Hashdex

HASHDEX RESEARCH

# Crypto Momentum:

## A novel approach to factor-based investing

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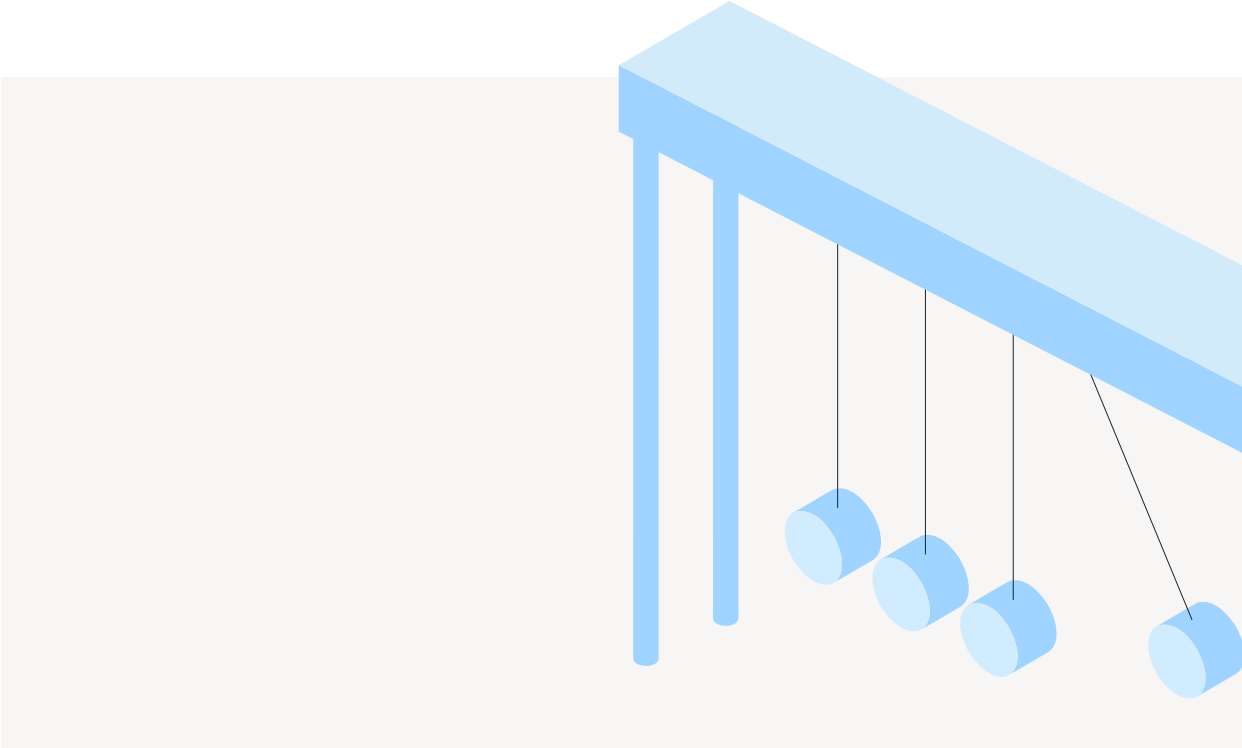
Factor-based investing is one of the most commonly used strategies by professional investors today. Factors are variables that can help maximize investment returns over time through a systematic exploitation of available data for a particular asset.

For example, when evaluating stocks within a portfolio an asset manager may consider each stock's size, value, or growth characteristics and then give them a score based on this evaluation. Each of these represents a type of factor that can provide valuable information for the portfolio manager with regards to the stock's relative performance.

Factor investing has been around for almost 50 years, but has become more popular as investors have challenged assumptions about the efficiency of markets. Factor-based strategies are designed to identify persistent sources of outperformance and potential excess return from certain explanatory variables. Factors have often been called "anomalies" in academic papers, because they should not exist according to the efficient market hypothesis (EMH)[1], which assumes all market participants act in a rational way.

A factor-based approach is quantitative and based on observable data—such as prices, volatility, and financial information—rather than on subjective opinions or speculation. This type of strategy allows investors to potentially outperform market-cap weighted benchmarks.

