INDEX METHODOLOGY

NASDAQ CRYPTO™ INDEX

NCI™

INDEX DESCRIPTION

The Nasdaq Crypto Index is designed to measure the performance of a material portion of the overall digital asset market. Digital assets are eligible for inclusion in the Index if they satisfy the criteria set forth under "Index Eligibility", which includes being eligible for listing in an ETP on select international exchanges. The Index periodically adjusts Index constituents and weightings to reflect changes in the digital asset market.

Two versions of the Nasdaq Crypto Index are available:

Index Symbol	Index Name	Description	Launch Date	Settlement Convention
NCI™	Nasdaq Crypto™ Index	Nasdaq Crypto Reference Price (Real-time)	02/02/2021	U.S.
NCIS™	Nasdaq Crypto Settlement Price™ Index	Nasdaq Crypto Settlement Price (Daily Price)	02/02/2021	U.S.

In addition, Single Asset Indexes are available as detailed in Appendix A: Published Asset Reference Prices.

DIGITAL ASSET ELIGIBILITY CRITERIA

While investing in digital assets represents a unique opportunity for capturing returns linked to a new asset class, it also presents the challenge of ensuring that digital assets considered for the Index meet a minimum standard of liquidity/trading volume, security, credibility, exchangeability, and fungibility. In order to ensure that the Index remains neutral and passive and that it only considers digital assets that meet these standards, the Index has predetermined criteria by which digital assets are periodically assessed for eligibility.

The universe of Eligible Digital Assets will be determined based upon the criteria listed below:

1) Have active tradable markets listed on at least two ***Core Exchanges*** (as defined herein) for the entire period since the previous Index Reconstitution.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Exchanges trading digital assets provide data used by the Index to support a number of fundamental tasks, including price discovery and liquidity measurements. The rules defining the list of Core Exchanges are meant to select exchanges aligned with the broad economic realities the Index seeks to represent.

2) Be supported by at least one ***Core Custodian*** (as defined herein) for the entire period since the previous Index Reconstitution.

Digital assets exist within the codebase of an underlying software protocol. Accordingly, digital assets require special services to hold them in storage. Eligible Digital Assets must have a secure institutional custody solution by a licensed and reputable service provider. This type of service is essential to facilitate the implementation of the Index by investment funds, which hardly have the technical expertise to safely self-custody digital assets.

3) To be considered for entry to the Index at any Index Reconstitution, an asset must have a median daily trading volume in the USD pair conducted across all Core Exchanges that is no less than 0.5% of the cryptocurrency asset that has the highest median daily trading volume. Digital assets that are existing Index constituents will be removed from the Index when their respective median daily trading volume in the USD pair conducted across all Core Exchanges falls below 0.25% of the cryptocurrency asset that has the highest median daily trading volume. This is measured during the first 30 calendar days immediately following the previous Reconstitution Effective Date.

   The liquidity rule is meant to improve investability, thereby putting funds replicating the Index in a better position to find enough liquidity in the Core Exchanges to trade all desirable assets without having much impact on pricing, i.e., it ensures a minimum level of price discovery and liquidity for the digital asset to be considered tradable and priced in a way that should accurately reflect its market value.

4) Be eligible for listing in an ETP on all of the following Exchanges as of the Reconstitution Determination Date.

   a. SIX Swiss Exchange

   b. Xetra

5) Have free-floating pricing (i.e., not be pegged to the value of any asset).

   The Index excludes digital assets that are pegged to the value of other assets, through fiat or crypto collateralization, algorithmic strategy, or any other means.

If a digital asset meets requirements (1) through (5), it will be considered eligible for Index inclusion (an **"Eligible Digital Asset"**).

Notwithstanding inclusion in the eligible list, the Nasdaq Cryptocurrency Index Oversight Committee ("**CIOC**") reserves the right to further exclude any additional assets based on one or more factors,

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

including but not limited to, its review of general reputational, fraud, manipulation, or security concerns connected to the asset. Assets that, in the sole discretion of the Nasdaq Crypto Index Oversight Committee, do not offer utility, do not facilitate novel use cases, or that do not exhibit technical, structural or cryptoeconomic innovation (e.g., assets inspired by memes or internet jokes) may also be excluded.

The Index will assess any digital assets resulting from a hard fork or an airdrop under the same criteria as established digital assets and will only include a new digital asset if it meets the eligibility criteria set forth above.

CORE EXCHANGES

To be eligible for Index inclusion, a digital asset must trade on at least two exchanges that meet the criteria set forth by the CIOC. At a minimum, to be considered eligible for designation as a Core Exchange, an exchange should:

1) Include strong forking controls.

   Forks should be handled via a consistent framework and strong governance. Effective forking governance controls should include clear and documented policies that address:

   - *Forking criteria*
   - *Product and service impacts*
   - *Technology and security impacts (including two-way replay protection to prevent the possibility of a new chain being wiped out by the original chain)*
   - *Operational impacts*
   - *Market risk*
   - *Liquidity demands*

2) Have effective AML controls.

   The ability to confirm the identity, jurisdiction, and purpose of each customer is essential to the fulfilment of effective cryptocurrency exchange AML programs. For cryptocurrency exchanges, AML programs must protect against financial crime and stay compliant with heightening regulations. The AML program must include a Customer Acceptance Policy (CAP), a Customer Identification Program (CIP), ongoing monitoring of transactions to identify suspicious transactions to ensure customer details are up-to-date, and risk management procedures. The AML Program should also include periodically updated AML risk assessments that reflect changes to applicable BSA/AML laws, regulations and regulatory warnings, as well as any other information determined by the institution to be relevant from its related programs and initiatives. Effective KYC program controls reduce the likelihood of illicit activity occurring through the exchange or wallet.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

3) Have a reliable and transparent API that provides real-time and historical trading data.

   As data providers, exchanges serve the Index Methodology as important tools for price discovery and for measuring asset liquidity, so exchanges need to offer reliable means for collecting that information. Moreover, stable and transparent APIs are elementary indicators of the quality and trustworthiness of the exchange's systems and data.

4) Charge fees for trading and structure trading incentives that do not interfere with the forces of supply and demand.

