Reflexivity Research elementus

The Year On-Chain

Co-Authored by Reflexivity Research and Elementus, with blockchain data provided by Elementus

After a long two year bear market for Bitcoin and digital assets, 2023 marked a clear trend shift for the marketplace. After such an incredible year, the Reflexivity Research and Elementus Data/Research team's are proud to present our first collaborative on-chain year in review.

Covering everything from on-chain flows, stablecoins, valuation methodologies, speculation on where we may be in Bitcoin's market cycle, and more; we hope this serves as a comprehensive overview of this year's developments viewed through the lens of Elementus' proprietary blockchain datasets. With that being said, we hope you enjoy and have a great start to the new year.

Onward and upward.

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Who/What Has Been Driving This Year's Rally for Bitcoin?

Throughout the life cycle of Bitcoin, we have seen a continuous evolution in the cohort of market/network participants allocating to this nascent asset class. The early days of Bitcoin adoption were marked by cypherpunks and technologists, which evolved into retail, high networth individuals, and savvy hedge funds. We believe this evolution will continue, with this year serving as a turning point in regard to the type of market participant that will drive flows and activity in this asset class moving forward; shifting from retail speculators to traditional financial institutions. Let's take a look at a confluence of data points that we can combine to identify the type of market participants that have fueled Bitcoin's impressive 2023 performance.

We believe Bitcoin's price action throughout the year has largely been driven by US-based institutions, front-running the broadly anticipated Bitcoin ETF, as well as a potential turning point in the broader liquidity cycle as inflation has declined. To convey this view, we'll take a look at three main subsets of data points:

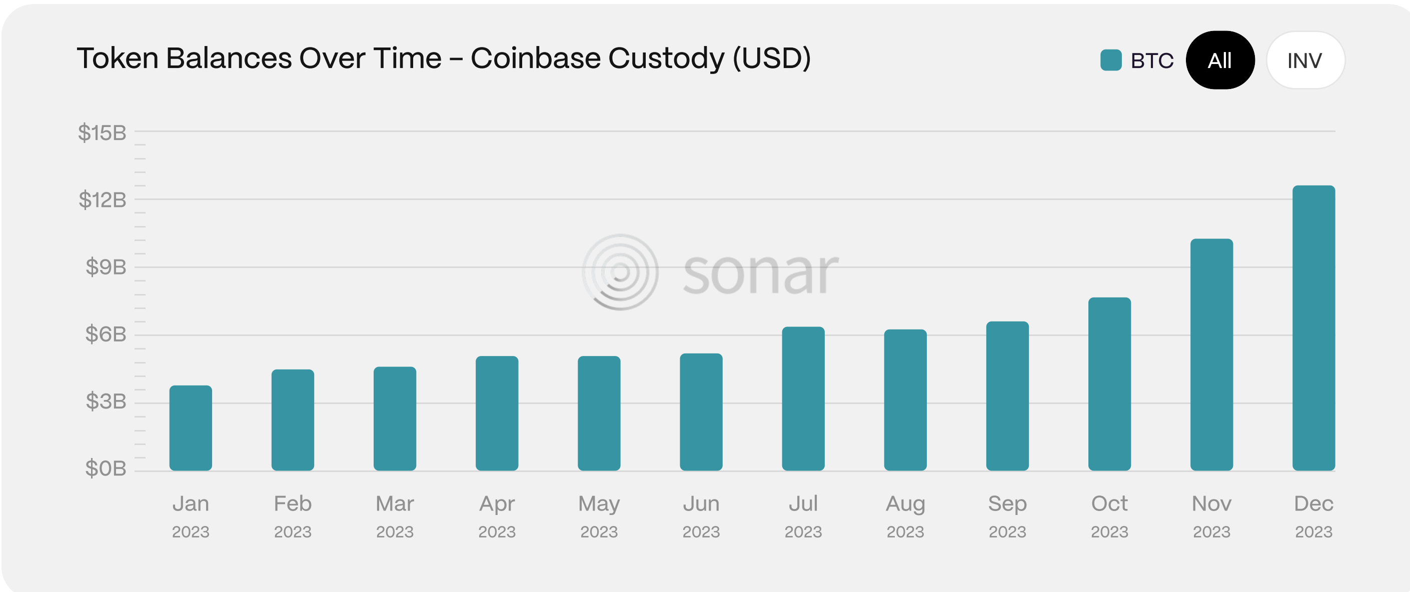
- On-chain capital flows, primarily around Coinbase
- Activity by geographic trading session
- Activity in the derivatives landscape

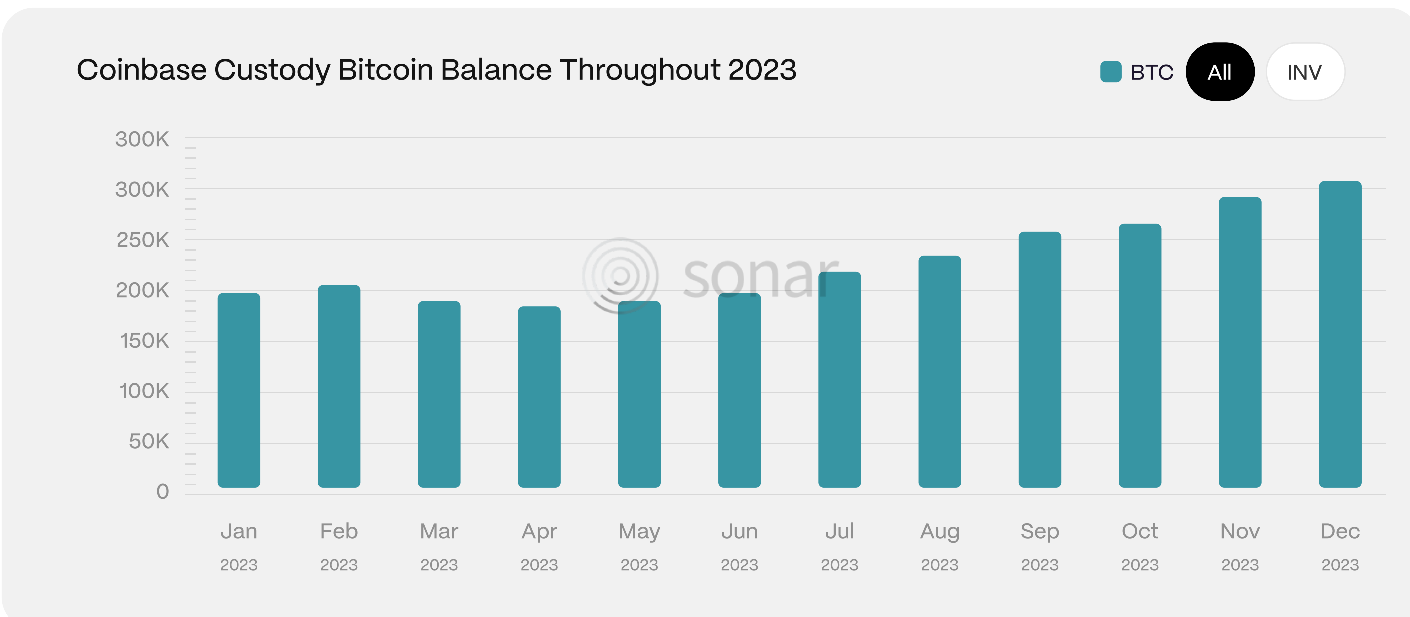
Being the most liquid US-based regulated crypto exchange, Coinbase has established itself as the preferred venue for more sophisticated actors to conduct crypto trading activity. This view was further solidified as Blackrock and other prospective ETF filers utilized the venue for both their custodian as well as shared surveillance agreements. In fact, all filers have listed Coinbase as their preferred custodian with the exception of VanEck, who decided to differentiate themselves by listing Gemini. With this in mind, Coinbase's prime brokerage and custodian arms are the most utilized venues for institutional Bitcoin/crypto trading activity in the world. Therefore, the following data around these verticals can be helpful in tracking the activity around this cohort of market participants.

