

Digital Assets

Insights and Market Trends

H1 2024



INTRODUCTION

Over the past few years, digital assets have transitioned from a niche, exotic investment to an established asset class in their own right. The approval of Spot Bitcoin ETFs and their record-breaking inflows is evidence that digital assets continue to present unique opportunities and remain an attractive investment option. However, they also exhibit distinctive risks. To thrive in this market, investors need a deep understanding of these idiosyncrasies, including asset fundamentals, market cycles, as well as the vast datasets on market participant sentiment and behavior available on the blockchain.

CME Group has been at the forefront of institutionalizing this asset class, having launched its Bitcoin derivatives offering as early as 2017. With this extensive experience and leadership in the market, CME Group is uniquely positioned to provide a comprehensive guide for investors, helping them navigate the complexities of the digital asset landscape.

This report aims to provide investors with an in-depth understanding of the burgeoning digital asset class. Using sophisticated data provided by Glassnode, a world-leading blockchain data analytics firm, we guide investors through the dynamics of this market, helping them make informed decisions based on comprehensive insights.

About this report

Digital Assets: Insights and Market Trends is a joint publication of CME Group and Glassnode. This report offers a detailed analysis of the digital asset landscape, providing essential information for institutional investors. It includes a market overview, an analysis of capital flows and market cycles, derivatives market fundamentals, and insights on institutional adoption.

To see more of CME Group's research, visit cmegroup.com/cryptocurrencies

All of the data and charts included in this report are accurate through May 31, 2024, unless otherwise specified.



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About Glassnode

Glassnode is the leading market intelligence provider in the digital asset space, primarily focused on institutions. Glassnode's platform delivers unparalleled on-chain analytics and deep insights into the Bitcoin and decentralized finance (DeFi) markets. Founded in 2017, Glassnode equips institutional investors, hedge funds, banks and asset managers with near real-time, data-driven intelligence, enabling informed decision-making in a highly dynamic trading environment.

For further details and access to the data used in this report, investors are encouraged to contact Glassnode at glassnode.com/institutions#contact



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About CME Group

As the world's leading derivatives marketplace, CME Group enables clients to trade futures, options, cash and OTC markets, optimize portfolios, and analyze data – empowering market participants worldwide to efficiently manage risk and capture opportunities. CME Group exchanges offer the widest range of global benchmark products across all major asset classes based on interest rates, equity indexes, foreign exchange, energy, agricultural, metals, and cryptocurrency products. The company offers futures and options on futures trading through the CME Globex® platform, fixed income trading via BrokerTec and foreign exchange trading on the EBS platform. In addition, it operates one of the world's leading central counterparty clearing providers, CME Clearing.



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- Micro Bitcoin (MBT)
- Micro Bitcoin Euro futures (EBM)*
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- Ether Euro (ETE)*
- Micro Ether (MET)
- Micro Ether Euro futures (EEM)*

*Futures only

About CME CF Cryptocurrency Reference Rates ›

Cryptocurrency futures are built on the strength of the underlying regulated CME CF Reference Rate, a daily reference rate of the fiat price of one bitcoin or ether as of 4:00 p.m. London time. The reference rates use trade flow from multiple major cryptocurrency spot exchanges during a specific time frame to calculate the rate.

CME CF Reference Rates on bitcoin and ether are also published at 4:00 p.m. New York time and 4:00 p.m. Hong Kong/Singapore time, providing broader price discovery and greater accuracy for traders to assess their cryptocurrency price risk with timing aligned to their portfolio and region. CME CF Reference Rates are available on the following cryptocurrencies:

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ALGORAND	CHILIZ	POLKADOT
AVALANCHE	COSMOS	POLYGON
AXIE INFINITY	CURVE	SOLANA
BITCOIN	DECENTRALAND	STELLAR LUMENS
BITCOIN CASH	ETHER	SYNTHETIX
CARDANO	FILECOIN	TEZOS

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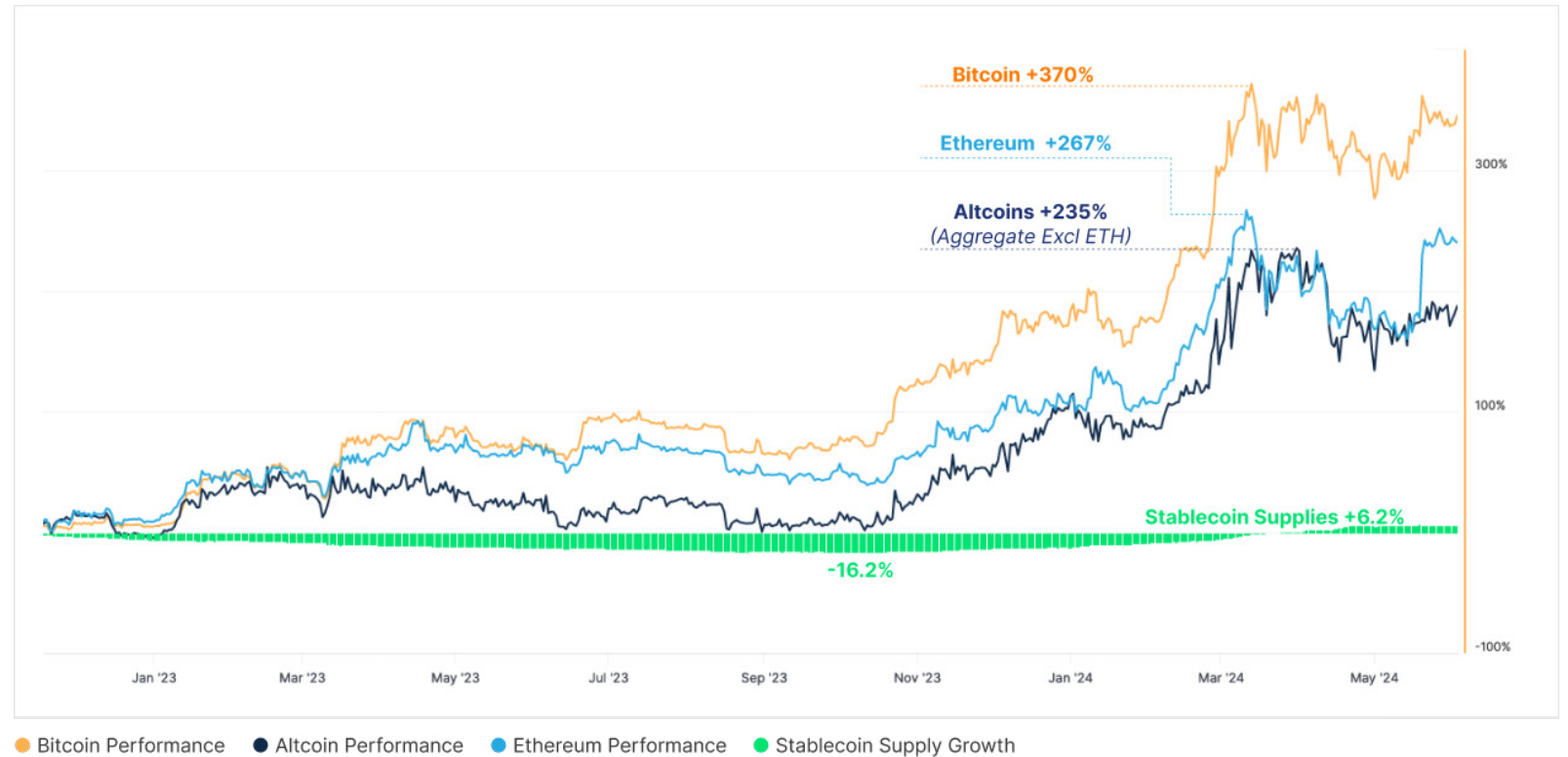
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Overview of the Digital Asset Landscape

The digital asset space has grown significantly over recent years and experienced an expansion in institutional interest, especially as a macro asset class. Bitcoin has historically led the market, and this remains true throughout 2023 and 2024.

The Bitcoin market cap has increased by over \$1.13 trillion (+370%) as of the current ATH set in March 2024 since the cycle low established in November 2022. Ethereum, as the second-largest asset in the space, has also seen its valuation increase by \$354 billion (+267%) over the same period, which is broadly in line with the wider altcoin space. The aggregate supply of stablecoins has also started to increase since March 2024 after an extended period of net redemption, which has been in effect since mid-2022.

Market: Major Asset Dominance Performance Since Nov-2022

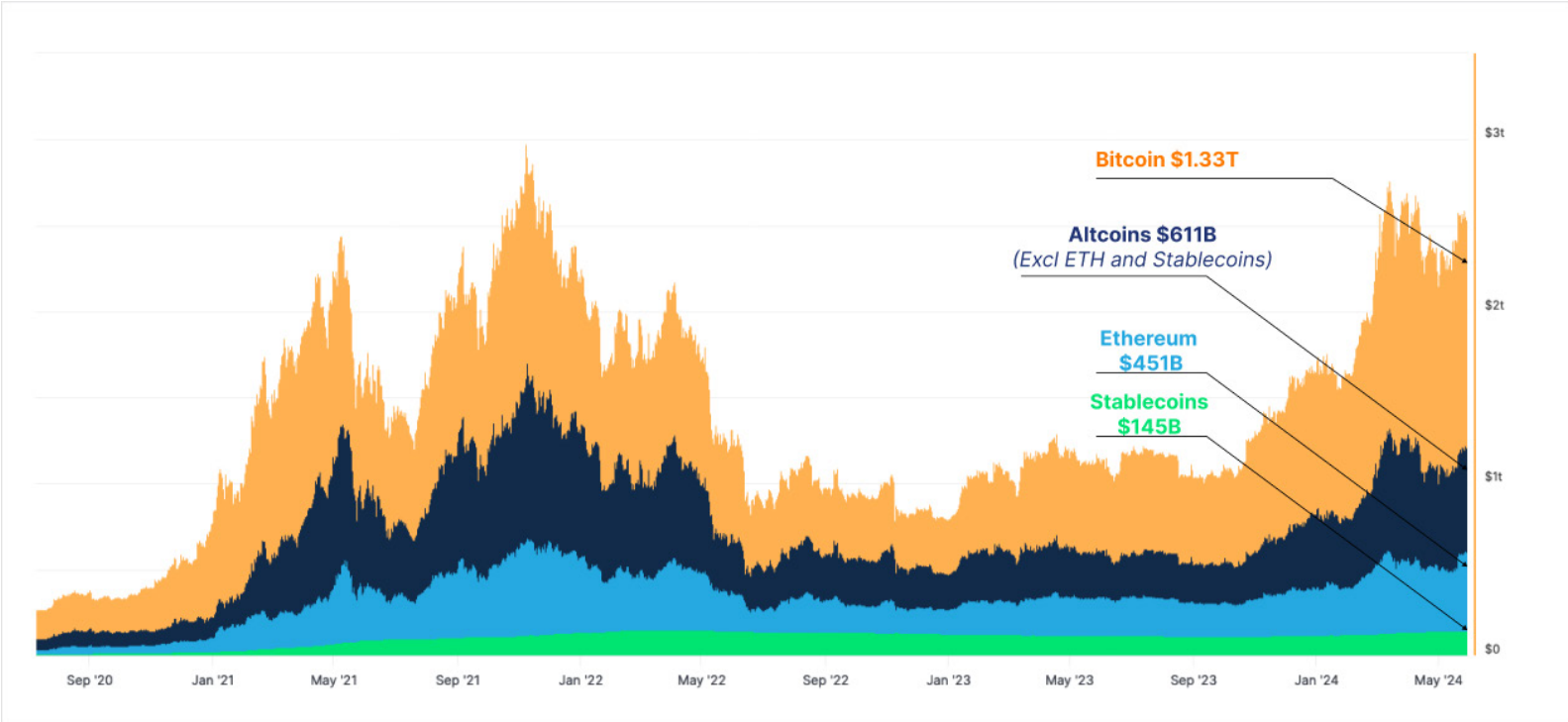


Source: Glassnode

In total, the digital asset landscape now has an aggregate market cap of around \$2.56 trillion, with Bitcoin commanding over half of this at \$1.33 trillion. Ethereum currently has a market cap of \$451 billion, while the broader altcoin landscape represents \$611 billion in total market cap value.

Stablecoins have emerged as a significant pillar within the digital asset market structure and have expanded to a total supply of \$145 billion over the last four years. Tether (USDT) remains the dominant stablecoin with 74% dominance, followed by USD-Coin (USDC) with 22% dominance. USD-denominated stablecoins remain over 99% of the total stablecoin landscape, while other fiat currencies have negligible overall adoption.

Market: Major Asset Market Caps



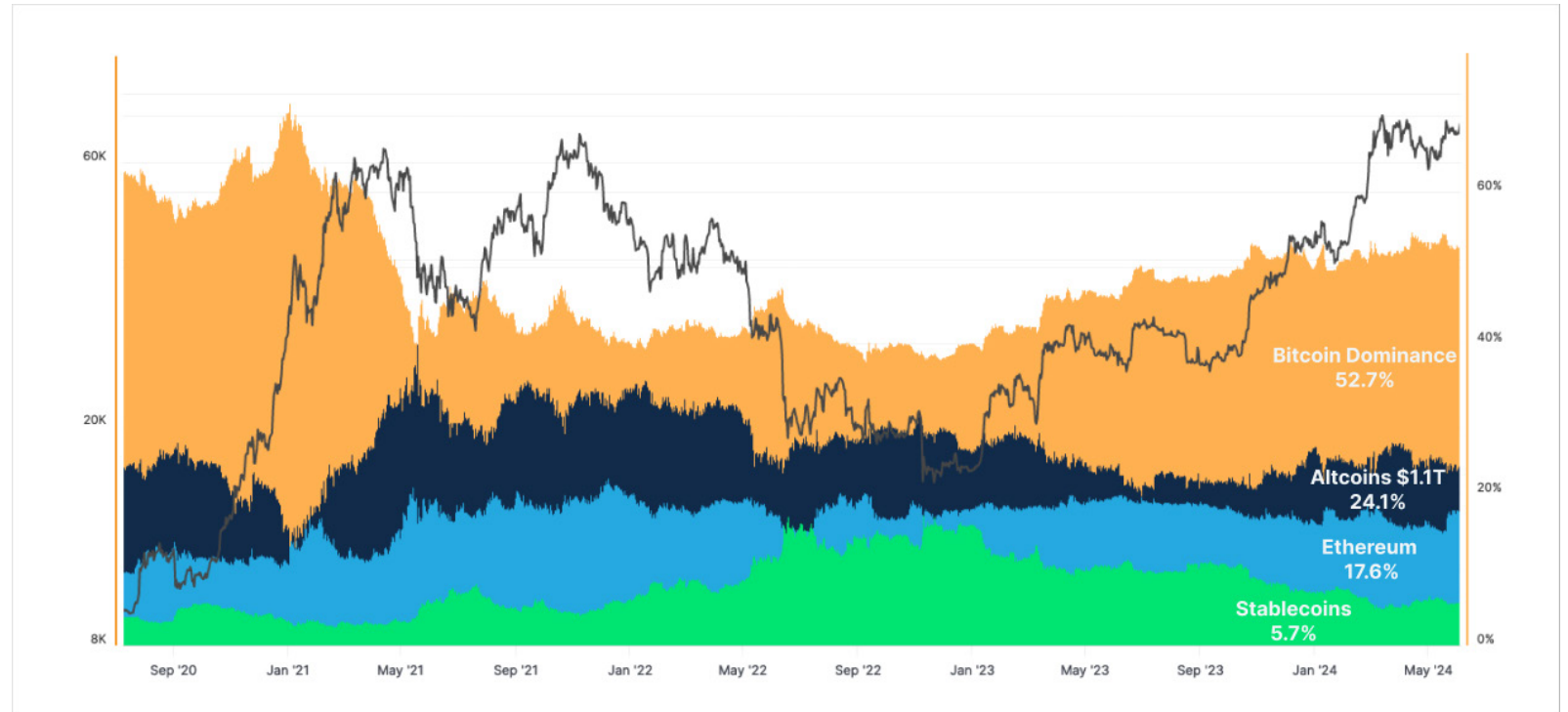
● Bitcoin Market Cap ● Altcoin Market Cap ● Ethereum Market Cap ● Stablecoin Market Cap

Source: Glassnode

Bitcoin has retained its position as the largest digital asset throughout the last 16 years and commands over 52.7% of the total industry value. Bitcoin dominance is a metric which is often referred to by analysts for assessing market cycles. Bitcoin dominance tends to grow during bear markets and early bull markets as capital seeks relatively safer havens. Bitcoin dominance has historically declined during the more speculative phases of bull markets as risk appetite increases.

Ethereum has emerged as the dominant asset within the altcoin sector for several years and represents 41.7% of this landscape at present. Ethereum's dominance has declined marginally since mid-2023, alongside the rise of a wider pool of competitors within the field of smart contract-enabled blockchains. Stablecoin capital currently accounts for around 5.7% of the aggregate digital asset market, having peaked at 16.1% in late 2022.

