CRESCENT CRYPTO ASSET MANAGEMENT

CRESCENT CRYPTO MARKET INDEX (CCMIX)

FEBRUARY 28, 2019 INDEX GUIDE

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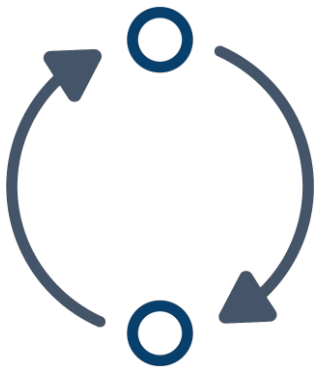
INTRODUCTION

Objective

The objective of the **Crescent Crypto Market Index (CCMIX)** is to track the performance of a market capitalization weighted basket of the **largest and most liquid digital assets** that are tradeable and secure.

Representative + Diversified

The CCMIX could include up to a **maximum of 20 digital assets**. The CCMIX employs a **trailing 90-day average market cap** selection and weighting methodology that reduces turnover and makes the index weightings stickier and less subject to short term price action.



Data Integrity + Liquidity

Pricing data sources are selected by **evaluating the largest exchanges** with **strong track records of stable, secure performance** while maintaining local regulatory compliance. Coins are eligible if they meet **substantial liquidity thresholds**, which are measured only on the Index's limited list of eligible and trusted exchanges.

Secure + Investable

The Eligible Index Universe is narrowed to only include digital assets with wallet solutions capable of **generating private keys** and **signing transactions offline**, allowing for **cold-storage custody**. The Index will not hold assets that cannot be stored and transferred safely.

INTRODUCTION

Index Facts

Name	Crescent Crypto Market Index (CCMIX)
Owner	Crescent Crypto Asset Management LLC
Type	Digital Asset Market Index
# of Holdings	11
Weighing Method	Trailing 90-day Average Market Cap
Rebalancing Frequency	Monthly
Pricing Method	Exchange Volume Weighted Average Price
Administrator	MV Index Solutions
Calculation Agent	CryptoCompare
Eligible Exchanges	Coinbase, Kraken, itBit, Bitstamp, Binance, Bittrex, Poloniex
Denomination Currency	USD
Inception Date	12/31/2016
Inception Value	1,000
Dissemination	Realtime
Dissemination Period	00:00 – 24:00 (EST)
Daily Close Time	16:00 (EST)
Identifiers	*Bloomberg* : CCMIX *Reuters* : .CCMIX *ISIN* : DE000SLA6UN1 *SEDOL* : BHR9718

INTRODUCTION

Governance + Workflow

Index Committee

CRESCENT CRYPTO

Organization: Crescent Crypto Asset Management LLC owns the Index, designs the rules of the Index and maintains and staffs the Crescent Crypto Index Committee, comprised of Crescent Partners and Industry Experts

Responsibilities: Eligible exchange selection, custody designations, and known security flaw designation

Index Maintenance + Administration

MVIS® A VanEck® Company

Organization: MV Index Solutions, a wholly-owned subsidiary of Van Eck

Responsibilities: Managing the Monthly Review process (See Index Maintenance for more detail) and disseminating the index

Index Calculation

CRYPTO COMPARE

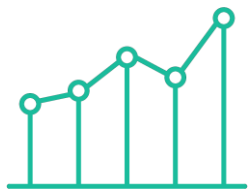
Organization: CryptoCompare, a global cryptocurrency market data provider

Responsibilities: Calculating and transmitting real time custom pricing data

INDEX CONSTRUCTION

Eligibility Criteria

The CCMIX determines a digital asset's eligibility considering the following criteria:



Size

Minimum market cap - Coins must have a trailing 90-day average market cap **greater than USD $500 million**

Liquidity

Volume minimum - A coin's trailing 30-day average daily trading volume (30-day ADTV) must be **greater than USD $3 million for at least one day over the past month**. 30-day ADTV calculated using data only from eligible exchanges

Redundancy - A coin **must trade on 2 or more** eligible exchanges

Custody

Cold storage capable - Air-gapped custody solution through a **hardware wallet** or **trusted 3rd party** with offline transaction ability

Security

Known security issues - Coins have **no known security issues** – includes potential bugs, exposure to 51% attacks, public developers engaged in the project, transparent pre-mine information, announced delistings from exchanges, etc.

Float

No stablecoins or pegged assets - Coins that are pegged to other digital assets, traditional assets, or fiat currency **will not be included**

INDEX CONSTRUCTION

Ranking and Selection

At time of Monthly Index Review, eligible cryptoassets are **ranked by their trailing 90-day average market capitalization**. A **maximum of 20 cryptoassets** that meet the eligibility criteria are selected and included in the index.