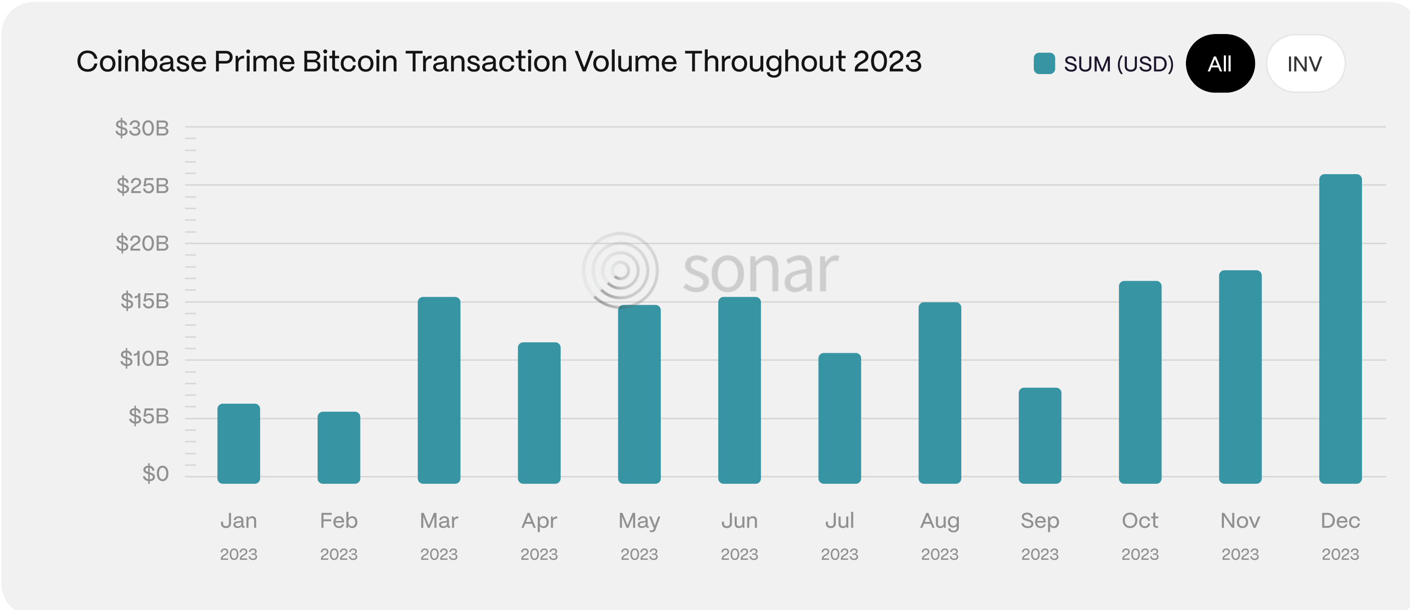
Below you can see charts showing:

- The USD denominated balance of Bitcoin held by Coinbase Custody throughout 2023
- The USD denominated transaction volumes for Coinbase's prime brokerage arm throughout 2023.

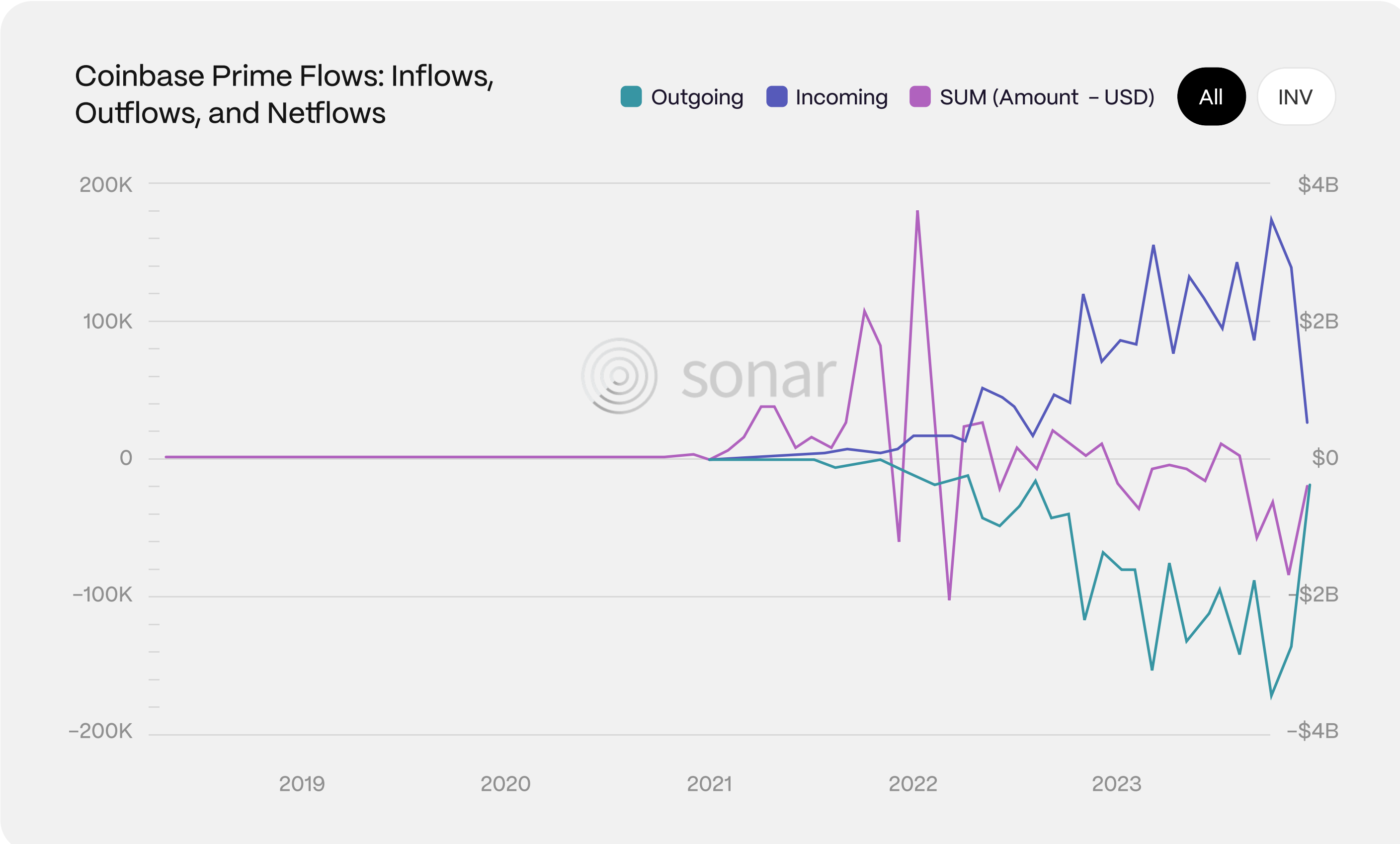
We can see a clear increase in both Bitcoin held within Coinbase's custodian; up from ~$3 billion in December 2022 to ~$12 billion as of December 2023. We can also see a clear rise of Coinbase Prime transaction volumes; up from ~$5B in December 2022 to ~$15B in August in response to Blackrock's July ETF filing, and around $25B during the month of December.