Market: Major Asset Dominance



● Bitcoin Dominance ● Altcoin Dominance ● Ethereum Dominance ● Stablecoin Dominance

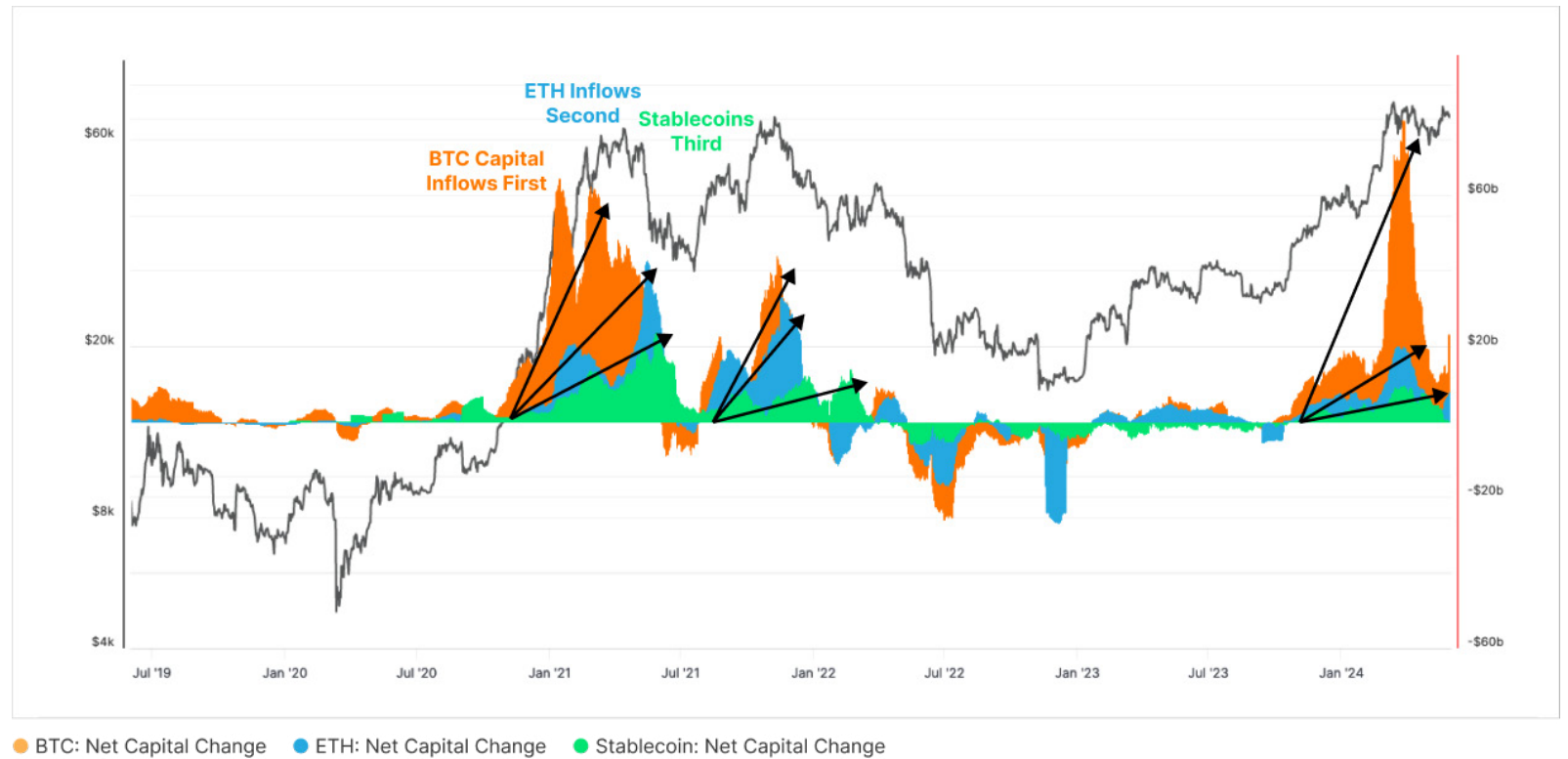
Source: Glassnode

Digital assets display an internal market cycle, as capital rotates through various sectors of the market over time. We can model these capital rotations using on-chain data, measuring the 30-day change in capital flows into Bitcoin, Ethereum and the change in total stablecoin supplies. Historically, capital tends to migrate towards Bitcoin as the largest asset during market downturns and during the immediate recovery from them. As investor confidence in the industry builds, capital has historically rotated down to Ethereum and then further out on the risk curve later in bull market trends.

Stablecoins have emerged as a preferred quote currency on both centralized and decentralized exchanges. As such, the growth in total stablecoin capital can provide a proxy for demand further out on the risk curve.

This chart shows how these waves of capital have moved between the various sectors of the market over the last six years.

Market: Market Realized Value Net Capital Change Breakdown



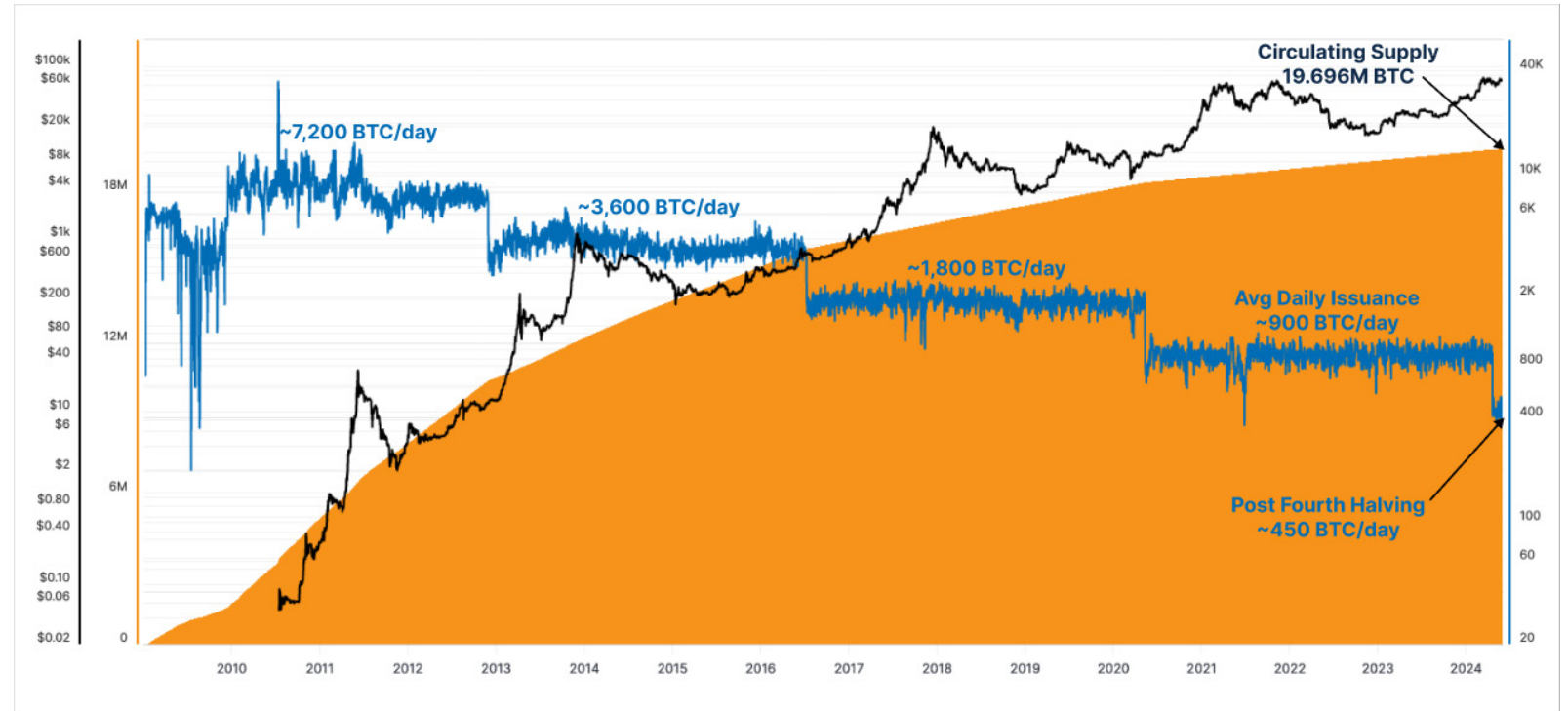
Source: Glassnode

Bitcoin Fundamental Metrics

Bitcoin has a predetermined supply schedule, with the rate of coin issuance declining by 50% every 210,000 blocks (approximately every four years). The total circulating supply is currently 19.696 million BTC, and the issuance rate has recently halved from 6.25 BTC/block to 3.125 BTC/block on April 20, 2024.

These newly mined coins represent a significant proportion of the revenue stream to Bitcoin miners, with the halving events reducing this income by a significant margin. As the Bitcoin network grows over time, the USD exchange rate and increases in transaction fees from users become increasingly important to offset the decline in newly mined coins as a reward.

Bitcoin: Circulating Supply and Issuance



● BTC: Circulating Supply [BTC] ● BTC: Issuance [BTC] ● BTC: Price [BTC]

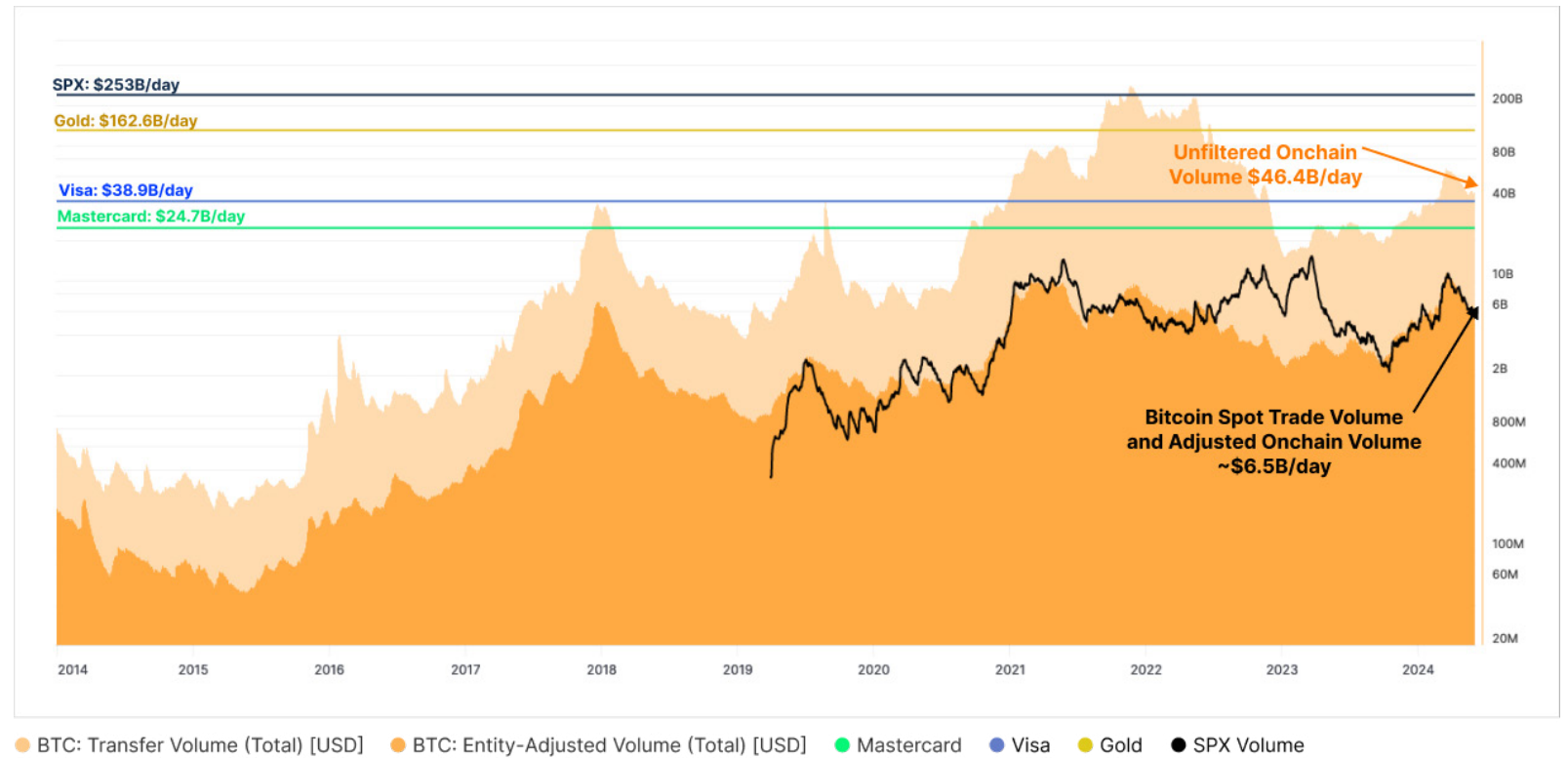
Source: Glassnode

The Bitcoin network functions as a mechanism to store and settle value across a peer-to-peer network of nodes and miners. The network is decentralized and operates without the need for trusted intermediaries like banks and payment processors.

On an unfiltered basis, Bitcoin currently sees around \$46.4 billion in on-chain volume daily, which is of a similar magnitude to traditional payment processors like Visa and Mastercard.

Glassnode was a pioneer in applying advanced filtering heuristics, which allow for the assessment of whether on-chain transaction volumes are economical in nature or internal transactions for wallet management by exchanges like Coinbase and Binance. Once this filtering is applied, the economic transfer volumes are closer to \$6.5 billion per day, which is very similar in magnitude to the daily spot trade volume across centralized exchanges.

Bitcoin: Settlement Volume Comparison

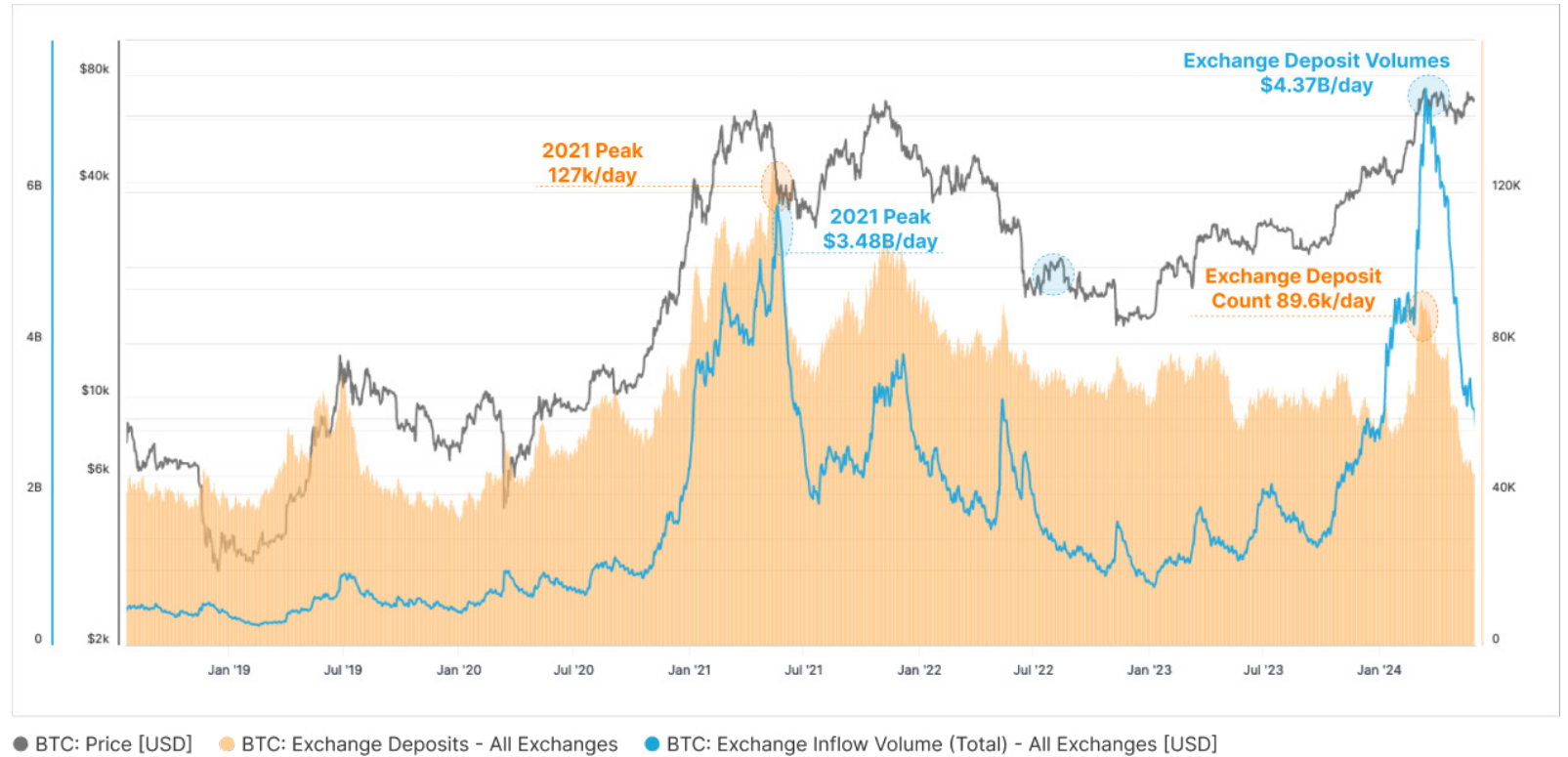


Source: Glassnode

Centralized exchanges represent the principal venue for investor trading activity for Bitcoin, and in aggregate see several billions of dollars worth of BTC deposited and withdrawn via on-chain transactions each day. Total deposit volume to exchanges reached a new all-time high in March 2024, with over \$4.37 billion in BTC deposited, across 89.6K deposit transactions (average deposit size \$48.7K).

Elevated volumes and activity associated with exchanges tend to be a characteristic of growing adoption, and this activity often declines during less speculative periods.

Bitcoin: Exchange On-Chain Deposits and Inflow Volumes



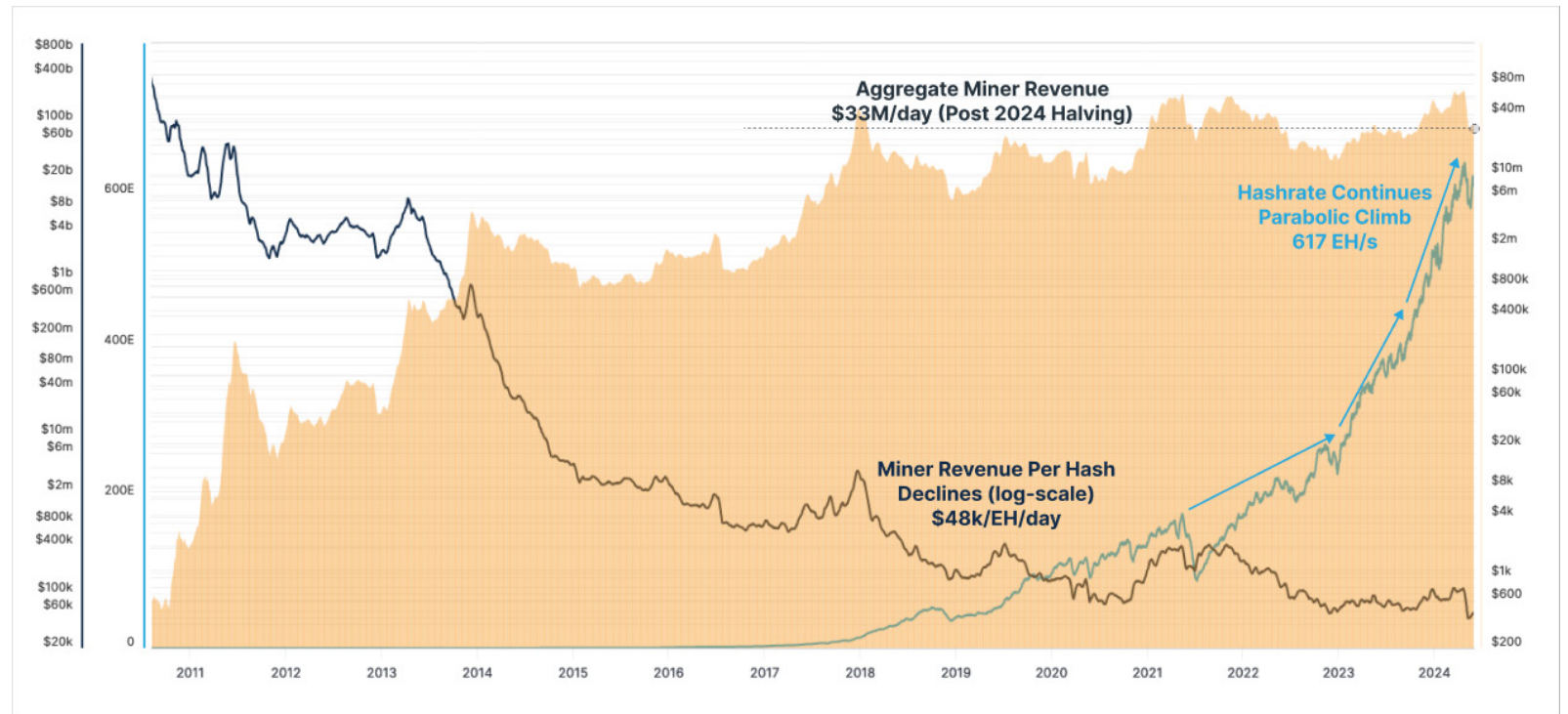
Source: Glassnode

Bitcoin miners provide computational work supporting the decentralized security system for the network. Miners are responsible for building blocks and including transactions. Miners are rewarded with both the newly minted BTC via issuance, but also collect the transaction fees paid by users.