Eligible Assets (#)	Selection Process
Less than or equal to 20	All eligible assets are selected for inclusion in the Index
Greater than 20	1. All eligible assets are **ranked by trailing 90-day average market cap** 2. The **first 17 assets** are automatically included 3. The remaining assets will first include any current components in **rank position of 18-23** 4. If the number of assets is **still below 20**, the remaining slots filled with new entrants **based on ranked order**

See Special Considerations for more detail on **New Entrants, Air Drops** and **Forks**.

Weighting Methodology

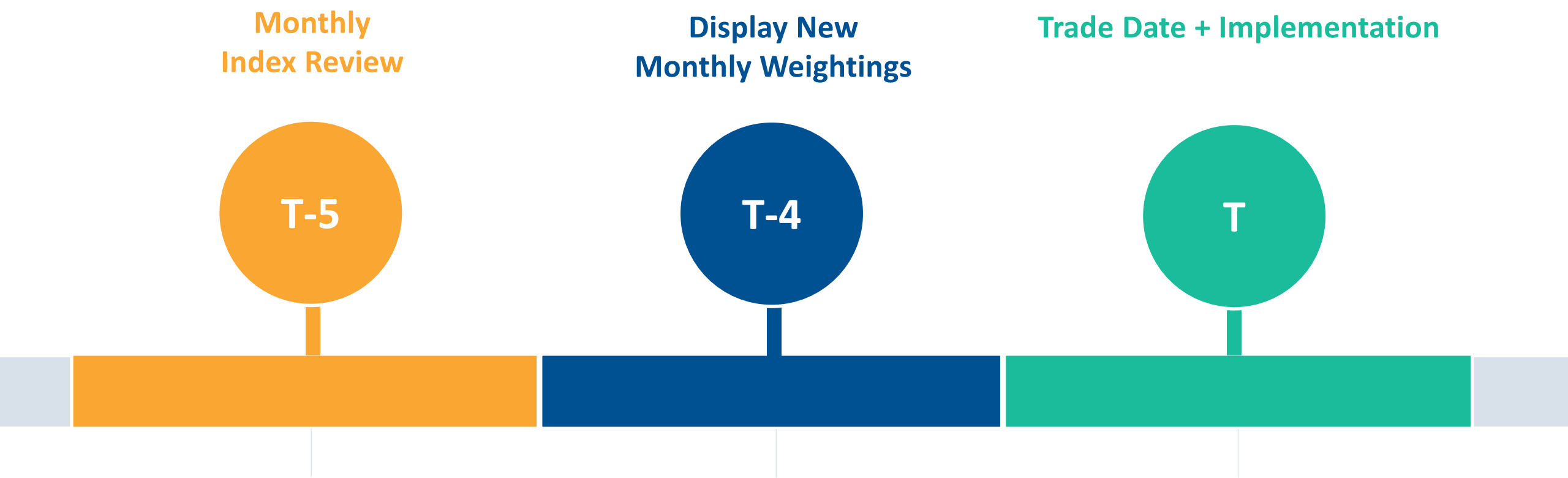
Index constituents' weighting factors are calculated based on the **trailing 90-day average market capitalization**. The market capitalization used in the selection process is also used to determine the final constituent weighting. The index **does not use "cap" or "floor" factors** to restrict the weights of components, which allows the index to represent the asset class more effectively. The trailing **90-day average market capitalization for each index component is summed**, and the weighting is determined by each asset's proportional makeup of the sum.

TICKER	ASSET	SECTOR	Trailing 90-Day Avg Market Cap (Billions)	% ALLOCATION
BTC	Bitcoin	Store of Value	**64.1**	**62.13%**
XRP	XRP	Value Transfer	**13.3**	**12.93%**
ETH	Ether	Platform	**12.4**	**11.97%**
BCH	Bitcoin Cash	Value Transfer	**2.4**	**2.32%**
EOS	EOS	Platform	**2.3**	**2.26%**
XLM	Stellar Lumens	Value Transfer	**2.0**	**1.96%**
LTC	Litecoin	Value Transfer	**2.0**	**1.95%**
TRX	TRON	Platform	**1.4**	**1.37%**
BSV	Bitcoin SV	Value Transfer	**1.4**	**1.35%**
ADA	Cardano	Platform	**1.0**	**1.01%**
XMR	Monero	Anonymity	**0.8**	**0.77%**

INDEX MAINTENANCE

Review and Rebalancing Schedule

MVIS reviews and rebalances the CCMIX at **each month-end**. The schedule below outlines the investment evaluation process that is implemented five business days leading up to the CCMIX month-end reconstitution. [1]



[1] A 'business day' means any day (other than a Saturday or Sunday) on which commercial banks and foreign exchange markets settle payments in Frankfurt, Germany.

INDEX PRICING

Pricing Sources

Eligible exchanges are determined by Crescent Crypto Asset Management on a **monthly basis**. Crescent Crypto's **Investment Committee** determines and periodically reviews eligible exchanges.