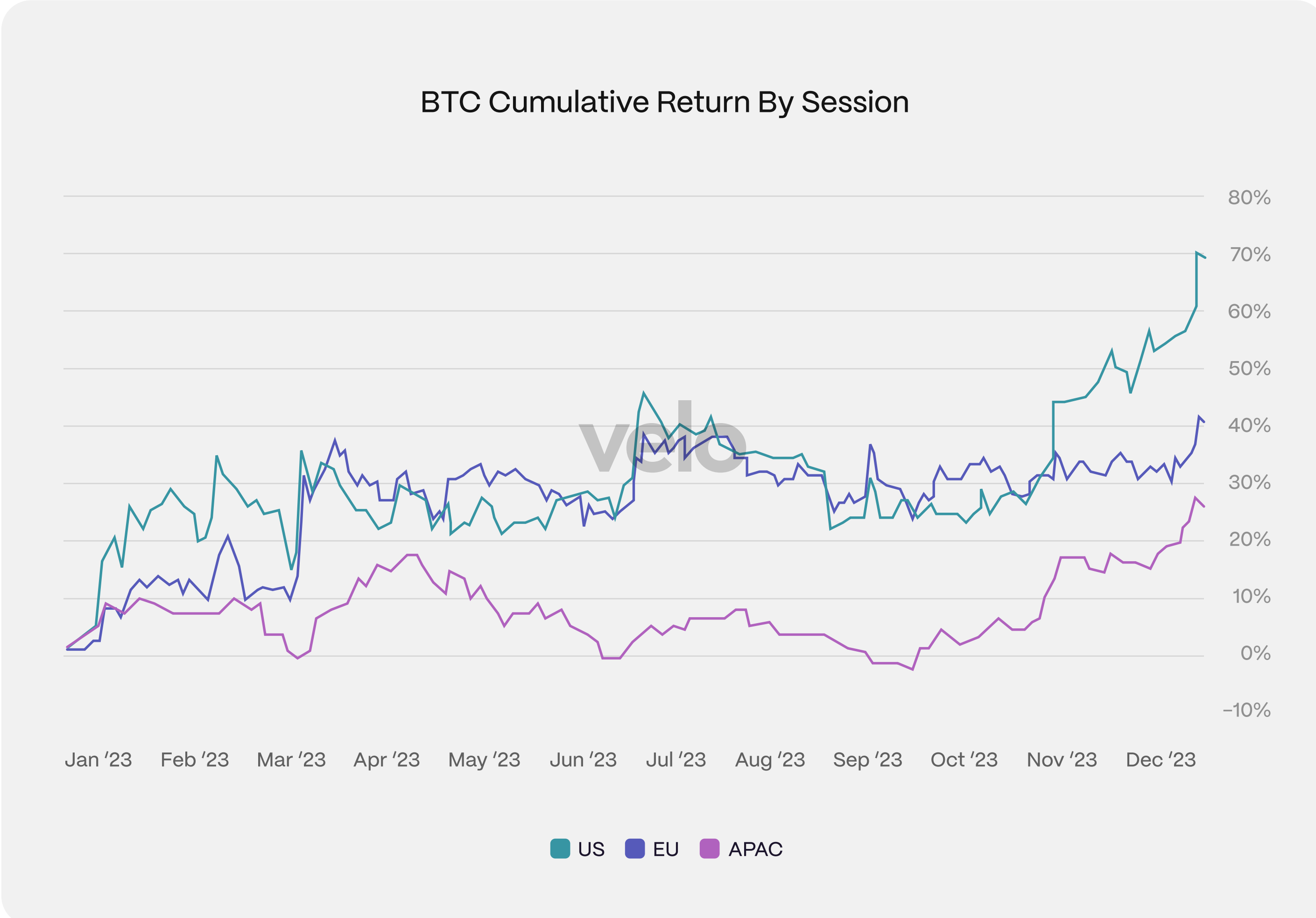




This point can also be illustrated by looking at the net flows in/out of Coinbase Prime, with the decline throughout the year reflecting institutional accumulation. The recent spike flows a potential shift in this behavior, but is too early to declare a trend shift in this behavior yet.



Shifting over to off-chain data provided by Velo Data, one of the most compelling data points around flows that have been driving Bitcoin is the cumulative return by geographic trading session. Shown in the chart below, this helps provide further clues around what geographic regions have been driving Bitcoin's price performance. The US has clearly led the way for most of the year, especially over the last two months. Meanwhile, we've seen Asia lag slightly behind, but most notably, EU trading sessions being the clear laggard.



Another data point reflecting this is the rise of futures open interest on the Chicago Mercantile Exchange; also known as the CME. Futures open interest reflects the number of futures contracts outstanding. Not only has Bitcoin futures open interest on CME just surpassed 100k BTC and $5 billion in USD denominated terms for the first time since late 2021, CME has flipped Binance as the new largest Bitcoin futures exchange as a percentage of overall open interest. While some of this rise of open interest may just be funds putting on the ETF trade, in our view we view this flippening as the mark of a regime shift from Bitcoin historically being a market driven by crypto native retail participants to increased participation from players in traditional finance.

BTC CME Futures Open Interest

Bitcoin CME Futures Open Interest (USD denominated)

Analyzing Bitcoin Wallet Activity

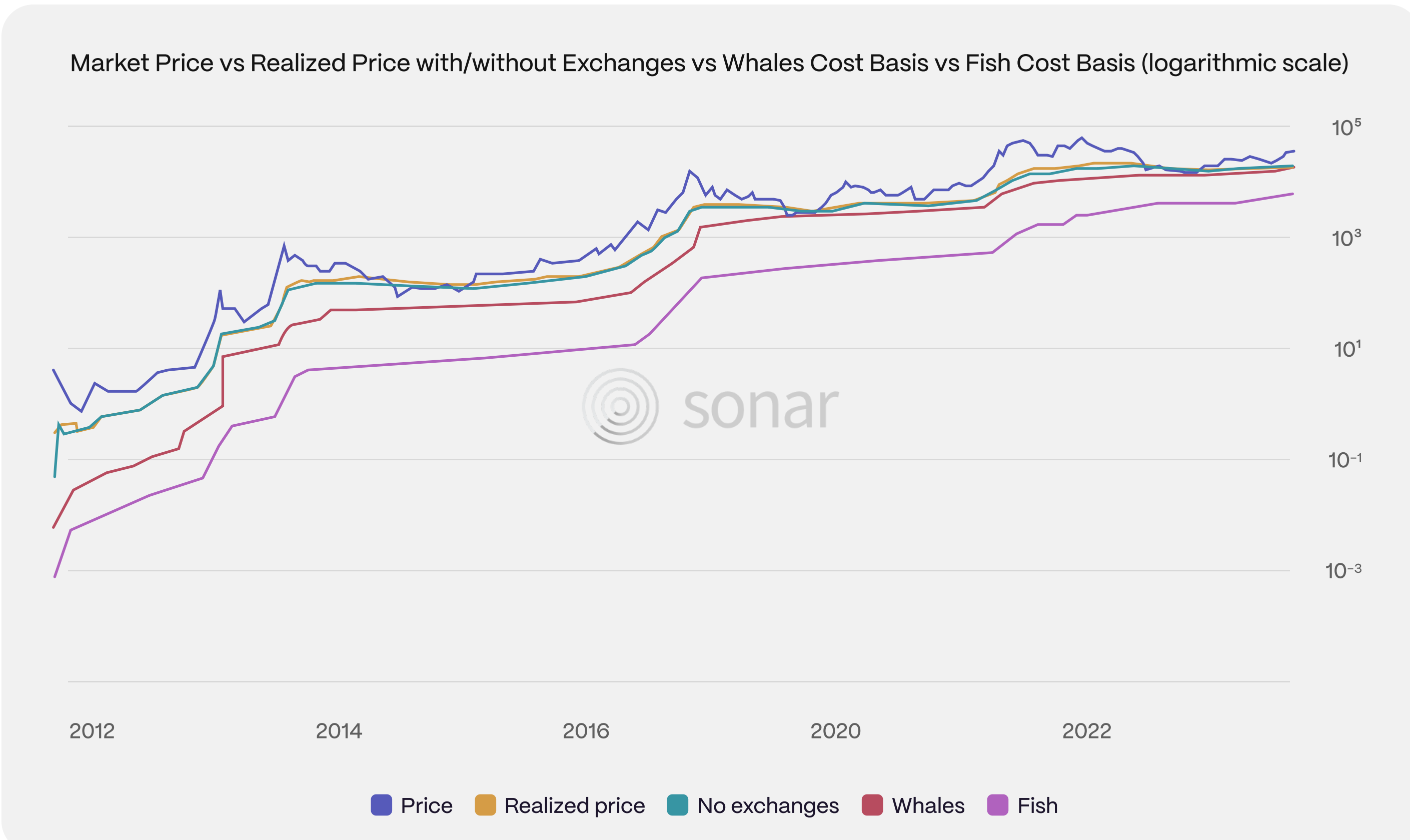
With transaction fees recently reaching all-time highs, the Bitcoin blockchain has experienced a major surge of activity this year. Due to Bitcoin's transparent nature, investors are able to analyze the holder base of the Bitcoin network in ways only possible due to the transparent, immutable blockchain of Bitcoin. Using blockchain data, investors are able to analyze activity around the state of the Bitcoin network such as being able to track small wallets, large wallets, old wallets, new wallets, etc. Through tracking blockchain native metrics and how participants have behaved throughout each of Bitcoin's prior market cycles, unique valuation metrics can also be created and utilized.