The Bitcoin hashrate is a measure of the total computing power applied by miners and this metric has seen an incredible and exponential rise since the network's inception. Hashrate has recently achieved a new all-time high of over 617 exahashes per second, driven by both more mining rigs coming online, as well as improving efficiency of ASIC chips which improve computational efficiency.

Hash price is an important metric for assessing miner profitability and reflects the USD value earned per unit of hashrate applied (\$/EH/day). Despite aggregate miner revenues (in USD) being near the highs of over \$33 million/day, hash price has continued to decline as a result of the extremely competitive mining environment. Hash price recently reached a new all-time-low of \$48K per exahash per day following the fourth halving.

Bitcoin: Miner Hash Price (Revenue per Exahash)



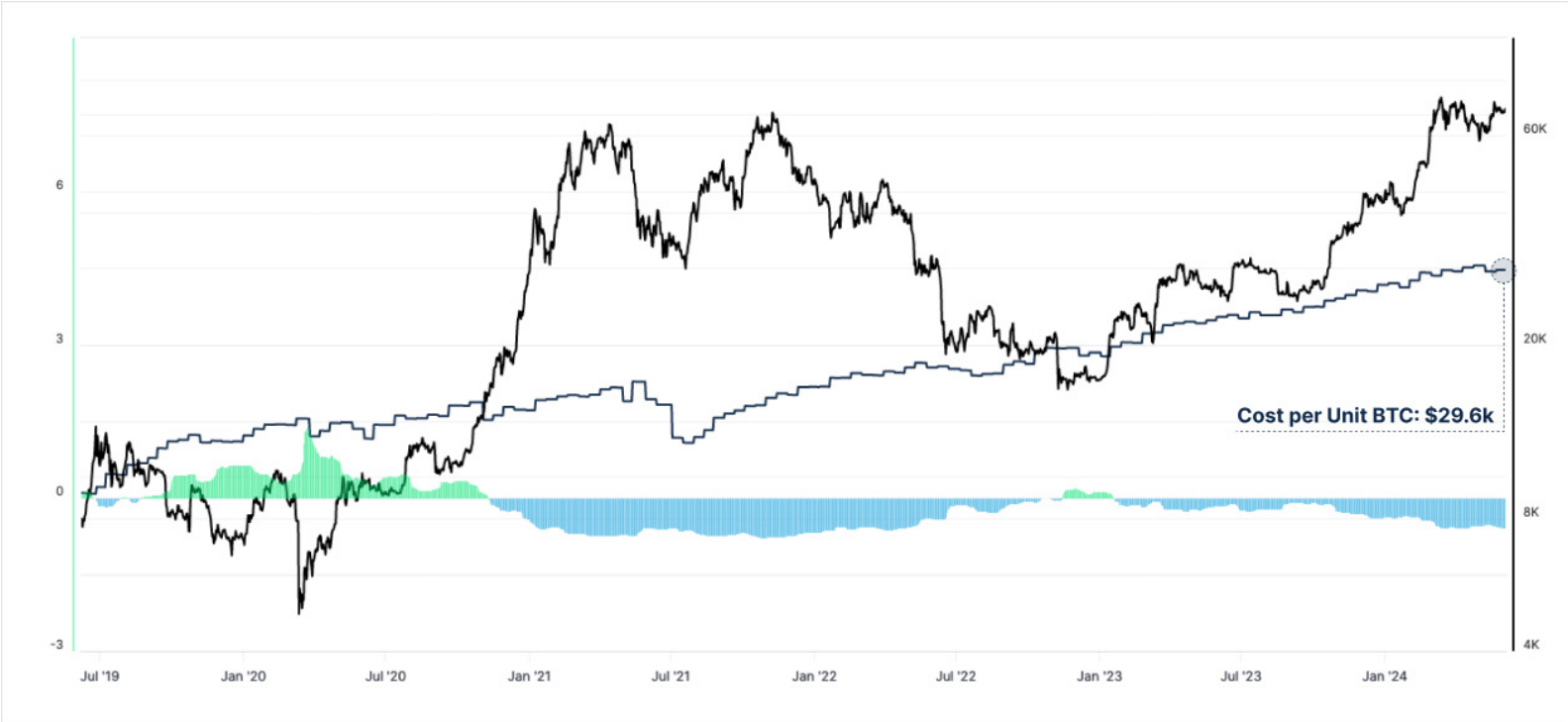
● BTC: Hash Rate ● Miner Revenue per Exahash [USD] ● Miner Revenue [USD]

Source: Glassnode

The Difficulty Regression Model is one approach for estimating the all-in-sustaining cost of production for a unit of BTC. It considers Difficulty as the ultimate distillation of mining "price", accounting for all the mining variables in one number. A log-log regression between Market Cap and Difficulty yields a R2 value above 0.95, indicative of the strong relationship between asset value and mining competition.

The derived price therefore reflects an estimated average production cost for BTC across the mining industry without requiring a bespoke breakdown of mining equipment, power costs and other logistical considerations. Currently, the average cost to produce a unit of BTC is \$29.6K.

Bitcoin: Difficulty Regression Model



● Difficulty Regression Model ● BTC: Price [USD] ● Difficulty Multiple (Difficulty Price > Spot Price) ● Difficulty Multiple (Difficulty Price < Spot Price)

Source: Glassnode

Bitcoin Price Performance Metrics

The halving events represent a widely observed event in the Bitcoin calendar, both due to its reflection of the programmatic scarcity of the asset and from the market performance standpoint, which has historically followed halving events. The chart below shows the indexed performance over the 365 days following the last four halving events.

The 2016 (blue) and 2020 (green) cycles are likely more relevant points of comparison, as they represent a more mature and developed digital asset landscape. Both prior cycles experienced a period of several months of relatively quiet performance following the halving before experiencing remarkable peak returns of +350% and +650%, respectively. The Bitcoin market in 2024 has been following a similar trajectory over the weeks following the fourth halving in April 2024. BTC prices have traded within a range of just a few percentage points since the event.

Bitcoin: Price Performance After Halving

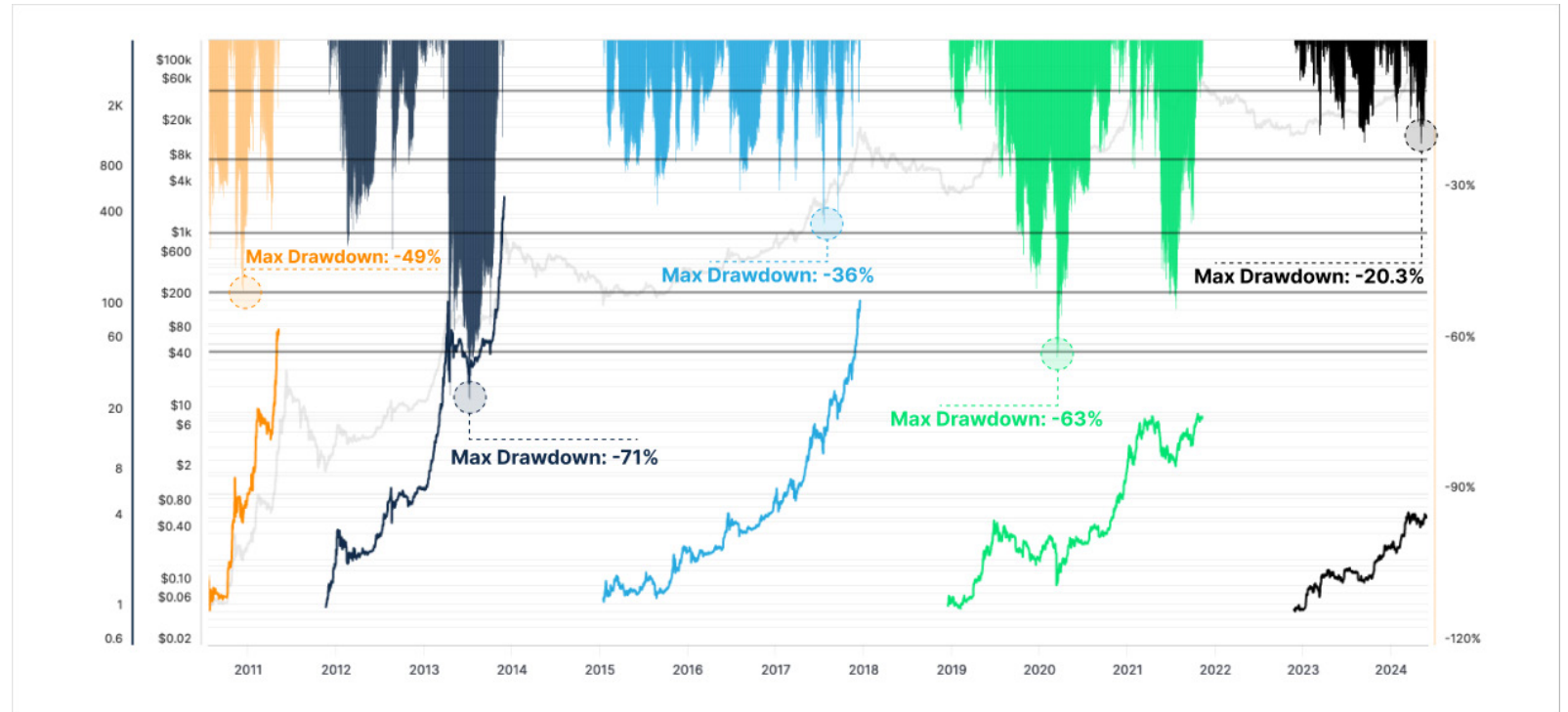


Source: Glassnode

The 2024 uptrend has also experienced relatively shallow drawdowns compared to previous bull markets. The deepest correction since November 2022 has seen prices pull back by -20.3% from the local high. Previous cycles have experienced much deeper corrections ranging from -25% to -35% in 2016-17 and as deep as -50% to -63% during the 2020-21 cycle.

As the Bitcoin market grows in size and sees wider institutional adoption, many analysts expect the profile of volatility, returns and drawdowns to compress over time.

Bitcoin: Bull Market Correction Drawdowns



● Genesis to 2011 Bull ● 2011-2013 Bull ● 2015-2017 Bull ● 2018-2021 Bull ● 2022+ Cycle

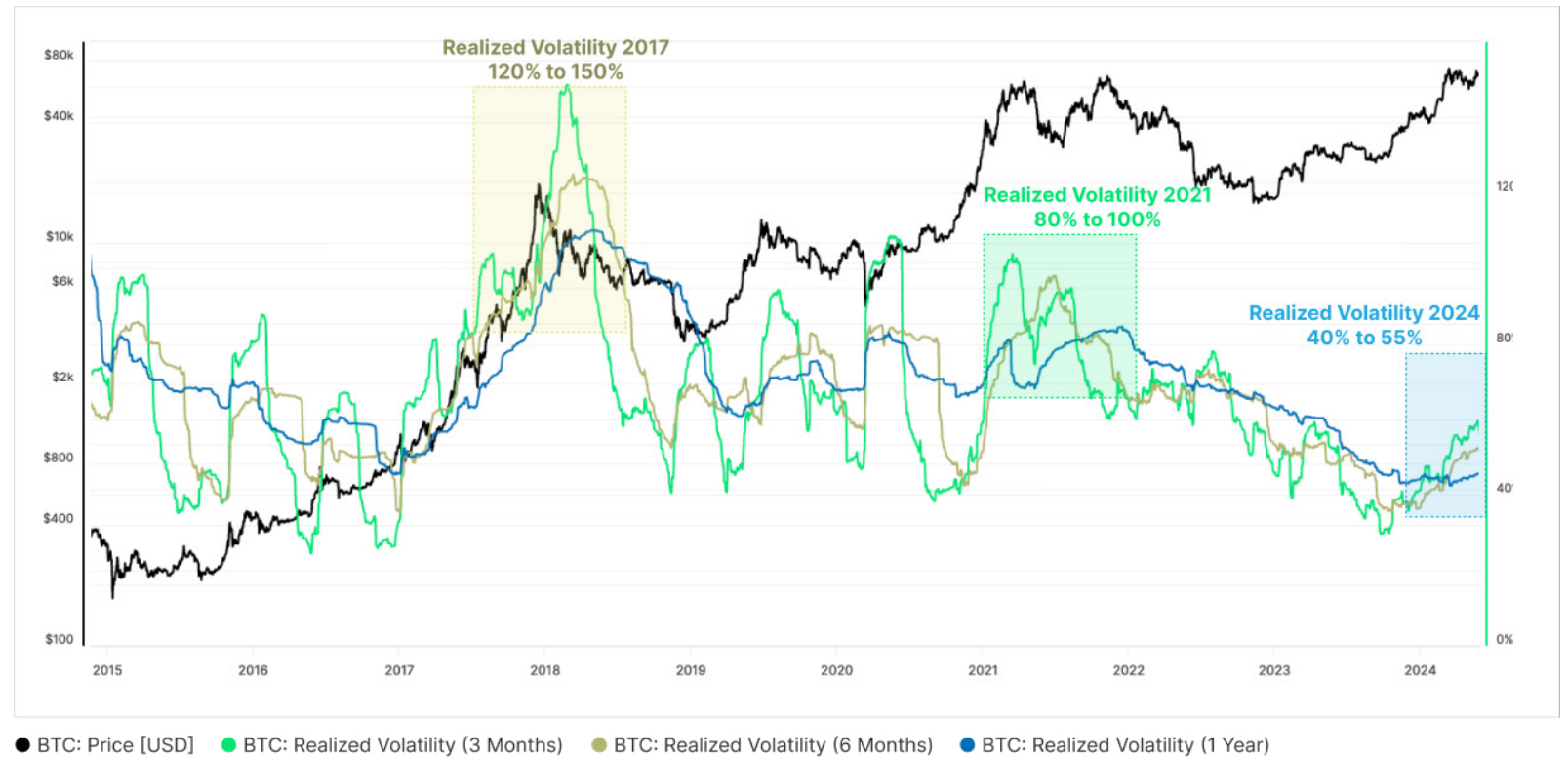
Source: Glassnode

Realized volatility for Bitcoin has historically been elevated during bull markets and declines during periods of reduced attention and adoption. The macro trend for realized volatility can be seen to be lower over time.

During the 2017 bull market, rolling realized volatility over three-month to one-year windows reached between 120% and 150% at the peak. The uptrend in 2023-24 has now been in play for just over 18 months and realized volatility has compressed to between 40% and 55%, which is less than half of that seen in the prior two cycles.

This aligns with the shallower drawdown profile thus far and speaks to an asset class that is growing in both size and maturity.

BTC: Annualized Realized Volatility



Source: Glassnode

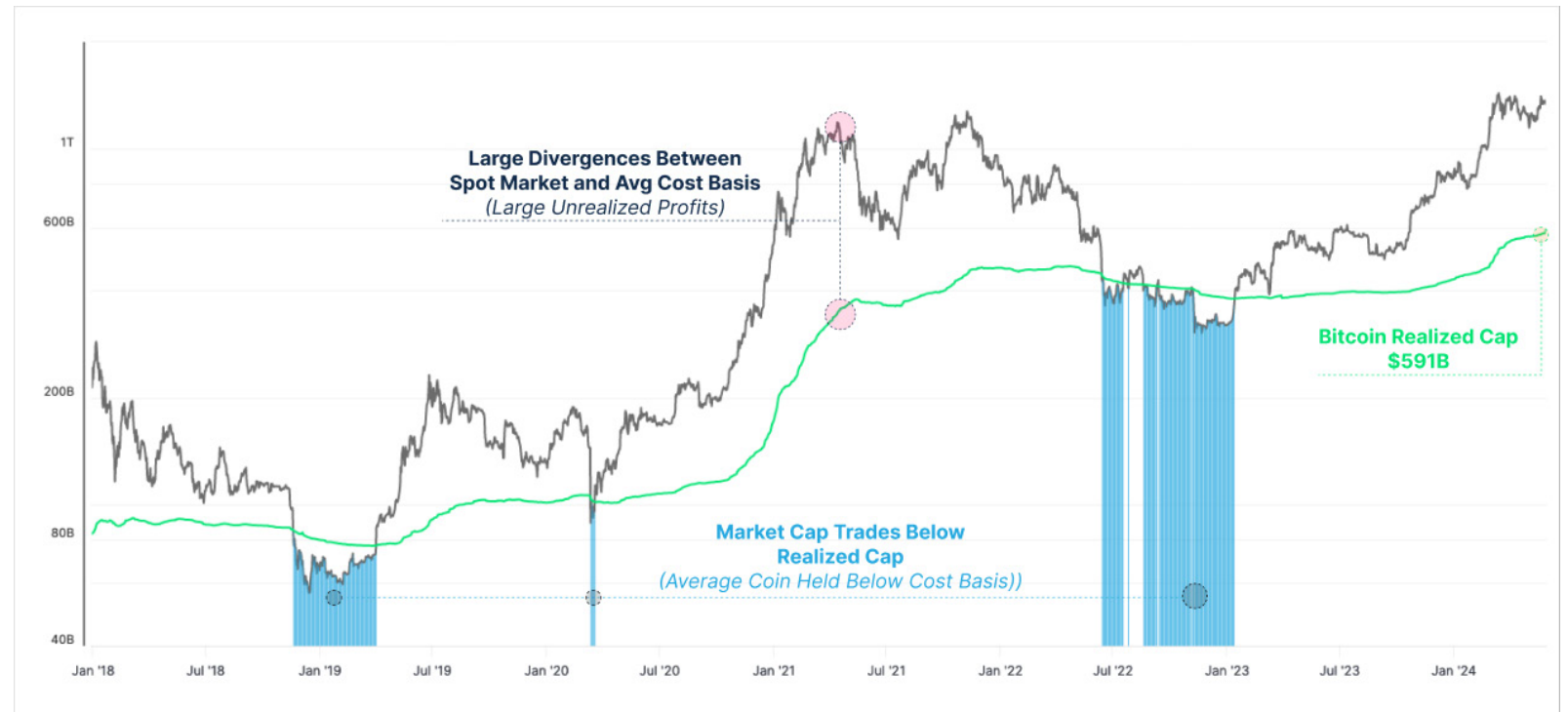
Bitcoin On-chain Metrics

The database contained within Bitcoin and other digital asset ledgers is transparent, allowing analysts and data providers to inspect the aggregate transactions and volumes across the network. This allows the pricestamping of each coin based on the time when it last moved on-chain. Pricestamping also enables analysts to calculate the average cost basis for all coins in the supply and to determine the proportion of the supply held "in-profit" or "in-loss."