   Prices and trading volume should be formed by competitive forces of supply and demand. However, some exchanges offer trading incentives that inflate trading volume in an uncompetitive way, making them inadequate to serve the interests of the benchmark.

5) Be licensed by a public independent governing body.

6) Include surveillance for manipulative trading practices and erroneous transactions.

   Trade surveillance should be performed by a third party or the organizations third line of defense, with escalation to the Chief Risk or Compliance Officer. Internal surveillance policies and procedures determined as sufficient by the CIOC must be implemented.

   Exchanges that are under external and/or internal surveillance are less likely to be involved in unfair manipulation of the market.

7) Evidence a robust IT infrastructure.

   The IT infrastructure should be designed to protect the operation of the exchange and the trading activity taking place on the platform. This includes Business Continuity and Disaster Recovery systems, third party auditors, and cyber security review.

8) Demonstrate active capacity management.

   The platform's technical infrastructure is designed and maintained in such a way that it can accommodate a sudden, significant increase in trade volume without impacting system functionality.

9) Evidence cooperation with regulators / law enforcement.

   Notwithstanding commitments to maintain the confidentiality of the Platform's users, the User Agreement must allow for the sharing of confidential, identifying customer information and trading data with regulators or law enforcement agencies conducting investigations in their normal course of business investigating.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

10) Have a minimum market representation for trading volume.

    To compute an exchange's market size, we sum the USD volume of all eligible "digital asset"-"USD" pairs for the month of August each year. Exchanges with less than 0.05% of the total volume in eligible exchanges are eliminated.

If an exchange meets these standards, the CIOC will conduct further diligence to assess an exchange's eligibility for designation as a Core Exchange. In the process of conducting diligence of the exchanges, the CIOC will consider additional criteria, including, but not limited to, the exchange's rules for admitting digital assets, its organizational and ownership structure, security history, and reputation.

Nasdaq will review new Core Exchange candidates throughout the year and announce any new additions when approved. The CIOC will recertify the Core Exchanges on an annual basis by conducting a review on such topics as AML, surveillance and information security. Changes to the list of Core Exchanges may be made by approval of the CIOC and announced accordingly in the case of exceptional events or in order to maintain the integrity of the Index.

CORE CUSTODIANS

Custodians hold digital assets for safekeeping against theft and loss and ensure that digital asset transaction and trades are secure. At any Index Reconstitution, only digital assets that are publicly supported by at least one Core Custodian for the entire period since the previous reconstitution that offer high level security and legal guarantees to avoid theft or misappropriation of assets will be considered for inclusion in the Index. In designating a custodian as a Core Custodian, the CIOC considers whether a custodian:

1) Provides custody accounts whose holders are the legal beneficiaries of the assets held in the account. In case of bankruptcy or insolvency of the custodian, creditors or the estate should have no rights to the clients' assets.

   There should be a separation of asset ownership such that clients are the legal beneficial owners of all assets held in their accounts, even in case of insolvency of the custodian. Custodians must offer segregated individual accounts. Index assets should be stored in segregated individual accounts and not in omnibus accounts. Custodians must not allow securities lending against digital assets.

2) Generates account-segregated private keys for digital assets using high entropy random number generation methods and employing advanced security practices.

   This rule aims to secure and isolate the client's blockchain accounts to protect them against misappropriation or loss of control of assets in the blockchain.

3) Utilizes technology for storing private keys in offline digital vaults and applies secure processes, such as private key segmentation, multi-signature authorization, and geographic distribution of stored assets, to limit access to private keys.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Custodians should use security technology for storing private keys aiming to avoid theft or misappropriation of assets due to online attacks, collusion of agents managing the storage services, or any other threat.

4) Offers redemption processes for timely and secure transfer of digital assets and allows account holders to set withdrawal authorization restrictions such as whitelisting and multi-user account controls.

   This rule aims to provide a flexible redemption process so investment funds replicating the Index can design secure internal procedures to withdraw digital assets.

5) Must support the Index's forking policy and allow the split of assets to be reflected in the Index asset holdings.

   There must be a comprehensive forking policy in place at each custodian which must include reasonable notice to the holders (Index) if the entity chooses not to support a Fork in any given asset.

6) Custodians must have a comprehensive risk management policy and formalized framework of managing operational and custody risks. Custodians should have a control framework that is reviewed and managed by second and third line of defense.

7) Has a documented disaster recovery program that ensures continuity of operations in the event of a system failure.

   Custodians must have a business continuity plan to help ensure continued customer access to the assets at all times.

8) Is licensed as a Custodian by a reputable and independent governing body (e.g., the U.S. Securities and Exchange Commission, the New York State Department of Financial Services, or other state, national or international regulators), as can be ascertained by certain public data sources.

   Custodians have to comply with higher standards of government oversight, external audits, and security, and as such, Custodians are able to offer better legal guarantees that safekeep asset ownership.

9) Provides third-party audit reports at least annually on operational and security processes. This audit may be completed either by having a full SOC2 certification issued or the third- party auditor providing an attest report based off the full SOC2 methodology. If this third-party report is not available, Nasdaq may consider conducting such audit review directly upon request.

   Auditors provide reasonable assurance that the custodian operational processes are in accordance with the expected standards.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

10) Has an insurance policy that covers, at least partially, third-party theft of private keys, insider theft from internal employees, and loss of keys.

    This rule provides extra assurance needed by institutional investors that assets held in a Core Custodian will not be lost.

A Core Custodian might lose eligibility if it does not comply with the above requirements or with any other Nasdaq requirements.

Nasdaq will review new Core Custodian candidates throughout the year and announce any new additions when approved. The list of existing Core Custodians will be recertified by the CIOC at minimum on an annual basis. Changes to the list of Core Custodians may be made by approval of the CIOC and announced accordingly in the case of exceptional events or in order to maintain the integrity of the Index.

INDEX CALENDAR

Reconstitution Schedule

The Index Reconstitution is conducted quarterly in March, June, September and December.

Reconstitution Determination Dates

Index constituents are selected thirty (30) calendar days prior to the Reconstitution Effective Date.

