HOW TO EVALUATE STABLECOIN RISK WITH AMBERDATA

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Just like for traditional financial instruments, measuring risk in stablecoins involves parameters such as volume, liquidity, and velocity. However, price is a metric especially geared toward a stablecoin's unique characteristics.

Stablecoins should maintain a $1 USD peg, and when a stablecoin moves away from this value, it is said to have "lost its peg" or "depegged." However, stablecoins often trade slightly above or below $1. So, how far away from the peg must a stablecoin deviate for it to be considered a depegging event? While there are multiple models, the price threshold varies.

Amberdata provides all of the price data necessary for models to monitor stablecoin health. Utilize the full history of a stablecoin's price across major and longer-tail DEXs, or view stablecoins through our centralized exchange price endpoints with historical data going back as far as 2011. By combining DEX and CEX prices, you can get a macro view of a stablecoin.

Below are some of Amberdata's endpoints that are helpful when querying stablecoin price data. To view a list of the centralized and decentralized exchanges we cover, please click **here**.

CENTRALIZED EXCHANGES

- Historical Open High Low Close Volume: **https://docs.amberdata.io/reference/defi-ohlcv-historical**
  - These endpoints show the OHLCV (1-minute candle) of every book on every supported centralized exchange.
- Historical VWAP: **https://docs.amberdata.io/reference/spot-vwap-pairs-historical**
  - See the volume weighted average of every book on every exchange we support, by pair or asset.
- Historical Prices: **https://docs.amberdata.io/reference/spot-prices-pairs-historical**
  - Unweighted prices, similar to the previous endpoint.

DECENTRALIZED EXCHANGES

- Historical Open High Low Close Volume: **https://docs.amberdata.io/reference/defi-ohlcv-historical**
  - The format and execution of our DeFi OHLCV endpoint are comparable to the centralized exchange version. Amberdata has pioneered the concept of DeFi OHLCV, since decentralized exchanges do not have a set end-of-day. This endpoint enables the ability to compare CEX and DEX OHLCV and understand stablecoin price and depegging variance.
- Historical VWAP: h**ttps://docs.amberdata.io/reference/dex-vwap-pairs-historical**
  - This endpoint returns the full historical values for any pairs (pools) on any supported DEX.

Volume is another important metric that can be used for a stablecoin risk model. While weighted price endpoints mentioned above such as VWAP and OHLCV are also tools to assess stablecoin volume, here is a commonly used decentralized exchange endpoint:

DEX METRICS

- Pairs Historical: https://docs.amberdata.io/reference/defi-metrics-pairs-historical
  - Our DeFi historical data is derived from our blockchain data, giving you access to every event from the protocol's creation on. With this endpoint, see volume data for any pool on a supported protocol, with volume units in USD and the native asset.
  - This endpoint is also available as a latest metric: https://docs.amberdata.io/reference/defi-metrics-pairs-latest

The liquidity of a stablecoin is also a key factor to investigate. Liquidity on centralized exchanges is straightforward to measure - simply look at the depth of an order book on one or many exchanges to calculate the liquidity. Amberdata offers the most granular order book data and also provides additional data points like tickers (top of the book), and reference quotes (the mid of the ticker).

CENTRALIZED EXCHANGES

- Events Historical: https://docs.amberdata.io/reference/order-book-updates
  - Every change in a book for every book, on all supported exchanges.
- Tickers Historical: https://docs.amberdata.io/reference/get-market-ticker-pair-historical
  - Includes the top of the book, BBO, best bid/best ask, and more.
- Reference Quote Historical: https://docs.amberdata.io/reference/spot-reference-quotes-historical
  - The mid of the ticker. See how tickers are calculated, and choose which exchanges you'd like in the equation.

Understanding liquidity in decentralized exchanges is more complex. It is difficult to gauge the depth of a book on nearly every DeFi protocol (aside from Uniswap v3) because there are no order books. Trades on DEXs consist of simply swapping one token for another. With Amberdata's liquidity endpoints, you can determine the liquidity of a pool on a protocol by understanding the composition of a pool at a point in time. For example, by tracking the change in a pool like the wBTC_wETH pool on Uniswap v2, you can see amounts of each token, view liquidity price (the value of one token versus the other), and calculate slippage.

DECENTRALIZED EXCHANGES

- DEX - Liquidity Historical: https://docs.amberdata.io/reference/defi-liquidity-historical
  - View the full history of any pool's composition and the liquidity price of each token.

