



HASHDEX

Market Pulse

Q2 2023

Ecosystem developments impacting crypto's investment case

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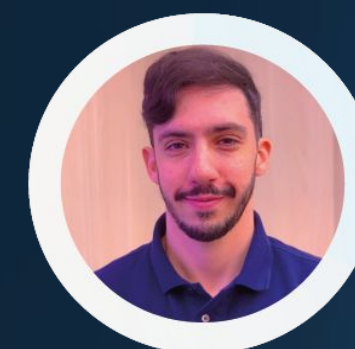
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About Hashdex

Founded in 2018, Hashdex is a leading crypto-focused alternative asset manager. We provide innovative investors simple and secure access to the rapidly growing crypto asset class through regulated investment products.



Simple



Secure



Trusted

We exist to bridge the gap between traditional financial markets and the crypto economy.



Executive Summary

The second quarter of 2023 witnessed a more subdued yet positive performance in the crypto markets following a strong rally in the first quarter. The Nasdaq Crypto Index (NCI) experienced a 6.3% quarterly increase (74.3% YTD), with bitcoin leading the way by rising 7.0% during the period (83.2% YTD). Ether also performed well, albeit slightly less impressively, with a 5.4% quarterly increase (59.9% YTD).

Additionally, other risky asset classes displayed continued positive performance, driven by a robust rally in technology stocks, particularly those associated with Artificial Intelligence, exemplified by the remarkable capabilities of large language models like ChatGPT. The Nasdaq 100 closed the quarter with a 15.2% increase (38.8% YTD), the S&P 500 rose by 8.3% (15.9% YTD), and gold, which performed strongly in the first quarter of 2023, experienced a 2.5% decline in the second quarter (5.2% YTD) as markets shifted slightly towards risk-on mode again.

Although these performance highlights provide a glimpse into the quarter's developments, it is essential to pinpoint some major events that transpired. In April, Ethereum began the quarter positively with the successful activation of Shanghai, significantly de-risking its investment case as stakers are now capable of unstaking their holdings at any time. May was relatively subdued, but June brought action back with the US Securities and Exchange Commission (SEC) pressing charges against Coinbase and Binance, triggering a decline in crypto prices. However, the semester ended on a positive note with the news that BlackRock (followed shortly after by Fidelity, Invesco, WisdomTree, VanEck, Nasdaq, and Ark) had applied for a spot bitcoin ETF in the US. This initiated another rally in crypto blue-chips as traditional institutions made clear that the asset class can no longer be disregarded.

This edition also delves into various fundamental aspects, such as the new wave of Ordinals and Inscriptions on the Bitcoin network, the surge in new staking deposits on Ethereum following the Shanghai update (as predicted in our previous report), and an intriguing projection of the combined market capitalization of bitcoin and ether using logarithmic regression.

Looking ahead, the prospects for the crypto industry remain highly optimistic. Ethereum has undergone significant de-risking, the macro environment is gradually improving, Bitcoin continues to respond positively to diverse (and adverse) developments, and, contrary to other assets appearing in the SEC lawsuits, the regulator did not classify bitcoin and ether as potential securities in its charges. Furthermore, the filings for a spot bitcoin ETF from BlackRock and other major traditional finance institutions represents a pivotal moment for the asset class, reassuring our conviction that crypto is here to stay. With the Bitcoin halving less than a year away, all of these reinforcing events make us believe that crypto is posing us with a generational opportunity.

We encourage you to review the newest iteration of our Market Pulse and invest time reading our fundamentals guide, which explains the importance of a strong fee market to a blockchain's sustainability – an essential topic for understanding the happenings within the Bitcoin network. Feel free to contact us for a more detailed discussion on any of the covered topics.



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Market Overview and Global Metrics

Correlation, Network Activity, Comparison to
Traditional Assets & More



Crypto Markets consolidated as AI ignited a rally in tech stocks¹

During 2Q23, the cryptocurrency market experienced a period of consolidation, and Bitcoin (BTC) and Ether (ETH) emerged as top performers, surpassing most traditional asset classes. The rally was led by Bitcoin (+85.0% YTD).

The positive performance of BTC and ETH can be attributed to factors such as increased institutional adoption, greater acceptance for transactions, and growing recognition of their value as assets.

