Kaiko Indices

Vinter Hashdex Crypto Indices

Index Methodology

www.kaiko.com

About Kaiko Indices

Kaiko Indices offers institutional-grade benchmarks and indices, setting the standard for reliability and transparency in the digital asset market. As a regulated Benchmark Administrator under the EU BMR framework and compliant with IOSCO principles, we empower exchanges, asset managers, and financial institutions with trusted data solutions that support robust settlement and risk management practices.

Introduction

The Vinter Hashdex Crypto Indexes are a family of benchmarks. The indexes are developed to provide a rule-based and transparent way to track the value of a portfolio. Each index measures the value of an investment strategy.

This methodology clearly determines what constitutes an active market for the purposes of each index, and establishes the priority given to different types of input data. The methodology considers factors like the size and liquidity of the market, the transparency of trading, the positions of market participants, market concentration, and the adequacy of any sample to represent the market or economic reality that the benchmark is intended to measure.

Hashdex is a global pioneer in crypto asset management. Hashdex's simple and secure financial products invite innovative investors to join the emerging crypto economy. Hashdex's mission is to provide educational resources and best-in-class products that advance its efforts to build pathways to prosperity by opening the crypto ecosystem to the world. In 2021, Hashdex introduced the world's first crypto ETFs, enabling over 260,000 investors to simply and securely add crypto to their portfolios.

For more information visit www.hashdex.com.

Invierno AB ("Vinter") is a pioneering index provider specialized in crypto assets, playing a key role in the emerging crypto ETF industry. The firm collects digital asset data from hundreds of sources, transforming proprietary strategies into investable products.

Learn more at vinter.co

Indices

VHASHMOM

The Vinter Hashdex Risk Parity Momentum Index ("VHASHMOM") combines the momentum factor and equal-risk weighting into one portfolio. Momentum investing is a popular strategy in factor-based investing. The strategy is designed to provide exposure to the momentum factor, while limiting the risk.

The rebalancing weight for asset i in an index with n assets is given by

$$w_i = \frac{m_i \cdot r_i}{\sum_{i=1}^{n} m_i \cdot r_i}$$

Where mi is the momentum score and ri is the risk parity weight. The weight for each asset is always between 0 and 1. The sum of all constituent weights is equal to 100%.

The Risk Parity weights ri are set such that the risk contribution from each asset is equal, using 90 days of data.

The momentum score mi is higher for assets with a good performance during the past months, compared with its peers. The momentum algorithm is described in the Momentum Score section.

Finally, a cap of 30% is applied to all weights to ensure diversification. If a cap is enforced, the weight is spread proportionally across the non-capped assets.

Construction

Asset Universe:
All eligible assets that can be listed on SIX, BX Swiss and Xetra.

Asset Selection:
Top 12 by current market capitalization.

Rebalancing Weights:
Proportional to the multiplication of the momentum score and the risk parity weights, with a maximum weight of 30%.

Rebalancing Frequency:
Monthly on the last business day of the month.

Rationale:
Invest in the momentum factor tilted towards an equal-risk weighted portfolio.

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Details

Currency:
USD

Type:
Price Return

Base Date:
2021-01-01

Base Value:
1000.00

Dissemination:
Daily 8PM London time

Identifiers

Long Name:
Vinter Hashdex Risk Parity Momentum Crypto Index

Short Name:
VHASHMOM

Refinitiv:
.VHASHMOM

Vinter API:
vnhx-vhashmom-12-d

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Momentum Score

The momentum scores per asset are calculated on the review date as follows:

- Get the 30-day and 60-day returns for all assets.
- Calculate the risk-adjusted return by dividing the returns with the volatility of the asset. The volatility is calculated using daily data for the last three months.
- Convert the 30-day risk-adjusted returns to a Z-score by subtracting the assets' mean and dividing by the assets' standard deviation.
- Convert the 60-day risk-adjusted returns to a Z-score by subtracting the assets' mean and dividing by the assets' standard deviation.
- Average the two Z-scores.
- Apply a cap and a floor so the value cannot be above 3 or below minus 3.
- Convert the capped and floored Z-score to a positive Z-score by raising 1.5 to the power of Z.
- The momentum score is proportional to this positive Z-score. The momentum score per asset is a number between 0 and 1, and they sum to 100%.