Analyzing liquidity on Uniswap v3 is a different process from any other DEX protocol. Stablecoin pools should ideally trade within a very narrow range (ex. $0.99-1.01) since there should only be a slight variance from the $1 peg. In Uniswap v2, when liquidity providers added funds to a stablecoin pool, the liquidity would be spread across the entire price curve. As a result, liquidity outside the typical stablecoin range would not be earning fees. Uni v3, however, allows liquidity providers to allocate their liquidity within specific price curves to maximize fee-earning potential.

With Amberdata's Uniswap v3 liquidity endpoint, see the distribution of liquidity for any given pool. See how much liquidity is available at every tick to understand where to allocate liquidity and conduct research on how liquidity has changed over time.

DECENTRALIZED EXCHANGES

- Uniswap V3 Liquidity Distribution: https://docs.amberdata.io/reference/uniswap-v3-liquidity-distribution

Finally, velocity is a useful metric for evaluating stablecoin risk. Velocity is calculated using the following formula: velocity = transfers/balances * prices), or more simply, transfers/circulating supply. This simplified equation is what we will use when looking at the transfers first. Velocity units represent the number of transfers relative to the current circulating supply, and the velocity number can be thought of as the number of transfers as a percentage of the circulating supply.

Transfers are similar to transactions, but only for tokens on a blockchain as opposed to its underlying asset (eg. ETH on Ethereum). By looking at the token transfer data, we can see exactly how many tokens of a stablecoin were transferred within any timeframe. To do this, start by using the token transfers **endpoint** with the USDC token contract (0xA0b86991c6218b36c1d19D4a2e9Eb0cE3606eB480. Since the data is so granular, it helps to choose a smaller time period such as one hour.

Running the following query returns the 10 latest token transfers involving USDC, including the to/from addresses, amounts, transaction (tx) hash, block, timestamp, and more:

https://web3api.io/api/v2/tokens/0xA0b86991c6218b36c1d19D4a2e9Eb0cE3606eB48/transfers?decodeTransactions=true&page=0&size=10&format=csv&timeFormat=iso

We can do a quick conversion for the amounts (displayed in wei) by dividing it by 1,000,000, which gives us the number of tokens transferred for each transaction hash.

amount	converted amount	from_address	to	transactionHash
1085440000	1085.44	0x71a3bfe8f5d56f42b39f3f	0x6ebceed04a3aab00c0	0xfbcad6eb7e4f8d9d0ba7e9d473598e2398747c3715bea3a3e778c594a50755fb
1000000000000	1000000	0x5f55943a3c0a1824d4fdb	0x0eb4096bec5270afa3	0x53a93d084145af2b960b88210114ba93ae0f7aaeffe4f3baffcf010450c74a19
3807574683	3807.574683	0x397ff1542f962076d0bfe5	0xa311f7ca3eb2fb98123	0x49b6e0246dbb4713de09e4b10683119967aaa81f7cc0fa474f04c75ca005c182
1908000000	1908	0x50f50ec6aabb3b9a52ad	0x48c04ed5691981c421	0xdd528795ee8cc89736b8dd6fa8151a72a4a19cc7431084e18f20277fbdde4a23
15037547061	15037.54706	0x001a39c538a7be158341	0xae2d4617c862309a3d	0xa8f5bee889f800d6fe4b1a08a67d1d330c00d39724877719d63e5c0f8a5433ff
19164705711	19164.70571	0xa85a8d85423058985664	0x134792480dcb150e36	0x65f8e85290937b2a6c22bc7913dd5c24ebc64fdbbe2e36f3b0aaf0308f1e7fde
74000000	74	0x91f6aecf2c3738de5e1f5	0xacf2c84f39639664595	0x4440dbea771384f228555bb7b88360989bb0e0aac6a34e282ba76f207fcf0f27
0	0	0x804bd1a1f4b69a64d2fa6	0x4653f4f865c7520be45	0xe44ba5d4689e92a1886f57f08c2f09e236a76453876dd5dfeccfe02095ec5fb6
496838903	496.838903	0x66a89e05525bc2d4de69	0xf2a28f66a2ff95131336	0x46f08eb4b59ad7d355b15e2e72d6a32b1baf752900d5ce43fd801d6ed780f905
47942972	47.942972	0xa9d1e08c7793af67e9d9	0xecaa12e485c1ed8a20	0x6c7e341a376f6bc6cafbe8c9548692bb1036e4f5145c8dfec76f86f38e2b67e0

Note: This is the CSV option in the API query into a Google Sheet.

Now, we can sum up the converted amounts to get a total amount transferred of 1041622.049 and round that down to the nearest integer. For the second part of the formula, we can use Amberdata's **supply latest endpoint** to find the circulating supply. Amberdata also has a historical supply endpoint.