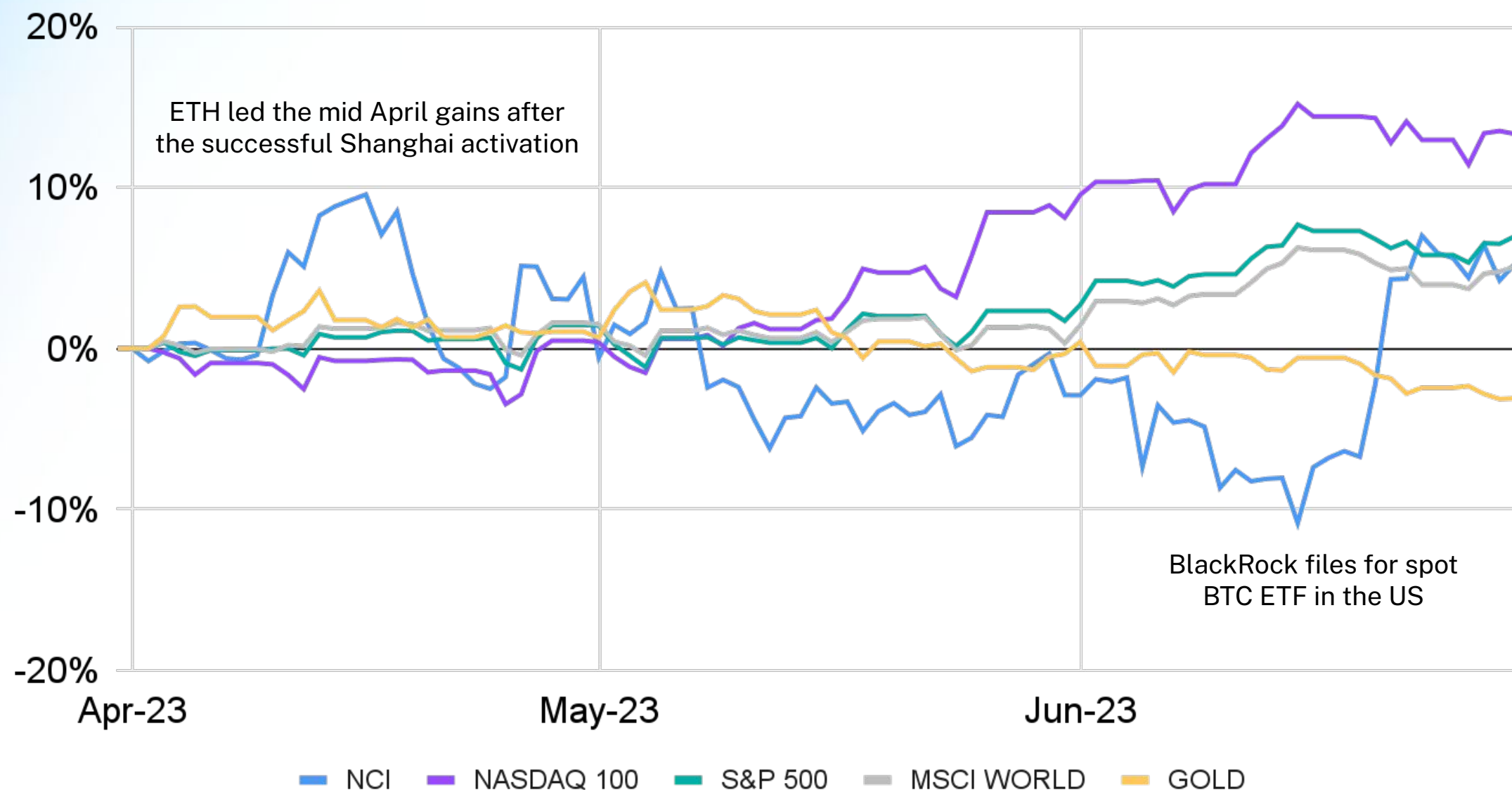
In Q2'23, the Nasdaq 100 has also performed remarkably well, thanks to the success of tech companies. The overlap between Nasdaq and S&P 500 companies played a vital role in boosting the latter's performance, offsetting the overall decline and highlighting the resilience and growth potential of the tech sector in a dynamic digital landscape, especially those related to Artificial Intelligence.

Metric	Q2'23	Q1'23	2022	1Y ago	QoQ	YTD	12M
Total Market Cap	\$1.2T	\$1.2T	\$810.7B	\$910.2B	-0.2%	47.2%	31.1%
BTC Market Cap	\$591.1B	\$542.0B	\$319.5B	\$383.5B	9.1%	85.0%	54.1%
ETH Market Cap	\$222.6B	\$216.0B	\$146.8B	\$133.3B	3.1%	51.7%	67.0%
Stablecoins Market Cap	\$125.5B	\$129.9B	\$135.8B	\$150.5B	-3.4%	-7.6%	-16.6%
Others Market Cap	\$254.0B	\$307.7B	\$208.6B	\$242.9B	-17.4%	21.8%	4.6%
Global Total Value Locked	\$73.7B	\$75.2B	\$56.3B	\$68.6B	-2.0%	31.1%	7.5%
Nasdaq 100 Market Cap	\$18.1T	\$15.7T	\$13.1T	\$14.0T	14.9%	38.3%	28.8%
S&P 500 Market Cap	\$38.8T	\$35.8T	\$33.5T	\$33.3T	8.4%	15.9%	16.7%
MSCI World Market Cap	\$63.1T	\$59.6T	\$55.7T	\$54.6T	5.9%	13.3%	15.6%
Global Gold Market Cap	\$12.7T	\$13.2T	\$12.2T	\$12.8T	-4.1%	4.0%	-0.6%

¹ Source: Hashdex Research with data from Messari, Defillama, Bloomberg and World Gold Council (from 06/30/2022 to 06/30/2023).