The Realized Cap is an important on-chain metric for Bitcoin as it captures the aggregate value of all coins, priced at the time they last transacted on-chain. In many ways it is analogous to a form of "on-chain market cap." The Realized Cap is currently at \$591 billion, providing a measure of the cumulative capital inflows into Bitcoin over the course of its history.

Historically, the spot Market Cap has traded near or below the Realized Cap during late-stage bear markets, signifying that the average coin is held at an unrealized loss. We can also identify periods where the Market Cap diverges higher than the Realized Cap during uptrends, signifying the average coin is holding an increasingly large unrealized profit.

Bitcoin: Market Cap and Realized Cap Valuation Models



● BTC: Market Cap [USD] ● BTC: Realized Cap [USD] ● Unrealized Loss

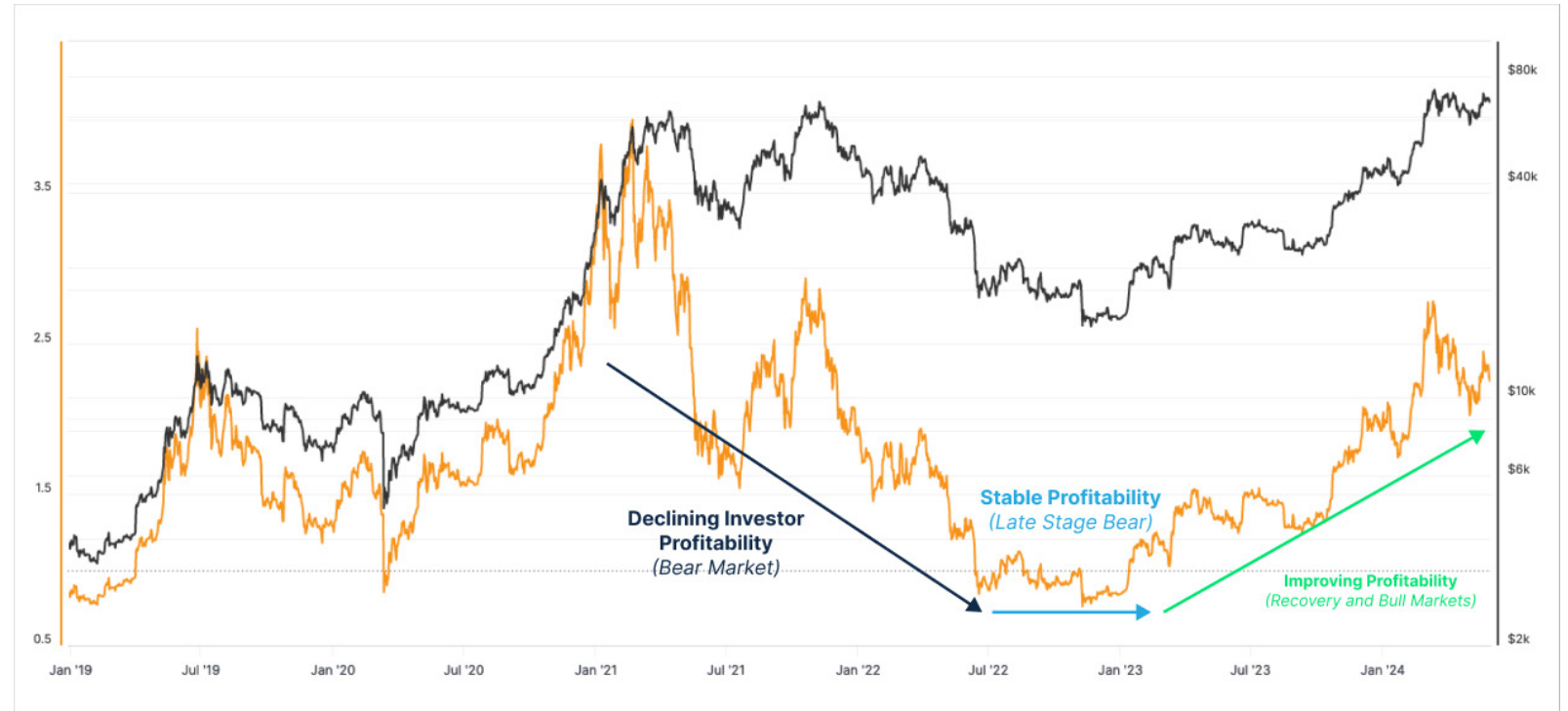
Source: Glassnode

The MVRV Ratio is a derivative metric from the Realized Cap and is best thought of as the unrealized profit multiple held by investors. It is computed as the ratio between the Market Cap and the Realized Cap, and can be interpreted within the following framework:

- **High MVRV Values above 1.0** indicate that the average investor is holding a large unrealized profit.
- **Low MVRV Values below 1.0** indicate that the average investor is holding a large unrealized loss.
- **MVRV Values of exactly 1.0** indicate that the average investor is at break-even.

This framework allows analysts to determine the overall profitability of Bitcoin investors and can be a useful tool for monitoring market cycles.

Bitcoin: Market Value to Realized Value Ratio (MVRV)



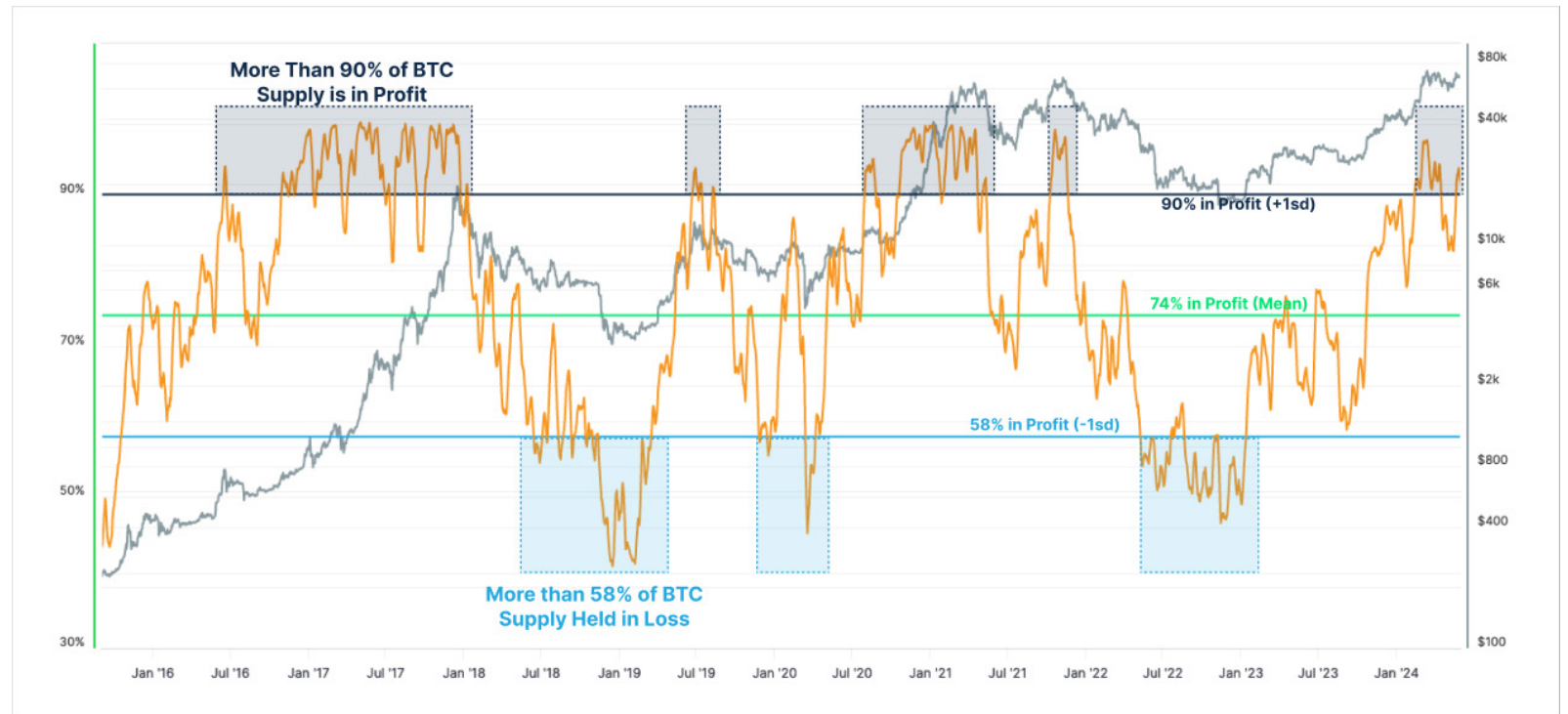
● BTC: Price [USD] ● BTC: MVRV Ratio

Source: Glassnode

By assessing the cost basis of each coin, the overall Bitcoin supply can be grouped into those held “in-profit” and “in-loss.” From this, we can define the percentage of the total coin supply held in profit, which tends to oscillate between extremes as a gauge of overall investor profitability.

During late-stage bear markets, the ultimate cycle floor has historically been established when almost half of the coin supply is held at a loss, signifying a point of maximum financial stress. Conversely, sustained periods where the coin supply is more than 90% in profit tend to characterize late-stage bull markets, where investors start to take profits and eventually overwhelm the inflowing demand.

Bitcoin: Percent Supply in Profit



● BTC: Price [USD] ● Cumulative Mean: Percent Supply in Profit ● Cumulative Mean + 1SD ● Cumulative Mean - 1SD ● 7d SMA Percent Supply in Profit

Source: Glassnode

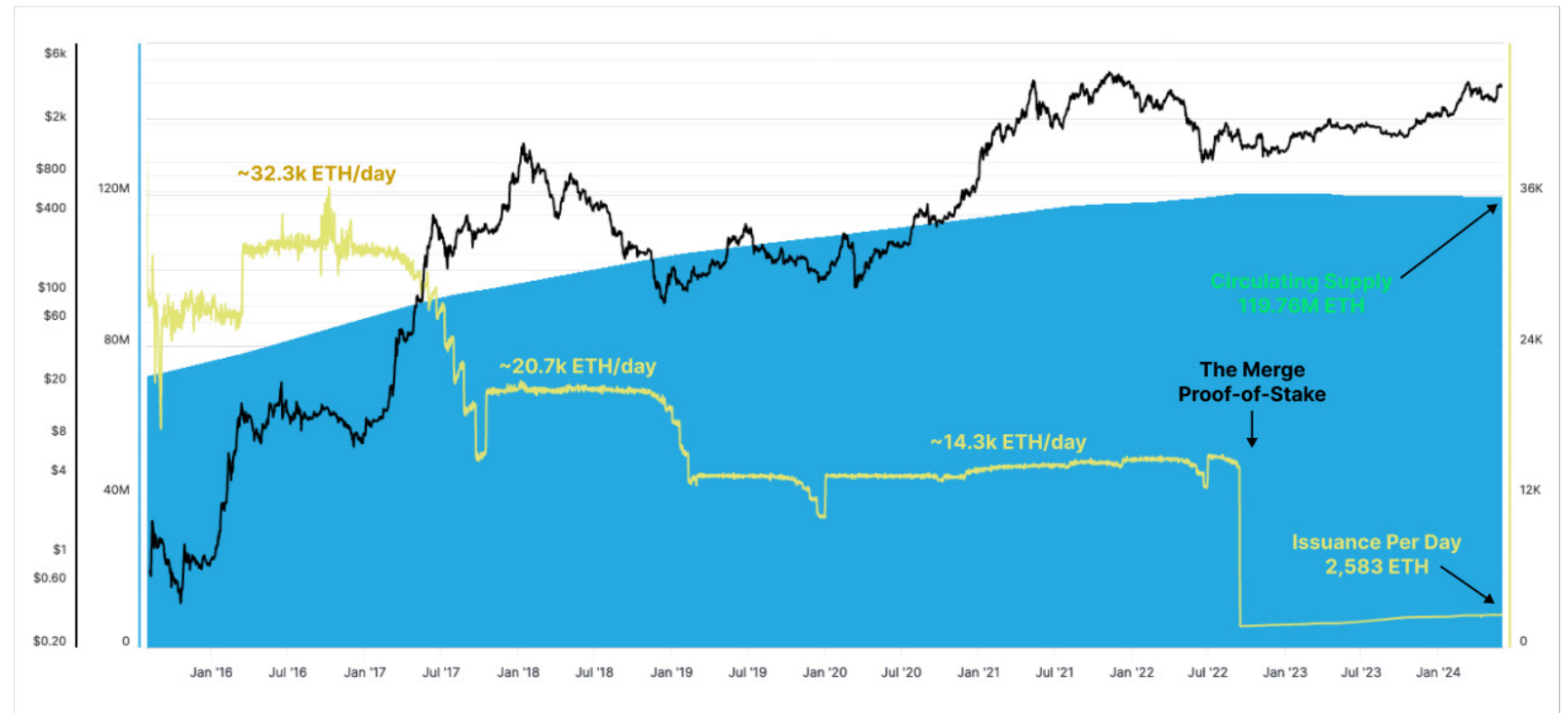
Ethereum Fundamental Metrics

Ethereum is the second-largest asset in the digital asset ecosystem and currently has a supply of 119.76M ETH in circulation. The issuance rate of Ethereum is more nuanced than Bitcoin and has evolved through several phases via developer- and community-driven changes, often in response to changing technological and economic factors.

Ethereum initially launched as a Proof-of-Work blockchain, which differentiated itself from Bitcoin by using an algorithm that favored GPU mining chips. In September 2022, the Ethereum project transitioned its consensus mechanism into a Proof-of-Stake system, which moved the role of block construction from miners to validators.

Rather than using computational work to build the blockchain, validators instead hold a volume of 32 ETH as collateral, which can be slashed in the event of adverse behavior. This transition, called The Merge, resulted in a significant decrease in daily issuance from approximately 14.3K ETH/day to just 2.6K ETH per day.

Ethereum: Circulating Supply and Issuance



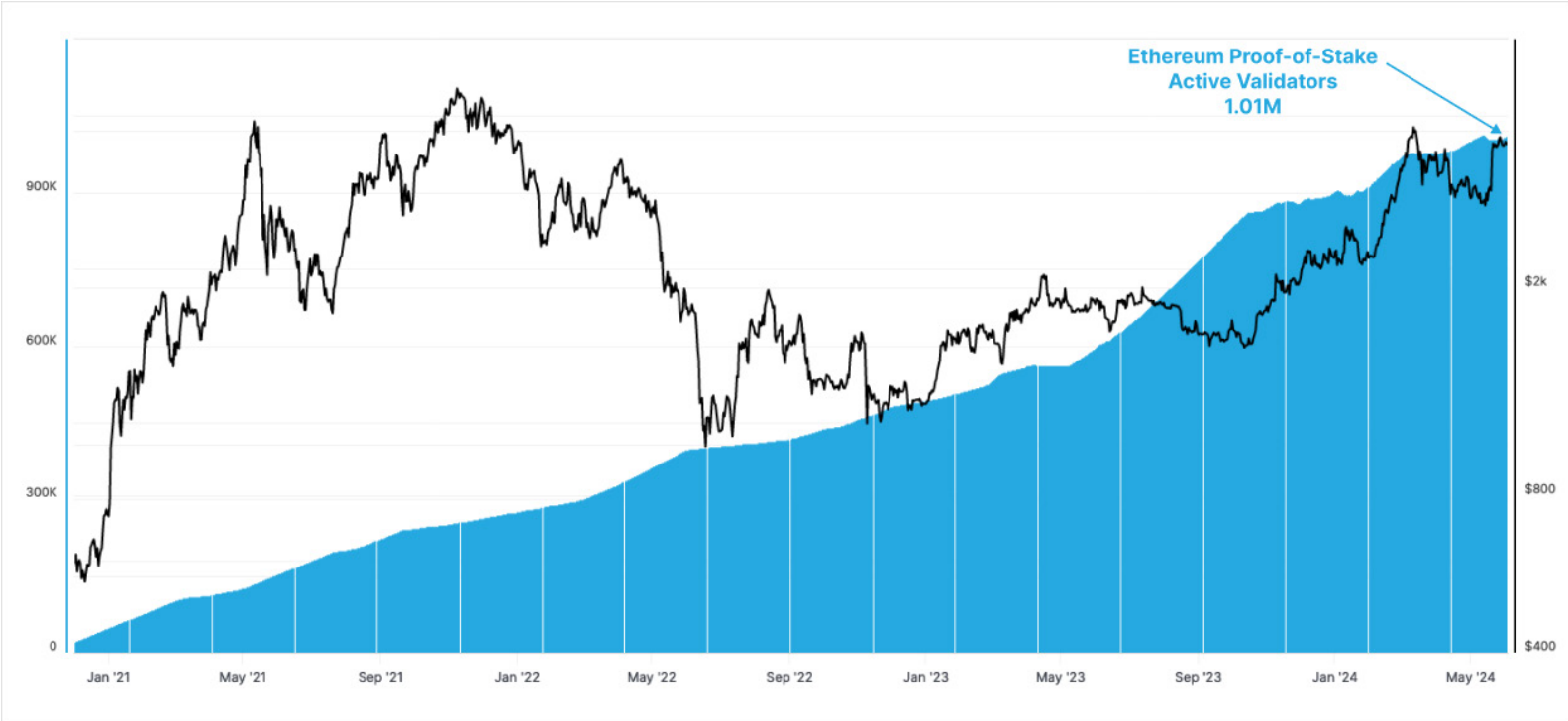
● ETH: Circulating Supply [ETH] ● ETH: Issuance [ETH] ● ETH: Price [USD]

Source: Glassnode

Validators take the place of miners in the Ethereum Proof-of-Stake system and are responsible for transaction ordering and the proposal of the next valid block. Each validator is required to host collateral of 32 ETH as a form of security bond and is rewarded with both newly minted ETH and a portion of the transaction fees paid by users.