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General Construction Parameters

This section defines the general construction parameters used in designing the index such as the asset universe, the asset selection and the rebalancing weights. This section contains the details needed to calculate each index.

Asset Universe

The asset universe is a list of all possible index constituents. The asset universe consists of all eligible constituents that can be listed on SIX, BX Swiss and Xetra.

Asset Selection

The index constituents are selected from the asset universe, for example selecting the ten largest based on the current market capitalization. In general, the selection process can be based on a number of factors such as market capitalization, trading volume, returns, volatility, or a combination thereof.

Assets are selected on the review date, which is five business days prior to the rebalancing date. If it is not possible to reach the intended number of constituents, the Index Committee can decide to either include non-eligible constituents or allow the index to have fewer constituents than intended. The decision shall be made publicly available.

Rebalance Weights

The rebalance weights are calculated on the review date. The current weights per asset display the current asset allocation, and is relevant for a creation/redemption. The current weights change every day, based on price movements, whereas the rebalance weights are unchanged between rebalances. The rebalance weights are updated only when the index is rebalanced.

Rebalancing

All indexes are rebalanced monthly, with the rebalancing date set to the last business day of the month.
Rebalancing involves selection of constituents and calculation of their rebalancing weights. Calculations are done using the closing prices on the rebalancing date. The new weights per asset are used on the opening of the day after rebalancing. After the rebalance, the portfolio is updated so that its current weights per asset equal the rebalancing weights per asset. The bigger the difference between the current weight and the rebalancing weight, the larger the portfolio turnover.

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Eligible Constituents

Assets are eligible as index constituents if they meet the eligibility criteria listed in Vinter's benchmark statement.

Calculation

The index value is given by the weighted sum over all constituents of quantity times price divided by a divisor.
The quantity per asset is unchanged between rebalances and is set such that the Rebalancing Weight per asset is reached after rebalancing. The divisor enforces index continuity on rebalancing. The divisor is defined so that the index starts at a certain start value, which ensures each index tracks the value of a certain amount of capital invested on the start date.

A business day is a day when the SIX stock exchange is open for trading.

Constituent Pricing

The Vinter reference rates is used to price assets. The algorithm is described in Vinter's single asset reference rates. This index is using the default calculation method. The Benchmark Statement defines the eligibility criteria for input data.

Market Capitalization

The market capitalization is given by price times circulating supply. Using circulating supply is similar to using public float for an equity index.

Index Provider

Invierno AB, Reg. No. 559207-4172, Box 5193, 10244 Stockholm, Sweden ("Vinter")

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Benchmark Administrator

Vinter is the benchmark administrator and the central recipient of input data with the ability to evaluate the integrity and accuracy of input data on a consistent basis. Vinter is responsible for the development of the index and controls all aspects of the provision of the benchmark. Vinter has established a permanent and effective oversight function, governance processes subject to periodic reviews and audits, policies regarding complaints, ethics, conflicts of interest, and contingency, and has established a clear internal organizational structure with consistent roles and responsibilities to identify, prevent, disclose, mitigate, and manage conflicts of interest. The European Securities and Markets Authority has included Invierno AB in its register of Benchmark Administrators approved to carry on the regulated activity of administering a benchmark.

Calculation Agent

Vinter is the calculation agent and is responsible for determining the value of the index described in the index methodology. Vinter calculates the index values in accordance with the index methodology. Upon the request of the benchmark administrator, the calculation agent shall provide all information available on the composition and details of the calculation of the requested index.

Document Versions

Version 1.0 Initial version. October 19, 2022.

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