Performance among asset classes in Q2'23¹



Asset	2Q23 (QoQ)	YTD	12M
NASDAQ CRYPTO INDEX (NCI)	6.3%	74.3%	65.2%
NASDAQ 100	15.2%	38.8%	32.0%
S&P 500	8.3%	15.9%	17.6%
MSCI World	6.3%	14.0%	16.5%
GOLD	-2.5%	5.2%	6.2%

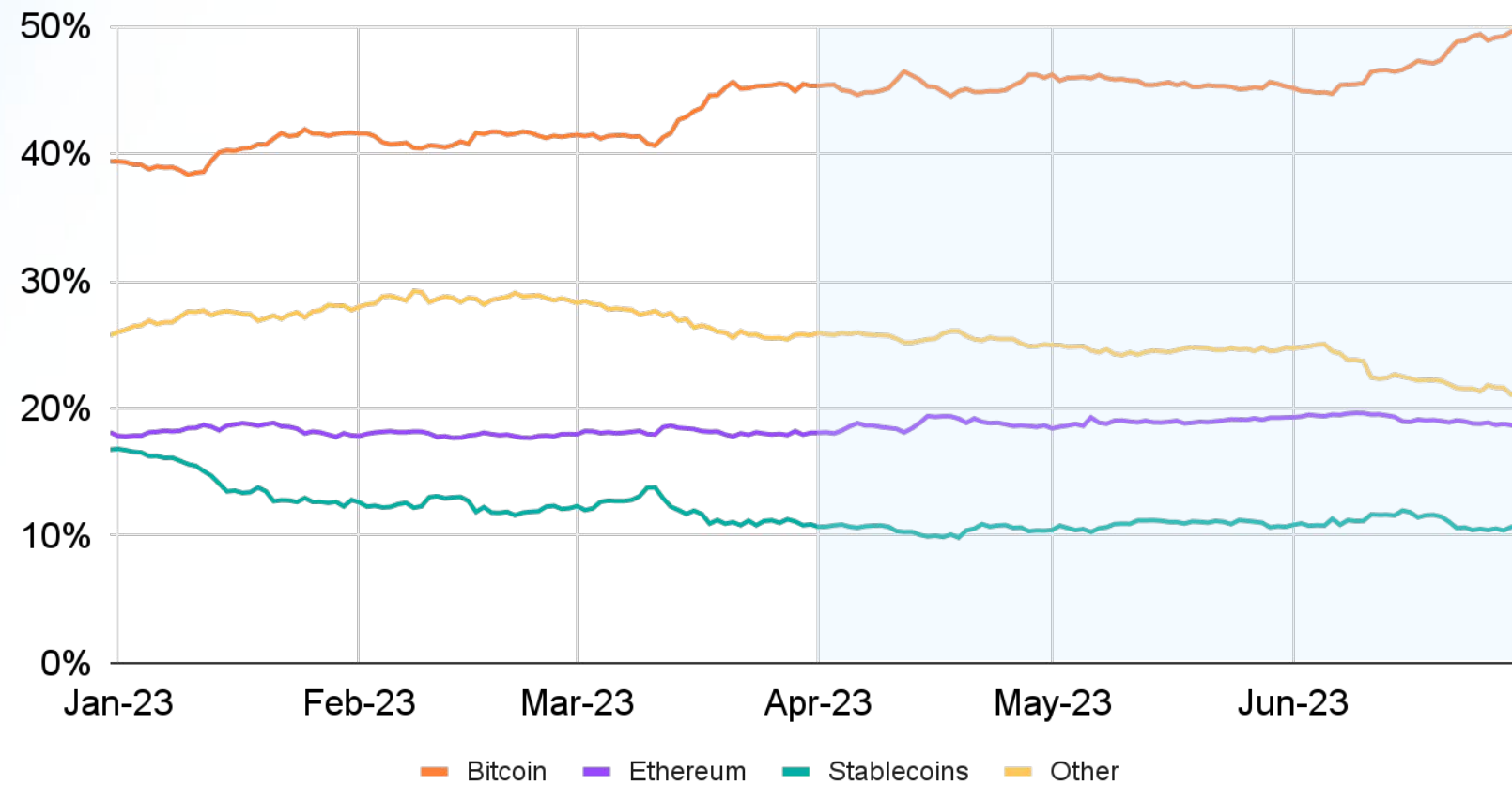
¹ Source: Hashdex Research with data from Bloomberg and CF Benchmarks (from 03/31/2023 to 06/30/2023)



Bitcoin dominance¹ reached 50% with spot ETF push by renowned institutions

During the second quarter, the crypto market witnessed Bitcoin's impressive price performance, displaying strength in both bullish and bearish market conditions, particularly the latter. However, altcoins and stablecoins experienced a relative decrease in market presence. This pattern is commonly observed during the early stages of bull runs.