There are currently over one million active validators participating in the Ethereum Proof-of-Stake network, with very few instances of a net decrease in the validator count to date.

ETH: Active Validators



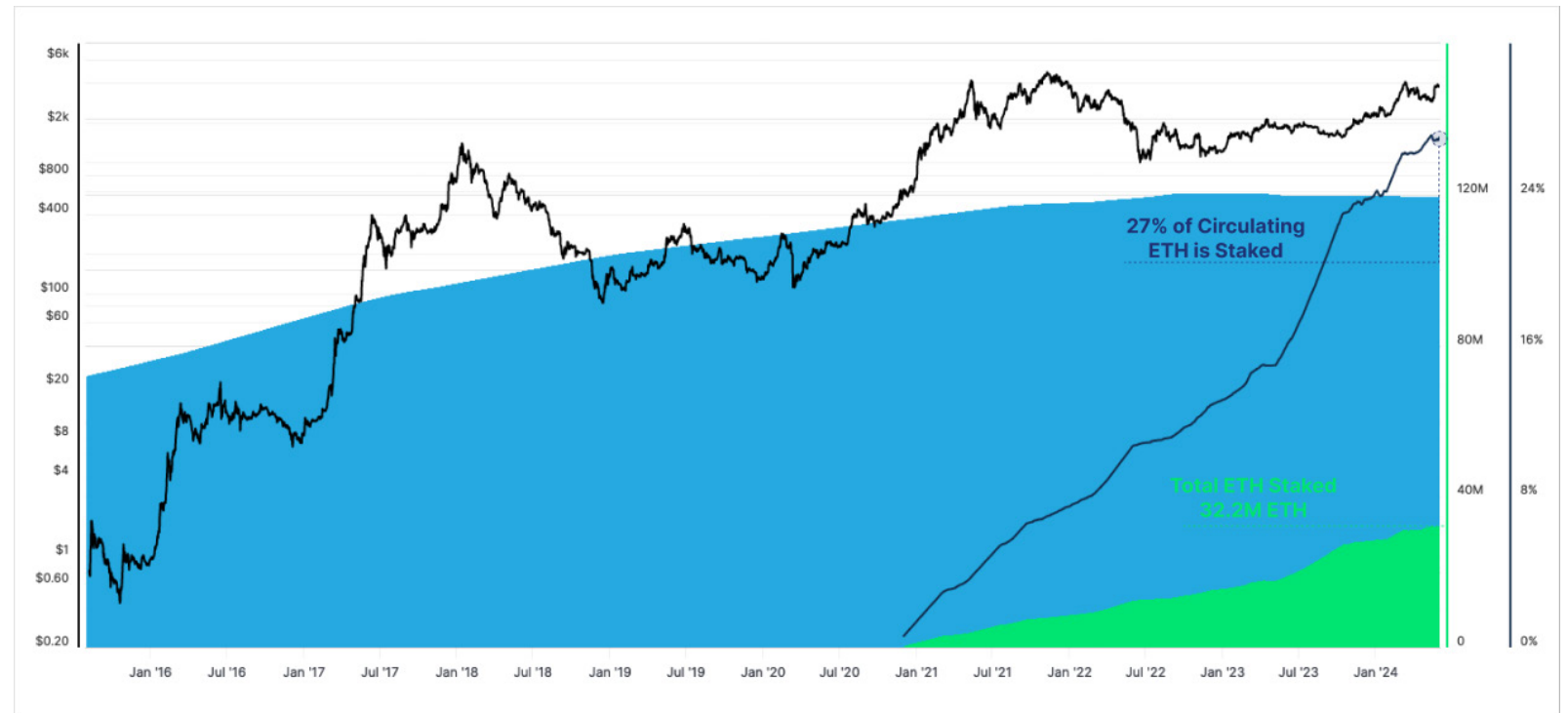
● ETH: Active Validators ● ETH: Price [USD]

Source: Glassnode

A total of 32.2M ETH is currently locked by validators as staked collateral. The amount of ETH staked has generally increased over time with only short periods where the total volume has decreased. This currently represents over 27% of the circulating ETH supply.

More recent technologies, such as liquid staking tokens, allow validators to use their staked ETH collateral as a mobile asset within the growing decentralized finance ecosystem. These tokens are issued by entities, such as centralized exchanges and staking pools, which manage the technical requirements of validators for users. This process dramatically improves the user experience and capital efficiency of the network.

Ethereum: Total Staked Supply



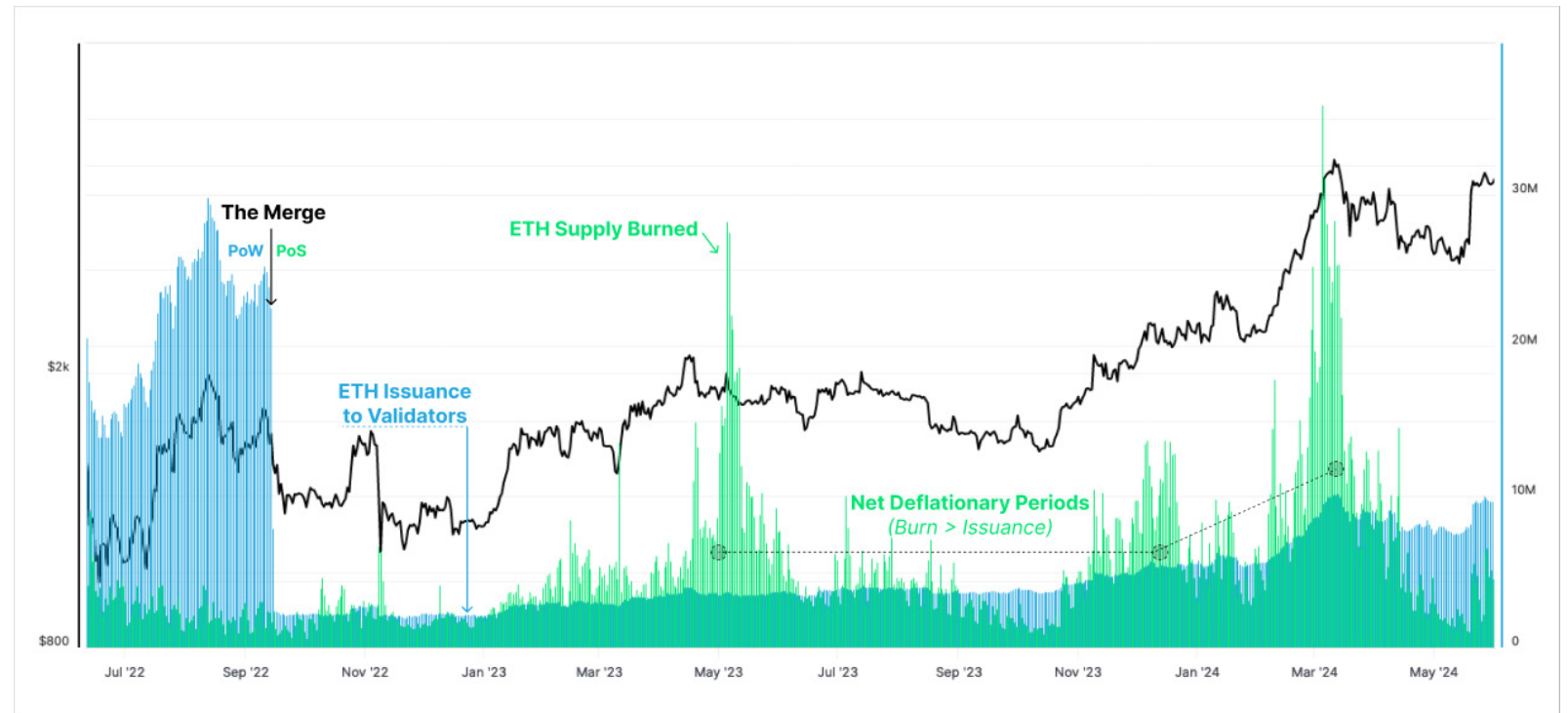
● ETH: Circulating Supply [ETH] ● ETH: Total Effective Balance [ETH] ● ETH: Price [USD] ● Percent Supply Staked (%)

Source: Glassnode

Ethereum has a supply burn mechanism that was delivered as part of the EIP1559 upgrade in August 2021. This mechanism burns a portion of transaction fees, which at times can exceed the total volume of newly minted ETH issued to validators. As a result, during periods of high network activity, the ETH supply can experience periods of net deflation, reducing the overall circulating supply.

This chart shows the total daily volume of ETH burned (green) compared to the newly issued ETH to miners/validators (blue). The dramatic decline in new issuance can also be seen as Ethereum transitioned from Proof-of-Work to Proof-of-Stake.

Ethereum: Issuance vs Supply Burned

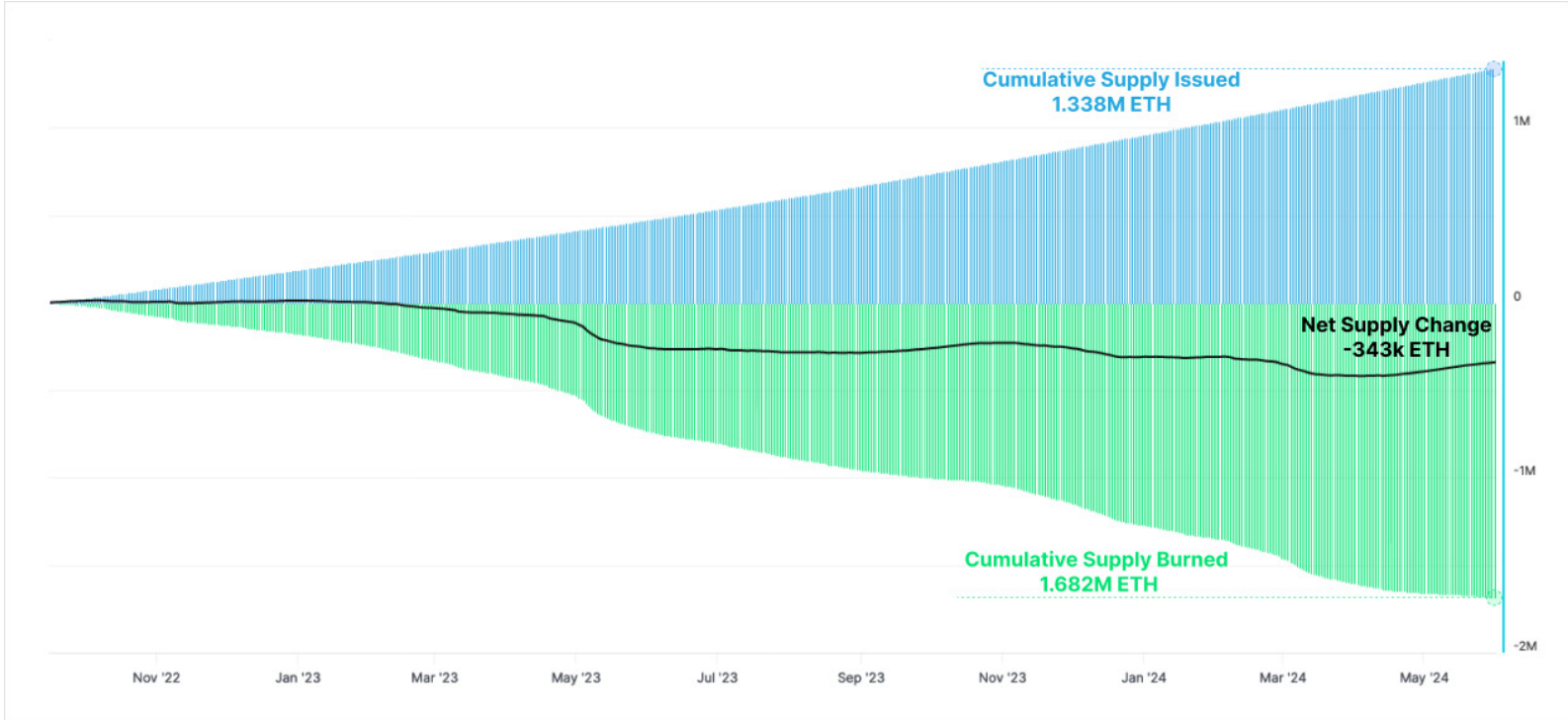


● ETH: Price [USD] ● ETH: Issuance [USD] ● ETH: Burn Rate (Base Fee) [USD]

Source: Glassnode

The Merge was completed in September 2022 and represented a major engineering achievement of changing the Ethereum consensus mechanism to Proof-of-Stake. As a result of the significant drop in issuance and the EIP1559 burn mechanism, the ETH supply has decreased by 343K ETH since the Merge.

ETH: Total Issuance and Total Burned ETH since Merge



● Cumulative Issuance since Merge ● ETH: Cumulative Burn since Merge ● Supply Change since Merge

Source: Glassnode

Ethereum Price Performance Metrics

Ethereum has maintained its position as the second largest asset in the digital asset ecosystem since rising to prominence in 2017. Since the Ethereum protocol had its genesis block in 2015, it has tended to experience market performance more similar to Bitcoin during its earlier growth market cycles.

We can see both heightened volatility, greater drawdowns and larger upswings in the ETH price following Bitcoin halvings. In the 365 days after a Bitcoin halving event, ETH has seen more divergent market performance, with the 2016 cycle drawing down by -45% before rising by over 3400%, while in 2020 its price more than doubled in the immediate months after and continued on to rally by 2150%.

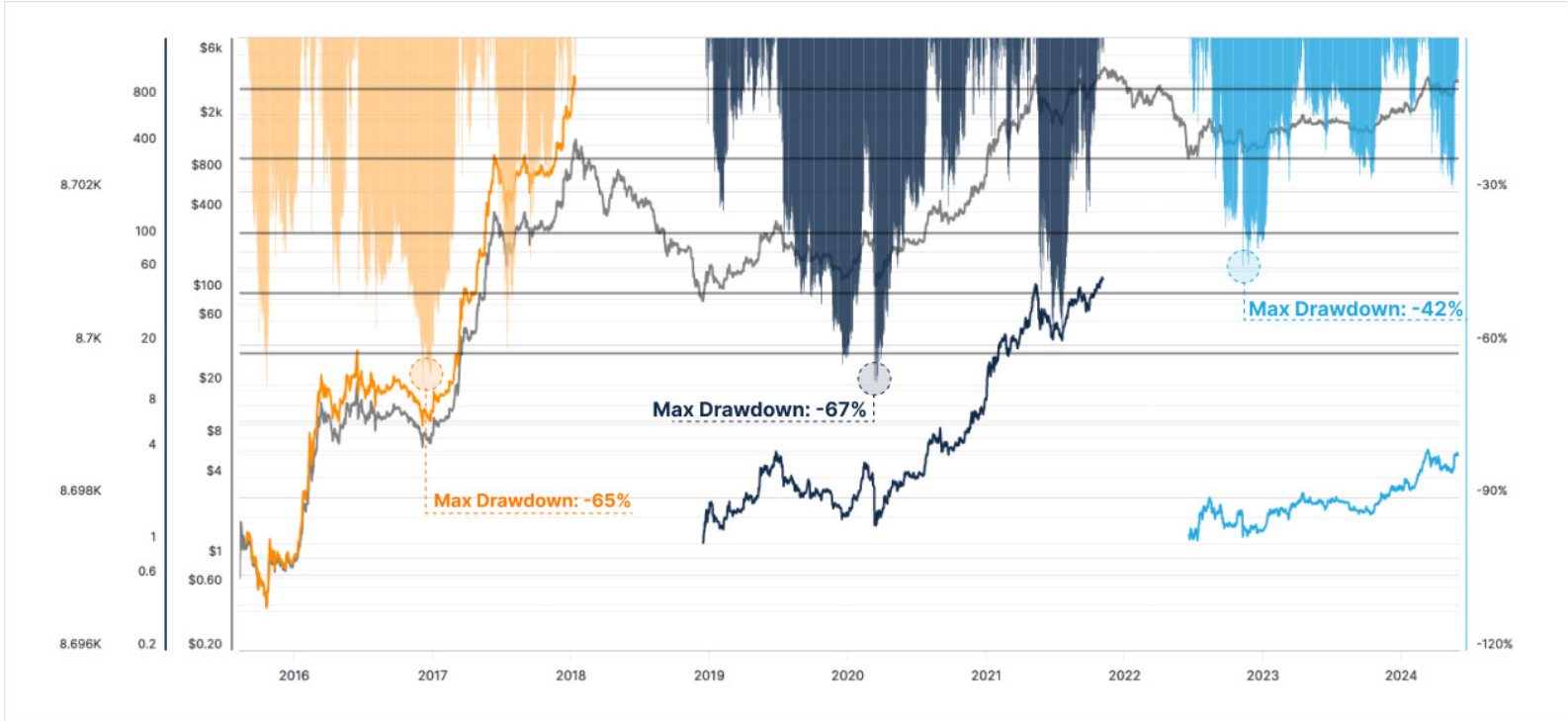
Ethereum: Price Performance After Halving



Source: Glassnode

The drawdown profile of Ethereum has experienced relatively deeper corrections compared to Bitcoin, with the largest drawdown in the 2022-24 cycle being -42% thus far. Previous cycles have seen corrections exceeding -65% during both the early and later phases of macro bull markets.

Ethereum: Bull Market Correction Drawdowns



● ETH: Price [USD] ● Genesis to 2018 Bull ● 2018-21 Bull ● 2022 Cycle+ ● 2018 Bull Drawdowns ● 2018-21 Bull Drawdowns ● 2022+ Bull Drawdowns

Source: Glassnode

The cryptocurrency market experiences an internal rotation of capital through various assets along the risk curve as the market cycles progress. Historically, the largest asset, Bitcoin, tends to lead the market during bear markets and early bull markets, but lags during the more speculative phases of late-stage bulls.

The ETH/BTC ratio is a tool many analysts consult as a gauge for the degree of capital rotation taking place, which is based on Ethereum serving as a bellwether asset for general risk appetite. However, an interesting shift from the cyclical norms has occurred during the 2023-24 cycle, as the ETH/BTC ratio has continued to decline, despite the market being a bull market since late 2022.