Reconstitution Reference Dates

Index constituents are selected on each Reconstitution Determination Date according to the Eligible Digital Assets' median daily market capitalization in the thirty calendar days immediately following the previous Reconstitution Effective Date. For the purposes of selecting Index constituents, market capitalization of an asset is calculated by multiplying (1) the median price during the 30-day period (as calculated per second) with (2) the full (fungible) supply captured at the end of the 30-day period.

Reconstitution Announcement Dates

Index Reconstitutions are announced fifteen (15) calendar days prior to the Reconstitution Effective Date.

Reconstitution Effective Dates

Index Reconstitutions become effective at market open on the first business day of March, June, September and December. The term "Business Day" is defined as a day when Equity Markets in the U.S. and England are open for trading according to the Financial Industry Regulatory Authority and United Kingdom Government calendars, respectively.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Rebalance Schedule

The Index Rebalance is conducted quarterly in March, June, September and December.

Rebalance Reference Dates

Circulating Supply data which is utilized to determine constituent weights will be determined at the block height or ledger number that is the last completed block or ledger number at 16:00:00 UTC on the day that is eight (8) business days immediately preceding the relevant Rebalance Effective Date.

Rebalance Announcement Dates

Index Rebalances are announced four (4) business days prior to the Rebalance Effective Date.

Rebalance Effective Dates

Index Rebalances become effective at market open on the first business day of March, June, September and December.

Special Rebalance and Reconstitution Schedule

The Index does not reconstitute or rebalance intra-quarterly except as necessary to maintain the integrity of the Index or in the event of exceptional events and with the approval of the CIOC.

CONSTITUENT SELECTION AND WEIGHTING

Digital Asset Supply

The Index will utilize the Total Supply to calculate Full Market Capitalization of a Digital Asset to determine whether the Digital Asset will be selected for inclusion as a constituent. Total Supply is defined as the total number of units of the Digital Asset that are in existence and will be determined by data provided by a reliable blockchain explorer or equivalent for non-blockchain based Digital Assets.

The Index will utilize Circulating Supply of a digital asset for all calculations of Free Float Market Capitalization and the determination of constituent weights. "**Circulating Supply**" is defined as the total supply of all units of a digital asset issued outside of the codebase since the initial block on a digital asset's blockchain or since the point of inception of the digital asset on a cryptographic distributed ledger that can be "spent" or moved from one deposit address to another that is deemed to be likely to be available for trading as defined by CF Benchmarks Ltd and described by the methods in the CF Cryptocurrency Index Family Multi Asset Ground Rules (section 4.2.1 to 4.3.1.2.1).

Circulating supply data will be determined at the block height or ledger number which is the last confirmed block or ledger number at 16:00:00 UTC on the day that is eight (8) business days immediately preceding the relevant Rebalance Effective Date.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Where CF Benchmarks Ltd cannot reliably determine any of the respective inputs for the calculation of the Circulating Supply for a given digital asset that is an Index constituent then its Circulating Supply shall be approximated. This will be done by applying the median Free Float Factor (Circulating Supply/ Total Supply) that has been determined for that rebalance of all Index constituents to the Total Supply (Circulating Supply = Total Supply X Median Free Float Factor).

During reconstitution and rebalancing, updated Circulating Supply of digital assets will be set and will remain fixed until the next reconstitution and rebalancing. The Index fixes Circulating Supply of Index constituents between rebalances in order to preserve the investability property of the Index.

Market Representation and Selection of Digital Assets

The process for selecting Index constituents takes place at 10:00:00 A.M. New York Time on the Reconstitution Determination Date which shall be the business day that is 30 calendar days preceding each Reconstitution Effective Date, if the Reconstitution Determination Date is not a Business Day, then the Reconstitution Determination Date shall be the first business day preceding this day.

The process is as follows:

1) The total market capitalization of all Eligible Digital Assets will be determined by summing the full median market capitalizations of all eligible cryptocurrency.

2) Eligible Digital Assets must meet a minimum representative threshold of 0.5% of full market capitalization as a total of all Eligible Digital Assets to be considered for entry to the Index. Digital assets that are existing Index constituents will be removed from the Index when their respective market capitalizations as a total of all Eligible Digital Assets falls below 0.25%.

   The Index selects as Index constituents those Eligible Digital Assets that each have a median daily Full Market Capitalization in the thirty calendar days immediately following the previous Reconstitution Effective Date that exceeds 0.5% of the total Market Capitalization of all Eligible Digital Assets for inclusion in the Index.

3) A market representation floor is then applied to the Index to ensure it meets a minimum total market representation of 75% market capitalization of all Eligible Digital Assets.

   If the foregoing Index constituents do not, in total, represent at least 75% of the Market Capitalization of all Eligible Digital Assets, the Index then selects the next largest Eligible Digital Assets (in order of Full Market Capitalization) as Index constituents until all of the Index constituents represent at least 75% of the Market Capitalization of all Eligible Digital Assets.

Weighting

The constituent digital assets selected for entry into the Index will be weighted according to their relative free float market capitalizations. The free float market capitalization of an Eligible Digital Asset on any given day is defined as the product of an Eligible Digital Asset's prevailing price and its Circulating Supply as set in the most recent Reconstitution. Weights are calculated by dividing the free float market

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

capitalization of a digital asset by the total free float market capitalization of all constituent digital assets included in the Index at the time of rebalancing.

INDEX CALCULATION AND DISSEMINATION

On the Start Date, the closing level of the Index is set at 1,000. The initial Index constituents are selected as if the Start Date were a Reconstitution and Rebalance Effective Date. The Index is calculated by CF Benchmarks Limited or other Nasdaq designated calculation agents. The closing level of the Index is calculated once per business day. Please refer to the Index Calculation and Dissemination section in Appendix B: Settlement Times for specific timing.

The Index constituents, the Index constituents' weightings, and the closing level of the Index will be published daily by CF Benchmarks Limited.