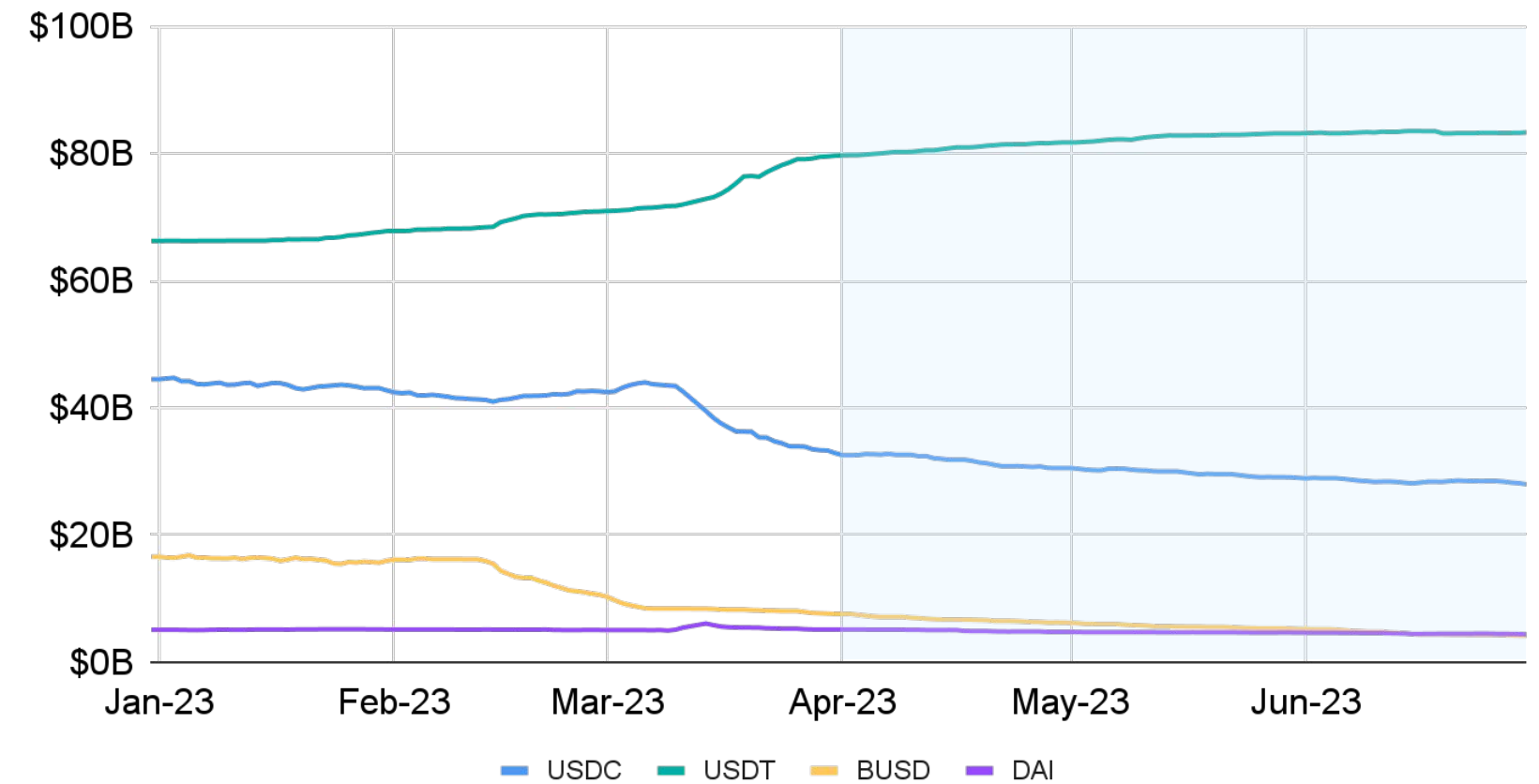
Crypto market capitalization dominance (YTD)²



USDT consolidated above \$80B market value, as BUSD experienced further decline

In the stablecoin market, it is noteworthy to emphasize the significant value growth of USDT in comparison to its competitors. USDC and, specifically, BUSD experienced notable losses in this trend. USDC encountered difficulties during the SVB crisis, which led to an incident of unpegging, while BUSD faced regulatory crackdowns due to the Binance and Paxos situations.

Market capitalization of major stablecoins (YTD)²



¹ The first appearance of an expression containing a light blue highlight are described in further detail in the Glossary at the end.

