



INDEX GUIDE

MVIS® DIGITAL ASSETS INDICES

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1 INTRODUCTION

1 Introduction

In accordance with Art. 13 No. 1 (a) of Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 (the “Benchmark Regulation”), this document provides the rules for calculating and maintaining the MVIS Digital Assets Index family (the “Indices”).

MVIS launched this index family mainly in cooperation with Crypto Coin Comparison Ltd. (CryptoCompare).

MV Index Solutions GmbH (the “Index Owner”) makes no warranties or representations as to the accuracy and/or completeness of the Indices and does not guarantee the results obtained by persons using the Indices in connection with trading funds or securities. The Index Owner makes no representations regarding the advisability of investing in any fund or security.

The Index Owner reserves the right to update the rules in this Index Guide at any time. The Index Owner also reserves the right to make, in exceptional cases or in temporary situations, exceptions to the rules in this Index Guide. The Indices are the property of MV Index Solutions GmbH. The Index Owner has selected an index calculator to calculate the Indices.

MVIS® is a registered trademark of Van Eck Associates Corporation and therefore protected globally against unlawful usage. The use of MVIS Indices in connection with any financial products or for benchmarking purposes requires a license. Please contact MV Index Solutions GmbH for more details.

1.1 Approval of Index Methodologies

The Index Owner has established the Indices and their individual methodology covered in this Index Guide. A detailed written “Procedure for Index Development” describes the steps and approvals required to develop, document and approve an Index and its methodology. The intention of the Procedure for Index Development is to ensure that the methodology of an Index meets the requirements of Art. 12 of the Benchmark Regulation and is approved and implemented according to a robust and reliable process.

The methodology for each index and its methodology covered in this Index Guide has been analysed by the Index Owner’s Index Operations department in order to ensure that it is robust and reliable, has clear rules on use of discretion, allows sustainable validation (based on reasonable back testing) and is traceable and verifiable. Furthermore, the size, liquidity and transparency of the underlying market for each methodology has been tested and particular circumstances for each relevant market have been taken into account.

Each index methodology and the related detailed analysis was presented by the Index Operations Department to the Independent Oversight Function for its approval. Based on the aforementioned approval process and its documentation each Index Methodology was presented to the Management Board (Geschäftsführer) of the Index Owner for final approval.

1.2 Review of this Index Guide

According to Art. 13 No. 1 (b) of the Benchmark Regulation, the Index Owner reviews this Index Guide on an annual basis and immediately in case of special circumstances that require a review. The review takes place in meetings attended by the Independent Oversight Function and the Management Board of the Index Owner. If changes to this Index Guide are considered necessary, the process described in Section 5.5 applies.

2 INDEX UNIVERSE

2 Index Universe

2.1 Index Universe

The index universe of the MVIS CryptoCompare index family includes all crypto currencies (excl. security tokens and financial instruments) covered by CryptoCompare in their Crypto Coin Comparison Aggregated Index ('CCCAGG'). A detailed list of these crypto currencies is available on request.

The MVIS Bitcoin US OTC Spot Index is based on data provided by the following OTC platforms:

- DRW/Cumberland,
- Genesis,
- XBTO.

Additional platforms can be added/current platforms can be replaced by decision of the index owner.

3 GENERAL DEFINITIONS

3 General Definitions

3.1 Weighting Schemes

Most MVIS CryptoCompare Digital Assets indices use cap-factors to guarantee diversification and avoid overweighting. Please refer to the individual index description in section 4 for the capping scheme used. Index weightings are reviewed on a monthly basis.

Weighting Scheme: 35%-Cap

The 35%-cap ensures diversification by assigning weights to components which cannot exceed 35% but still ensures bigger sizes of bigger components.

All components are ranked by their market capitalisation. The maximum weight for any component is 35%. If a constituent exceeds the maximum weight, the weight will be reduced to the maximum weight and the excess weight shall be redistributed proportionally across all other index components. This process is repeated until no components have weights exceeding the respective maximum weight.

Weighting Scheme: 30%-Cap

The 30%-cap ensures diversification by assigning weights to components which cannot exceed 30% but still ensures bigger sizes of bigger components.

All components are ranked by their market capitalisation. The maximum weight for any component is 30%. If a constituent exceeds the maximum weight, the weight will be reduced to the maximum weight and the excess weight shall be redistributed proportionally across all other index components. This process is repeated until no components have weights exceeding the respective maximum weight.

Weighting Scheme: 4.5%/20%/50%-Cap

This weighting scheme ensures diversification by assigning weights to constituents which cannot exceed 20% but still ensures bigger sizes of bigger components.

1. All index components are weighted by their market capitalisation.
2. All components exceeding 4.5% but at least the largest 5 components are grouped together (so called "Large-Weights") and all other components are grouped together as well (so called "Small-Weights").
3. The aggregated weighting of the Large-Weights is capped at 50%:
 - Large-Weights: If the aggregated weighting of all components in Large-Weight exceeds 50%, then a capping factor is calculated to bring the weighting down to 50% - at the same time a second capping factor for the Small-Weights is calculated to increase the aggregated weight to 50%. These two factors are then applied to all components in the Large-Weights or the Small-Weights respectively. Then
 - Large-Weights: The maximum weight for any component is 20% and the minimum weighting is 5%. If a component is above the maximum or below the minimum weight, then the weight will be reduced to the maximum weight or increased to the minimum weight and the excess weight shall be redistributed proportionally across all other remaining index constituents in the Large-Weights. Then

3 GENERAL DEFINITIONS

- **Small-Weights:** The maximum weight for any component is 4.5%. If a component is above the maximum weight, then the weight will be reduced to the maximum weight and the excess weight shall be redistributed proportionally across all other remaining index constituents in the Small-Weights.

Weighting Scheme: Uncapped

An uncapped index reflects the real market capitalisation of its components.

All components are ranked by their market capitalisation without a capping. All weighting cap factors are fixed at 1.

3.2 Review Schedule

All Indices are rebalanced monthly (the "Monthly Rebalance Date"), except the BBR, which follows a semi-annual review scheme.

The reviews for all indices are based on the opening data on the fourth but last business day in that month. If a security does not trade on a business day, then the last available price for this security will be used. A "business day" means any day (other than a Saturday or Sunday) on which commercial banks and foreign exchange markets settle payments in Frankfurt.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

Indices are rebalanced after closing of the last trading day in each month.

