Reality Shares REBEL™ Index
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Introduction

This document summarizes the methodology and rules used to construct, calculate, rebalance and maintain the Reality Shares REBEL™ Index.

About Blockforce Capital

Blockforce Capital is a digital asset management company with 3 main sleeves. These sleeves include: an arbitrage fund, an algorithmic trading fund, and an assortment of innovative exchange traded funds managed by Reality Shares.

About Reality Shares

At Reality Shares, a division of Blockforce Capital, we strive to deliver ETFs based on innovative investment methodologies. Ranging from disruptive fintech to a proprietary dividend health rating system called DIVCON®, Reality Shares is focused on offering investors access to innovative market segments. Our ETFs include BLCN, investing in companies committing material resources to developing, researching, and innovating in blockchain technology, DIVY, an alternative ETF actively targeting long-term capital appreciation generated by dividend growth expectations, and a series of rules-based DIVCON ETFs that seek to analyze and rank companies’ dividend growth prospects over the next 12 months.

About Reality Shares REBEL™ Index

The Reality Shares REBEL™ Index provides a benchmark for investors interested in tracking cryptocurrencies. The Index tracks six different cryptocurrencies with large market caps. The concept was originally developed by two prominent digital currency enthusiasts and investors, Greg Landegger of Parsons & Whittemore and Scott Daspin of Triad Securities. They coined the term to bring awareness to the transformational nature of these digital assets in the global financial ecosystem, like the FANG stock concept.
Index Description

The Reality Shares REBEL™ Index has been created to provide investors with an avenue to track the performance of the relatively new cryptocurrency asset class and to provide the benefit of diversification.

Constituents

The REBEL™ Index tracks the performance of 6 of the most readily available cryptocurrencies. The 6 cryptocurrencies chosen were based on several factors including liquidity, availability, volume, and market cap. All the constituents of the index are cryptocurrencies. The Cryptocurrencies are: Ripple, Ethereum, Bitcoin, Bitcoin Cash, EOS, and Litecoin.

- Ripple: Ripple is a platform and a currency¹. It is an open source protocol that allows fast and cheap transactions. The platform has a currency, XRP, allowing access to the platform. Accessing the platform gives the user the ability to transfer value across the network.
- Ethereum: Ethereum is a decentralized platform that allows its users to build decentralized applications². The network is dictated by smart contracts, which perform actions that would otherwise be done by third parties.
- Bitcoin: Bitcoin is both a payment mechanism and a protocol³. The payment system allows payments between users without a central authority on the blockchain network. The protocol is proof of ownership of part of the digital concept.
- Bitcoin Cash: Bitcoin Cash is a fork from Bitcoin that increased the block size of the blocks in the blockchain from 1 MB to 8 MB⁴. The rationale for doing so was to increase the scalability of the payment network.
- EOS: EOS is a decentralized platform that allows the development of decentralized applications, like Ethereum⁵. It allows third parties to develop decentralized applications on it. EOS varies from Ethereum because of the consensus algorithm used.
- Litecoin: Litecoin is a decentralized payment protocol like Bitcoin⁶. Unlike Bitcoin, Litecoin uses a different consensus algorithm, allowing for faster transaction times.

Floating Market Capitalization

The index is weighted based on floating market capitalization. Floating market capitalization is the best available method to track a crypto index due to the constantly changing nature of the asset class⁷. For example, the current supply of Bitcoin is ~17 Million tokens, and the max supply possible is 21 Million.

¹ Coin Telegraph, What is Ripple: https://cointelegraph.com/ripple-101/what-is-ripple
² Coin Telegraph, What is Ethereum: https://cointelegraph.com/ethereum-for-beginners/what-is-ethereum
³ CoinDesk, What is Bitcoin: https://www.coindesk.com/information/what-is-bitcoin/
⁴ Coin Telegraph, What is Bitcoin Cash: https://cointelegraph.com/bitcoin-cash-for-beginners/what-is-bitcoin-cash
⁵ Coin Central, What is EOS: https://coincentral.com/what-is-eos/
⁶ What is Litecoin: https://www.forbes.com/sites/quora/2018/02/08/what-is-litecoin/#a8218c733f73
⁷ It is important to note that there is no readily available method to see the number of coins that are actively trading. A holder of a digital asset may lose their private key, rendering it impossible to access their digital asset.
As more coins are added, and the price of the digital asset fluctuates, the index will be reweighted. Floating market capitalization allows the index to take these changes into account.

**Increase in Supply**

Due to the unique structure of cryptocurrencies, there is a changing supply of the amount of coins. Cryptocurrencies can be mined. This means that new cryptocurrencies may be added to the different blockchain networks. The index takes these changes into account and the potential drastic change in price movement that may come along with it\(^8\).

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\(^8\) More on price movement can be found in the ‘Adjustment for Outliers’ section of the Index Construction
## Index Methodology

### Eligibility Criteria and Index Construction

The Index consists of the following 6 cryptocurrencies:

- Ripple
- Ethereum
- Bitcoin
- Bitcoin Cash
- EOS
- Litecoin

### Base Date and Base Value

The Reality Shares REBEL™ Index was calculated with a base value of 100 as of September 30, 2017. The Index Currency is USD.