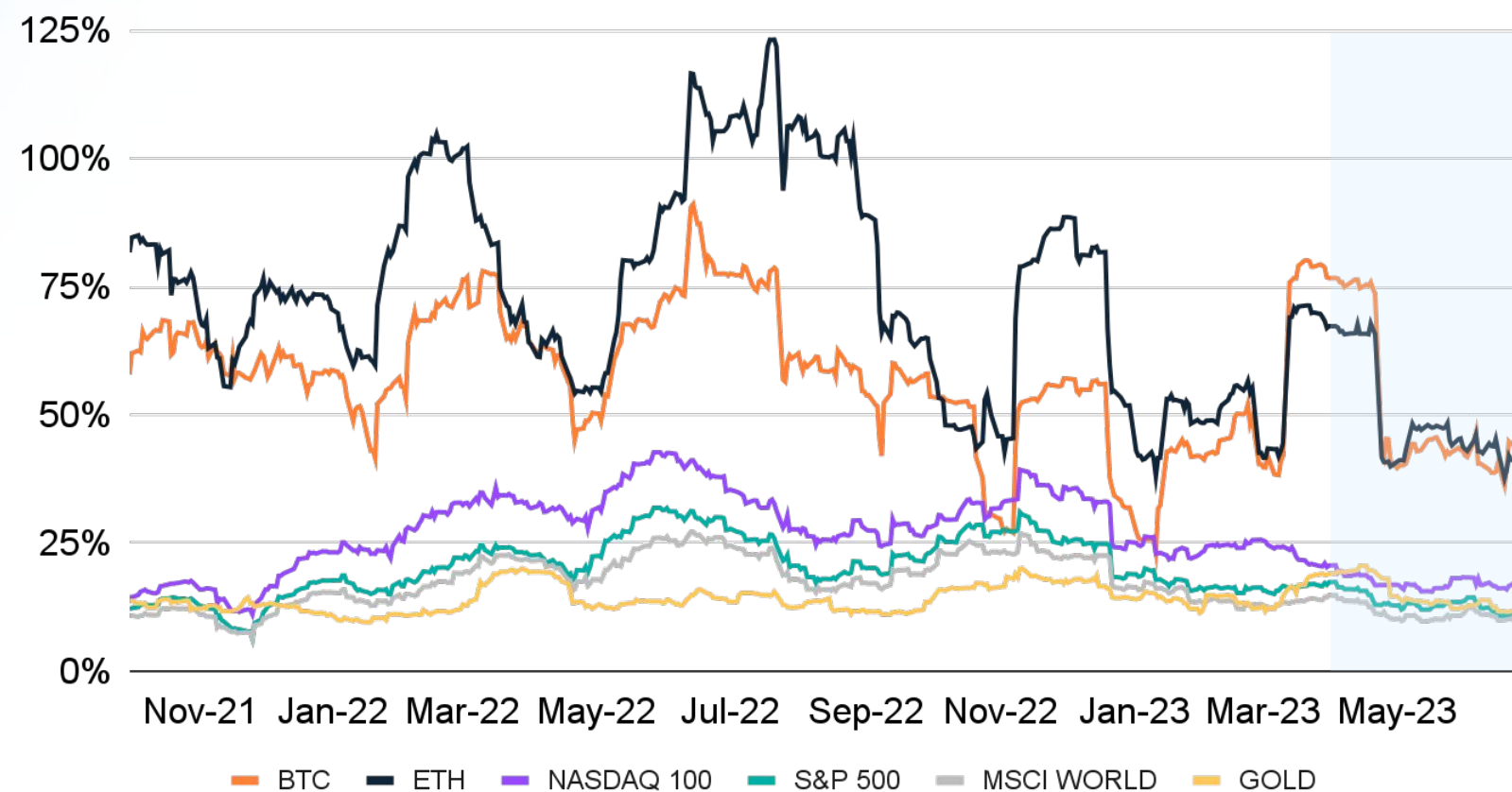
² Source: Hashdex Research with data from Messari (from 12/31/2022 to 06/30/2023).



After a spike higher during the US banking crisis, BTC's volatility is back below 50%

Following a period marked by increased uncertainties in the traditional financial system in 1Q23, potentially contributing to the significant price surge of Bitcoin in the same period, the 2Q23 witnessed relatively subdued volatility in the leading digital asset. During this period, Bitcoin exhibited a relatively stable behavior, with price fluctuations mostly limited to a 50% range, indicating a more restrained level of volatility compared to previous instances.

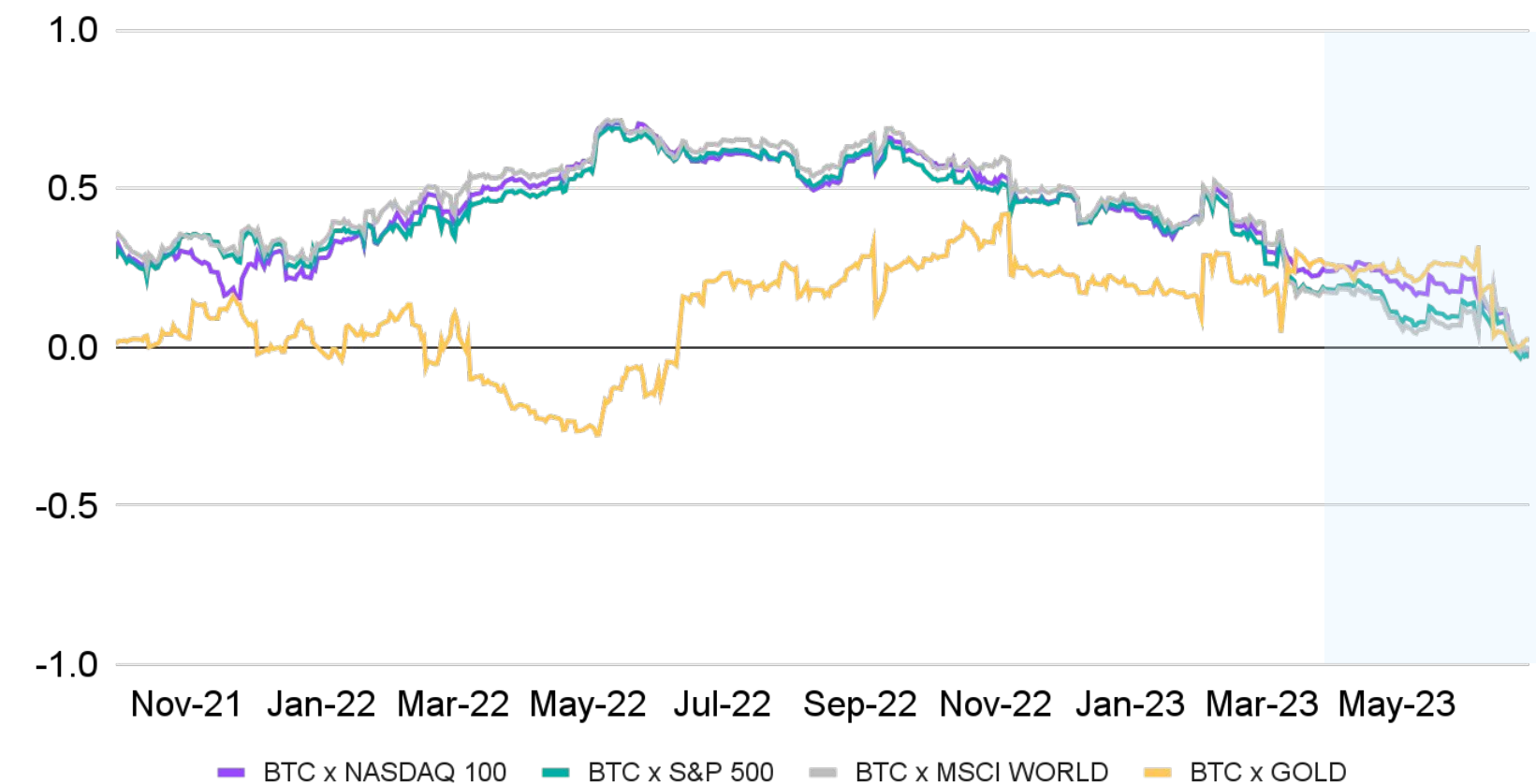
30D annualized volatility (working days)¹