There are two likely candidate explanations for this relative underperformance. The first is the earlier approval of U.S. Spot ETFs for Bitcoin in January 2024, which created a significant source of additional buy-side pressure for the market leader. The second is the increasingly competitive landscape of Proof-of-Stake blockchains, which Ethereum competes directly with in terms of liquidity, capital, user experience and scalability.

Nevertheless, with the inauguration of U.S. Spot ETFs for Ethereum, this may create a catalyst for a reversal in this downtrend.

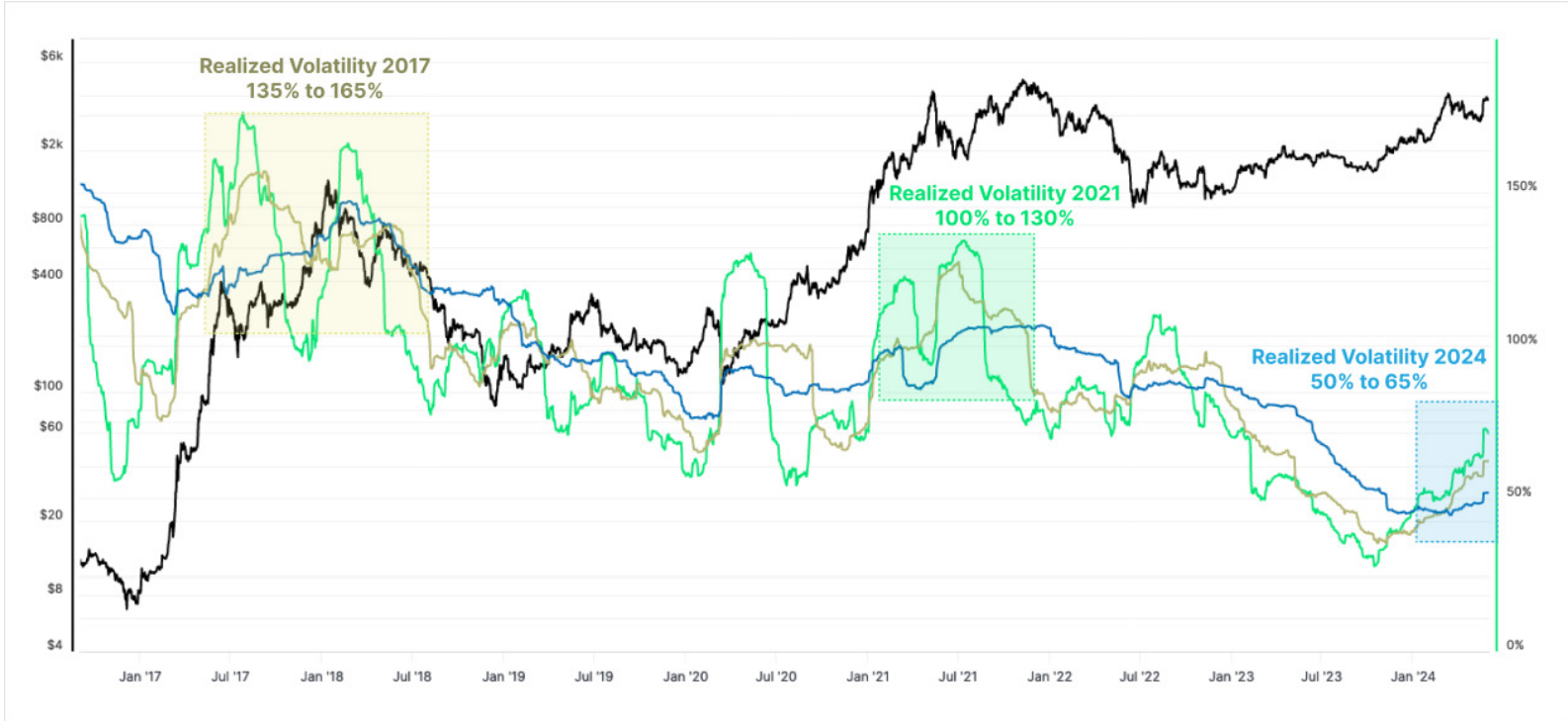
ETH / BTC Ratio



Source: Glassnode

The volatility of Ethereum is experiencing a similar compression over time as the asset and ecosystem surrounding it matures and increases in market cap. During the 2017 bull market, realized volatility reached 135% to 165% over three-month to one-year rolling windows. Realized volatility in 2024 has decreased to between 50% and 65%, which is half the volatility levels seen during previous market cycles.

ETH: Annualized Realized Volatility



● ETH: Price [USD] ● ETH: Realized Volatility (3 Months) ● ETH: Realized Volatility (6 Months) ● ETH: Realized Volatility (1 Year)

Source: Glassnode

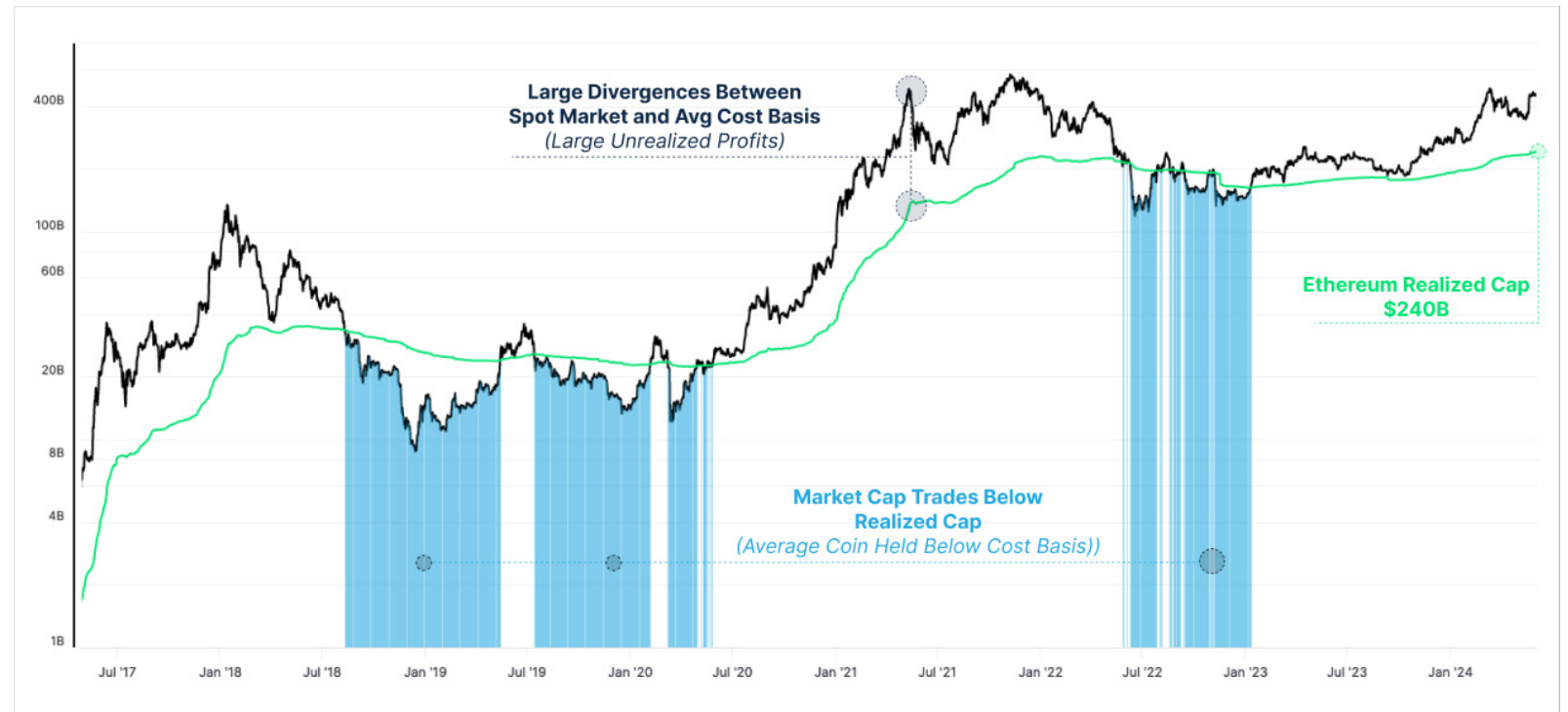
Ethereum On-Chain Metrics

The Realized Cap for Ethereum captures the value of each token when it last transacted on-chain. Ethereum uses a different blockchain accounting model from Bitcoin by utilizing accounts, rather than individual coins.

The ecosystem of Ethereum is also more complex, with coins being used as collateral and within liquidity pools for lending markets and decentralized exchanges. As such, the computation of the Realized Cap for Ethereum requires different methodologies to account for these nuances.

The Ethereum Realized Cap is currently at \$240 billion and is often intersected by the Market Cap during late-stage bear markets. This signifies that the average unit of ETH is held at an unrealized loss.

Ethereum: Market Cap and Realized Cap Valuation Models



● ETH: Market Cap [USD] ● ETH: Realized Cap [USD] ● Unrealized Loss

Source: Glassnode

The MVRV Ratio for Ethereum provides a gauge for overall investor profitability, tracking the divergence between the Market Cap and the Realized Cap. It is computed from the ratio between the Market Cap and the Realized Cap and can be interpreted within the following framework:

- **High MVRV Values above 1.0** indicate that the average investor is holding a large unrealized profit.
- **Low MVRV Values below 1.0** indicate that the average investor is holding a large unrealized loss.
- **MVRV Values of exactly 1.0** indicate that the average investor is at break-even.

This framework allows analysts to determine the overall profitability of Ethereum investors and can be a useful tool for monitoring market cycles.

Ethereum: Market Value to Realized Value Ratio (MVRV)



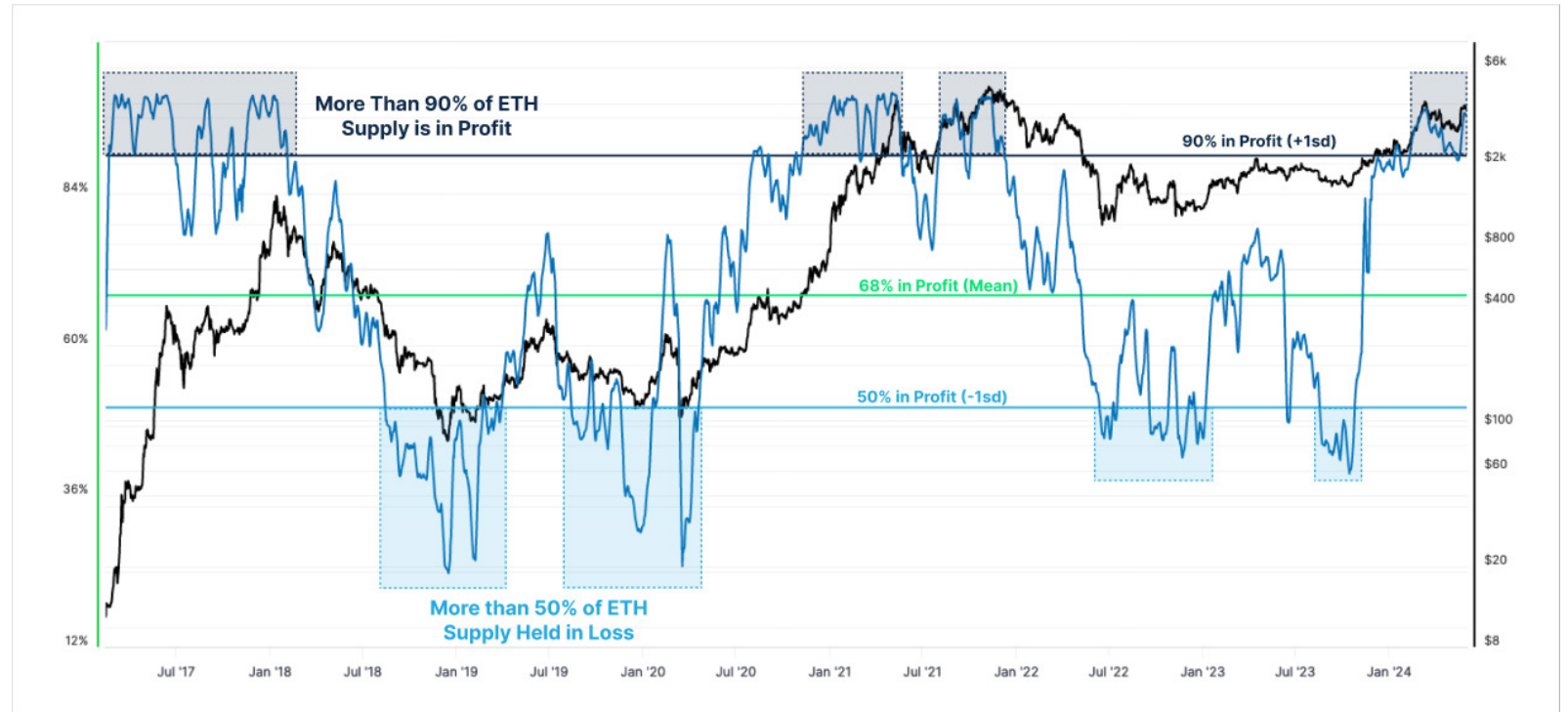
● ETH: Price [USD] ● ETH: MVRV Ratio

Source: Glassnode

By assessing the cost basis of each coin, the overall Ethereum supply can be grouped into those held “in-profit” and “in-loss.” From this we can define the percentage of the total coin supply held in profit, which tends to oscillate between extremes as a gauge of overall investor profitability.

During late-stage bear markets, the ultimate floor has historically been established when more than half of the coin supply is held at a loss, signifying a point of maximum financial stress. Conversely, sustained periods where the coin supply is more than 90% in profit tend to characterize late stage bull markets, where investors start to take profits and eventually overwhelm the inflowing demand.

Ethereum: Percent Supply in Profit



● ETH: Price [USD] ● Cumulative Mean: Percent Supply in Profit ● Cumulative Mean + 1SD ● Cumulative Mean - 1SD ● 7d SMA Percent Supply in Profit

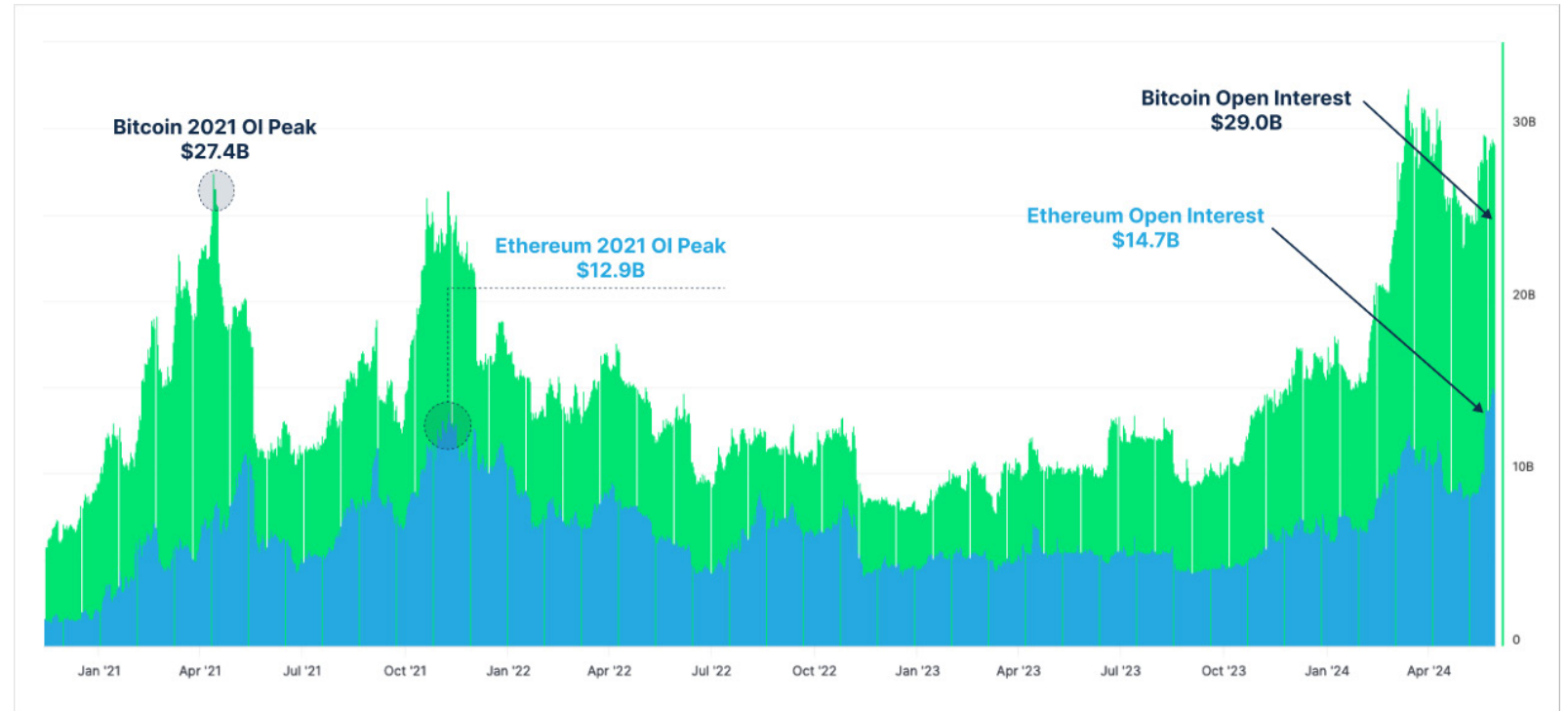
Source: Glassnode

Derivatives Markets

The derivatives markets for Bitcoin and Ethereum have grown significantly in recent years, reflecting both the maturity and institutionalization of the asset class. Futures markets have tended to dominate the majority of the trade volume and open interest in the space since 2021.

Open interest in futures markets is currently over \$29.0 billion and \$14.7 billion for Bitcoin and Ethereum, respectively. Open interest in Bitcoin markets has now surpassed the \$12.9 billion highs seen during the 2021 bull market, while the announcement of the U.S. Spot Ethereum ETFs has just propelled open interest across Ethereum contracts to new ATHs.