Next, we can run this query:

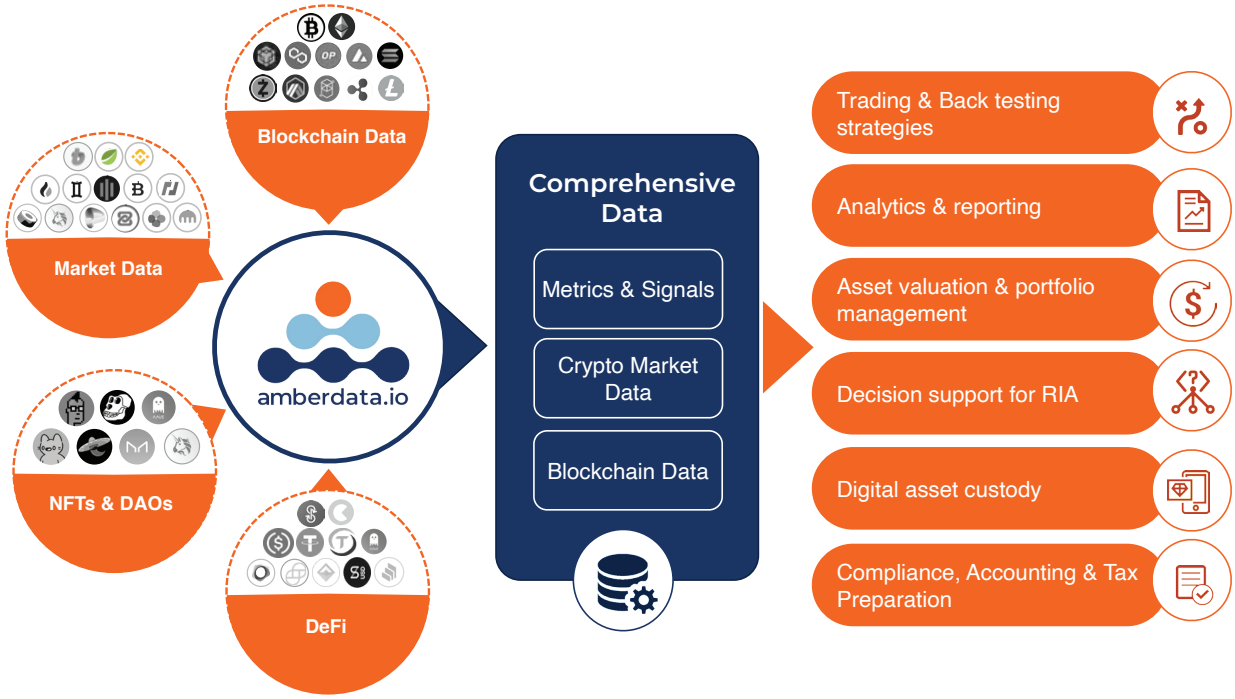
https://web3api.io/api/v2/market/metrics/usdc/supply/latest

We get a circulating supply of 27601637564.5061, which we can round to 27601637564. Applying the equation above, we can see that the USDC token velocity for this timeframe is 1041622 / 27601637564 = 0.00003773768848. This number alone does not tell us much.

However, calculating velocity over an extended period of time and comparing hourly, daily, and weekly values shows how the velocity changes over time.

To learn more about Amberdata's stablecoin coverage and research, please contact us at **hello@amberdata.io** or schedule a demo **here**.

LOOKING TO ENTER DIGITAL ASSETS?



If you're looking to enter the digital asset space, you need Amberdata.

Our platform connects to all the blockchains and markets that matter today, allowing a comprehensive view of crypto markets, blockchain networks, NFTs, DAOs, and DeFi. We provide real-time and historical transparency into markets and price discovery across spot, derivative and decentralized exchanges, as well as on-chain data from the most active cryptocurrency networks and protocols.

Our data solutions support all pre- and post-trade functions. We provide deep market data, down to Level 2 order books, facilitating backtesting of quant trading strategies. And our blockchain data provides transparency not seen with other asset classes, allowing you to track pending transactions and wallet balances over time across various blockchain networks, as well as market cap and total value locked. You can also create analytics dashboards with fundamental data to track network health and understand DeFi data like liquidity and lending rates. For fund accounting and administration, you'll know what was in a wallet at any time and what it was worth in any currency. For institutions that want to do custody themselves rather than outsource it, we provide the on-chain data needed.

With Amberdata, you get a single integration point for market and on-chain data, eliminating the need to integrate offerings from multiple vendors and allowing you to accelerate time to market for your digital asset products. We've built our data sets with institutional use cases in mind, providing the easy to consume formats and reliability you receive with traditional asset classes.

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