Index Level

The real time index values (NCI) and the daily closing level of the Index (Nasdaq Crypto Settlement Price™ Index, NCIS™) are calculated as follows:

$$NCI_s = \frac{\sum_{i \in C} AS_{cr}^{i} P_{s,i|USD}^{r}}{D}$$

$$NCIS_t = \frac{\sum_{i \in C} AS_{cr}^{i} P_{t,i|USD}^{d}}{D}$$

Where:

- NCI_s is the real time index value of Nasdaq Crypto Index as observed on timestamp s.
- $NCIS_t$ is the settlement price of Nasdaq Crypto Index as observed on day t.
- C is the set of included Index constituents from the previous Reconstitution and Rebalance Effective Date.
- AS_{cr}^{i} is the Circulating Supply of asset i fixed on the previous Reconstitution and Rebalance Announcement Date.
- $P_{s,i|USD}^{r}$ is the real time price of Index constituent i as observed on timestamp s.
- $P_{t,i|USD}^{d}$ is the daily price fixing of Index constituent i as observed on day t.
- D is the Divisor as calculated on the previous Reconstitution and Rebalance Effective Date.

Initial Divisor

On the Start Date, the closing level of the Index is set at 1,000. The formula for calculating the initial divisor is as follows:

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

$$D_{initial} = \frac{\sum_{i \in C_{t_0}} AS_{t_0}^{i} P_{t_0,i|USD}^{d}}{1000}$$

Where:

- $D_{initial}$ is the divisor value at time of initial Index constitution.
- C_{t_0} is the set of included constituent assets at initial Index constitution.
- $AS_{t_0}^{i}$ is the Circulating Supply of asset i fixed at initial Index constitution.
- $P_{t_0,i|USD}^{d}$ is the daily price fixing of Index constituent i as observed on initial Index constitution date.

Divisor Adjustment

As the Index is reconstituted and rebalanced on each Reconstitution and Rebalance Effective Date, Index constituents may be added and removed. In addition, during each quarterly reconstitution and quarterly rebalancing, updates to the Circulating Supply of Index constituents are accounted for by calculating a new divisor. On each Reconstitution and Rebalance Effective Date, a new divisor is calculated (see the Index Calculation and Dissemination: Divisor Adjustment section in Appendix B: Settlement Times for specific timing). In addition to new divisor calculations on each Reconstitution and Rebalance Effective Date, a new divisor will be calculated on an interim basis, as is necessary to ensure that market events and any constituent removals that occur on days other than Reconstitution and Rebalance Effective Dates do not improperly affect the Index value.

The formula for calculating the new divisor on each Reconstitution and Rebalance Effective Date is as follows:

$$D_{new} = D_{old} \left(\frac{\sum_{i \in C_c} AS_{cr}^{i} P_{t_c,i|USD}^{d}}{\sum_{i \in C_p} AS_{pr}^{i} P_{t_c,i|USD}^{d}} \right)$$

Where:

- D_{new} is the new divisor on the current Reconstitution and Rebalance Effective Date.
- D_{old} is the previous divisor.
- C_c is the set of included Index constituents from the current Reconstitution and Rebalance Effective Date.
- C_p is the set of included Index constituents from the previous Reconstitution and Rebalance Effective Date.
- AS_{cr}^{i} is the Circulating Supply of Index constituent i on the immediately preceding Rebalance Reference Date.
- AS_{pr}^{i} is the Circulating Supply of Index constituent i on the second most recently preceding Rebalance Reference Date.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

- $P^{d}_{t,i|USD}$ is the daily price fixing of Index constituent from the current Reconstitution and Rebalance Effective Date.

On the first Reconstitution and Rebalance Effective Date, because there was no previous Reconstitution and Rebalance Effective Date, the new divisor was calculated based on the set of Index constituents and their Circulating Supply on the Start Date.

Rounding

Index Constituent Daily Price Fixings will be rounded to four decimal places and the closing level of the Index will be rounded to two decimal places. The Index divisor is rounded to four decimal places.

GOVERNANCE

The Index is governed by the Nasdaq Crypto Index Oversight Committee, which is responsible for implementation, administration, and oversight of the Index, including its cessation.

Internal reviews of methodology

The CIOC shall approve any Material Changes to the methodology and review the Index methodology at least on an annual basis.

Discretionary adjustment

This Index Methodology was created by Nasdaq to achieve the aforementioned objective of measuring the underlying purpose of each Index governed by this methodology document. Any deviations from this methodology are made in the sole judgment and discretion of Nasdaq so that the Index continues to achieve its objective.

In addition to its maintenance of Index Methodologies, the Nasdaq Crypto Index Oversight Committee reviews, at least once within any 12-month period, or at any other times when deemed necessary, each Index constituent to ensure that the Index continues to achieve the stated objectives, and that the eligibility of the digital assets, data and methodology remain effective. If at any time, any digital asset no longer meets the eligibility criteria to be considered eligible for Index inclusion, - including but not limited to general reputational, fraud, manipulation, flaws in the code or broader regulatory concerns, the Nasdaq Crypto Index Oversight Committee will replace or remove the digital asset from the Index at its discretion.

Nasdaq provides appropriate transparency over significant decisions affecting the compilation of the Index and any related determination process, including contingency measures in the event of absence of or insufficient inputs, market stress or disruption, failure of critical infrastructure, or other relevant factors impacting the eligibility of digital assets. Any contingency measures that are not directly addressed in the Methodology shall be subject to Nasdaq’s Index Crypto Index Oversight Committee governance processes.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

INDEX MAINTENANCE

Forks Policy

Most of the Digital Assets, including Bitcoin and Ethereum, are open source, meaning that any user can download the software, modify it, and then propose the modification to the users and miners of the digital asset. When a modification is introduced and a substantial majority of users and miners consent to the modification, the change is implemented and the network remains uninterrupted. However, if less than a substantial majority of users and miners consent to the proposed modification, and the modification is not compatible with the software prior to its modification, the consequence would be what is known as a "hard fork" of the network into two incompatible networks, with one running the pre-modified software and the other running the modified software. The effect of such a hard fork would be the existence of two versions of the Digital Asset running in parallel with token holders of the previous version normally having the same balance of tokens in the new version as well, yet lacking interchangeability.