Valuation Methodologies for Bitcoin

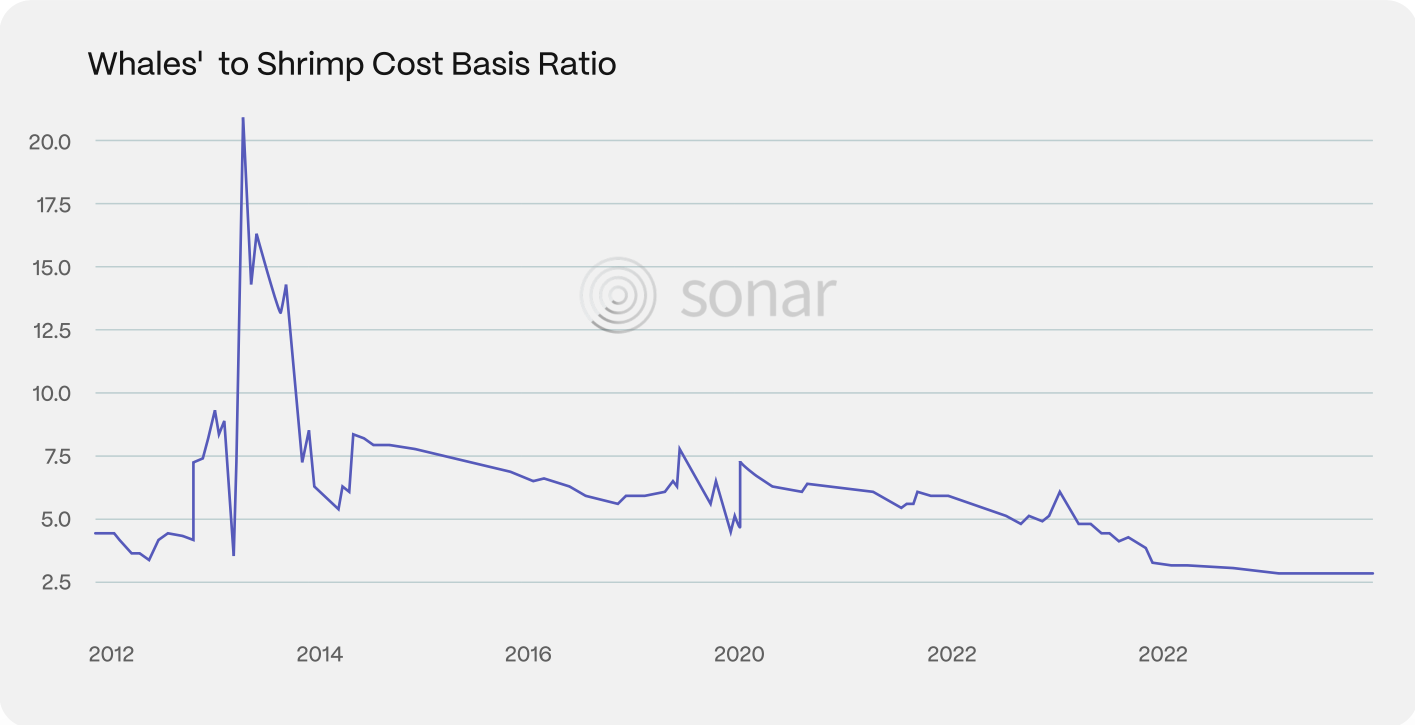
One of the most interesting valuation methodologies for Bitcoin is realized price, a ground breaking blockchain metric conceptualized by Pierre Rochard and published by both Nic Carter and Anthoine Le Calvez.

To understand realized price one must first understand "realized capitalization". Realized capitalization, as opposed to market capitalization, is calculated as the total sum of the number of Bitcoin multiplied by the price at which they each last moved. Dividing this value by the circulating supply of Bitcoin gives us "realized price"; which can be viewed as the cost basis of the Bitcoin network.

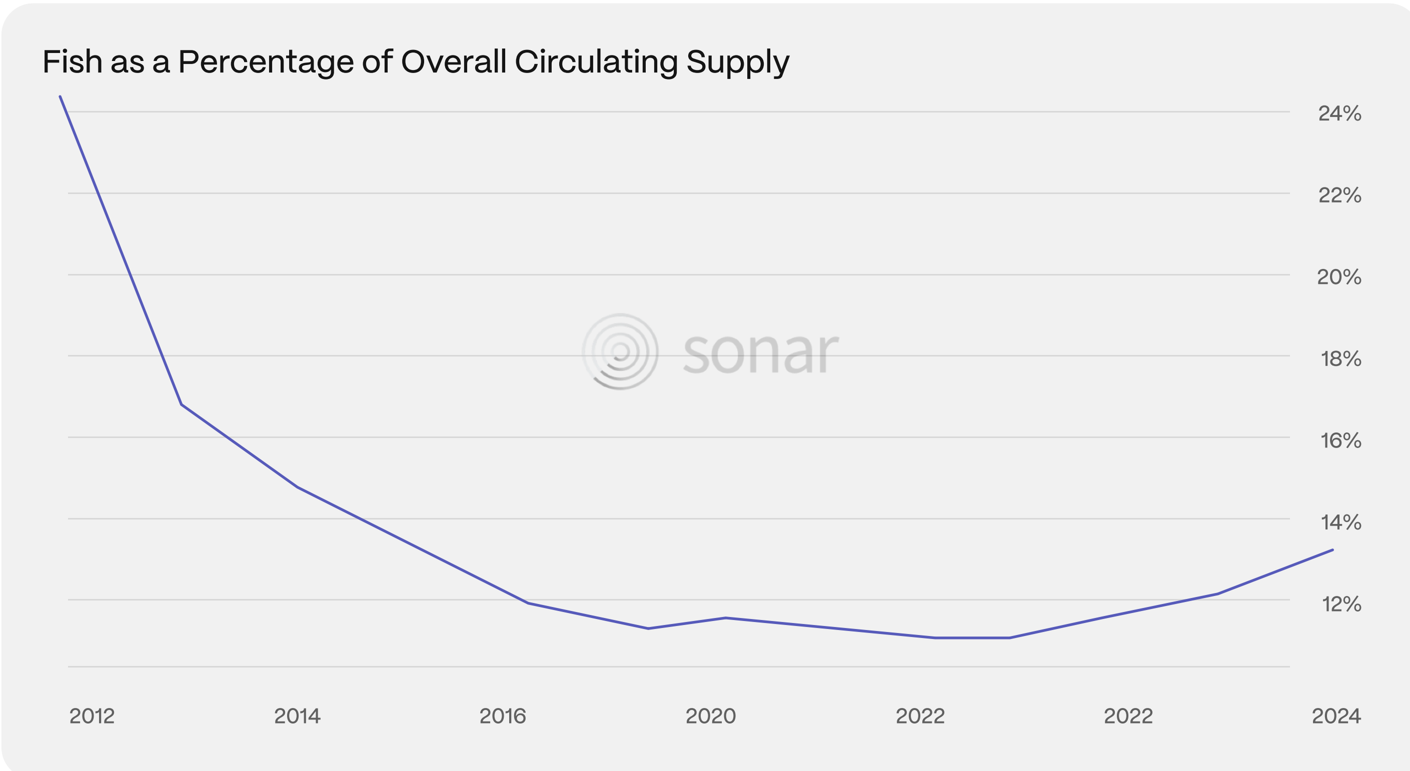
Below you can see the aggregated realized price of the network in orange, without exchanges in green, adjusted for whales in red, and adjusted for fish in purple. Interestingly, the last three Bitcoin bear market bottoms occurred around realized price; as the network resets briefly to a state of net unrealized losses in aggregate.