3.3 Pricing Source

For each component price in the MVIS CryptoCompare Indices, the respective CCCAGG by CryptoCompare (www.cryptocompare.com) is used. CCCAGG is a weighted average of the latest available trading price at each exchange covered. Exchanges can be added/removed by decision of CryptoCompare. For clarification, 'respective CCCAGG' means

- Exchange selection might vary dependent on the respective index rules (see respective constraints per index).
- Exchanges may be excluded if they are not licensed to be added to an index.
- Exchanges are not immediately added/removed, but only on a monthly basis or if required following quality reviews from CryptoCompare.
- Values are not backadjusted.

For the Bitcoin price at each OTC platform, values are calculated as the midpoint between the latest available real-time bid- and ask-prices.

The consolidated Bitcoin price is derived from the mid price provided by each platform, equally weighted.

3.4 Index Dissemination

The indices are calculated with the constituent prices converted to USD. Dissemination is in USD. Real-time index values are calculated with the latest available CCCAGG/OTC prices.

4 Indices

The following sections define all relevant index parameters, this includes

- Universe and selection lists,
- Review: selections and weightings,
- Dissemination: times, currencies and identifiers.

4 INDICES

4.1 MVIS® CryptoCompare Digital Assets 5 Index

The MVIS CryptoCompare Digital Assets 5 Index is designed to track the performance of the largest and most liquid 5 digital assets (with a 3-7 buffer). The 35% capping scheme as described in section 3.1 is applied.

Review procedure:

1. The selection list contains all current components with an average-daily-trading value of at least 600,000 USD for the current month. Components of the MVIS CryptoCompare Digital Assets 100 Index (see section 4.4), which have an average-daily-trading value of at least 1,000,000 USD for the current month, are added to the selection list by size (top to bottom), until a count of 10 is reached. Stablecoins (also called 'price stable currencies') which are fiat collateralized and digital assets pegged to a currency or any other asset are not eligible for the selection list. If there are no sufficient non-components which fulfil the liquidity criteria, additional MVIS CryptoCompare Digital Assets 100 Index components are added to list by liquidity (average-daily-trading value for the current month, top to bottom) until it contains 10 digital assets.
2. The selection list is ranked in two different ways - by market capitalisation in descending order (the largest constituent receives rank "1") and then by one-month average-daily-trading value in descending order (the most liquid constituent receives rank "1"). These two ranks are added up.
3. The selection list is now ranked by the sum of the two ranks in step 2 in ascending order. If two constituents have the same sum of ranks, then the larger constituent is placed on top.
4. The top 3 digital assets qualify for selection.
5. The remaining 2 components are selected from the highest ranked remaining index components ranked between 4 and 7.
6. If the number of selected components is still below 5, then the highest ranked digital assets are selected until the number of components equals 5.

For all events that result in a deletion from the index, the deleted component will be replaced with the highest ranked non-component at the latest review. The replacement will be added with the same weight as the deleted component. In case of a hard fork, which results in several active lines, rule 5.2.1 applies. If an event causes the number of components to be greater than 5, the smallest components by market capitalisation will be removed one day after the increase is effective (when a price and the main net is available), until the number of components is 5 again.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Digital Assets 5 Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQM9	BYX8644	A2GGQM	MVDA5	.MVDA5

The index was launched on 23 October 2017 with a base index value of 100.00 as of 31 December 2014.

4 INDICES

4.2 MVIS® CryptoCompare Digital Assets 10 Index

The MVIS CryptoCompare Digital Assets 10 Index is designed to track the performance of the largest and most liquid 10 digital assets (with a 7-13 buffer). The 30% capping scheme as described in section 3.1 is applied.

Review procedure:

1. The selection list contains all current components with an average-daily-trading value of at least 600,000 USD for the current month. Components of the MVIS CryptoCompare Digital Assets 100 Index (see section 4.4), which have an average-daily-trading value of at least 1,000,000 USD for the current month, are added to the selection list by size (top to bottom), until a count of 20 is reached. Stablecoins (also called 'price stable currencies') which are fiat collateralized and digital assets pegged to a currency or any other asset are not eligible for the selection list. If there are no sufficient non-components which fulfil the liquidity criteria, additional MVIS CryptoCompare Digital Assets 100 Index components are added to list by liquidity (average-daily-trading value for the current month, top to bottom) until it contains 20 digital assets.
2. The selection list is ranked in two different ways - by market capitalisation in descending order (the largest constituent receives rank "1") and then by one-month average-daily-trading value in descending order (the most liquid constituent receives rank "1"). These two ranks are added up.
3. The selection list is now ranked by the sum of the two ranks in step 2 in ascending order. If two constituents have the same sum of ranks, then the larger constituent is placed on top.
4. The top 7 digital assets qualify for selection.
5. The remaining 3 components are selected from the highest ranked remaining index components ranked between 8 and 13.
6. If the number of selected components is still below 10, then the highest ranked digital assets are selected until the number of components equals 10.

For all events that result in a deletion from the index, the deleted component will be replaced with the highest ranked non-component at the latest review. The replacement will be added with the same weight as the deleted component. In case of a hard fork, which results in several active lines, rule 5.2.1 applies. If an event causes the number of components to be greater than 10, the smallest components by market capitalisation will be removed one day after the increase is effective (when a price and the main net is available), until the number of components is 10 again.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Digital Assets 10 Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQF3	BYX85Y7	A2GGQF	MVDA10	.MVDA10

The index was launched on 23 October 2017 with a base index value of 100.00 as of 31 December 2014.

4 INDICES

4.3 MVIS® CryptoCompare Digital Assets 25 Index

The MVIS CryptoCompare Digital Assets 25 Index is designed to track the performance of the largest and most liquid 25 digital assets (with a 20-30 buffer). The 4.5%/20%/50% capping scheme as described in section 3.1 is applied.