Many academics and practitioners believe that the most informative factor is momentum, which quantifies an asset's recent price trajectory. To better understand how momentum has worked for traditional assets, and how it might work for crypto assets, it is useful to consider the history of its application.

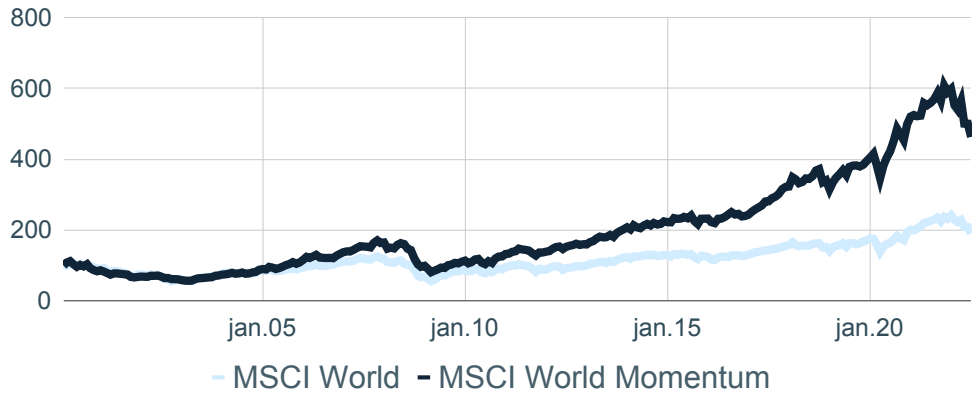


[1] The efficient market hypothesis (EMH) suggests that an asset's price reflects all of the available information about that asset and that changes in its price are due to changes in what is known about that asset.

## Momentum: a "premier anomaly" for over two centuries

Momentum has proven to be one of the strongest and most robust sources of returns since modern markets were established, having been empirically verified for over 200 years across all major asset classes, according to research conducted by Christopher Geczy and Mikhail Samonov.[2]

More recently, momentum strategies have outperformed comparable market cap-weighted equity benchmarks. Since 2000, the MSCI World Momentum Index has outperformed the MSCI World Index.[3]




Between 2000 and 2022, momentum strategies outperformed comparable market cap-weighted equity benchmarks.

Eugene Fama, a Nobel-prize economist famous for the efficient market hypothesis, has called momentum the "premier anomaly" because of its predictive capabilities.[4] But there are many different applications of momentum to a portfolio. In a long-only approach, a momentum strategy tilts a portfolio towards the best recent performers by buying securities that are rising and selling them when quantitative analysis suggests they have peaked. The goal is to exploit the market action and volatility by finding buying opportunities in short-term uptrends and then sell when the securities start to lose momentum.

Intuitively, the idea is that investors can make more money by "buying high and selling higher" than by simply buying underpriced stocks and waiting for the market to re-evaluate them. In traditional markets, this type of momentum investing is very established and has been well-developed and tested over time.

While there are centuries of evidence that momentum works in stock markets, can these strategies be applied to an emerging asset class like crypto?

[2] From Nasdaq DW, quoting Geczy, C., & Samonov, M. (2015, May). Two Centuries of Multi-Asset Momentum (Equities, Bonds, Currencies, Commodities, Sectors and Stocks).
[3] Source: Bloomberg
[4] Fama, Eugene F., and Kenneth R. French. "Dissecting Anomalies." The Journal of Finance 63, no. 4 (2008): 1653–78.

## Crypto: a new frontier for momentum investing

There has been very little empirical research on factor investing in the crypto market. However, we believe the development of the crypto ecosystem and its improving tradability, liquidity, and data availability is making momentum an obvious factor to explore for crypto.

A key reason that makes momentum relevant to crypto is the inherent human behaviors and biases that have been part of crypto since its inception. For example, there is a lot of investor herding in crypto markets and large daily price movements are very often followed by more outperformance or underperformance as herding and fear-of-missing-out (FOMO) behaviors take hold.[5] A recent academic article found that crypto's unique features, including its 24-hour availability and the strong influence of sentiment and social influence, make it particularly vulnerable to these types of behaviors.