The following general guidelines should be followed by Nasdaq when a fork occurs:

- The asset that inherits the pre-fork trading symbol on the majority of Core Exchanges with the larger post-fork market capitalization will be considered the original asset and the asset that trades with a new trading symbol on the majority of Core Exchanges will be considered the new asset.
- The original asset will inherit the price and liquidity history from the pre-fork asset, the new asset will not inherit the price and liquidity history and will be treated as a new listing.
- A reference price should be calculated for the new assets as soon as possible using NCIS methodology.
- If a reliable price source for an asset could not be found, the asset will be priced as zero until there is a price.
- Such new assets will be considered for eligibility as part of the Quarterly Reconstitution review.
    - The CIOC may review eligibility of such new forked assets in the case of exceptional events.

ASSET PRICING

Index Constituent Price Real Time Methodology

The Nasdaq Crypto Index (Index symbol NCI) is calculated every second throughout a 24-hour trading day, seven days per week, using published, real-time bid and ask quotes for Index constituents observed on Core Exchanges through the publicly available API. NCI is based on the summation of weighted digital asset prices from Core Exchanges. This section describes the calculation of each Index constituent price. For the avoidance of doubt, the terms digital asset prices and Index constituent prices are used interchangeably in this context.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Step 1: Calculate the Weighting for Each Contributor Crypto Exchange

Define contributor Core Exchanges weighting operation, W_k. Please see Final Settlement Price for RV_k, $C_{k,price}$, $C_{k,volatility}$, and $C_{k,volume}$. Calculate each minute in the fixing price window (refer to the Asset Pricing: Step 1: Calculate the Weighting for Each Contributor Crypto Exchange section in Appendix B: Settlement Times) on Trading Day minus one day (T-1). Any calculations occurring after the settlement time will be considered as the next Trading Day.

$$W_k = \frac{RV_k \cdot C_{k,price} \cdot C_{k,volatility} \cdot C_{k,volume}}{\sum_{j=1}^{K} RV_j \cdot C_{j,price} \cdot C_{j,volatility} \cdot C_{j,volume}}.$$

Step 2: Calculate the Digital Asset Price

The relevant digital asset prices used in NCI construction for each contributing Core Exchange are determined by the midpoint between the best bid (highest bid price) and best ask (lowest ask price) subject to the following exclusions:

- If CF Benchmarks Ltd is unable to retrieve the Digital Assets Order Book from a contributing Core Exchange that is no less than 30 seconds of age prior to the calculation timestamp, the exchange is omitted.
- If the Digital Assets Order Book from a contributor exchange exhibits a crossed market (bid over ask), omits a bids or ask, contains neither bids or asks or is in any other way of a format non conformant to the standard order book format such that it can be parsed effectively, the exchange is omitted.
- Where an exchange is omitted, weights are adjusted to reflect the reduced number of exchanges used in the calculation.
- Where no Digital Asset Order Book of less than 30 seconds of age is available to facilitate the calculation of the Digital Asset Price or if any other reason or circumstance prevents an orderly calculation, then the last valid Digital Asset Price calculated shall be the Digital Asset Price for that calculation.

Step 3: Calculate NCI Constituent Prices

The final step in calculation of NCI constituent prices is to convert the weighted digital asset prices ($W_j \cdot P_j$) into the real-time Index constituent price $P^r_{s,i|USD}$ by summing for the K contributing Core Exchanges:

$$P^r_{s,i|USD} = \sum_{j=1}^{K} W_j \cdot P_j,$$

Index Constituent Settlement Price Methodology

The final settlement price (Index symbol NCIS) is calculated once every trading day. The NCIS Index constituent settlement values will be the Time Weighted Average Price (TWAP) calculated across Volume Weighted Average Prices (VWAP) for each minute in the settlement price window (see Asset

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Pricing: Index Constituent Settlement Price Methodology in Appendix B: Settlement Times). Where there are no transactions observed in any given minute of the settlement price window, that minute is excluded from the calculation of the TWAP.

Penalty (adjustment) factors apply when three or more contributing Core Exchanges contribute pricing for a constituent asset. Where there are less than three contributing Core Exchanges for a digital asset, exchange volume designated by RV_k in Step 1 is applicable (and all penalty factors are set to 1). If no exchange transactions are retrieved during the settlement window, the exchange weights are adjusted to reflect the actual number of exchanges used in the calculation.

Step 1: Calculate Contributor Crypto Exchange Volume

Calculate contributor Core Exchanges volume, RV_k, by examining the previous 30 (from T-1 to T-30) calendar days volume to determine median traded volume (a volume measure that reflects regular exchange trading activity is akin to information utility of historical volatility calculations). Where for any reason the Calculation Agent is unable to determine any trading volume greater than zero for any of the previous 30 days for any Core Exchange then the calculation of median traded volume shall omit the days within the previous 30 days where no volume greater than zero was determined. If none of the previous 30 days recorded any volume greater than zero, then RV_k is set to zero. The 30-day variable represents a month per a 360 day-count year.

Step 2: Calculate Abnormal Price Penalty Factor for Exchange Weighting

In the absence of a global marketplace "best bid / best offer," a penalty factor (abnormal price adjustment) is calculated to delineate anomalous trading activity indicating manipulation, illiquidity, large block trading, or operational issues that compromise price representation.

This adjustment is based purely on price. When examining contributing Core Exchanges, those with prices within one standard deviation variance from the median digital asset price are included (referred to as "normalized exchanges") in the formula. For contributing Core Exchange digital asset prices outside one standard deviation, a penalty factor is calculated proportional to its absolute distance to the median point.

For example, if one exchange is 2.5 standard deviations from the price point median, the penalty factor will be a 1/2.5 multiplier. The abnormal price adjustment factor is defined as:

$$C_{k,price} = \frac{1}{\max\left(1, \frac{\left|Price_k - Med_{price}\right|}{\sigma_{price}}\right)},$$

where $C_{k,price}$ is the adjustment for abnormal price of the k-th exchange, $Price_k$ is its price, and Med_{price} and σ_{price} are the median and standard deviation of the prices across all the exchanges.

Step 3: Calculate Abnormal Volatility Penalty Factor for Exchange Weighting

A penalty factor for volatile price series resulting from market effects of wide bid-ask spreads, or the opposite effect, nil market volatility is calculated to delineate anomalous trading activity indicating

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

manipulation, illiquidity, large block trading, or operational issues which compromise price representation.

