



Compass Crypto Volatility Target Indices

Methodology

April 22nd, 2021

Version History

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

| Date | Version | Change | Author(s) |
|-----------------------------|----------------|-------------------------|--|
| Apr 22 nd , 2021 | 1.0 | Methodology Publication | Guillaume Le Fur and Edouard Mouton (Compass Financial Technologies) |

Table of Contents

| | | |
|----|---|----|
| 1 | Introduction | 3 |
| 2 | Index Data | 4 |
| 3 | Index Calculation | 5 |
| | 3.1 Underlying Component | 5 |
| | 3.2 Calculation Date | 5 |
| | 3.3 Index mechanism | 5 |
| | 3.4 Calculation formula | 5 |
| | 3.5 Exceptional Circumstances | 6 |
| | 3.6 Rounding of Data | 6 |
| | 3.7 Calculation frequency and dissemination | 6 |
| 4 | Index Governance | 7 |
| | 4.1 Index Administrator | 7 |
| | 4.2 Index Calculation Agent | 7 |
| | 4.3 Index Committees – Supervisor | 7 |
| 5 | Methodology Changes - Maintenance | 9 |
| 6 | Expert Judgment | 9 |
| 7 | Errors and Recalculations | 9 |
| 8 | Potential Limitations | 10 |
| 9 | Cases not covered in rules | 10 |
| 10 | Liability | 10 |
| 11 | Disclaimer | 11 |

1 Introduction

The Compass Crypto Volatility Target Indices (the *CCVT*, the *Indices* or the *Index*) are a set of excess return indices created to provide exposure to cryptocurrencies while controlling the volatility of the strategy.

CCVT indices combine expertise in cryptocurrency and index engineering to offer investors a risk controlled exposure to the highly volatile crypto asset class.

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

Compass Crypto Volatility Target Indices are part of the Compass Crypto Strategy Indices.

Compass Crypto Volatility Target Indices are owned by Compass Financial Technologies S.A. The Index Administrator and Calculation Agent is Compass Financial Technologies.

As of April 2021, the following *CCVT* indices are computed and published:

| Compass Crypto Volatility Target Indices | | |
|---|----------------|----------------|
| Index | Bloomberg Code | Refinitiv Code |
| Compass Crypto Volatility Target Index Bitcoin 20% | CVTBTC20 Index | .CVTBTC20 |
| Compass Crypto Volatility Target Index Bitcoin-cash 20% | Coming soon | .CVTBCH20 |
| Compass Crypto Volatility Target Index Bitcoin-sv 20% | Coming soon | .CVTBSV20 |
| Compass Crypto Volatility Target Index Cardano 20% | CVTADA20 Index | .CVTADA20 |
| Compass Crypto Volatility Target Index Dash 20% | Coming soon | .CVTDASH20 |
| Compass Crypto Volatility Target Index Dogecoin 20% | Coming soon | .CVTDOGE20 |
| Compass Crypto Volatility Target Index Eos 20% | Coming soon | .CVTEOS20 |
| Compass Crypto Volatility Target Index Ethereum 20% | CVTETH20 Index | .CVTETH20 |
| Compass Crypto Volatility Target Index Ethereum-classic 20% | Coming soon | .CVTETC20 |
| Compass Crypto Volatility Target Index Litecoin 20% | CVTLTC20 Index | .CVTLTC20 |
| Compass Crypto Volatility Target Index Polkadot 20% | CVTDOT20 Index | .CVTDOT20 |
| Compass Crypto Volatility Target Index Ripple 20% | CVTXRP20 Index | .CVTXRP20 |
| Compass Crypto Volatility Target Index Stellar 20% | Coming soon | .CVTXLM20 |
| Compass Crypto Volatility Target Index Tezos 20% | Coming soon | .CVTXTZ20 |
| Compass Crypto Volatility Target Index Tron 20% | Coming soon | .CVTTRX20 |
| Compass Crypto Volatility Target Index Uniswap 20% | Coming soon | .CVTUNI20 |
| Compass Crypto Volatility Target Index Chainlink 20% | Coming soon | .CVTLINK20 |
| Compass Crypto Volatility Target Index Cosmos 20% | Coming soon | .CVTATOM20 |

Table 1: Compass Crypto Volatility Target Indices - Publication Codes

2 Index Data

The daily price levels of the CCRI Indices used as Underlying Components for *CCVT* are based on the historical tick-by-tick trade data provided by Kaiko (www.kaiko.com).

Kaiko is an independent digital assets market data provider based in Paris since 2014. Kaiko collects, normalizes, stores, and delivers raw, normalized trade and quote data on 74 exchanges and more than 9,000 pairs. Kaiko has worked with over 300 customers globally, including, funds, institutions, regulators, academics and crypto start-ups. Kaiko's methodology is fully public and can be found on their website. Their data collection runs on multiple redundant global centers, which ensures the consistency of data delivery and their data is versioned to avoid being impacted by breaking changes.

3 Index Calculation

3.1 Underlying Component

The Compass Crypto Volatility Target Indices invest in single cryptocurrency index, called Underlying Component.

The prices of the Underlying Components used in *CCVT* indices computation are the Underlying Component Levels (*UCL*) corresponding to the 4pm London Time Compass Crypto Reference Index price (*CCRI*).

Compass Crypto Reference Indices have been designed to provide institutional investors with independent and robust cryptocurrency reference prices. Based on a resilient and BMR compliant methodology, they serve as independent and transparent reference prices to value cryptocurrency portfolio or as benchmarks for investors willing to issue investment products tracking cryptocurrencies prices.