Comparing the cost basis of larger wallets (>X BTC) and smaller wallets (<X BTC) shows that over time, whales' cost basis is increasing relative to that of shrimp. Largely due to the rise of Bitcoin price overall, this shows that retail investors were able to get their investment cost basis lower than whales.

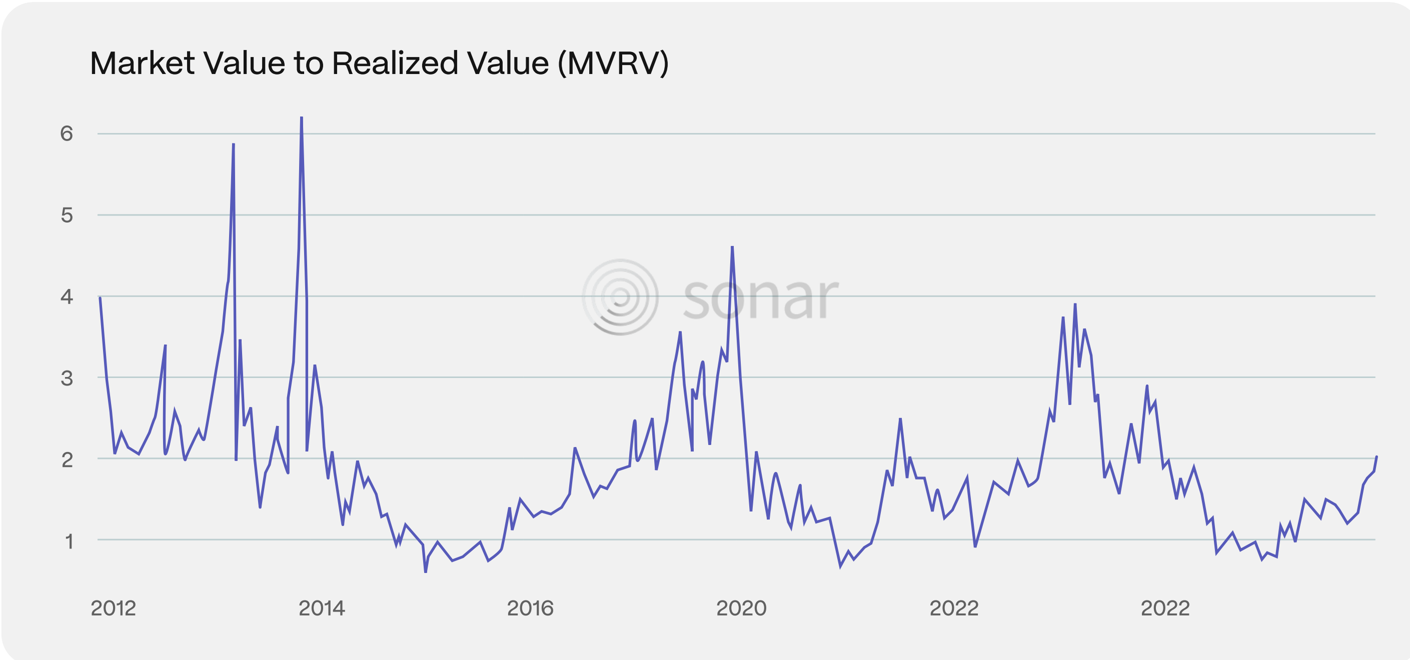


In addition, we can see a noteworthy trend shift in the percentage of Bitcoin's circulating supply held by fish[1] (retail investors). This reflects a healthy trend for Bitcoin's overall supply distribution. It is also worth noting that the majority of retail investors hold their assets on exchanges, which are of course not labeled as fish in blockchain data terms; therefore supply distribution is likely even healthier than this graph portrays.



One interesting way to visualize this dynamic is the MVRV ratio, created by David Puell and Murad Mahmudov. This ratio compares Bitcoin's current market value and realized value, giving you a gauge of profitability levels for the network. When MVRV ratio is high, this indicates that the network broadly is in a state of heightened unrealized profit; meaning there is a greater incentive to offload some of a market participant's position/holdings. Whenever the ratio goes negative, this signals that the market is underwater in aggregate, and has historically signaled major bear market bottoms for the asset.