Eligible Exchange Criteria

- Strong history of security controls
- Available to US institutional investors
- Substantial trading volumes
- Local regulatory compliance and accurate reporting

Crypto Exchange Universe

200+ Exchanges | Lack of security, US accessibility, and accurate reporting

BINANCE, UP, OKEX, Bit-Z, CoinBene, LBANK, Bibox

Eligible Exchanges

7 Exchanges | Major exchanges known for security, US accessibility, and accurate reporting

coinbase, BINANCE, Bitstamp, BITTREX, itBit, kraken, POLONIEX

INDEX PRICING

Pricing Calculation

Component pricing is calculated using a custom eligible exchange subset of the CCCAGG Price Index by our calculation agent, **CryptoCompare**.

Example - Component Pricing of Litecoin (LTC)

1 After all trading pairs on the eligible exchanges are reviewed, the **trading pair with the most volume across the eligible exchanges will be selected** for each component.

LTC | 24 Hour Volume by Trading Pair (in USD)

Date	Symbol	USD	USDT	BTC	ETH	USDC	BNB	Total
12/25/2018	LTC	12,840,631	8,667,052	8,322,765	284,432	156,709	73,579	30,345,168

USD is the most liquid trading pair for LTC over the past 24 hours across eligible exchanges

2 Once a trading pair is identified, the component price is calculated based on the **24 hour volume weighted average price** as of the latest trade price received from the designated exchanges that trade the pair.

LTC-USD | 24 Hour Volume on Eligible Exchanges

Exchange	Coinbase	Bitstamp	Kraken	Bittrex	Total
LTC-USD	10,001,985	1,466,219	1,195,783	176,643	12,840,630
Exchange %	77.9%	11.4%	9.3%	1.4%	100.0%

The exchange weighted price will be allocated 77.9% Coinbase, 11.4% Bitstamp, 9.3% Kraken and 1.4% Bittrex. Exchange weightings are updated in real time as 24 hour volume numbers change.

INDEX PRICING

Definitions

- At any time the **Index Price** for a currency is the weighted average of prices on all exchanges

$$P_t^* = \sum_i P_t^i W_t^i$$

- **"Exchange Weight"** is the 24H trading volume for a currency on one exchange as a ratio of volume across all eligible exchanges

$$W_t^i = \frac{V_t^i 1_{\{x=0\}} \gamma_t^i}{\sum_k V_t^k 1_{\{x=0\}} \gamma_t^k}$$

- **"24 Hour Exchange Volume"** is the sum of volume for the currency over preceding 24 Hours

$$V_t{}^i = \sum_{s=h_{t-86400}}^{h_t} V_s{}^i$$

- **Exchange Volume** is adjusted with a liquidity penalty factor, that decreases as more time passes since last trade

$$\gamma_t^j = \begin{cases} 1 & \text{if } t_t^i \le 5 \\ 0.8 & \text{if } 5 < t_t^i \le 10 \\ 0.6 & \text{if } 10 < t_t^i \le 15 \\ 0.4 & \text{if } 15 < t_t^i \le 20 \\ 0.2 & \text{if } 20 < t_t^i \le 25 \\ 0.001 & \text{otherwise} \end{cases}$$

Variable	Explanation
i, j	Exchanges
$\boldsymbol{t}, \boldsymbol{s}$	Unix timestamp in seconds
$\boldsymbol{P_t^i}$	Price at exchange i and time t
$\boldsymbol{P_t^*}$	CCCAGG Index price i and time t
$\boldsymbol{W_t^i}$	Index weight of exchange i at time t
$\boldsymbol{V_t^i}$	24 hour volume of exchange i at time t
$\boldsymbol{x}$	Excluded from pricing, $x = \{0,1\}$
$\boldsymbol{Y_t^i}$	Liquidity penalty factor of exchange i at time t
$\boldsymbol{h_t}$	Last hour timestamp at time t
$\boldsymbol{t_t^i}$	Time since last trade in minutes on exchange i at time t

APPENDIX

SPECIAL CONSIDERATIONS

New Entrants

Cryptoassets that have become **newly eligible** by satisfying all criteria are referred to as **New Entrants**. New entrants are afforded some considerations in order to be captured into the index in a timely and accurate manner.

Consideration	Condition	Adjustment
Avg Market Cap	**Less than 90 days of history** on eligible exchanges	The **average market capitalization** used for determining the index weight will be calculated using **a simple moving average of the daily market caps** since the asset's first day of trading on an eligible exchange up until the review period.
Liquidity	**Less than 30 days of history** on eligible exchanges	The **minimum liquidity thresholds** will calculate using **daily average volumes across eligible exchanges** from the asset's first day of trading on an eligible exchange up until the review period.