This adjustment is based purely on price volatility. When examining contributing Core Exchanges, those with volatility within one standard deviation away from the median digital asset volatility are included (referred to as "normalized exchanges") in the formula. For exchange digital asset price volatility outside one standard deviation, a penalty factor is calculated proportionate to its absolute distance to the median point.

For example, if one exchange is 2.5 standard deviations from the volatility price point median, the penalty factor will be a 1/2.5 multiplier. The abnormal price adjustment factor is defined as:

$$C_{k,volatility} = \frac{1}{\max\left(1, \frac{|Volatility_k - Med_{volatility}|}{\sigma_{volatility}}\right)}.$$

where $C_{k,volatility}$ is the adjustment for abnormal volatility of the *k*-th exchange, $Volatility_k$ is its realized volatility for that calculation day (calculated as the sum of squared log-returns calculated for each minute in the pricing window with the exception of the first of minute of the pricing window). Where there is a single trade or no trade in the pricing window, $Volatility_k$ shall be given as zero. $Med_{volatility}$ and $\sigma_{volatility}$ are the median and standard deviation of the realized volatility across all the contributing Core Exchanges. Should $\sigma_{volatility}$ be equal to zero, $C_{k,volatility}$ shall be given as one.

Step 4: Calculate Abnormal Volume Penalty Factor for Exchange Weighting

A penalty factor for abnormal volume series resulting from market effects of large traded positions, or the opposite effect, low volumes as a result of exchange technical problems, is calculated to delineate anomalous trading activity indicating manipulation, illiquidity, large block trading, or operational issues which compromise price representation.

This adjustment is based on normalized volume, defined as the trade volume during the pricing window divided by the regular volume. When examining contributing Core Exchanges, those with volume within one standard deviation from the median digital asset volume are included (referred to as "normalized exchanges") in the formula. For exchange digital asset volume outside one standard deviation, a penalty factor is calculated proportionate to its absolute distance to the median point.

For example, if one exchange is 2.5 standard deviations from the normalized volume price point median, the penalty factor will be a 1/2.5 multiplier. The abnormal volume adjustment factor is defined as:

$$C_{k,volume} = \frac{1}{\max\left(1, \frac{|VolumeNorm_k - Med_{VolumeNorm}|}{\sigma_{VolumeNorm}}\right)},$$

where $VolumeNorm_k$is the trade volume on the *k*-th exchange during the pricing window divided by its regular volume RV_k, and $Med_{VolumeNorm}$ and $\sigma_{VolumeNorm}$ are the median and standard deviation of this metric across all the contributing Core Exchanges. On any calculation day, should any contributing Core Exchange exhibit no transactions during the pricing window for all the previous 30 days, its

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

$VolumeNorm_k$ shall be zero, and it will be removed as an input to the calculation of the **Abnormal Volume Penalty Factor for Exchange Weighting.**

Step 5: Calculate Final Exchange Weightings

Given the regular volumes and the penalty factor adjustments of all exchanges, the final exchange weightings are calculated as follow:

$$W_k = \frac{RV_k \cdot C_{k,price} \cdot C_{k,volatility} \cdot C_{k,volume}}{\sum_{j=1}^{K} RV_j \cdot C_{j,price} \cdot C_{j,volatility} \cdot C_{j,volume}}.$$

Note that the denominator is the sum of the numerator across the contributing Core Exchanges. This guarantees exchange weights will sum up to exactly one (1.00). Further, each individual adjustment factor is mathematically proven to achieve a minimum of $\sqrt{1/K}$, where K is the variable number of exchanges. For example, if there are four exchanges and one exchange substantively diverges from the field in the three penalty factor metrics, its final weight will arrive at $\left(\sqrt{1/4}\right)^3 = 1/8$ of its respective base weight. This example shows perspective on the penalty factor adjustments, in that if a large player moves prices, the player would also increase traded volume and volatility, thus reducing the exchange to a fraction of its base weight. On any calculation day, should any contributing Core Exchange exhibit no transactions during the pricing window for all the previous 30 days, its $C_{k,volume}$ shall be zero, and it will be removed as an input to the calculation of the Index. If all contributing Core Exchanges for a given asset exhibit no transactions during the pricing window for the previous 30 days, but transactions are observed in the current pricing window for any exchange, penalty factors for that exchange are set to 1 (i.e., no penalty applied).

Step 6: Calculate NCIS Constituent Prices

The final step in calculation of NCIS constituent prices is to convert the weighted digital asset prices ($W_j \cdot P_j$) into the settlement Index constituent price $P^d_{t,i|USD}$ by summing for the K contributor exchanges:

$$P^d_{t,i|USD} = \sum_{j=1}^{K} W_j \cdot P_j.$$

Where it is not possible to calculate the settlement price for any individual constituent asset in accordance with the methodology for any reason (e.g., because no transactions were observed during today's pricing window on any contributing Core Exchanges), the settlement price for the impacted constituent asset for that day shall be the last published settlement price for that asset. If there is no previously published settlement price, the relevant settlement price shall be determined by the CIOC.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

ADDITIONAL INFORMATION

Recalculation and restatement policy

All errors shall be informed to the CIOC and logged into the Nasdaq Error Logbook. The CIOC shall oversee the management and operation for the Index, including the recalculation of the Index and/or consulting with expert third parties, as needed. The Committee shall be competent to exercise oversight of any activities related to the Benchmark determination undertaken by a third party, in particular, over the Calculation Agent.

The CIOC shall: (i); review and approve Index recalculations and restatements; (ii) provided under exigent circumstances, including circumstances necessary to maintain the integrity of the Index or market, the Chair and Vice-Chair may jointly approve temporary measures, subsequently reviewed by the Committee at the next scheduled meeting; and (iii) ensure that stakeholders are informed of any recalculation and/or restatements.

Contact information

For any questions regarding an Index, please contact the Nasdaq Index Client Services team at indexservices@nasdaq.com.