After two years of higher correlations, BTC has finally decoupled from traditional assets

In 2Q23, **the correlation** between Bitcoin and major global asset classes, including S&P 500, Nasdaq 100, MSCI World, and Gold, **continued to decrease** from the previous quarter. The previous year witnessed high levels of correlation among these asset classes during a significant correction phase in the market. However, as correlations significantly decreased in 2023, this trend highlights the diversification potential that digital assets offer to traditional portfolios.

3 month rolling correlations (working days)¹



¹ Source: Hashdex Research with data from Bloomberg (from 06/09/2021 to 06/30/2023).

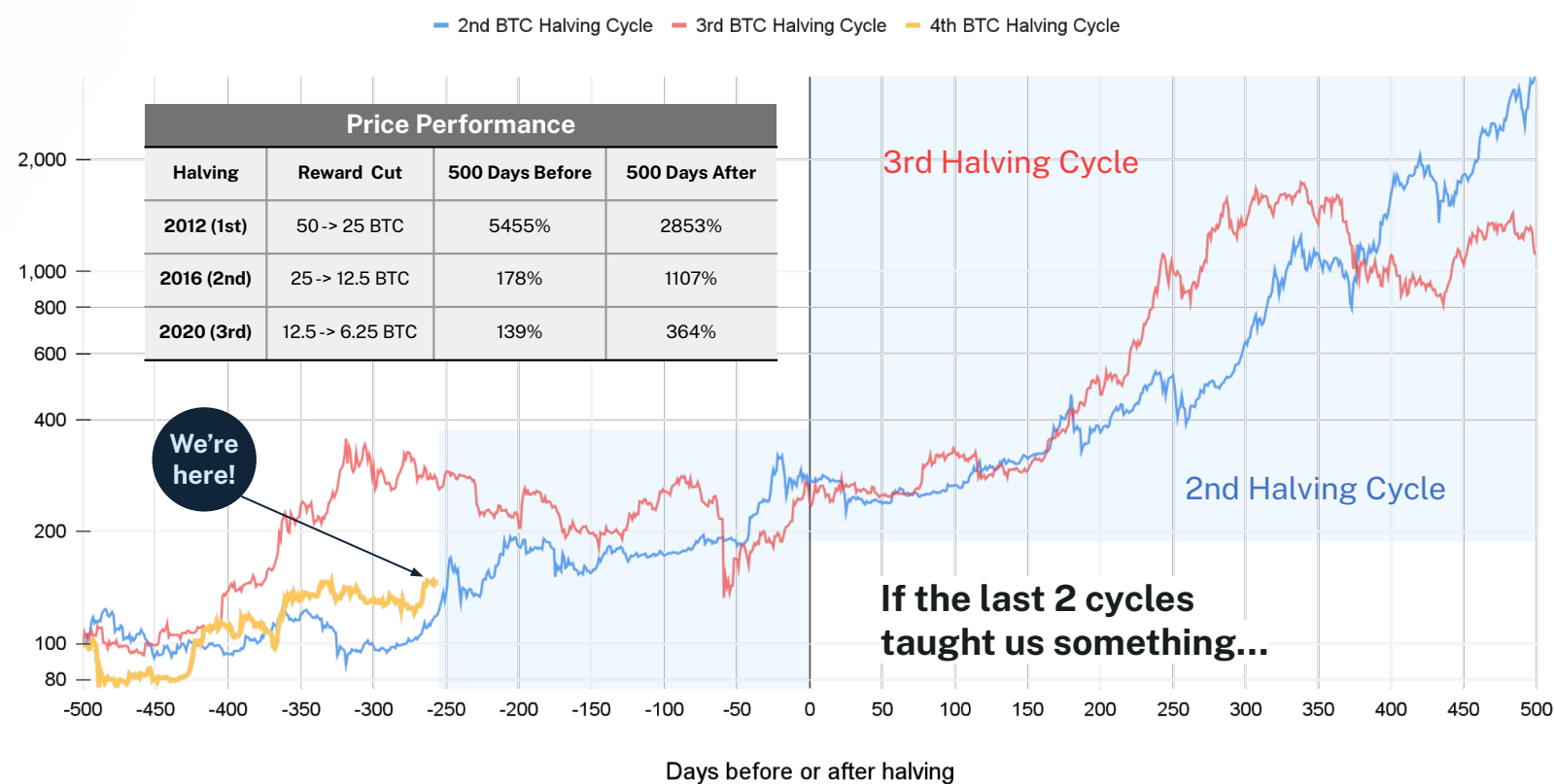


The Bitcoin halving is taking place next year

The Bitcoin halving¹ is expected to take place in April/May of 2024

Looking back at previous cycles, we can observe that the 500 days before the halving event saw a relatively warm market for BTC, with still some volatility but with trading ranges in the range between the cycle low and the prior all-time-high. On the flip side, the 500 days that follow the halving were characterized by significant and rapid price surges.