Futures: Open Interest



● BTC: Futures Open Interest - All Exchanges [USD] ● ETH: Futures Open Interest - All Exchanges [USD]

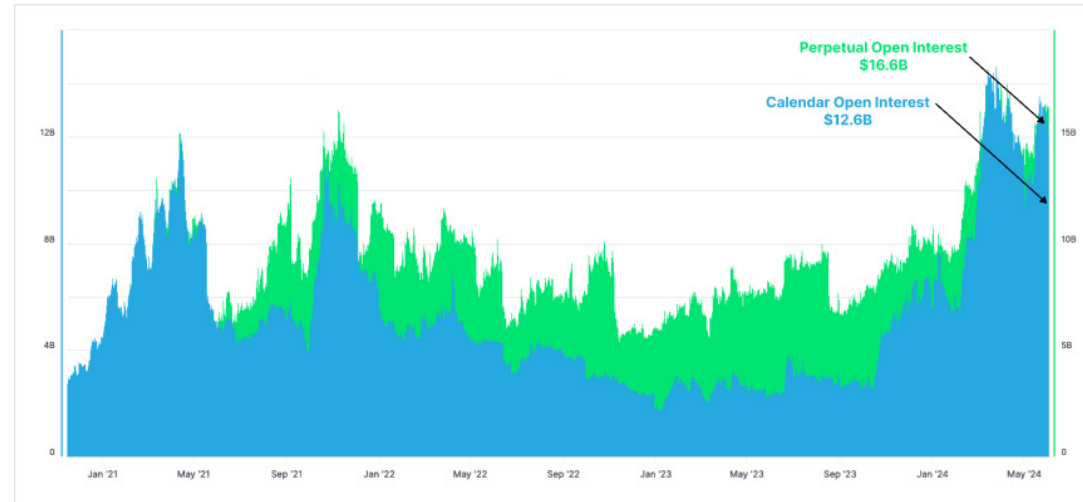
Source: Glassnode

The cryptocurrency industry has adopted two different types of futures instruments: the perpetual swap and the calendar expiring contract. Measured by open interest, the industry has historically seen a preference for the perpetual swap instrument up until 2023, when a growing institutional interest saw renewed dominance of calendar expiring futures.

This increase in calendar futures dominance has continued throughout 2024, with open interest increasing to \$12.6 billion and now rivaling the \$16.6 billion size of perpetual swaps. This is in large part a result of increased interest in Bitcoin from institutional investors, with an increasingly large amount of trade conducted via CME Group instruments.

The rising demand for calendar expiring futures contracts for the Bitcoin asset does not appear to have translated as strongly across to Ethereum markets, where perpetual swap contracts remain the dominant futures instrument by a wide margin. Currently, there is around \$12.5 billion in open interest across all perpetual swap contracts, compared with just \$2.2 billion for calendar expiring contracts.

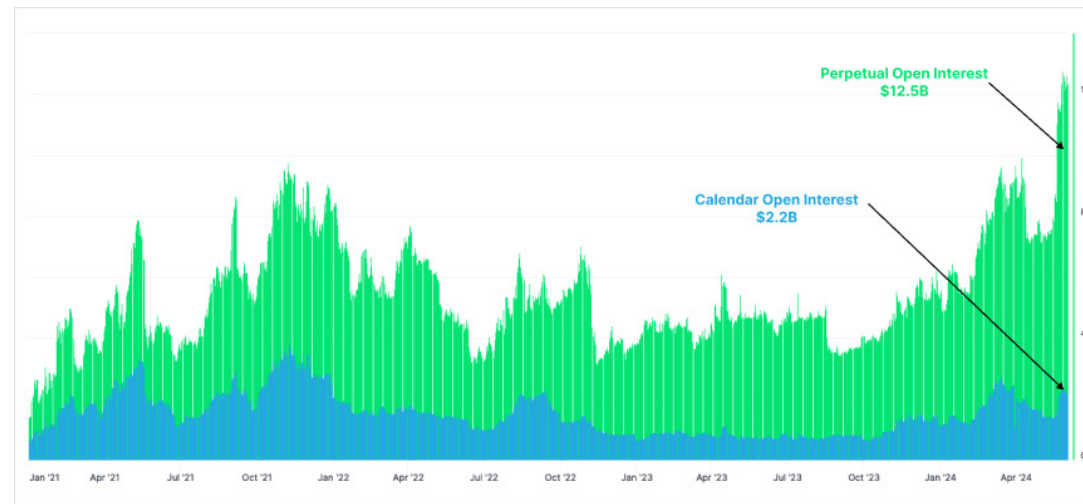
BTC: Futures Open Interest Calendar and Perpetual



● BTC: Futures Open Interest Perpetual - All Exchanges [USD] ● BTC: Futures Open Interest Calendar Contacts [USD]

Source: Glassnode

ETH: Futures Open Interest Calendar and Perpetual



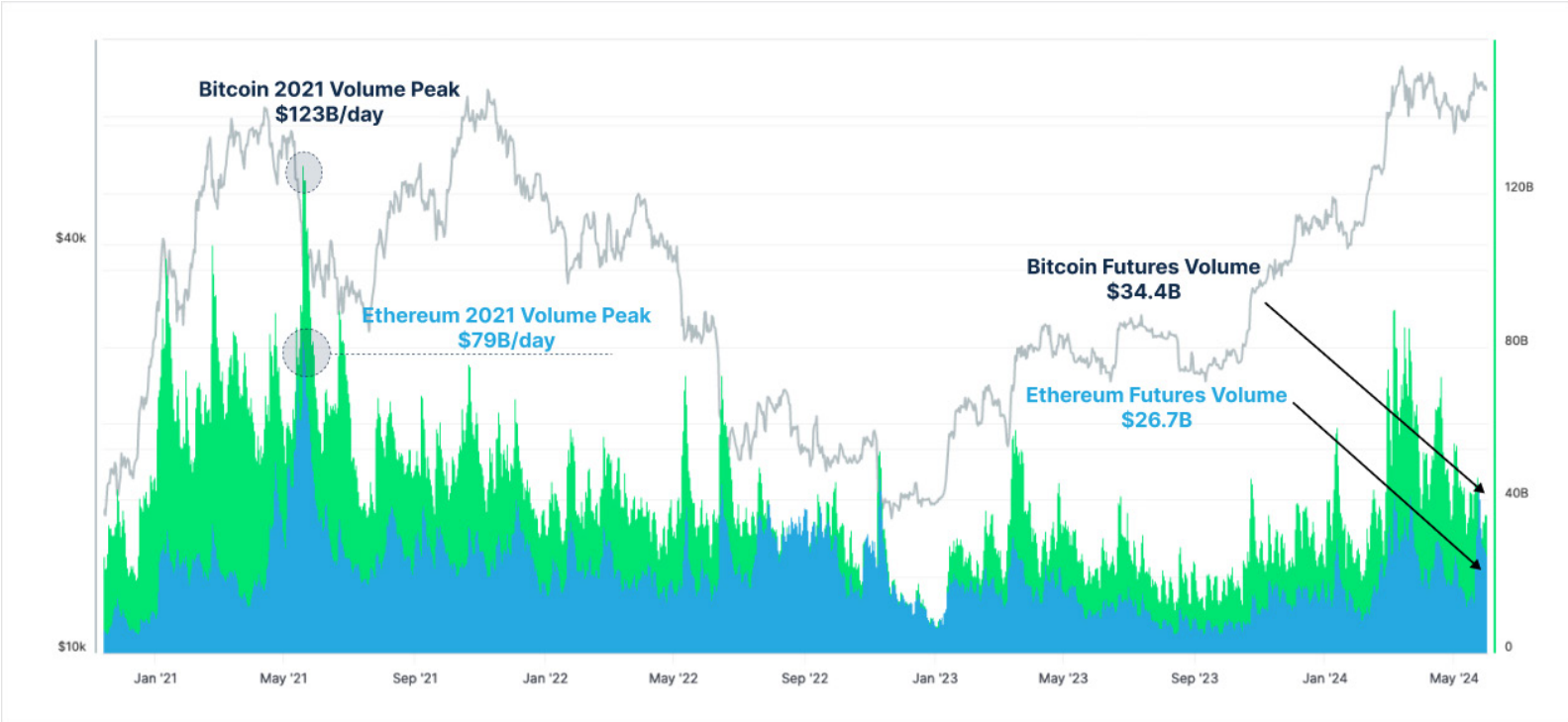
● ETH: Futures Open Interest - All Exchanges [USD] ● BTC: Futures Open Interest Calendar Contacts [USD]

Source: Glassnode

Futures markets remain the primary source of trade volume in digital asset markets, generally being five times to 10 times larger in size compared to spot trading volumes. Trade volumes in futures markets have picked up since October 2023, seeing over \$34.4 billion and \$26.7 billion in daily contracts traded for Bitcoin and Ethereum, respectively.

Daily trade volumes of this magnitude are similar to the previous market cycle, although they remain below the all-time high peaks seen during the first half of 2021.

Futures: Trade Volume



● BTC: Price [USD] ● BTC: Futures Volume - All Exchanges [USD] ● ETH: Futures Volume - All Exchanges [USD]

Source: Glassnode

Perpetual swaps, which have no expiration, are commonly used for exposure to Bitcoin and Ethereum. In order to keep these products in line with the corresponding spot index price, perpetual swaps utilize a funding rate whereby traders are paid an interest rate yield depending on deviations between the futures prices and the spot index price.

Funding rates are designed such that periods when the perpetual price trades above the spot index price, traders with open long positions will pay a periodic interest rate to short traders. The opposite is true when perpetual prices trade below the spot index price.

Funding rates are usually paid on an eight hour basis and provide an incentive for market makers to provide liquidity and capture arbitrage opportunities via a cash and-carry yield. These next two charts show the funding rates for Bitcoin and Ethereum compared to the three-month rolling basis yield available for traditional expiring futures contracts.

Bitcoin: Annualized Perpetual Funding Rates vs Three-month Rolling Basis



● BTC: Price [USD] ● Annualised Perp Funding Rates ● BTC: Futures Annualised Rolling Basis (3M) - All Exchanges

Source: Glassnode

Ethereum: Annualized Perpetual Funding Rates vs 3m Rolling Basis



● ETH: Price [USD] ● Annualised Perp Funding Rates ● ETH: Futures Annualised Rolling Basis (3M) - All Exchanges

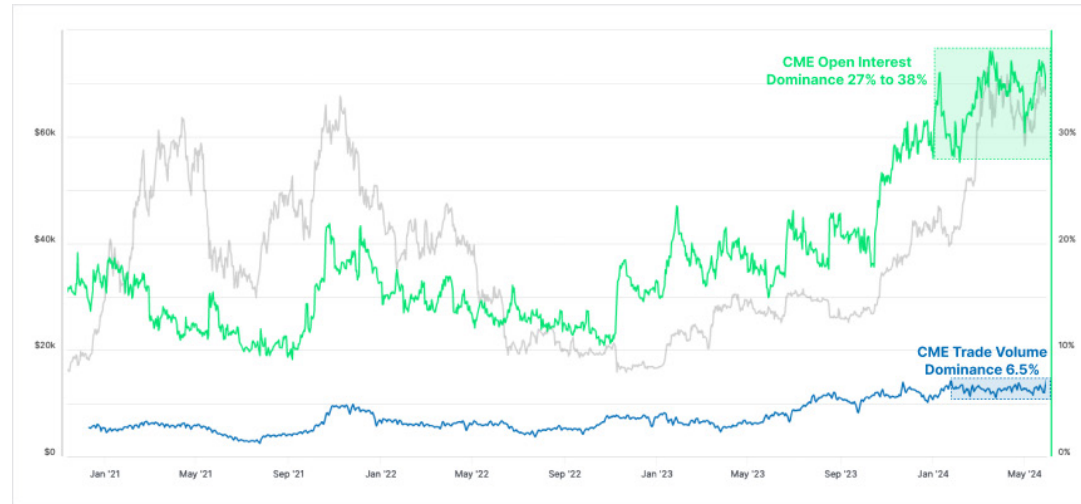
Source: Glassnode

The dominance of institutional trading in digital asset futures markets is marked by a growing dominance of open interest and trade volume across CME Group futures contracts. This trend of higher CME Group dominance started to accelerate since the start of 2023.

CME Group currently represents over one-third of all open futures contract positions for Bitcoin, with CME Group trade volumes now representing a global market share of over 6.5%.

Futures markets for Ethereum are seeing a similar trend, with CME Group dominance rising from around 1% in late 2022 to between 6.4% and 13.5% today. CME Group trade volume dominance has similarly increased over recent years and now represents between 2% and 4% of global futures trade volumes.

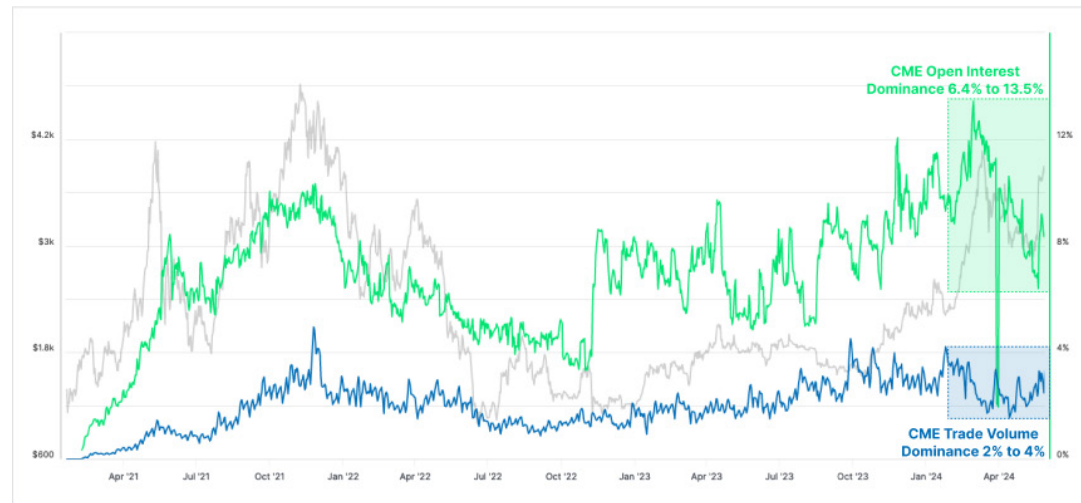
Bitcoin: CME Futures Dominance



● BTC: Price [USD] ● CME Open Interest Dominance (%) ● CME Volume Dominance

Source: Glassnode

Ethereum: CME Futures Dominance

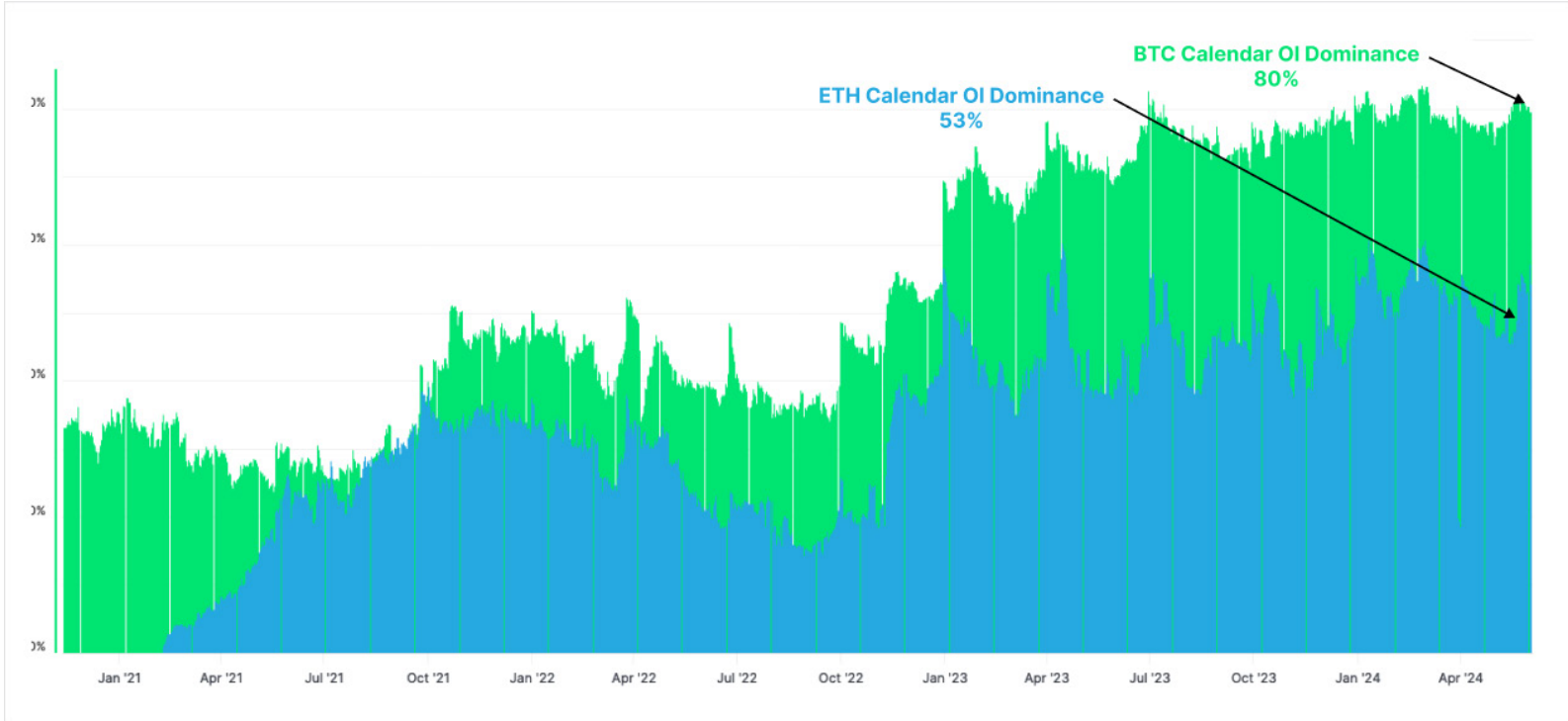


● ETH: Price [USD] ● CME Open Dominance (%) ● CME Volume Dominance (%)

Source: Glassnode

Isolating open interest for calendar expiring futures contracts for Bitcoin and Ethereum, we can see the dominance of CME Group as a preferred trading venue for institutions has experienced a remarkable expansion from 2023 onwards. CME Group futures now represent over 80% and 53% of the calendar futures market for Bitcoin and Ethereum, respectively.