CONSTITUENT REFERENCE PRICING (SINGLE ASSET INDEXES)

For assets included in the NCI, Nasdaq may use the applicable policies and procedures outlined throughout this document to establish reference prices for a subset of constituent assets, or for any specific assets on an individual basis. Indexes and individual assets for which a reference price is being published by Nasdaq are enumerated in Appendix A with their respective Index Symbols. The following is intended to clarify which sections in this Methodology are specifically applicable in the case of reference prices that pertain to single assets on an individual basis:

Methodology Section	Applicability to Single Asset Indexes	Notes
Index Description	Not applicable	
Digital Asset Eligibility Criteria	Partially Applicable	Only criteria 1 and 2 are applicable.
Core Exchanges	Applicable	
Core Custodians	Applicable	
Index Calendar	Not Applicable	
Constituent Selection and Weighting	Not Applicable	

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Methodology Section	Applicability to Single Asset Indexes	Notes
Index Calculation and Dissemination	Partially Applicable	Only the following is applicable: 1) Upon inception and on an ongoing basis, The Index value will equal the price calculated via procedures specified in the "asset pricing" section. 2) The Index is calculated by CF Benchmarks Ltd. or other Nasdaq designated calculation agents. 3) The closing level of the Index is calculated once per business day. Please refer to the Index Calculation and Dissemination section in Appendix B: Settlement Times for specific timing. 4) Index Constituent Daily Price Fixings will be rounded to four decimal places and the closing level of the Index will be rounded to two decimal places.
Governance	Applicable	
Index Maintenance	Applicable	
Asset Pricing	Applicable	Pricing methodology applies, but uses only one asset.
Additional Information	Applicable	

APPENDIX A: PUBLISHED ASSET REFERENCE PRICES

Single Asset Indexes follow the methodology of the NCI. The only exceptions are that they only contain a single asset and that such asset does not need to be, or ever have been, a constituent of the NCI.

Asset Symbol	Index Symbol	Index Name	Description	Launch Date	Settlement Convention
BTC/XBT	NQBTC™	Nasdaq Bitcoin Reference Price™ Index	Nasdaq Bitcoin Reference Price (Real-time)	06/09/2021	U.S.
BTC/XBT	NQBTCS™	Nasdaq Bitcoin Settlement Price™ Index	Nasdaq Bitcoin Settlement Price (Daily Price)	06/09/2021	U.S.
ETH	NQETH™	Nasdaq Ether Reference Price™ Index	Nasdaq Ethereum Reference Price (Real-Time)	06/09/2021	U.S.
ETH	NQETHS™	Nasdaq Ether Settlement Price™ Index	Nasdaq Ethereum Settlement Price (Daily Price)	06/09/2021	U.S.
SOL	NQSOL™	Nasdaq Solana Reference Price™ Index	Nasdaq Solana Reference Price (Real-Time)	08/20/2024	U.S.
SOL	NQSOLS™	Nasdaq Solana Settlement Price™ Index	Nasdaq Solana Settlement Price (Daily Price)	08/20/2024	U.S.
LINK	NQLINK™	Nasdaq Chainlink Reference Price™ Index	Nasdaq Chainlink Reference Price (Real-Time)	08/20/2024	U.S.
LINK	NQLINKS™	Nasdaq Chainlink Settlement Price™ Index	Nasdaq Chainlink Settlement Price (Daily Price)	08/20/2024	U.S.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

APPENDIX B: SETTLEMENT TIMES

The table below details the settlement times for the NCI and related Single Asset Indexes.

Timing	U.S. Settlement Convention Indexes
Index Calculation and Dissemination	The closing level of the Index is calculated once a day on business days at 4:05:00 P.M. New York Time.
Index Calculation and Dissemination: Divisor Adjustment	At 4:05:00 P.M. New York Time on each Reconstitution and Rebalance Effective Date, a new divisor is calculated.
Asset Pricing: Step 1: Calculate the Weighting for Each Contributor Crypto Exchange	Calculate each minute in the fixing price window (between 3:50:00 and 4:00:00 P.M. New York Time) on Trading Day minus one day (T-1).
Asset Pricing: Index Constituent Settlement Price Methodology	The NCIS Index constituent settlement values will be the Time Weighted Average Price (TWAP) calculated across Volume Weighted Average Prices (VWAP) for each minute in the settlement price window (between 3:50:00 and 4:00:00 P.M. New York Time).

APPENDIX C: METHODOLOGY CHANGE LOG

Effective Date	Methodology Section	Previous	Updated
06/03/2024	Index Description	The Nasdaq Crypto Index is designed to measure the performance of a material portion of the overall digital asset market. Digital assets are eligible for inclusion in the Index if they satisfy the criteria set forth under "Index Eligibility." The Index periodically adjusts Index constituents and weightings to reflect changes in the digital asset market.	The Nasdaq Crypto Index is designed to measure the performance of a material portion of the overall digital asset market. Digital assets are eligible for inclusion in the Index if they satisfy the criteria set forth under "Index Eligibility", which includes being eligible for listing in an ETP on select international exchanges. The Index periodically adjusts Index constituents and weightings to reflect changes in the digital asset market.
06/03/2024	Digital Asset Eligibility Criteria	--	Be eligible for listing in an ETP on all of the following Exchanges as of the Reconstitution Determination Date. a. SIX Swiss Exchange b. Xetra
06/03/2024	Digital Asset Eligibility Criteria	Notwithstanding inclusion in the eligible list, the Nasdaq Cryptocurrency Index Oversight Committee ("CIOC") reserves the right to further exclude any additional assets based on one or more factors, including but not limited to its risk of being deemed a security by United States Securities laws along with its review of	Notwithstanding inclusion in the eligible list, the Nasdaq Cryptocurrency Index Oversight Committee ("CIOC") reserves the right to further exclude any additional assets based on one or more factors, including but not limited to, its review of general reputational, fraud, manipulation,