Review procedure:

1. The selection list contains all current components with an average-daily-trading value of at least 600,000 USD for the current month. Components of the MVIS CryptoCompare Digital Assets 100 Index (see section 4.4), which have an average-daily-trading value of at least 1,000,000 USD for the current month, are added to the selection list by size (top to bottom), until a count of 50 is reached. Stablecoins (also called 'price stable currencies') which are fiat collateralized and digital assets pegged to a currency or any other asset are not eligible for the selection list. If there are no sufficient non-components which fulfil the liquidity criteria, additional MVIS CryptoCompare Digital Assets 100 Index components are added to list by liquidity (average-daily-trading value for the current month, top to bottom) until it contains 50 digital assets.
2. The selection list is ranked in two different ways - by market capitalisation in descending order (the largest constituent receives rank "1") and then by one-month average-daily-trading value in descending order (the most liquid constituent receives rank "1"). These two ranks are added up.
3. The selection list is now ranked by the sum of the two ranks in step 2 in ascending order. If two constituents have the same sum of ranks, then the larger constituent is placed on top.
4. The top 20 digital assets qualify for selection.
5. The remaining 5 components are selected from the highest ranked remaining index components ranked between 21 and 30.
6. If the number of selected components is still below 25, then the highest ranked digital assets are selected until the number of components equals 25.

For all events that result in a deletion from the index, the deleted component will be replaced with the highest ranked non-component at the latest review. The replacement will be added with the same weight as the deleted component. In case of a hard fork, which results in several active lines, rule 5.2.1 applies. If an event causes the number of components to be greater than 25, the smallest components by market capitalisation will be removed one day after the increase is effective (when a price and the main net is available), until the number of components is 25 again.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Digital Assets 25 Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQL1	BYX8633	A2GGQL	MVDA25	.MVDA25

The index was launched on 23 October 2017 with a base index value of 100.00 as of 31 December 2014.

4 INDICES

4.4 MVIS® CryptoCompare Digital Assets 100 Index

The MVIS CryptoCompare Digital Assets 100 Index is designed to track the performance of the largest 100 digital assets (with an 80-120 buffer) and serve as a benchmark/universe for the market. The weightings are uncapped as described in section 3.1.

Review procedure:

1. The selection list is defined as all digital assets with an average-daily-trading value of at least 50,000 USD for the current month. It is sorted in terms of market capitalisation in descending order.
2. The top 80 digital assets qualify for selection.
3. The remaining 20 components are selected from the highest ranked remaining index components ranked between 81 and 120.
4. If the number of selected components is still below 100, then the highest ranked digital assets are selected until the number of components equals 100.

From this composite index (MVDA), three sub-indices are derived by size:

- A Large-Cap Index (MVDALC) with 20 components and a 15-25 buffer within the composite:
 1. The top 15 digital assets qualify for selection.
 2. The remaining 5 components are selected from the highest ranked remaining index components ranked between 16 and 25.
 3. If the number of selected components is still below 20, then the highest ranked digital assets are selected until the number of components equals 20.
- a Mid-Cap Index (MVDAMC) with 30 components and a 15-25 upper and a 40-60 lower buffer within the composite:
 1. The top 20 digital assets, which did not qualify for the Large-Cap Index, qualify for selection.
 2. The remaining 10 components are selected from the highest ranked remaining index components and current large-cap components ranked between 41 and 60.
 3. If the number of selected components is still below 30, then the highest ranked digital assets, which are not reclassified as large-caps, are selected until the number of components equals 30.
- a Small-Cap Index (MVDASC) with 50 components and a 40-60 buffer within the composite:
 1. All components of the composite index, which did neither qualify for the Large-Cap nor the Mid-Cap index, qualify for selection.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. For all events that result in a component number not being equal to 100, the index will be set back to 100 components at the next review.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

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Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Digital Assets 100 Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQG1	BYX85Z8	A2GGQG	MVDA	.MVDA
Price Return Index	DE000A2GGQH9	BYX8600	A2GGQH	MVDALC	.MVDALC
Price Return Index	DE000A2GGQJ5	BYX8611	A2GGQJ	MVDAMC	.MVDAMC
Price Return Index	DE000A2GGQK3	BYX8622	A2GGQK	MVDASC	.MVDASC

The indices were launched on 23 October 2017 with a base index value of 100.00 as of 31 December 2014.

4 INDICES

4.5 MVIS® CryptoCompare Bitcoin Index

The MVIS CryptoCompare Bitcoin Index is designed to track the performance of a Bitcoin digital asset. There is no component other than Bitcoin in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Bitcoin Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQD8	BYX85W5	A2GGQD	MVBTC	.MVBTC

The index was launched on 23 October 2017 with a base index value of 10.00 as of 31 January 2012.

4 INDICES

4.6 MVIS® CryptoCompare Bitcoin Select Index

The MVIS CryptoCompare Bitcoin Select Index is designed to track the performance of a Bitcoin digital asset. There is no component other than Bitcoin in the index.

The index universe includes the following exchanges:

- Bitstamp,
- itBit.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. Only forks trading on the above exchanges may be added. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (ET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 ET with fixed 16:00 ET exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 16:00:00 ET of the last trading day of each month.

The MVIS CryptoCompare Bitcoin Select Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLA56G3	BG1G1H2	SLA56G	MVQBTC	.MVQBTC

The index was launched on 18 October 2018 with a base index value of 10.00 as of 31 January 2012. In case Bitcoin did not trade at any of the eligible exchanges, the index value was derived from a CCCAGG containing all exchanges in the respective CCCAGG universe.

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4.7 MVIS® CryptoCompare Bitcoin Select Spot Index

The MVIS CryptoCompare Bitcoin Select Spot Index is designed to track the performance of a Bitcoin digital asset. There is no component other than Bitcoin in the index.

The index universe includes the following exchanges:

- Bitstamp,
- itBit.

In case of a hard fork, which results in several active lines, rule 5.2.2 applies.

In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (ET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 ET with fixed 16:00 ET exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 16:00:00 ET of the last trading day of each month.

The MVIS CryptoCompare Bitcoin Select Spot Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLA56H1	BG1G1J4	SLA56H	MVSBTC	.MVSBTC

The index was launched on 18 October 2018 with a base index value of 5.48 as of 31 January 2012. In case Bitcoin did not trade at any of the eligible exchanges, the index value was derived from a CCCAGG containing all exchanges in the respective CCCAGG universe.

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4.8 MVIS® CryptoCompare Institutional Bitcoin Index

The MVIS CryptoCompare Institutional Bitcoin Index is designed to track the performance of a Bitcoin digital asset. There is no component other than Bitcoin in the index.

The index universe includes the following exchanges:

- Binance,
- Bittflyer,
- Bitstamp,
- Coinbase,
- Gemini,
- itBit,
- Kraken.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available). In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (ET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 ET with fixed 16:00 ET exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 16:00:00 ET of the last trading day of each month.

The MVIS CryptoCompare Institutional Bitcoin Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLA97U8	BK72QT9	SLA97U	MVIBTC	.MVIBTC

The index was launched on 25 November 2019 with a base index value of 100.00 as of 31 December 2013.