1. For purposes of our analysis, we define fish as holders of 50–100 BTC.

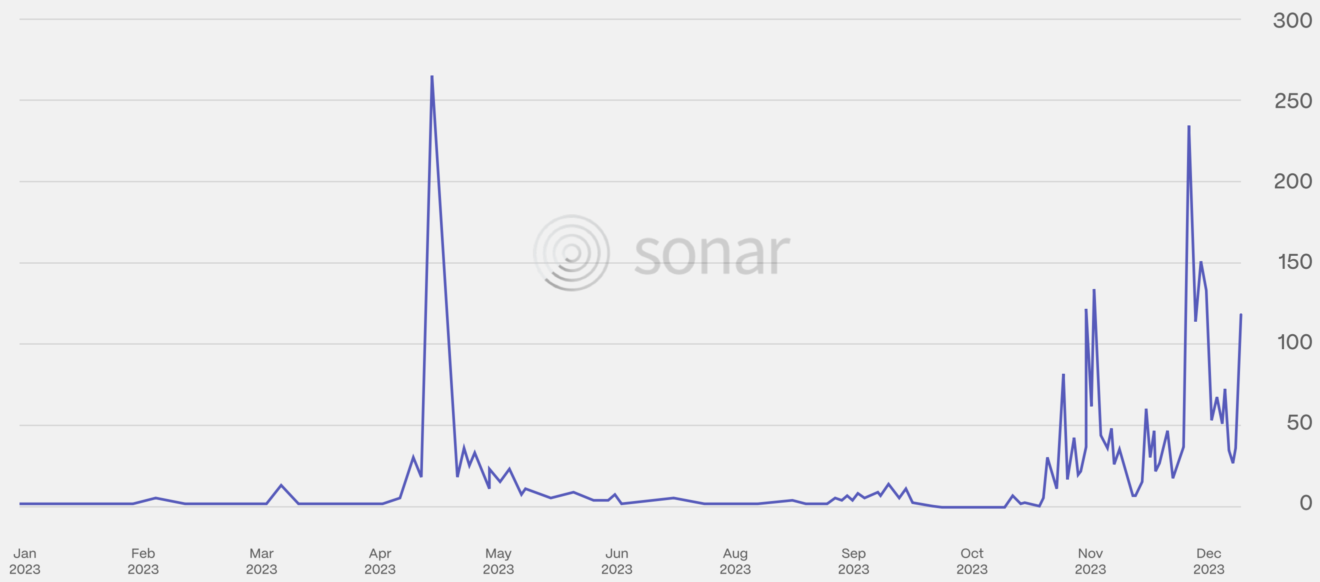


The Rise of Inscriptions

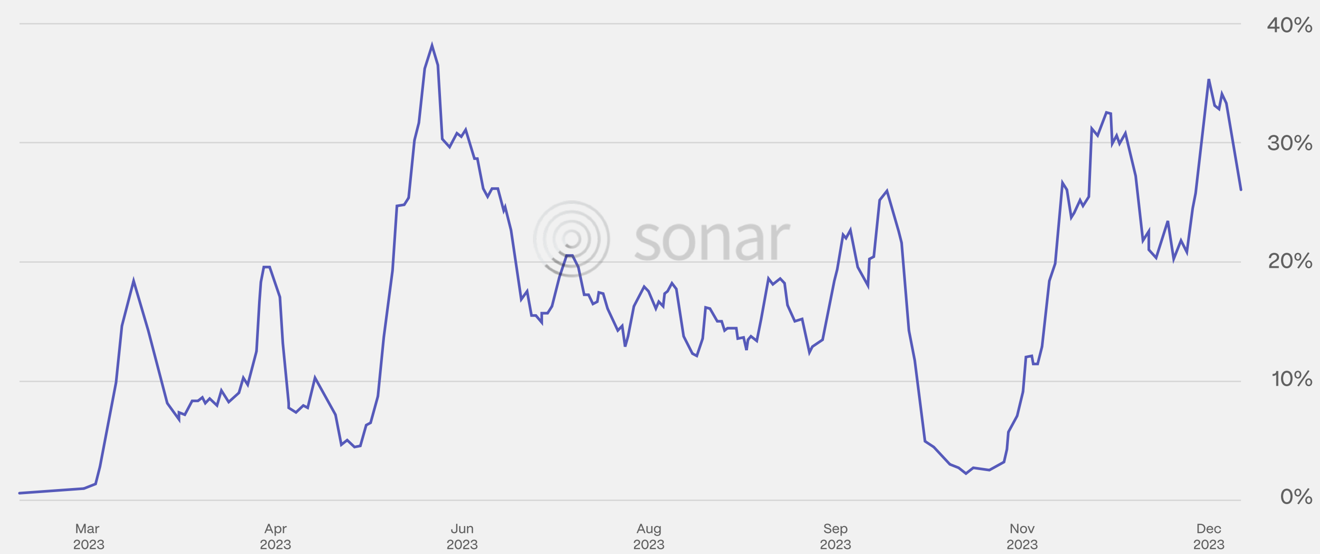
The story of the year for Bitcoin on-chain has been inscriptions. Inscriptions are a newly discovered feature of the Bitcoin blockchain that was created through a loophole in a late 2021 soft-fork called "Taproot", which enables users to store text and media into the metadata attached to the numbered smallest units of Bitcoin called "Satoshis".

Throughout 2023, the number of inscriptions has soared, with total daily values shown below. At the time of writing, Bitcoin is currently the #1 blockchain by transaction fees over the last 7 days and 30 days. As you can see in the chart below, inscriptions now make up 25% of daily fees.

Total ordinal fees by date (in BTC)

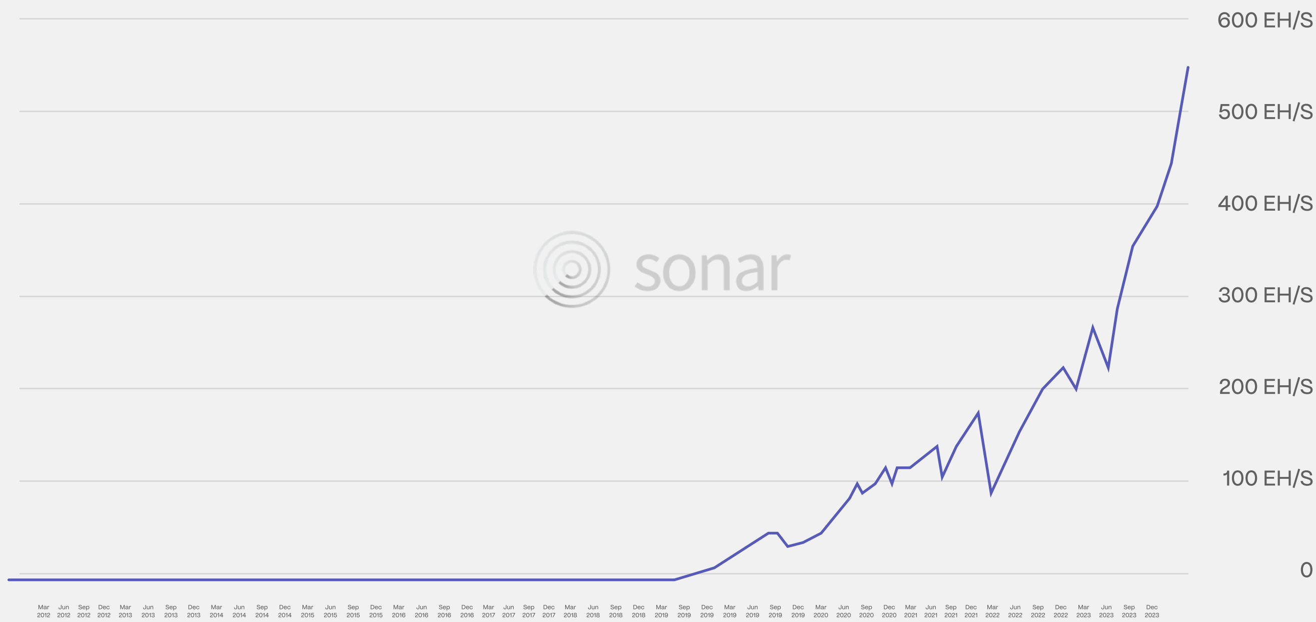


Percentage Fees – Ordinals by Date



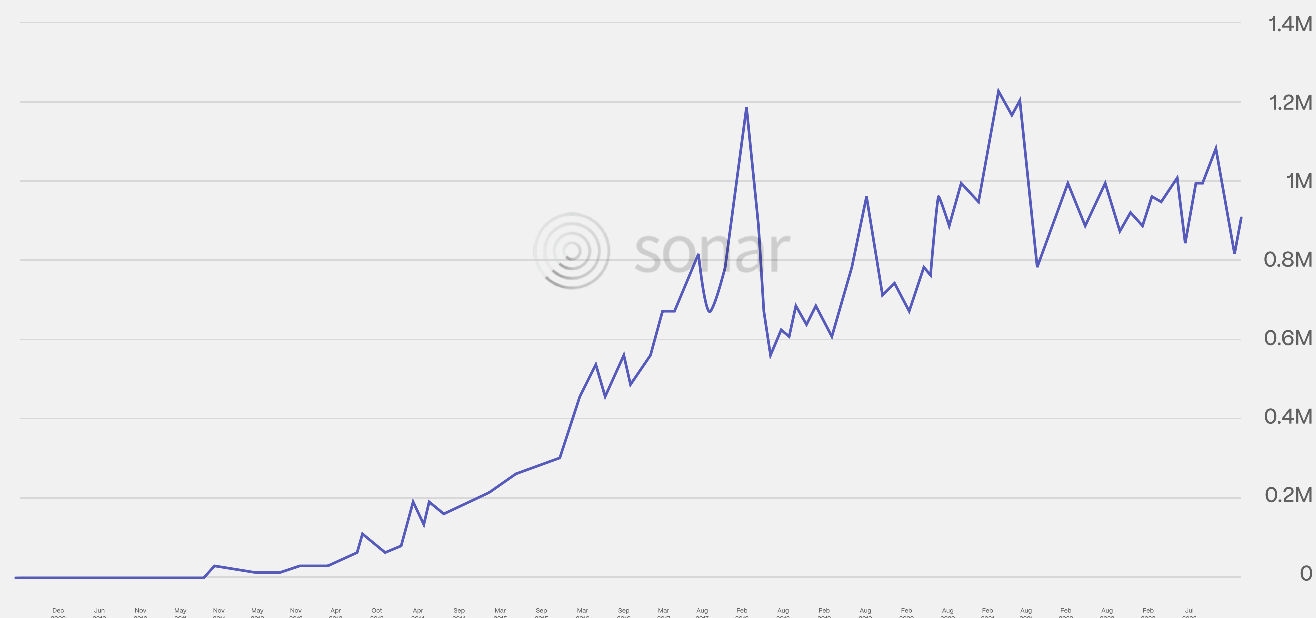
Alongside new mining rigs that are more efficient, this increased incentive to mine Bitcoin and secure the network has partially driven the continued increase in hash rate throughout the year. Hash rate reflects the total number of hashes on the network, which can be seen as a proxy for the security of the Bitcoin network.