Airdrops

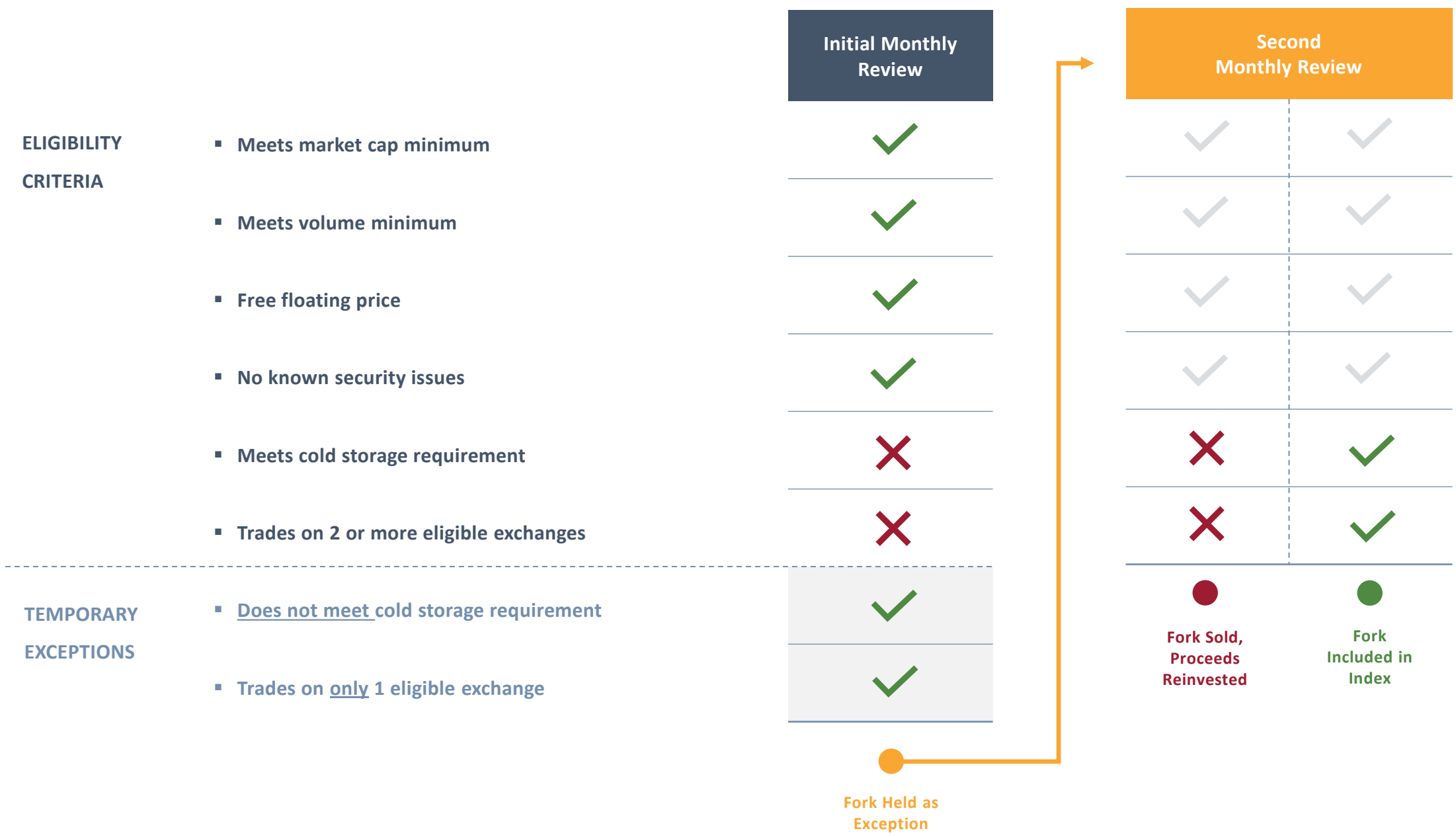
Airdrops are distinct from a hard fork, where small amounts of tokens are distributed to holders of cryptocurrencies either for free or for performing a specific task. Because most airdrops are of de minimis value and are illiquid or unlisted, the **CCMIX does not incorporate their values into the calculation** of the Index. Claiming airdrops sometimes requires agency on the behalf of an investor and may pose a security risk. Fund Managers tracking this index may claim airdrops in pursuit of excess returns.

SPECIAL CONSIDERATIONS

Fork Policy

Any forked asset will be **eligible for index inclusion** if it meets all eligibility criteria.

Forked assets that do not meet all eligibility criteria can rely on **temporary exceptions** during the **first Monthly Review**.

At the **second Monthly Review**, a forked asset is **either included in the Index** or **sold and reinvested into the index**.

Hard and Soft Fork Index Eligibility Process