4 INDICES

4.9 MVIS® CryptoCompare Bitcoin VWAP Close Index

The MVIS CryptoCompare Bitcoin VWAP Close Index is designed to track the performance of a Bitcoin digital asset. There is no component other than Bitcoin in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 CET as a 1h volume weighted average price (VWAP) between 15:00 and 16:00 CET.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 16:00:00 CET of the last trading day of each month.

The MVIS CryptoCompare Bitcoin VWAP Close Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLOBER8	BLD0Z19	SLOBER	MVBTCV	.MVBTCV

The index was launched on 06 August 2020 with a base index value of 100.00 as of 31 December 2014.

4 INDICES

4.10 MVIS[®] CryptoCompare Bitcoin Benchmark Rate

The MVIS CryptoCompare Bitcoin Benchmark Rate is designed to be a robust hourly price for Bitcoin in USD. There is no component other than Bitcoin in the index.

Review procedure (for eligible exchanges with USD pair/agreement):

- If an eligible exchange is in the top 5 by rank based on the CryptoCompare Exchange Benchmark table for two consecutive semiannual reviews, it replaces the lowest ranked exchange.
- If an eligible exchange is downgraded by two or more notches in a semiannual review and is not in the top 5 by rank anymore, it is replaced by the highest ranked non-component exchange.

Adjustments to exchange coverage will be announced four business days prior to the first business day of March/September at 23:00 CET; the Index is rebalanced at 16:00:00 GMT/BST on the last business day of February/August.

In case of a hard fork, which results in several active lines, rule 5.2.2 applies.

In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated and disseminated in USD and the closing value is calculated at 16:00:00 GMT/BST with fixed 16:00 GMT/BST exchange rates.

The MVIS CryptoCompare Bitcoin Benchmark Rate has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLOAOE5	BMFXWZ6	SLOAOE	BBR	.BBR

The index was launched on 3 June 2020 with a base index value of 425.53 as of 31 December 2015. The list below summarises the exchange composition up to the launch.

- Bitstamp,
- Coinbase,
- Gemini,
- itBit,
- Kraken.

4 INDICES

4.11 MVIS[®] Bitcoin US OTC Spot Index

The MVIS Bitcoin US OTC Index is designed to track the performance of a Bitcoin in the US OTC markets as defined in section 2.1. There is no component other than Bitcoin in the index.

In case of a hard fork, which results in several active lines, rule 5.2.2 applies.

In the unlikely event a spun-off coin is larger than Bitcoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (ET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 ET with fixed 16:00 ET exchange rates.

As the index represents a spot price only, there is no rebalancing and its divisor is 1. Coin supply is not considered in the index calculation.

The MVIS Bitcoin US OTC Spot Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLA56F5	BG1G1G1	SLA56F	MVBTCO	.MVBTCO

The index was launched on 20 November 2018 with a base index value of 6303.84 as of 31 October 2018.

This index is not set up in cooperation with CryptoCompare.

4 INDICES

4.12 MVIS[®] CryptoCompare Bitcoin Cash Index

The MVIS CryptoCompare Bitcoin Cash Index is designed to track the performance of a Bitcoin Cash digital asset. There is no component other than Bitcoin Cash in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Bitcoin Cash (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Bitcoin Cash Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQC0	BYX85V4	A2GGQC	MVBCH	.MVBCH

The index was launched on 23 October 2017 with a base index value of 1000.00 as of 31 August 2017.

4 INDICES

4.13 MVIS[®] CryptoCompare Dash Index

The MVIS CryptoCompare Dash Index is designed to track the performance of an Dash digital asset. There is no component other than Dash in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Dash (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Dash Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQE6	BYX85X6	A2GGQE	MVDASH	.MVDASH

The index was launched on 23 October 2017 with a base index value of 10.00 as of 28 February 2014.

4 INDICES

4.14 MVIS® CryptoCompare Ethereum Index

The MVIS CryptoCompare Ethereum Index is designed to track the performance of an Ethereum digital asset. There is no component other than Ethereum in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Ethereum (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Ethereum Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQP2	BYX8666	A2GGQP	MVETH	.MVETH

The index was launched on 23 October 2017 with a base index value of 10.00 as of 31 August 2015.

4 INDICES

4.15 MVIS[®] CryptoCompare Institutional Ethereum Index

The MVIS CryptoCompare Institutional Ethereum Index is designed to track the performance of a Ethereum digital asset. There is no component other than Ethereum in the index.

The index universe includes the following exchanges:

- Binance,
- Bitstamp,
- Coinbase,
- Gemini,
- itBit,
- Kraken.

In case of a hard fork, which results in several active lines, rule 5.2.2 applies.

In the unlikely event a spun-off coin is larger than Ethereum (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (ET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 16:00:00 ET with fixed 16:00 ET exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 16:00:00 ET of the last trading day of each month.

The MVIS CryptoCompare Institutional Ethereum Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SLOBES6	BLDOZ20	SLOBES	MVIETH	.MVIETH

The index was launched on 06 August 2020 with a base index value of 0.96 as of 31 December 2015.

4 INDICES

4.16 MVIS® CryptoCompare Ethereum Classic Index

The MVIS CryptoCompare Ethereum Classic Index is designed to track the performance of an Ethereum Classic digital asset. There is no component other than Ethereum Classic in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Ethereum Classic (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Ethereum Classic Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQN7	BYX8655	A2GGQN	MVETC	.MVETC

The index was launched on 23 October 2017 with a base index value of 100.00 as of 31 July 2016.

4 INDICES

4.17 MVIS® CryptoCompare IOTA Index

The MVIS CryptoCompare IOTA Index is designed to track the performance of a IOTA digital asset. There is no component other than IOTA in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies (though unlikely for IOTA). The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Ethereum IOTA (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day in each month.

The MVIS CryptoCompare IOTA Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQQ0	BYX8677	A2GGQQ	MVIOT	.MVIOT

The index was launched on 23 October 2017 with a base index value of 1000.00 as of 31 July 2017.

4 INDICES

4.18 MVIS® CryptoCompare Litecoin Index

The MVIS CryptoCompare Litecoin Index is designed to track the performance of a LiteCoins digital asset. There is no component other than Litecoin in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Litecoin (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Litecoin Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQR8	BYX8688	A2GGQR	MVLTC	.MVLTC

The index was launched on 23 October 2017 with a base index value of 100.00 as of 30 September 2013.