Bitcoin performances² 500 days before and after each halving



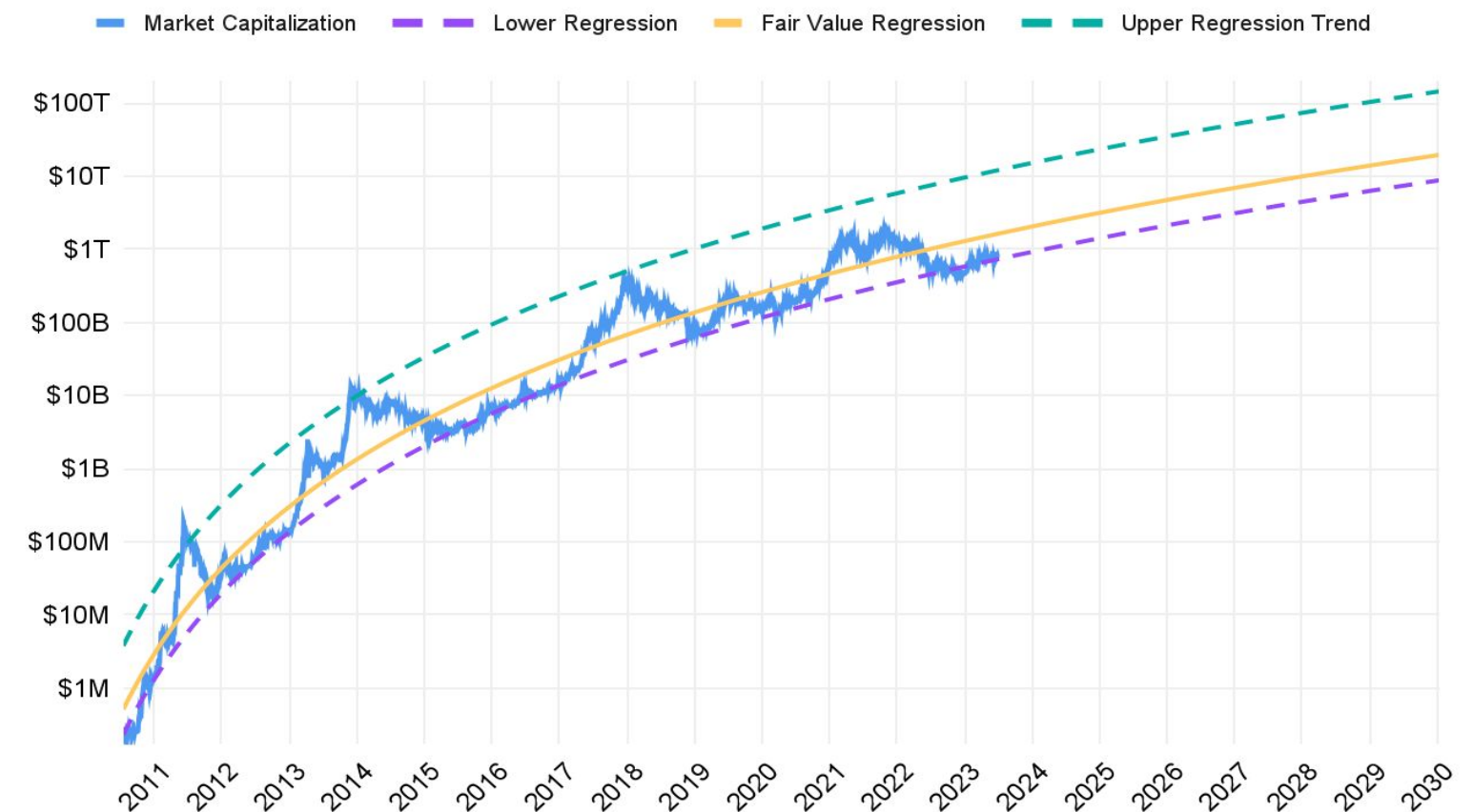
1 The event where the mining subsidy per block is halved, which takes place in multiples of 210,000 blocks since Bitcoin's inception (or roughly every 4 years).
 2 Source: Hashdex Research with data from Glassnode (from 07/17/2010 to 06/30/2023).
 3 Source: Hashdex Research with data from Glassnode and Messari (from 07/17 /2010 to 06/30/2023). Logarithmic regression model fitted to data until the end of 2022. All data until the end of June is included to assess the current undervaluation level of BTC and ETH combined.