### Weighting Methodology

The Reality Shares REBEL™ Index follows a floating market capitalization weighting methodology. The weights are proportional to floating market capitalization of the cryptocurrency based on the circulating supply. The circulating supply approximates the coins available for trading. The circulating supply is sourced from [Coinmarketcap](https://coinmarketcap.com). Coinmarketcap provides real-time data for over 500 different cryptocurrencies. The site includes volume, market cap, circulating supply, and max supply.

### Index Calculation

The Index level at any point is calculated as:

\[
\text{Index Value} = \frac{\text{Combined Market Value of Assigned Shares of All Components}}{\text{Divisor}}
\]

\[
I_t = \frac{\sum_{i=1}^{n} P_{i.t} \times S_{i.t}}{D_t}
\]
where:

- \( I_t \) = Index value at time \( t \)
- \( D_t \) = Divisor at time \( t \)
- \( n \) = Number of crypto currencies in the index
- \( t \) = The time the index is calculated
- \( P_{i,t} \) = Price of crypto currency \( i \) at time \( t \)
- \( S_{i,t} \) = Circulating supply of crypto currency \( i \) at time \( t \)

The calculation above multiplies the price of each crypto currency by its circulating supply giving the market cap of each coin. The market cap of all the index constituents are added together and divided by the divisor to give us the index value.

The initial index divisor is determined as follows:

\[
D_o = \frac{\sum_{i=1}^{n} P_{i,o} \times S_{i,o}}{I_o}
\]

where:

- \( I_o \) = Base index value at base date
- \( D_o \) = Initial divisor at base date
- \( n \) = Number of crypto currencies in the index
- \( P_{i,o} \) = Closing price of crypto currency (i) at base date
- \( S_{i,o} \) = Circulating supply of crypto currency (i) at base date

The calculation above utilizes the closing total market cap at a given base date and divides it by an index value at a certain date\(^9\). This formula gives us the divisor used in the index calculation.

Changes in circulating supply require divisor adjustments in order to retain index continuity before and after the changes. Divisor changes are made according to the following formula:

\[
(\text{Market Value after Adjustments}/\text{Market Value before Adjustments}) \times \text{Divisor before Adjustments}
\]

\(^9\) For more on Index Value look at the “Base Date and Base Value” section of the index methodology.
\[ D_{t+1} = D_t \times \frac{\sum_{i=1}^{n} P_{i,t} \times S_{i,t+1}}{\sum_{i=1}^{n} P_{i,t} \times S_{i,t}} \]

where:

- \( D_{t+1} \) = Divisor after changes are made to the index
- \( P_{i,t} \) = Price of each crypto currency prior to index changes
- \( S_{i,t+1} \) = Circulating supply of each crypto currency after changes in supply
- \( D_t \) = Divisor before changes are made to the index
- \( S_{i,t} \) = Circulating supply of each cryptocurrency prior to changes in supply

The formula above makes sure the changes in circulation do not affect the index value and price\(^{10}\). By dividing the new Market Cap by the old Market Cap and multiplying it by the divisor before changes are made to the index, the index value takes into account the change in circulating supply.

**Data Source**

The Index series is calculated real-time as well as at end-of-day. The constituent prices are used to arrive at index levels. The primary sources of price data would be the following exchanges

1. Binance
2. Bitfinex
3. BitFlyer
4. Coinbase
5. Gemini
6. Huobi
7. OKEx

The price data is collected via API from the listed exchanges and the simple average of the prices are used in the index calculation. The data sources will be updated over time depending on the quality and availability of data. Only direct Crypto – USD pairs (e.g. BTC:USD) prices are used in the calculations. In the case that a direct Crypto – USD pair is not available on an exchange then the price of that cryptocurrency will be converted to US dollars using the most accurate conversion rate available.

**Adjustment for outliers**

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\(^{10}\) More on circulation changes can be As found in the ‘Increase in Supply’ section of the Index Description
If the price data from a source is more than $\pm 25\%$ from the average of the prices from the remaining data sources, it is considered an outlier and excluded.

**Index publication days**

The Index shall follow the New York Stock Exchange calendar and be published on NYSE trading days. The intra-day index levels are published during the period 9:30 EST – 16:00 EST. The end-of-day index levels are calculated at 16:00 EST, using the simple average of constituent prices for the 30-minute period 13:30 EST to 16:00 EST.

**Limitations and risks**

There are certain limitations and risks associated with the index due to the nature of cryptocurrencies. Some examples are:

- Cryptocurrencies have a higher volatility compared to other assets like stocks and commodities.
- Cryptocurrencies trade 24 x 7 days, 365 days a year, whereas the index publication time is limited to the period 9:30 EST – 16:00 EST on trading days only.
- Cryptocurrency data sources can be subject to risks such as
  - Cyber attacks like distributed denial-of-service ("DDoS")
  - Trading suspension
  - Hacking
  - Regulatory issues (e.g., Restrictions on trading etc.).
Index Committee

The Reality Shares REBEL™ Index is maintained by the Reality Shares Index Committee. The committee meets quarterly and as necessary on an ad hoc basis to make all decisions regarding the Indexes. The Index Committee may revise index policy covering rules for selecting crypto currencies, data sources or other matters, or override selected outcomes of such index policy on a case-by-case basis.

Reality Shares REBEL™ Index - Historical performance

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1. Allocation as of 05/31/2018. Source: Reality Shares Research