Hashrate by Date

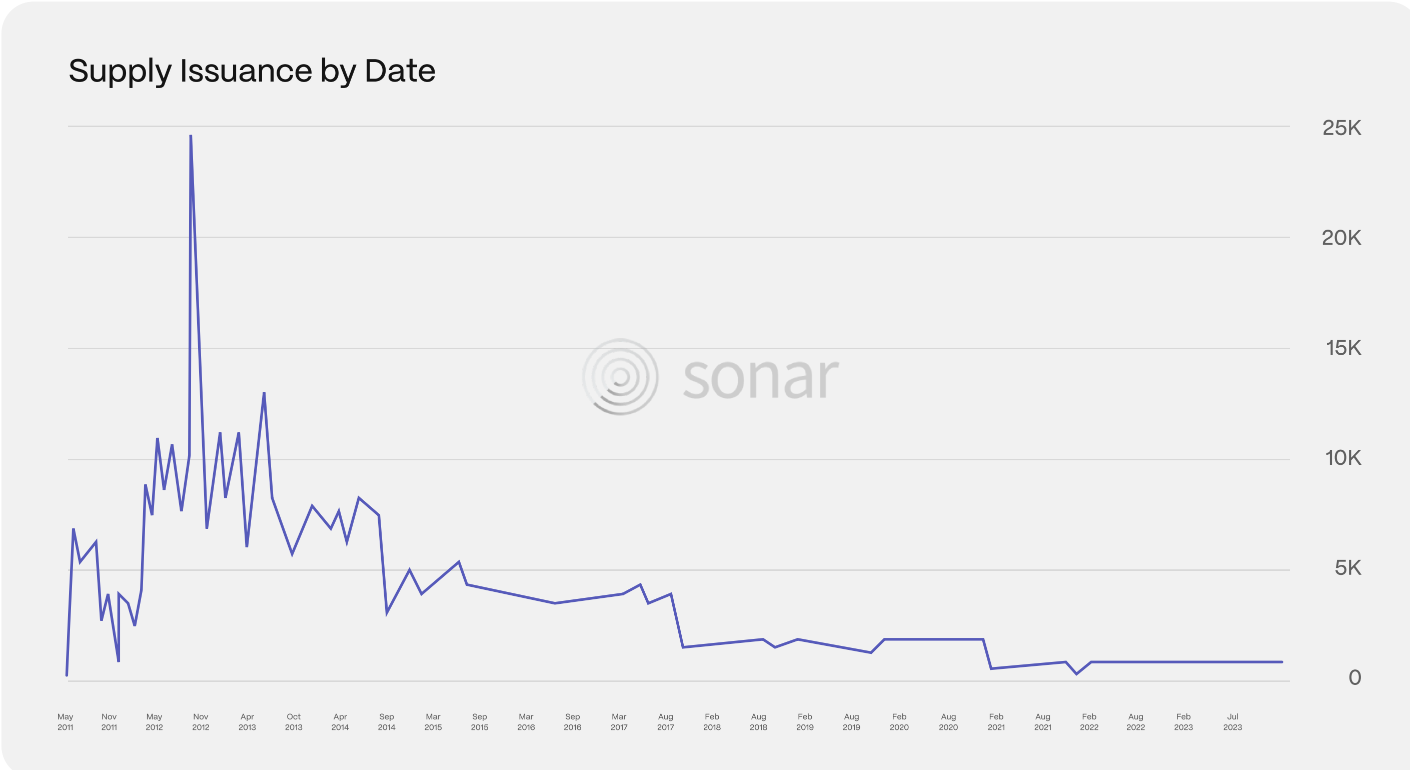


Throughout the year we saw a general uptrend in active addresses as well, showing increased participation on the network. In addition, the number of Bitcoin addresses with a non-zero balance breached 50 million for the first time ever.

Active Addresses by Date

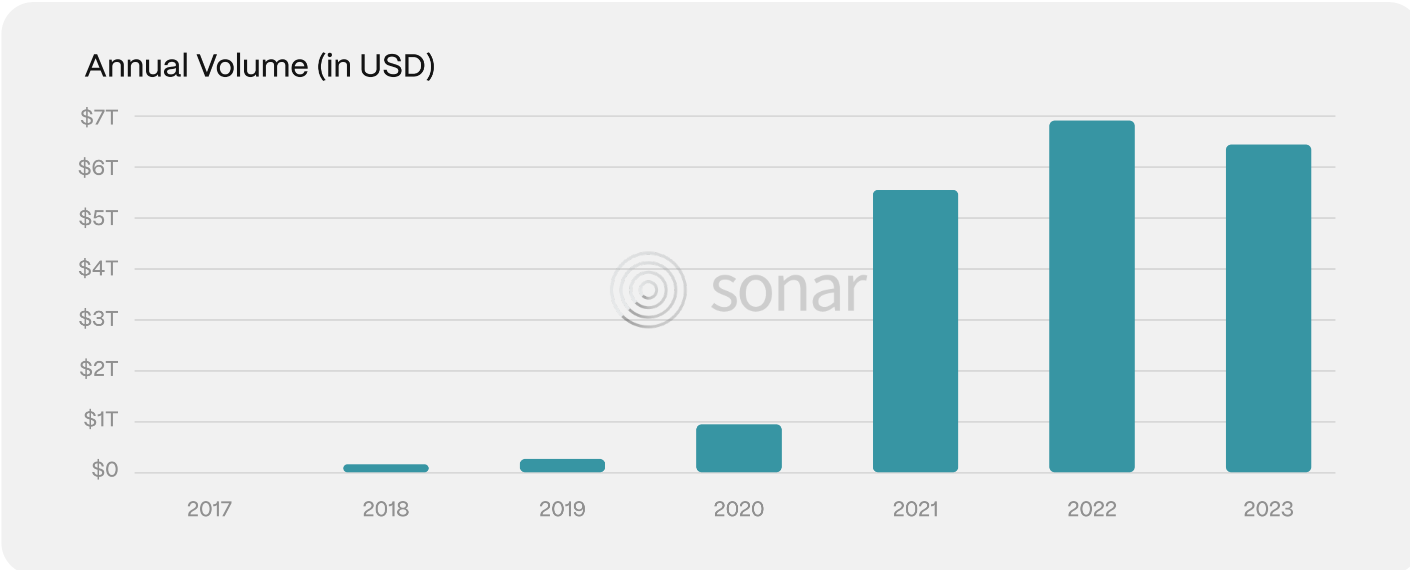


It is also important to keep in mind that Bitcoin's supply halving is on the horizon. Estimated to be roughly 100 days out based on current block times, the Bitcoin halving will cut the amount of new Bitcoin coming into circulation (block subsidy) in half. This will make Bitcoin's stock to flow ratio greater than that of gold, making it a quantifiably scarcer asset.