3.2 Calculation Date

The Compass Crypto Volatility Target Indices are computed and published on any Calculation Date t . A Calculation Date means any day other than a Saturday, a Sunday, January 1st, Good Friday, Easter Monday or December 25th.

3.3 Index mechanism

Each *CCVT* index is constructed in accordance with a daily volatility target algorithm where the weight allocated to the Underlying Component is computed such that the volatility of the Volatility Target Index is controlled. The process is based on a formula using the following parameters:

- Target Volatility (TV)
- historical volatility of the Underlying Component
- historical volatility of the Volatility Target Index

The resulting Compass Crypto Volatility Target Index is such that:

- when the historical volatility of the Underlying Component exceeds the Target Volatility, the weight allocated to the Underlying Component will be less than 100%. In this case, the remaining cash that is not allocated to the Underlying Component does not generate any return.
- when the historical volatility of the Underlying Component falls below the Target Volatility, the weight allocated to the Underlying Component will be equal or above 100% (and below the maximum exposure allowed).

3.4 Calculation formula

On each Calculation Date t , the Compass Crypto Volatility Target Index level (SL_t) is computed based on the following formula:

$$SL_t = SL_{t-1} \times (1 + Expo_{t-1}) \times \left(\frac{UCL_t}{UCL_{t-1}} - 1 \right) \quad (1)$$

$$Expo_t = f(UCHV_t, TV, SHV_t, MaxExpo) \quad (2)$$

$$UCHV_t = \sqrt{\frac{1}{window_{UCL}} \times \sum_{k=0}^{window_{UCL}-1} \left(\sqrt{\frac{365}{ACT_{t-k-1,t-k}}} \times \ln \left(\frac{UCL_{t-k}}{UCL_{t-k-1}} \right) \right)^2} \quad (3)$$

$$SHV_t = \sqrt{\frac{1}{window_{Strat}} \times \sum_{k=0}^{window_{Strat}-1} \left(\sqrt{\frac{365}{ACT_{t-k-1,t-k}}} \times \ln \left(\frac{SL_{t-k}}{SL_{t-k-1}} \right) \right)^2} \quad (4)$$

Where,

- UCL_t is the Underlying Component Level on t
- $Expo_t$ is the exposure of the Compass Crypto Volatility Target Index to the Underlying Component on t
- $window_{UCL}$ is the time window used to compute the historical volatility of the Underlying Component
- $window_{Strat}$ is the time window used to compute the historical volatility of the Compass Crypto Volatility Target Index
- $MaxExpo$ is the maximum exposure allowed to the Underlying Component
- $UCHV_t$ is the historical volatility computed over the $window$ of the Underlying Component
- SHV_t is the historical volatility computed over the window of the Strategy
- t is Calculation Date
- ACT_{t_1,t_2} is number of calendar days between t_1 and t_2 , including t_1 and excluding t_2

3.5 Exceptional Circumstances

The calculation of the Compass Crypto Volatility Target Indices is obstructed when there are no price available for the Underlying Component $CCRI$ at the official time of publication.

If no closing price is available for the calculation date t , the Compass Crypto Volatility Target Index will use the last available closing price for its Underlying Component.

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 Compass Crypto Strategy Indices Steering Committee will do its best effort to determine relevant Underlying Component prices from alternative providers that are readily available.

3.6 Rounding of Data

Indices values are computed with all decimals available and are published with a precision of 3 decimals.

3.7 Calculation frequency and dissemination

The Compass Crypto Target Volatility Indices are computed and published once a day at 4.30pm London Time on any Calculation Date.

Indices levels are published on the Compass Financial Technologies website (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 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 is the Calculation Agent of Compass Crypto Volatility Target Indices. It is responsible for the day-to-day management of Indices computation according to this methodology.

4.3 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 Compass Crypto Strategy Indices Steering Committee is responsible for:

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

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

The Compass Crypto 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 2021 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 April 22nd, 2021, Edouard Mouton chairs the Compass Crypto Strategy Indices 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 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 a Compass Crypto Volatility Target Index due to certain extraordinary market circumstances. These circumstances include, but are not limited to:

1. The liquidity in one of the underlying cryptocurrencies of a Compass Crypto Volatility Target Index declines and becomes not sufficient enough to provide an efficient market
2. The underlying cryptocurrency of a Compass Crypto Volatility Target Index experiences a contentious hard fork in which both forks survive

Changes or termination will be subject to the review and approval of the Compass Crypto Strategy Indices 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 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

Compass Crypto Volatility Target 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.

Compass Crypto Volatility Target 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 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 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 Compass Crypto Strategy Indices Steering Committee.

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

8 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.

- The market the Index is meant to measure is volatile. In particular, cryptocurrencies may be subject to market movements much more than traditional asset classes such as stocks and bonds as a consequence of illiquidity, market trends and changes to market structure.
- The input data provider 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.

9 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 the 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 this 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.

10 Liability

The Index Administrator and the Supervisor are not liable for any losses resulting from supplementing, amending, revising or withdrawing the rules for the 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 index composition, calculation and the publication of the Index, 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 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.

11 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.



Compass Financial Technologies SA

Chemin de Mornex 6
1003 Lausanne, Switzerland

Compass Financial Technologies (France)

106, Rue de Richelieu
75002 Paris, France

info@compass-ft.com