 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 the Index is compiled or calculated or affect the Index in another way.

In the absence of exceptional circumstances affecting the Index calculation or methodology, this Methodology is reviewed annually. The review will include, inter alia, the following points:

1. Verify if the methodology and computation are still in line with the original purpose of the Index
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 the Index 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 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.

## 6 Expert Judgment

The Index is 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 Index is 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 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 Steering Committee and the Internal Compliance Function in order to prevent conflicts of interest and to protect the integrity and the independence of the Index determinations. In addition, the interest of the Index users and the market integrity will be taken into account.

## 7 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 Index.

In case of a material error, the Index will be redetermined, and the Index clients will be notified about the error and the date of the publication of the redetermined Index. 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 Index redetermination on the users. The discovery of any error is reported to the 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 Index level or the input data, it will be reported to the regulator.

## 8 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. 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 the Index and/or this is in the best interests of the investors in products based on the Index 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.

## 9 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. The Administrator will do everything within its power to ensure the accuracy of the composition, calculation, publication and adjustment of the Index in accordance with relevant rules. However, neither the Index Administrator, nor the Supervisor are liable for any inaccuracy in the Index composition, calculation and the publication of the Index levels, the information used for making adjustments to the Index and the actual adjustments. Furthermore, the Index Administrator and the Supervisor do not guarantee the continuity of the composition of any of the Index, the continuity of the method of calculation of the Index, the continuity of the dissemination of the Index levels, and the continuity of the calculation of the Index.

## 10 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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