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Effective Date	Methodology Section	Previous	Updated
		general reputational, fraud, manipulation, or security concerns connected to the asset.	or security concerns connected to the asset.
06/03/2024	Appendix A: Published Asset Reference Prices	Nasdaq Bitcoin Reference Price	The Index name of NQBTC ("Nasdaq Bitcoin Reference Price") has been changed to Nasdaq Bitcoin Reference Price Index.
06/03/2024	Appendix A: Published Asset Reference Prices	Nasdaq Bitcoin Reference Price - Settlement	The Index name of NQBTCS ("Nasdaq Bitcoin Reference Price - Settlement") has been changed to Nasdaq Bitcoin Settlement Price Index.
06/03/2024	Appendix A: Published Asset Reference Prices	Nasdaq Ether Reference Price	The Index name of NQETH ("Nasdaq Ether Reference Price") has been changed to Nasdaq Ether Reference Price Index.
06/03/2024	Appendix A: Published Asset Reference Prices	Nasdaq Ether Reference Price - Settlement	The Index name of NQETHS ("Nasdaq Ether Reference Price - Settlement") has been changed to Nasdaq Ether Settlement Price Index.
05/07/2024	Index Calculation and Dissemination	The closing level of the Index is calculated once a day on business days at 3:05:00 P.M. New York Time.	"The closing level of the Index is calculated once a day on business days at 4:05:00 P.M. New York Time." All instances of the previous language are updated throughout the Index Methodology.
05/07/2024	Index Calculation and Dissemination: Divisor Adjustment	At 3:00:00 P.M. New York Time on each Reconstitution and Rebalance Effective Date, a new divisor is calculated.	At 4:00:00 P.M. New York Time on each Reconstitution and Rebalance Effective Date, a new divisor is calculated.
05/07/2024	Asset Pricing: Step 1: Calculate the Weighting for Each Contributor Crypto Exchange	Calculate each minute in the fixing price window (between 2:50:00 and 3:00:00 P.M. New York Time) on Trading Day minus one day (T-1).	Calculate each minute in the fixing price window (between 3:50:00 and 4:00:00 P.M. New York Time) on Trading Day minus one day (T-1).
05/07/2024	Asset Pricing: Index Constituent Settlement Price Methodology	The NCIS Index constituent settlement values will be the Time Weighted Average Price (TWAP) calculated across Volume Weighted Average Prices (VWAP) for each minute in the settlement price window (between 2:50:00 and 3:00:00 P.M. New York Time).	The NCIS Index constituent settlement values will be the Time Weighted Average Price (TWAP) calculated across Volume Weighted Average Prices (VWAP) for each minute in the settlement price window (between 3:50:00 and 4:00:00 P.M. New York Time).
02/20/2024	Digital Asset Eligibility Criteria	To be considered for entry to the Index at any index reconstitution, an asset must	To be considered for entry to the Index at any Index Reconstitution, an asset must

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

Effective Date	Methodology Section	Previous	Updated
		have a median daily trading volume in the USD pair conducted across all Core Exchanges that is no less than 0.5% of the cryptocurrency asset that has the highest median daily trading volume. This is measured during the first 30 calendar days immediately following the previous reconstitution day. Where an existing index constituent falls below this threshold, its trading volume shall be assessed by the index committee for potential removal from the index.	have a median daily trading volume in the USD pair conducted across all Core Exchanges that is no less than 0.5% of the cryptocurrency asset that has the highest median daily trading volume. Digital assets that are existing Index constituents will be removed from the Index when their respective median daily trading volume in the USD pair conducted across all Core Exchanges falls below 0.25% of the cryptocurrency asset that has the highest median daily trading volume. This is measured during the first 30 calendar days immediately following the previous Reconstitution Effective Date.
02/20/2024	Asset Pricing: Index Constituent Settlement Price Methodology: Step 1: Calculate Contributor Crypto Exchange Volume	Calculate contributor Core Exchanges volume, RVk, by examining the previous 30 (T-(1-30)) calendar days volume to determine median traded volume (a volume measure that reflects regular exchange trading activity is akin to information utility of historical volatility calculations). Where for any reason the Calculation Agent is unable to determine the trading volume for any of the previous 30 days for any Core Exchange then the calculation of median traded volume shall omit the days within the previous 30 where no volume was determined. The 30-day variable represents a month per a 360 day-count year.	Calculate contributor Core Exchanges volume, RV_k, by examining the previous 30 (from T-1 to T-30) calendar days volume to determine median traded volume (a volume measure that reflects regular exchange trading activity is akin to information utility of historical volatility calculations). Where for any reason the Calculation Agent is unable to determine any trading volume greater than zero for any of the previous 30 days for any Core Exchange then the calculation of median traded volume shall omit the days within the previous 30 days where no volume greater than zero was determined. If none of the previous 30 days recorded any volume greater than zero, then RV_k is set to zero. The 30-day variable represents a month per a 360 day-count year.
06/01/2022	Digital Asset Eligibility Criteria	To be eligible for Index inclusion, a digital asset must trade on at least three exchanges that meet the criteria set forth by the CIOC.	To be eligible for Index inclusion, a digital asset must trade on at least two exchanges that meet the criteria set forth by the CIOC.
06/01/2022	Digital Asset Eligibility Criteria	At any index reconstitution, only digital assets that are publicly supported by at least two Core Custodian for the entire period since the previous reconstitution that offer high level security and legal guarantees to avoid theft or misappropriation of assets will be considered for inclusion in the Index.	At any Index Reconstitution, only digital assets that are publicly supported by at least one Core Custodian for the entire period since the previous reconstitution that offer high level security and legal guarantees to avoid theft or misappropriation of assets will be considered for inclusion in the Index.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.

DISCLAIMER

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in order to ensure Index integrity, including but not limited to, quantitative inclusion criteria. Nasdaq may also, due to special circumstances, if deemed essential, apply discretionary adjustments to ensure and maintain the high quality of the index construction and calculation. Nasdaq does not guarantee that any Index accurately reflects future market performance.

Neither Nasdaq, Inc., its third-party providers, nor any of their respective affiliates (collectively "Corporations") make any recommendation to buy or sell any digital asset or any representation about the digital asset suitability or appropriateness. Investors should undertake their own due diligence and carefully evaluate digital assets before investing. The information contained herein is provided for informational and educational purposes only, and nothing contained herein should be construed as investment advice, either on behalf of a particular digital asset or an overall investment strategy. Statements regarding Nasdaq proprietary indexes are not guarantees of future performance. Actual results may differ materially from those expressed or implied. Past performance is not indicative of future results. **ADVICE FROM AN INVESTMENT PROFESSIONAL IS STRONGLY ADVISED**.

 © Copyright 2024, Nasdaq, Inc. All Rights Reserved.