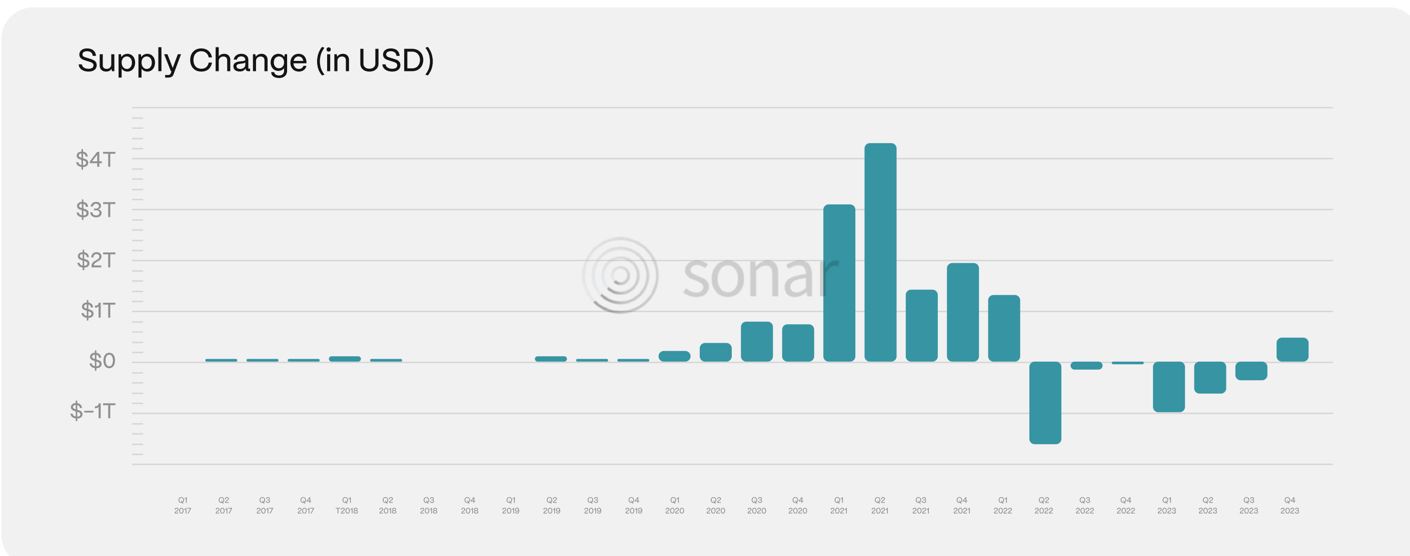


Stablecoin Overview

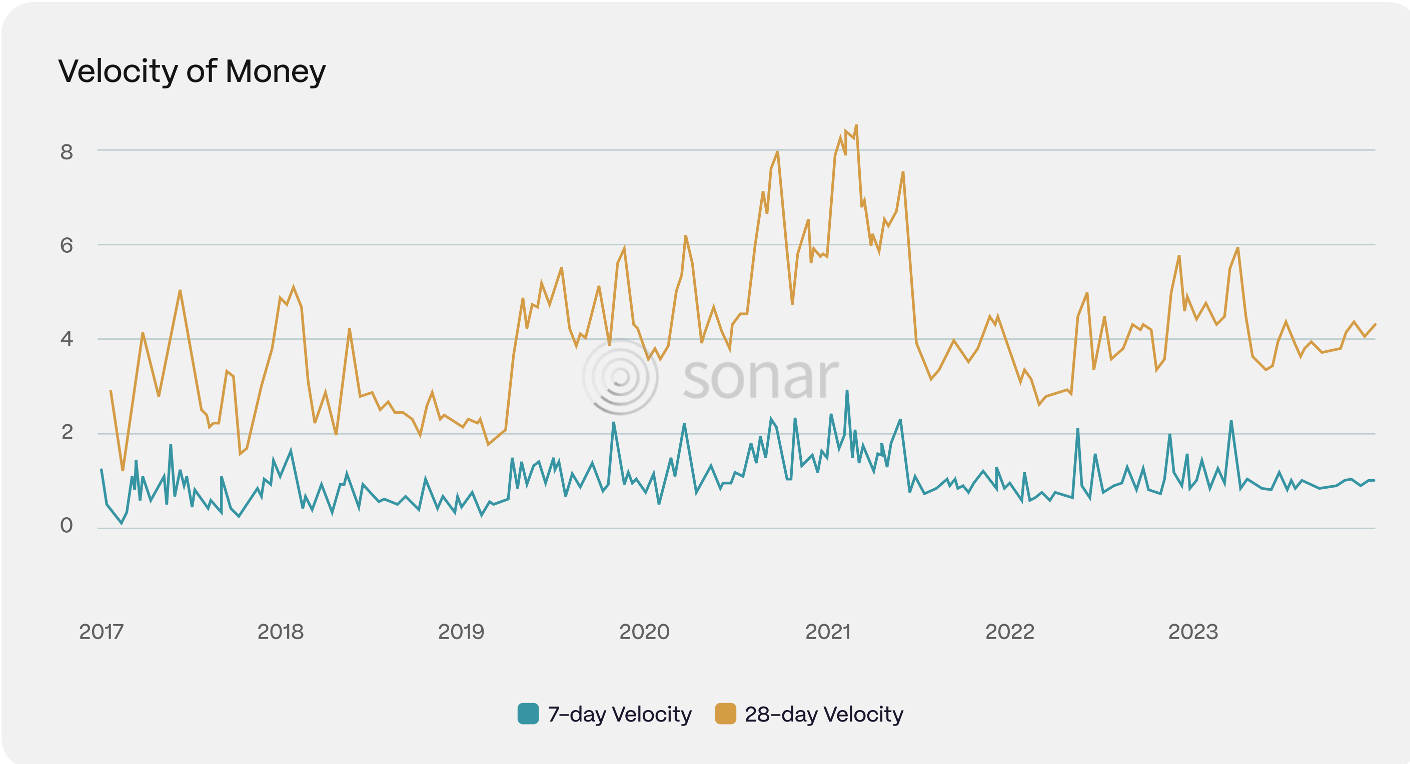
Stablecoins have been one of the clearest ways that crypto has found product market fit in its lifetime. According to a presentation from Castle Island's Nic Carter, stablecoins are currently the 16th largest "sovereign entity" by US treasury holdings. Below we can see annual stablecoin settlement volumes across ETH and TRON. In 2023 stablecoin activity continued to show tremendous prospects, with $6.4 trillion in settlement volume throughout the year.



We can also see that quarter-over-quarter stablecoin supplies flipped positive in Q4 2023 for the first time since Q1 2022. This reflects renewed interest and capital inflows for crypto overall, as well as on-chain liquidity returning to the DeFi landscape.



Another interesting metric to look at is the velocity of stablecoins, with the 7-day and 28-day rolling measures shown in the graph below. In times of high velocity we can conclude that stablecoins are being used for transactional activity as well as an increased frequency of speculative activity on-chain & across exchanges.



In conclusion, 2023 was a major turning point year for Bitcoin and the broader digital asset landscape. This was reflected not only by price performance of Bitcoin and other large cap assets, but also by trends in underlying network activity such as the rise of inscriptions, improvement of supply distribution, stablecoin settlement volumes, and rise of Solana DeFi network as a serious competitor to Ethereum. In addition, we also saw notable shifts in the make-up of market participants throughout the Bitcoin market, with CME open interest surpassing Binance perpetual futures open interest for the first time ever; a trend further solidified by the launch of ETFs issued by Blackrock, Fidelity, etc. As we look to the year ahead, we cannot help but feel optimistic about the future of the asset class.

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