4 INDICES

4.19 MVIS® CryptoCompare Monero Index

The MVIS CryptoCompare Monero Index is designed to track the performance of a Monero digital asset. There is no component other than Monero in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Monero (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare Monero Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQS6	BYX8699	A2GGQS	MVXMR	.MVXMR

The index was launched on 23 October 2017 with a base index value of 10.00 as of 31 January 2015.

4 INDICES

4.20 MVIS[®] CryptoCompare NEM Index

The MVIS CryptoCompare NEM Index is designed to track the performance of a NEM digital asset. There is no component other than NEM in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than NEM (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare NEM Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQT4	BYX86B1	A2GGQT	MXEM	.MXEM

The index was launched on 23 October 2017 with a base index value of 10.00 as of 31 March 2015.

4 INDICES

4.21 MVIS[®] CryptoCompare NEO Index

The MVIS CryptoCompare NEO Index is designed to track the performance of a NEO digital asset. There is no component other than NEO in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than NEO (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day of each month.

The MVIS CryptoCompare NEO Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQU2	BYX86C2	A2GGQU	MVNEO	.MVNEO

The index was launched on 23 October 2017 with a base index value of 10.00 as of 30 September 2016.

4 INDICES

4.22 MVIS[®] CryptoCompare XRP Index

The MVIS CryptoCompare XRP Index is designed to track the performance of a XRP digital asset. There is no component other than XRP in the index.

As XRP cannot hard fork, rule 5.2.1 never applies.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day in each month.

The MVIS CryptoCompare XRP Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQV0	BYX86D3	A2GGQV	MVXRP	.MVXRP

The index was launched on 23 October 2017 with a base index value of 100.00 as of 31 January 2015.

4 INDICES

4.23 MVIS® CryptoCompare Zcash Index

The MVIS CryptoCompare Zcash Index is designed to track the performance of a Zcash digital asset. There is no component other than Zcash in the index.

In case of a hard fork, which results in several active lines, rule 5.2.1 applies. The spun-off coin will be removed one day after the effective date (when a price and the main net is available) until the number of components is 1 again. In the unlikely event a spun-off coin is larger than Zcash (by market capitalisation) and is in general accepted as the successor of the original chain, the index owner might decide to keep it as the only index component.

The index is calculated daily between 00:00 and 24:00 (CET) and the index values are disseminated to data vendors every 15 seconds. The index is disseminated in USD and the closing value is calculated at 17:00:00 GMT with fixed 17:00 GMT exchange rates.

Adjustments to constituents will be announced four business days prior to the first business day of the next month at 23:00 CET.

The Index is rebalanced at 17:00:00 GMT of the last trading day in each month.

The MVIS CryptoCompare Zcash Index has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000A2GGQW8	BYX86F5	A2GGQW	MVZEC	.MVZEC

The index was launched on 23 October 2017 with a base index value of 1000.00 as of 30 November 2016.

5 ONGOING MAINTENANCE

5 Ongoing Maintenance

5.1 Changes in Amount Outstanding

Changes in the amount outstanding will not be adjusted during the month, but with the next monthly review.

5.2 Changes due to Forks

A hard fork occurs when a blockchain protocol is radically changed, such that it becomes incompatible with older versions. In effect, participants taking part in transactions on the old blockchain must upgrade to the new one in order to continue validating transactions. However, participants that do not upgrade may continue to support and validate transactions on the older blockchain protocol separately.

The result of this is that a blockchain splits into two - hence the name 'hard fork'. If there are nodes permanently supporting the new chain, then the two chains will co-exist.

Users that once held digital assets on an older blockchain before the protocol change at a pre-specified blockchain length will now also hold an amount of new coins on the altered blockchain. This new asset has essentially been derived from an older token as well as its associated blockchain's transaction history.

5.2.1 Addition of Forks

Where a constituent blockchain undergoes a hard fork, the newly created coin will be added to the index, as long as it is available for trading on one or more of eligible top tier exchanges (as defined by CryptoCompare, see below; eligible exchanges for respective index), such available price(s) contributing to the CCCAGG, prior to the following review announcement. In addition to the exchange classification, the following criteria are taken into account if the forked coin is added to the index:

- Twitter followers: qualitative and quantitative measure of the community support level for the forked chain,
- Public developer: indicates that there are people that can be held accountable for any liability,
- Open source code: makes code auditing and vulnerability check possible,
- Premine: transparency in terms of the total supply of the Forked Coin and intentions,
- Announcement: the forked Chain will have to be announced a significant time prior to its activation, in doing so this would demonstrate the seriousness of the intended fork.

Each additional component resulting from a fork is immediately added to the index at least for one day according to the terms, if traded. In case it does not trade, it will be kept with a 0 price until the first price is retrieved (it will then be kept in the index for at least one day) or the next review becomes effective. Implementation is effective with the change in the respective block.

- | | | | |
|------------|----------------|----------|------------|
| • Binance | • Bittrex | • itBit | • OKEX |
| • Bitbank | • Cex.io | • Korbit | • Poloniex |
| • Bitfinex | • Coinbase | • Kraken | • UPbit |
| • bitFlyer | • Coincheck | • Liquid | • Zaif |
| • Bitstamp | • Huobi Global | • OKCoin | |

5 ONGOING MAINTENANCE

The same treatment applies to soft forks if the process results in a division or split into multiple non-fungible assets.

5.2.2 No Addition of Forks

In case of a hard fork, the forked coin is not added to the index. Only in case it is significant enough to replace the old line in terms of market capitalisation and acceptance, MVIS may decide for a different treatment.

5.3 Initial Coin Offerings (ICOs)

An ICO coin is eligible for fast-track addition to the investable index universe even if there is no full month of traded values. In order to be added to the index the ICO coin has to meet the liquidity requirements:

- the ICO must have an average-daily-trading volume of at least 1.0m USD, and
- must have traded for at least 10 days.

This rule is applicable for newly forked non-component coins as well.

5.4 Changes to Pricing (CCCAGG)

In case an exchange is added to CCCAGG or removed from it, the index divisor will not be adjusted. The same hold for the addition/removal of platforms in MVBTCO.

5.5 Changes to the Index Guide

Any changes to the Index Guide will be reviewed and approved by the Legal and Compliance Department. Legal and Compliance may also request a conclusive description and further information on any change and may consult the operations department on such changes. The key elements to be analysed in this phase of the change process are robustness, transparency, reliability and integrity. The result of the review will be communicated to the operations department. The email will be archived by the operations department.