More anecdotally, it is very common for people to hear about specific crypto assets from their friends or media coverage—which most often focuses on assets with positive price action—which feeds into the cycle of FOMO and herd behavior. This in turn impacts the price of these assets.

Other behavioral biases common in crypto include groupthink, availability bias, and confirmation bias. Because behavioral biases are rooted in human behaviors, they are more likely to persist (i.e., patterns of human behavior are not going to change any time soon). These are the behaviors that a momentum strategy can help exploit.

One of the best explanations of why momentum exists is that it is a behavioral bias where investors systematically *underreact* to positive news. This underreaction causes the market to price the news in slowly, leading to a trend of outperformance for the security. In a largely retail-driven crypto market, this underreaction is very likely as it will take more time for them to price all the new information in, compared to a more institutional-driven market.

But momentum strategies in crypto must also take into account the volatile nature of these assets, and volatility will persist and be a fixture of the crypto markets as the industry develops. This is why effective crypto momentum strategies should also incorporate risk controls.



[5] https://akjournals.com/view/journals/2006/10/2/article-p201.xml

## A risk-based approach to crypto momentum investing

The Vinter Hashdex Risk Parity Momentum Index was created to build a smart beta benchmark for crypto momentum investing. The index, developed by crypto-native provider Vinter, was designed with traditional momentum factor indices in mind, such as the well-recognized MSCI Momentum Index, and then adapted to meet the unique characteristics of the crypto universe.

The index combines the momentum factor with an equal-risk weighting approach, designed to provide exposure to the momentum factor, while limiting the risk. The asset universe includes all crypto assets that are eligible to be listed on the SIX, BX Swiss, and Xetra exchanges. Additional filters are set by Vinter to ensure ample liquidity and tradability. On its review date, each eligible asset must have a market cap of at least US$1 billion, global trading volume above 20 million, and a price history of at least 90 days.

| | |
|---|---|
| TRX | 17.94% |
| XRP | 12.28% |
| MATIC | 12.21% |
| BNB | 10.63% |
| BTC | 9.82% |
| UNI | 6.31% |
| ETH | 6.27 % |
| DOT | 5.73% |
| ATOM | 5.29% |
| SOL | 4.75% |
| AVAX | 4.41% |
| ADA | 4.36% |

AS OF OCTOBER 31, 2022

The asset universe includes all crypto assets that meet Vinter's eligibility criteria, including having a market cap above US$1 billion as displayed on CoinMarketCap's top 100 ranking, daily trading volumes above US$20 million, and a price history of at least 90 days. The asset universe also excludes any assets that do not meet SIX, BX Swiss, and Xetra eligibility criteria.

The Vinter Hashdex Risk Parity Momentum Index selects the 12 largest crypto assets by market capitalization in the asset universe. The weights are proportional to the multiplication of the momentum score and the risk-parity weights. The momentum score is created as follows:

**1**: Obtain the 30-day and 60-day returns for all assets;

**2**: Calculate the risk-adjusted return based on volatility data;

**3**: Convert the 30-day and the 60-day risk-adjusted returns to Z-scores;

**4**: Average the two Z-scores

**5**: Apply a cap and a floor to the values;

**6**: Convert the capped and floored Z-score to a positive Z-score;

**7**: Make the momentum score proportional to this positive Z-score, a number between 0 and 1.

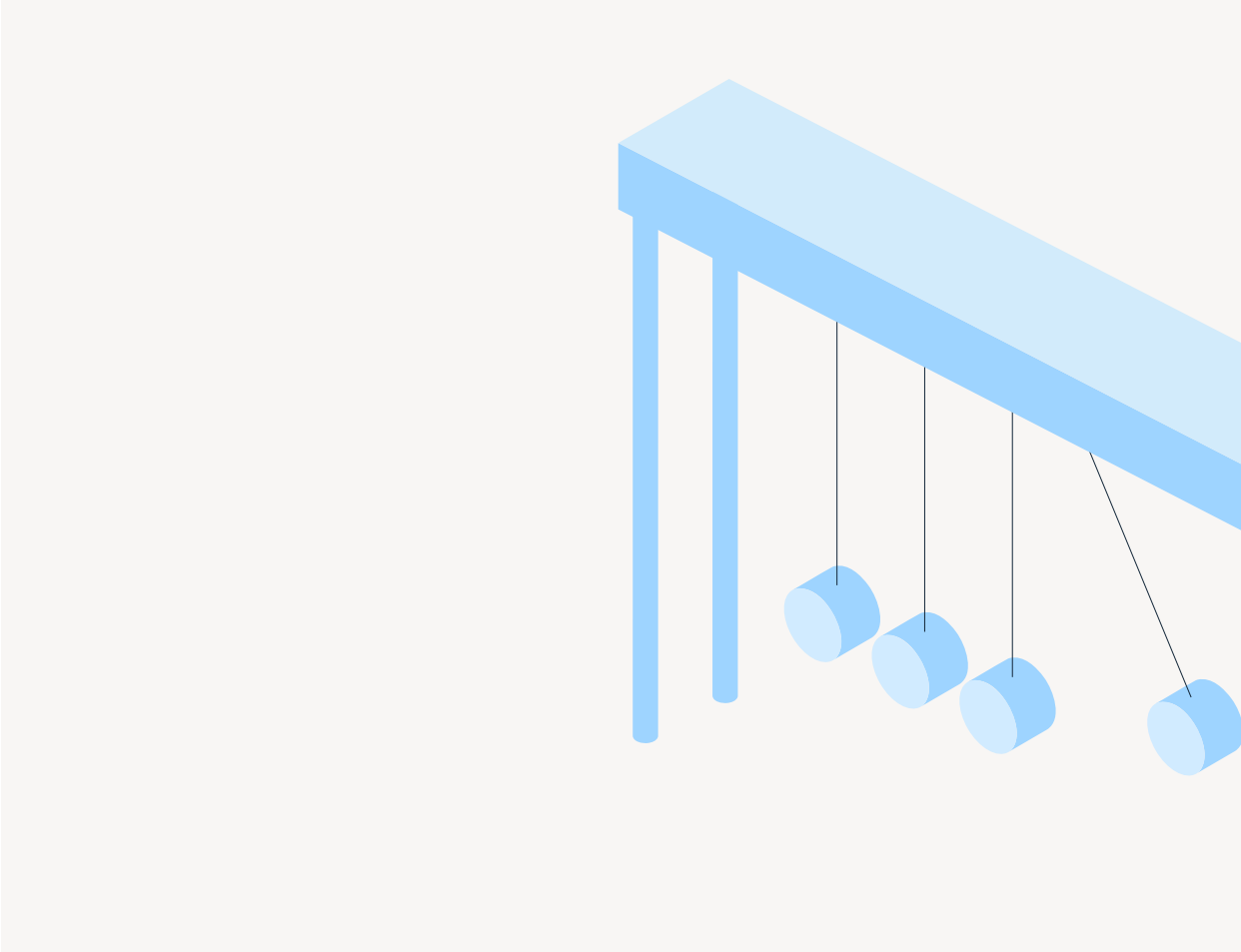
Asset selection and index construction rules ensure a well-diversified basket. The ability to overweight smaller crypto assets, while controlling for risk, separates this index from market cap-weighted indices. Risk-parity weights are set such that the risk contribution from each asset is equal, using 90 days of data. Once the equal risk contribution weights are set, the momentum score is used to tilt them.

The index is rebalanced monthly on the last business day of the month. We believe this rebalancing window is an appropriate balance between finding value in the momentum factor's signal and keeping the cost of trading to a minimum. Rebalancing weights are proportional to the momentum score and the risk-parity weights.

Ultimately, this methodology ensures that crypto investors seeking exposure to the momentum factor have a reliable, dynamic, and institutional-quality benchmark.

The ability to apply traditional factors like momentum to crypto assets is a clear sign the industry is rapidly developing and becoming an increasingly investable asset class. At Hashdex, we believe that innovation in crypto investing will help drive adoption and propel the crypto ecosystem toward its full potential. As the development of the crypto economy matures, we continue to focus on providing access to these markets through simple, secure, and regulated products.

For more on the investment case for crypto or other educational resources, please visit the Hashdex Research Center.



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