Whitepaper

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1 DISC30

The DISC30 dynamic index fund is unique in that it is

1. **Diversified** - It is comprised of the top 30 cryptocurrencies.
2. **Truly Equal** - It contains an equal USD amount of each cryptocurrency. Note this also means it contains an equal BTC amount of each cryptocurrency, and so on.
3. **Dynamic** - It is updated every 24 hours, harnessing the power of digitization to accurately determine fund composition and price.

Furthermore, DISC stands for Disclosure Exchange: We are committed to transparency and decentralization. Thus we provide our algorithms here, and the rest of our code is open source on Github (github.com/disclosure-exchange). The current DISC30 fund composition and price are on our website (disclosure.exchange).

1.1 Composition

The DISC30 is comprised of the top 30 cryptocurrencies by market capitalization (also listed at coinmarket-cap.com).

Each DISC30 share contains

$$\frac{P}{30}$$

worth of each of the top 30 cryptocurrencies, where P = the price of 1 DISC30 share (in USD). In other words, it contains an equal (USD) amount of each cryptocurrency.

1.2 Price

The price of one DISC30 share (in USD) is

$$P = \frac{S}{1,000,000,000}$$

where S = the sum of the top 30 cryptocurrency market capitalizations (in USD), and our divisor is fixed at $1,000,000,000$.

2 Real Market Price

Disclosure Exchange calculates real market prices using real-time api data from 133 cryptocurrency exchanges around the world, to obtain the most accurate prices and amounts of each cryptocurrency in the DISC30. Our algorithm is described by the following pseudocode:

For each cryptocurrency C:

For each exchange X:

Compute the market price of C (in USD) $M_{C,X} = \frac{B_{\text{best}} B_{\text{depth}} + A_{\text{best}} A_{\text{depth}}}{D_{C,X}}$ where:
B_{best} = the best bid price (in USD)
B_{depth} = the bid depth (in C)
A_{best} = the best ask price (in USD)
A_{depth} = the ask depth (in C)
$D_{C,X} = B_{\text{depth}} + A_{\text{depth}}$ = the total depth of C in exchange X.

Compute the weighted average by depth of the market prices of C over all exchanges: $M_C = \frac{\sum_X M_{C,X} T_{C,X}}{\sum_X T_{C,X}}$.

M_C is the real market price of C.

Thus the real market price is the weighted average by depth of the market prices over all exchanges. Our code calculates the real market price for all 30 of the DISC30 cryptocurrencies in ∼1.5 hours.