In case of changes that might immediately change the composition of an index or must be considered material for any other reason also need to be approved by the Independent Oversight Function ("IOF") prior to their publication and implementation.

In case of material changes an advance notice will be published and provided to users. MVIS will generally disseminate a notification related to an Index Guide change 60 days prior to the change. A shorter period of time may be applied at MVIS's discretion if the relevant index has not been licensed for a financial product to a third party. The notice will describe a clear time frame that gives the opportunity to analyse and comment upon the impact of such proposed material change. Any material comments received in relation to the Index Guide change and MVIS's response to those comments will be made publicly accessible after any consultation, except where confidentiality has been requested by the originator of the comments.

5 ONGOING MAINTENANCE

5.6 Discretion regarding the Use of Input Data

Pursuant to Art. 12 No.1. (b), MVIS has established the following rules identifying how and when discretion may be exercised in the administration of an index.

In case input data are or appear to be qualitatively inferior or different sources provide different data, or a situation is not covered by the index rules, MVIS may use or change the data at its own discretion according to the following discretion policy after a plausibility check. This may include

- Liquidity and size data,
- Event information,
- Classifications and other secondary data.

Any changes to input data that MVIS intends to apply because of missing data, different data from different sources or other information concluding the inappropriateness or incorrectness of data must be subject to reasonable discretion. The decision on any change must be required, appropriate, commensurable and in line with the respective index scope and objective and must reasonably consider in a balance weight the interest of Users, investors in related products and the integrity of the market.

Index operations ensures consistency in the use of discretion in its judgement and decision. Employees involved in the operations team must have shown the respective experience and skills. Significant decisions are subject to sign-off by a supervisor. In case of material changes to data the relevant situation will be analysed in detail, described and presented to the IOF and discussed and reviewed with the IOF.

The broad range of possible data quality problems does not allow to define specific steps for each possible instance. MVIS will always weight the different interest of the index users, the integrity of the market and other involved parties and determine the least disadvantageous measure that equally considers the relevant interests best.

In order to avoid individual decisions on the use of data in similar cases for the future an update of the index rules can be taken into consideration if applicable. Other possible mitigation measures are the change of input data sources or providers and/or own data research where possible and reasonable.

Records are kept about material judgement or discretion by MVIS and will include the reasoning for said judgement or discretion.

5.7 Input Data and Contributor Selection

According to the input data requirements under Art. 11 of the Benchmark Regulation, the following shall apply with regard to the input data used for the management and provision of an index and the relevant input data providers ("Contributors"):

- the input data shall be sufficient to represent accurately and reliably the market or economic reality that the benchmark is intended to measure;
- the input data shall be transaction data, if available and appropriate. If transaction data is not sufficient or is not appropriate to represent accurately and reliably the market or economic reality that the index is intended to measure, input data which is not transaction data may be used, including estimated prices, quotes and committed quotes, or other values;
- the input data shall be verifiable;
- clear guidelines regarding the types of input data, the priority of use of the different types of input data and the exercise of expert judgement, to ensure compliance with the Index Guide and

5 ONGOING MAINTENANCE

index methodology and the aforementioned requirements are defined in the Code of Conduct for Contributors; and

- where an index is based on input data from Contributors, MVIS will obtain, where appropriate, the input data from a reliable and representative panel or sample of Contributors so as to ensure that the resulting index is reliable and representative of the market or economic reality that the index is intended to measure.

In order to control the quality of contributors, MVIS will conduct the following controls:

- Evaluate market share, reputation, quality and cost of possible input data sources and providers before selecting them on the basis of the gathered information and data;
- Compare the input data of one Contributor with the input data from one or more other Contributors in order to ensure the integrity and accuracy of the input data and in case of bad quality replace a Contributor with another Contributor.

MVIS will not use input data from a contributor if it has any indication that the Contributor does not adhere to its Code of Conduct for Contributors and in such a case shall obtain representative publicly available data.

6 CALCULATION

6 Calculation

6.1 Index Formula

6.1.1 Standard Indices

The Indices are calculated using the Laspeyres' formula:

$$Index\ Value = \frac{\sum_{i=1}^n p_i * q_i * cf_i * fx_i}{D} = \frac{M}{D}.$$

Where (for all tokens (i) in the Index):

- p_i = price,
- q_i = amount outstanding,
- cf_i = weighting cap factor (if applicable, otherwise set to 1),
- fx_i = exchange rate (index currency to USD),
- M = market capitalisation of the index,
- D = divisor.

6.1.2 MVIS CryptoCompare Bitcoin Benchmark Rate

The index is calculated as an average of quantity weighted median prices, which are calculated for 20 3-minute intervals in the hour between 15:00:00 GMT/BST and 16:00:00 GMT/BST.

$$Index\ Value = \frac{1}{n} \sum_{i=1}^n M(i).$$

where the quantity weighted median price for each interval i is

$$M(i) = \begin{cases} p_{i,k} & \text{if } k \text{ satisfies } \sum_{j=1}^{k-1} q_{i,j} < \frac{1}{2} \sum_{j=1}^{J_i} q_{i,j} \text{ and } \sum_{j=k+1}^{J_i} q_{i,j} \leq \frac{1}{2} \sum_{j=1}^{J_i} q_{i,j}, \\ p_{i,1} & \text{if } q_{i,1} \geq \frac{1}{2} \sum_{j=1}^{J_i} q_{i,j}, \\ \frac{p_{i,k} + p_{i,k+1}}{2} & \text{if } \sum_{j=k+1}^{J_i} q_{i,j} = \frac{1}{2} \sum_{j=1}^{J_i} q_{i,j}, \end{cases}$$

with the number of intervals calculated as the total index time window divided by the interval window:

$$n = \frac{T}{b},$$

and

- $p_{i,j}$ = j th price in i th interval,
- $q_{i,j}$ = j th quantity/volume traded in i th interval,
- J_i = number of trades in i th interval,
- b = interval window for the calculation of the median prices,
- n = number of intervals,
- T = total index time window for the calculation of an index price.

The set of trades for the total index calculation consists of transactions occurring within the total index time window as follows:

$$\theta_t = \{a_{i,j}(s_{i,j}, p_{i,j}, q_{i,j}) | t - T \leq s < t\},$$

with

6 CALCULATION

θ_t = set of trades for the calculation of the index price at time t ,

$a_{i,j}$ = trade j in trade set A_i ,

$s_{i,j}$ = time of trade $a_{i,j}$.