CME Open Interest Dominance [Calendar]



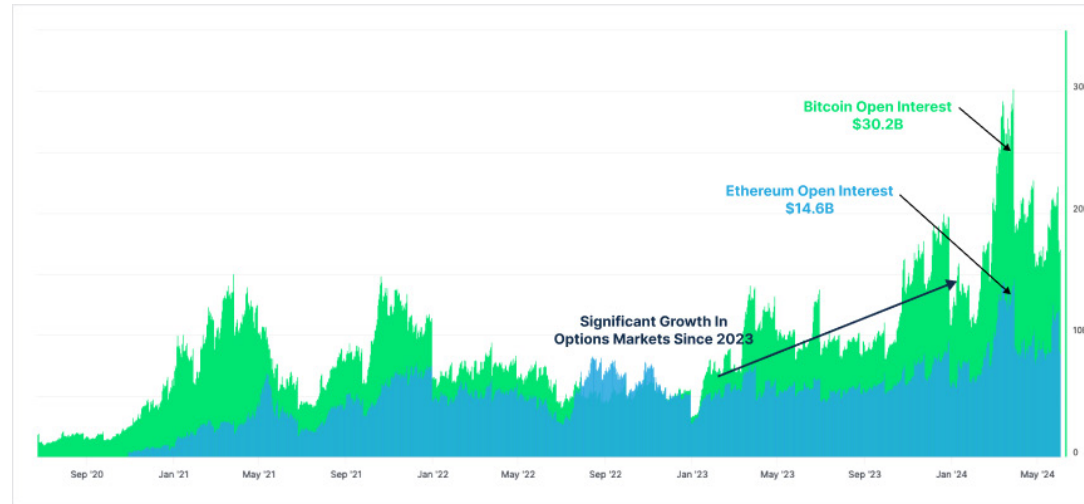
● BTC: CME Open Interest Dominance [Calendar] ● ETH: CME Open Interest Dominance [Calendar]

Source: Glassnode

The options markets are another key area of growth and maturity within the digital asset industry, seeing aggregate open interest climb to over \$30.2 billion and \$14.6 billion for Bitcoin and Ethereum, respectively. Options markets are now of a similar size to futures markets on an open interest basis, reflecting the maturity and deepening liquidity of options markets overall.

Options trade volumes have also reached new all-time highs in 2024 for both Bitcoin and Ethereum, reaching \$3.2 billion/day and \$2 billion/day, respectively. The maturity and deepening liquidity of options markets provide institutional investors with greater flexibility for risk management, hedging and tools for executing more sophisticated strategies.

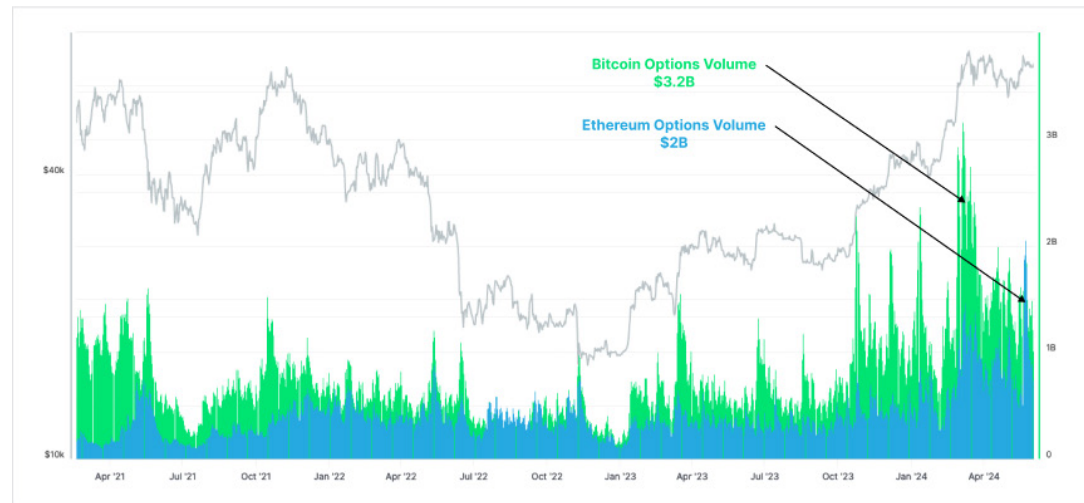
Options: Open Interest



● BTC: Options Open Interest - All Exchanges [USD] ● ETH: Options Open Interest - All Exchanges [USD]

Source: Glassnode

Options: Trade Volume

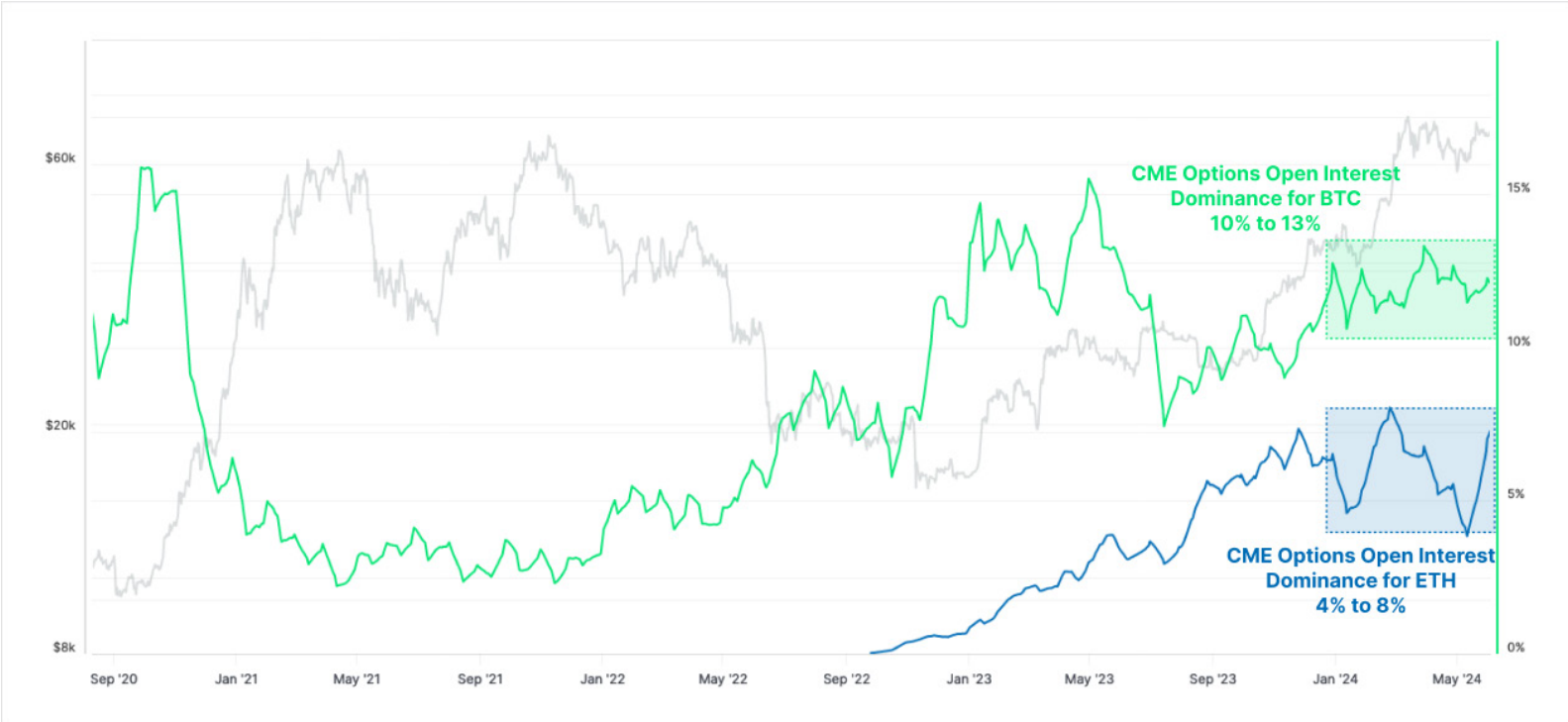


● BTC: Price [USD] ● BTC: Options Volume - All Exchanges [USD] ● ETH: Options Volume - All Exchanges [USD]

Source: Glassnode

CME Group markets have seen a growing market share across the options landscape as well, representing between 10% and 13% of all Bitcoin options contracts and 4% to 8% for Ethereum.

Options: Open Interest CME Dominance



● BTC: Price [USD] ● CME Dominance BTC ● CME Dominance ETH

Source: Glassnode

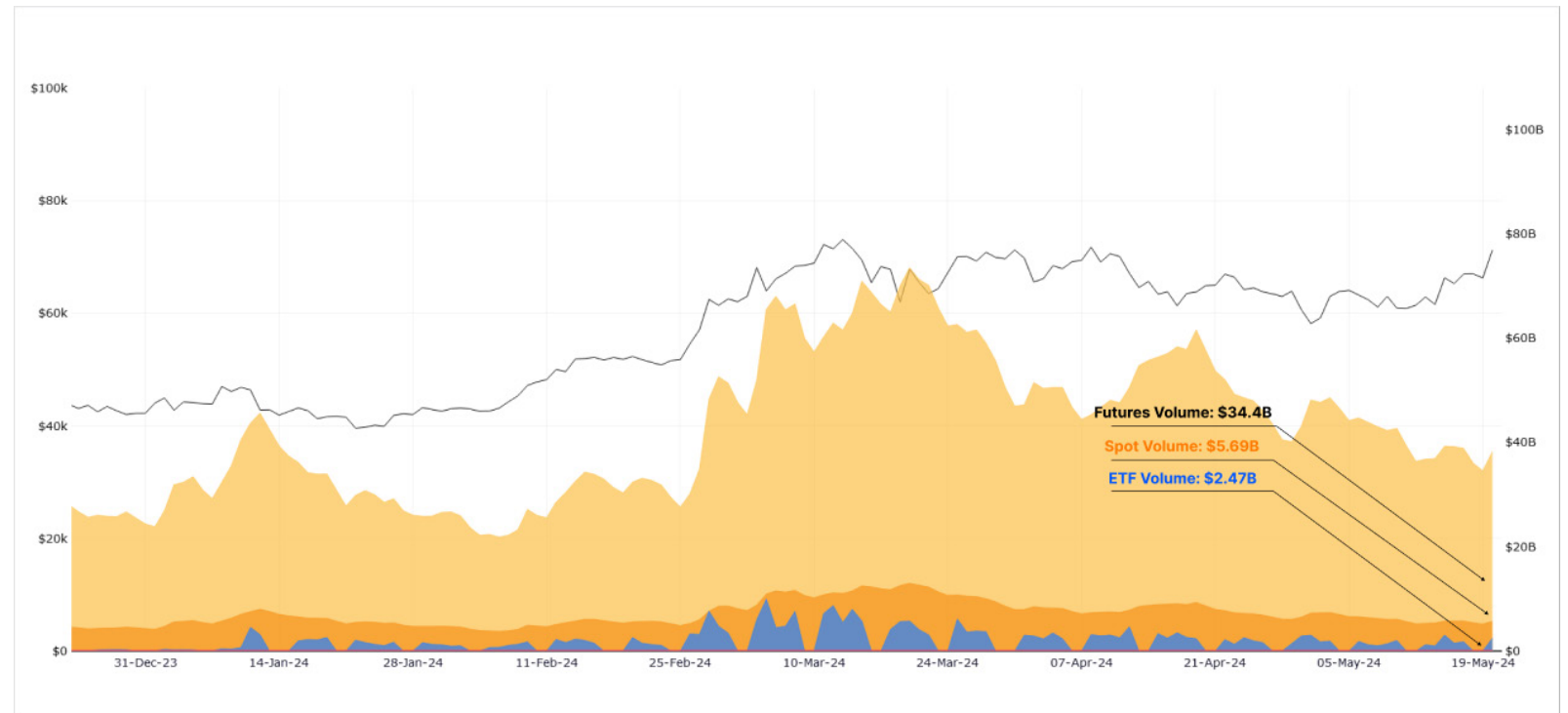
Synchronicity of Differing Markets

On January 11, 2024, the first tranche of U.S. Spot Bitcoin ETFs were approved and listed on U.S. exchanges. These ETFs opened access for a significantly larger pool of capital and investors, many of whom were unable to access Bitcoin for regulatory, compliance or technical reasons. This also provided meaningful regulatory clarity, which helped to solidify Bitcoin's position as an institutional-grade asset class.

The launch of these ETFs is one of, if not the most successful in history, with numerous ETF records broken for the size, scale and growth across the ten instruments. The volume traded across all ETFs is typically around \$2.5 billion/day and is of a comparable magnitude to the total spot volume traded across cryptocurrency exchanges (~\$5.7 billion/day).

However, the volume traded in futures markets remains an order of magnitude larger than both spot and ETF trade volumes, seeing over \$34.4 billion/day. Futures remain the primary instrument for traders and investors to express or hedge an opinion on Bitcoin prices.

Bitcoin: Futures vs Spot vs ETF Trade Volume



● BTC: Price [USD] ● Futures Trade Volume ● Spot Trade Volume ● ETF Trade Volume

Source: Glassnode

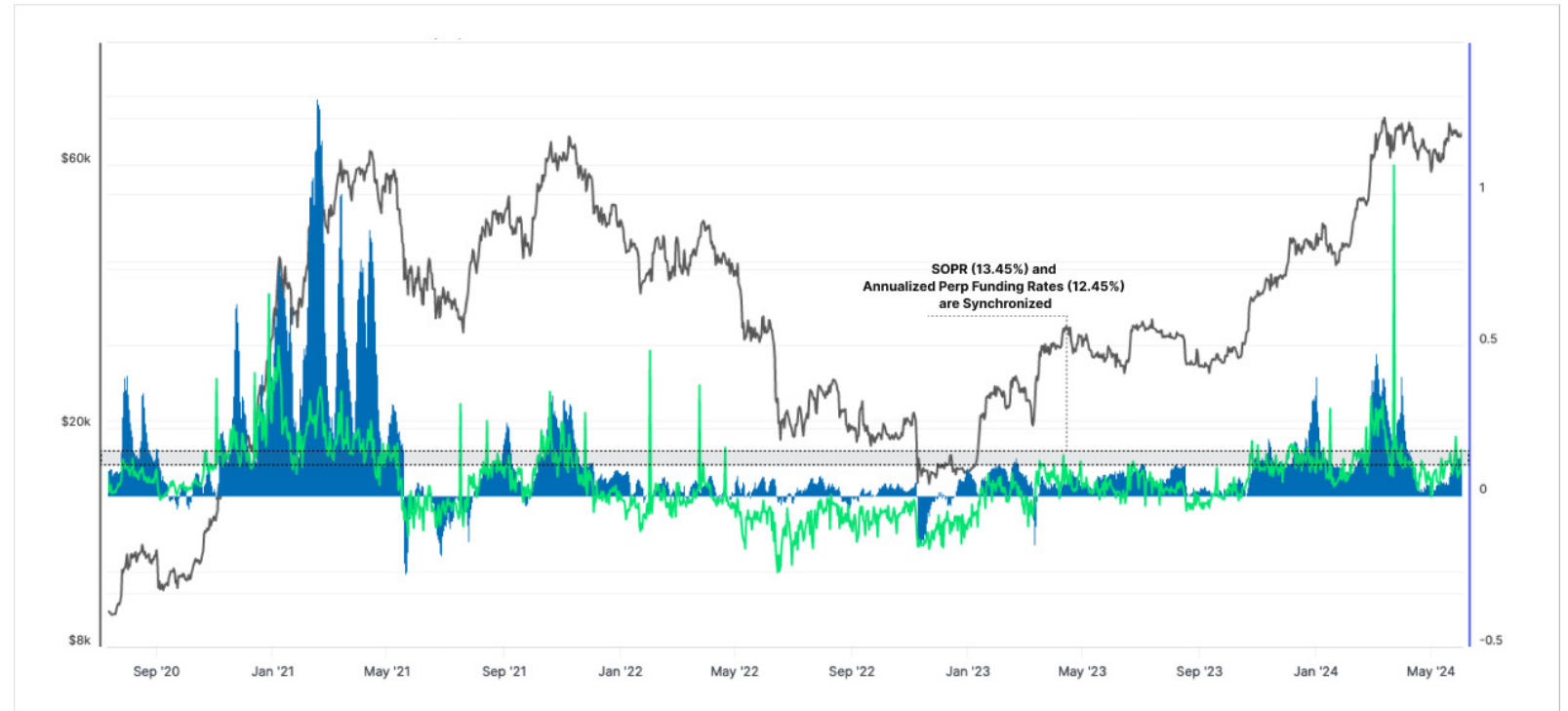
The data available for digital asset markets is very transparent given the open nature of blockchains. This allows analysts to observe and draw interesting parallels between various sectors of the market. This chart shows the funding rate paid by traders in futures markets (blue), and compares it to the average profit multiple locked in by coins spent on-chain (green), a metric called SOPR.

Entity-Adjusted SOPR (minus 1), reflecting the average profit/loss multiple locked in by economical on-chain spending (filters out internal transfers and similar).

Futures Funding Rates (Annualized), which reflect the interest rate paid from longs to shorts (when positive and vice versa when negative). Funding rates can help measure both the magnitude and direction of leverage in futures markets, as well as the incentive for market makers to add liquidity to order books to arbitrage the premium (via a cash-and-carry trade).

One metric describes the directional bias of leveraged traders (buyers), the other the profitability of existing holders transacting in spot markets (sellers), yet a strikingly similar structure can be observed across two completely different perspectives, and two very different markets.

Bitcoin: Annualized Perpetual Funding Rates vs SOPR Variants



● BTC: Price [USD] ● Annualised Perp Funding Rates ● EA-SOPR-1

Source: Glassnode

By evaluating both the Implied Volatility of the option markets and the Sell-Side Risk across on-chain transfers, a fascinating link between the derivatives world and on-chain transfers also emerges, demonstrating how we can monitor market volatility across both domains.

Options Implied Volatility: Assesses the market's expectation of volatility. Given the price of an option, we can solve for the expected volatility of the underlying asset.

Sell-Side Risk: Compares the total USD value that investors are spending each day to the total realized market capitalization.

Again, a markedly similar structure can be noted between the two metrics, suggesting that the psychology of investors across two entirely different instruments remains largely coincident, inferring that all facets of the market are statistically competitive and meaningfully contributing to price action in a synchronous fashion.

Bitcoin: Sell-side Risk Ratio vs Options IV



● BTC: Price [USD] ● Sell-Side Risk Ratio ● BTC: Options ATM Implied Volatility (1 Month) - Deribit

Source: Glassnode

CONCLUSIONS

This report has provided a comprehensive overview of the digital asset landscape, focusing on key areas that are essential for institutional investors. We examined the fundamentals of Bitcoin and Ethereum, detailing supply dynamics and the impacts of major events like Bitcoin's halving and Ethereum's transition to Proof-of-Stake. On-chain metrics, such as Realized Cap and MVRV Ratio, were analyzed to provide insights into investor behavior and market cycles.

The report also highlighted the dynamics of capital flows, illustrating how funds move between Bitcoin, Ethereum and stablecoins. Understanding these flows is crucial for predicting market trends. Additionally, we explored the growth of the derivatives market, noting the significant role of futures and options in institutional trading. With the insights provided here, investors are positioned to make better, data-driven decisions in the digital asset market.

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