Each interval consists of a subset of trades of θ_t :

$$A_i \subset \theta_t$$

A_i being the set of trades for the calculation of the median price in interval i , where each trade $a_{i,j}$ within A_i is sorted by price $p_{i,j}$ in ascending order and it holds that trades occur within the interval window as follows:

$$A_i = \{a_{i,j}(s_{i,j}, p_{i,j}, q_{i,j}) | (t - T) + (i - 1)b \leq s < (t - T) + ib\}.$$

Index Parameters

Parameter	Value
Total time window of index (T)	1 hour
Interval window (b)	3 minutes
Number of intervals (n)	20 (given available transactions)

6.2 Input Data

The following rounding procedures are used for the index calculation:

- Rounding to 2 decimal places:
 - index values,
- Rounding to 6 decimal places:
 - divisors (D),
- Rounding to 18 decimal places:
 - prices (p_i),
 - exchange rates (fx_i),
 - weighting cap factors (cf_i).

6.3 Divisor Adjustments

Index maintenance - reflecting changes in amount outstanding, events, addition or deletion of tokens to the Index - should not change the level of the index. This is accomplished with an adjustment to the divisor. Any change to the tokens in the index that alters the total market value of the index while holding token prices constant will require a divisor adjustment.

$$Divisor_{new} = Divisor_{old} * \frac{\sum_{i=1}^n p_i * q_i * cf_i * fx_i \pm \Delta MC}{\sum_{i=1}^n p_i * q_i * cf_i * fx_i}.$$

ΔMC = Difference between closing and adjusted closing market capitalisation of the index.

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6.4 Event Related Adjustments

Events range widely from routine coin issuances to unusual events like forks. These are listed on the table below with notes about the necessary changes and whether the divisor will be adjusted.

p_i = token price.

- *Hard Fork* Divisor change: No.
 Investors receive 'B' new coins for every 'A' coin held.

$$p_{(i,adjusted)} = ((p_i * A) - (price\ of\ forked\ coin * B)) / A$$
 Coin B is added to the index according to the terms.
- *Addition/Deletion of a component* Divisor change: Yes.
 Net change in market value determines the divisor adjustment.
- *Other* Divisor change: TBD.
 Net change in market value determines the divisor adjustment. In case of no change, the divisor change is 0.

6.5 Data Correction and Disruptions

MVIS will usually receive information about errors or disruption from calculation agent, client, internal systems (IT) or by monitoring the respective output.

The following list of errors does not affect the indices, as data are not considered in the calculation process:

- Bad data such as non-numerical price, volume or timestamp,
- Late/delayed transactions,
- Non-reporting exchanges.
- For BBR only: Full exchange exclusion when weighted median price of an exchange within the total index window deviates more than 10% from the median of the rest of the exchanges' median price.

Incorrect or missing input data will be corrected immediately:

- The error is immediately communicated to the calculation agent, if applicable.
- Calculation agent will be asked to investigate the reason for the error.
- An email will be sent to all affected clients to inform them about the error; this includes the reason for the issue and an estimate on when the issue will be solved.
- MVIS recalculates missing EOD data points and disseminates to vendors and clients.

In case of a material error,

- Legal and Compliance to check the relevant agreements for liability of the calculation agent.
- If MVIS identifies any conduct that may involve manipulation or attempted manipulation of an index by calculation agent it will report this to the regulator.
- Where possible and economically reasonable MVIS will try to use another calculation agent.

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Investigations and communication regarding disruptions with calculation agents will be handled by Compliance and Senior Management. They are either caused by disruptions in calculation or dissemination, which might affect different servicers.

- The disruption is immediately communicated to the calculation/dissemination agent, if applicable.
- Calculation/dissemination agent will be asked to investigate the reason for the disruption.
- An email will be sent to all affected clients to inform them about the disruption; this includes the reason for the issue and an estimate on when the issue will be solved.
- MVIS prompts calculation agent to make all efforts to restart index calculation.
- MVIS prompts Dissemination agent to make all efforts to restart index dissemination.
- MVIS recalculates missing EOD data points and disseminates to vendors and clients.
- Legal and Compliance to check the relevant agreements for liability of the calculation/dissemination agent.
- If MVIS identifies any conduct that may involve manipulation or attempted manipulation of an index by calculation/dissemination agent it will report this to BaFin.
- Where possible and economically reasonable MVIS will try use another calculation and/or dissemination agent.

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7 Appendix

7.1 MVIS Digital Assets Indices

MVIS [®] CryptoCompare Digital Assets 5 Index	MVIS [®] Bitcoin US OTC Spot Index
MVIS [®] CryptoCompare Digital Assets 10 Index	MVIS [®] CryptoCompare Bitcoin Cash Index
MVIS [®] CryptoCompare Digital Assets 25 Index	MVIS [®] CryptoCompare Dash Index
MVIS [®] CryptoCompare Digital Assets 100 Index	MVIS [®] CryptoCompare Ethereum Index
MVIS [®] CryptoCompare Digital Assets 100 Large-Cap Index	MVIS [®] CryptoCompare Institutional Ethereum Index
MVIS [®] CryptoCompare Digital Assets 100 Mid-Cap Index	MVIS [®] CryptoCompare Ethereum Classic Index
MVIS [®] CryptoCompare Digital Assets 100 Small-Cap Index	MVIS [®] CryptoCompare IOTA Index
MVIS [®] CryptoCompare Bitcoin Index	MVIS [®] CryptoCompare CryptoCompare LiteCoin Index
MVIS [®] CryptoCompare Bitcoin Select Index	MVIS [®] CryptoCompare Monero Index
MVIS [®] CryptoCompare Bitcoin Select Spot Index	MVIS [®] CryptoCompare NEM Index
MVIS [®] CryptoCompare Institutional Bitcoin Index	MVIS [®] CryptoCompare NEO Index
MVIS [®] CryptoCompare Bitcoin VWAP Close Index	MVIS [®] CryptoCompare XRP Index
MVIS [®] CryptoCompare Bitcoin Benchmark Rate	MVIS [®] CryptoCompare Zcash Index

7.2 Names and Tickers

Long Name	Short Name	Symbol
MVIS [®] CryptoCompare Digital Assets 5 Index	MV CC Dig Assets 5 Idx	MVDA5
MVIS [®] CryptoCompare Digital Assets 10 Index	MV CC Dig Assets 10 Idx	MVDA10
MVIS [®] CryptoCompare Digital Assets 25 Index	MV CC Dig Assets 25 Idx	MVDA25
MVIS [®] CryptoCompare Digital Assets 100 Index	MV CC Dig Assets 100 Idx	MVDA
MVIS [®] CryptoCompare Digital Assets 100 Large-Cap Index	MV CC Dig Assets 100 Lrg Idx	MVDALC
MVIS [®] CryptoCompare Digital Assets 100 Mid-Cap Index	MV CC Dig Assets 100 Mid Idx	MVDAMC
MVIS [®] CryptoCompare Digital Assets 100 Small-Cap Index	MV CC Dig Assets 100 Sml Idx	MVDASC
MVIS [®] CryptoCompare Bitcoin Index	MV CC Bitcoin Idx	MVBTC
MVIS [®] CryptoCompare Bitcoin Select Index	MV CC Bitcoin S Idx	MVQBTC
MVIS [®] CryptoCompare Bitcoin Select Spot Index	MV CC Bitcoin SS Idx	MVSBTC
MVIS [®] CryptoCompare Institutional Bitcoin Index	MV CC I Bitcoin Idx	MVIBTC
MVIS [®] CryptoCompare Bitcoin VWAP Close Index	MV CC Bitcoin VWAP Idx	MVBTCV
MVIS [®] CryptoCompare Bitcoin Benchmark Rate	MV CC Bitcoin BR	BBR
MVIS [®] Bitcoin US OTC Spot Index	MV Bitcoin US OTC S Idx	MVBTCO
MVIS [®] CryptoCompare Bitcoin Cash Index	MV CC BTC Cash Idx	MVBCH
MVIS [®] CryptoCompare Dash Index	MV CC Dash Idx	MVDASH
MVIS [®] CryptoCompare Ethereum Index	MV CC Ethereum Idx	MVETH
MVIS [®] CryptoCompare Institutional Ethereum Index	MV CC I Ethereum Idx	MVIETH
MVIS [®] CryptoCompare Ethereum Classic Index	MV CC Ethereum Cl. Idx	MVETC
MVIS [®] CryptoCompare IOTA Index	MV CC IOTA Idx	MVIOT
MVIS [®] CryptoCompare LiteCoin Index	MV CC LiteCoin Idx	MVLTC
MVIS [®] CryptoCompare Monero Index	MV CC Monero Idx	MVXMR
MVIS [®] CryptoCompare NEM Index	MV CC NEM Idx	MVXEM
MVIS [®] CryptoCompare NEO Index	MV CC NEO Idx	MVNEO
MVIS [®] CryptoCompare XRP Index	MV CC XRP Idx	MVXRP
MVIS [®] CryptoCompare Zcash Index	MV CC Zcash Idx	MVZEC

7.3 Launch Dates and Base Values

Name	Launch Date	Base Value	Base Date
MVIS [®] CryptoCompare Digital Assets 5 Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Digital Assets 10 Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Digital Assets 25 Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Digital Assets 100 Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Digital Assets 100 Large-Cap Index	23 October 2017	100.00	31 December 2014

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MVIS [®] CryptoCompare Digital Assets 100 Mid-Cap Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Digital Assets 100 Small-Cap Index	23 October 2017	100.00	31 December 2014
MVIS [®] CryptoCompare Bitcoin Index	23 October 2017	10.00	31 January 2012
MVIS [®] CryptoCompare Bitcoin Select Index	18 October 2018	10.00	31 January 2012
MVIS [®] CryptoCompare Bitcoin Select Spot Index	18 October 2018	5.48	31 January 2012
MVIS [®] CryptoCompare Institutional Bitcoin Index	25 November 2019	100.00	31 December 2013
MVIS [®] CryptoCompare Bitcoin VWAP Close Index	06 August 2020	100.00	31 December 2014
MVIS [®] CryptoCompare Bitcoin Benchmark Rate	3 June 2020	425.23	31 December 2015
MVIS [®] Bitcoin US OTC Spot Index	20 November 2018	6303.84	31 October 2018
MVIS [®] CryptoCompare Bitcoin Cash Index	23 October 2017	1000.00	31 August 2017
MVIS [®] CryptoCompare Dash Index	23 October 2017	10.00	28 February 2014
MVIS [®] CryptoCompare Ethereum Index	23 October 2017	10.00	31 August 2015
MVIS [®] CryptoCompare Institutional Ethereum Index	06 August 2020	0.96	31 December 2015
MVIS [®] CryptoCompare Ethereum Classic Index	23 October 2017	100.00	31 July 2016
MVIS [®] CryptoCompare IOTA Index	23 October 2017	1000.00	31 July 2017
MVIS [®] CryptoCompare Litecoin Index	23 October 2017	100.00	30 September 2013
MVIS [®] CryptoCompare Monero Index	23 October 2017	10.00	31 January 2015
MVIS [®] CryptoCompare NEM Index	23 October 2017	1000.00	31 March 2015
MVIS [®] CryptoCompare NEO Index	23 October 2017	10.00	30 September 2016
MVIS [®] CryptoCompare XRP Index	23 October 2017	100.00	31 January 2015
MVIS [®] CryptoCompare Zcash Index	23 October 2017	1000.00	31 November 2016

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7.4 Changes to the Index Guide

This table contains all changes to the index guide after 1 January 2018, when the European Benchmark Regulation became effective.

Date	IG Version	Change
12 September 2018	1.25	Inclusion of additional chapters to comply with BMR
18 October 2018	1.26	Inclusion of MVQBTC, MVSBTC, MVQETH, MVSETH, re-name MVXRP
20 November 2018	1.27	Inclusion of MVBTCO
12 July 2019	1.28	Update of top tier exchanges in fork treatment
2 September 2019	1.29	Clarification of eligibility (security tokens, financial instruments and pegged assets)
27 September 2019	1.30	Exclusion of MVQETH, MVSETH
25 November 2019	1.31	Inclusion of MVIBTC
16 March 2020	1.32	Replacement of Circle with XBTO in MVBTCO
03 June 2020	1.33	Inclusion of BBR, updated data correction process
06 August 2020	1.34	Inclusion of MVBTCV and MVIETH, clarification of pricing methodology
07 August 2020	1.35	Conversion of MVIETH to a spot price index

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