Long-term accumulation phase

Digital Assets are still well below long-term "fair" value regression trend

In our June [Notes from the CIO](#), our analysts built a long-term logarithmic regression trend line to assess the market capitalization growth of crypto assets (represented by BTC and ETH combined). Based on this assessment, it was concluded that the two blue-chips assets are still well below their long-term "fair" value trend (represented by the yellow line).

Logarithmic regression³ for the combined market cap of BTC & ETH



REGULATORY LANDSCAPE

A Special Edition



SEC Chairman Gary Gensler Takes Action Against Binance and Coinbase

In early June, the **SEC** took legal action against prominent cryptocurrency exchanges **Binance** and **Coinbase**. The SEC's primary concern revolves around the classification of cryptocurrencies as securities.

On that note, the regulatory body has three primary tools to address exchanges that violate securities laws.

- Firstly, they can seek to discourage unlawful practices by obtaining any profits gained from the violations.
- Secondly, they can obtain an injunction to force a business to cease its operations.
- Lastly, the SEC has the authority to impose civil penalties, which are often calculated as a multiplier of the illicit gains.

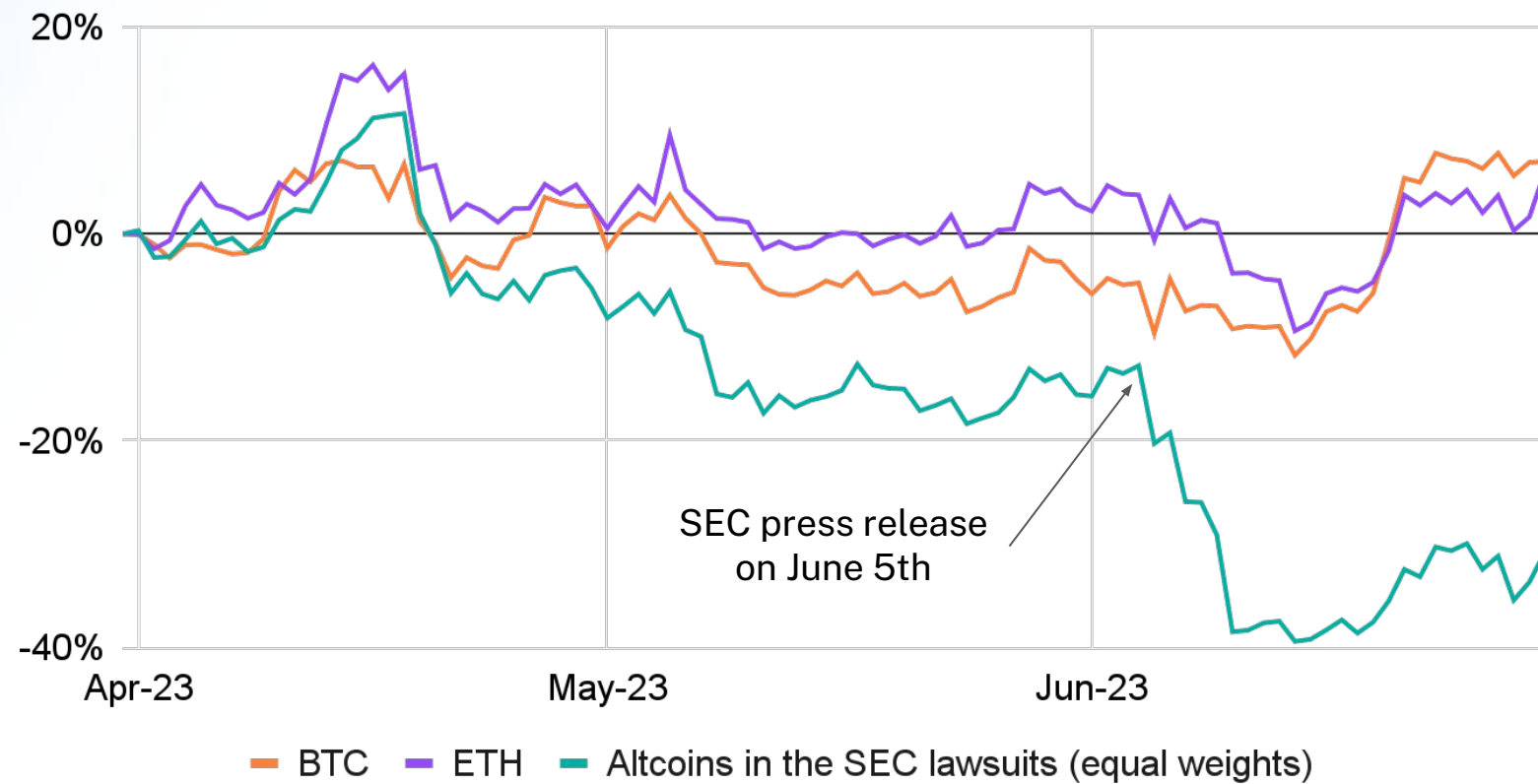
These lawsuits underscore the necessity for [transparent regulations in the crypto industry](#).



Tokens related to SEC lawsuits against Binance and Coinbase plunged in June

The regulatory developments, especially the SEC's actions against Binance and Coinbase, had a considerable impact on the performance of tokens deemed as securities⁴ by the SEC during the quarter. As a result, some tokens were removed from exchanges in the United States like eToro and Robinhood, leading to a decline in their respective prices, as shown below.

Performance¹ of tokens amidst SEC lawsuits²

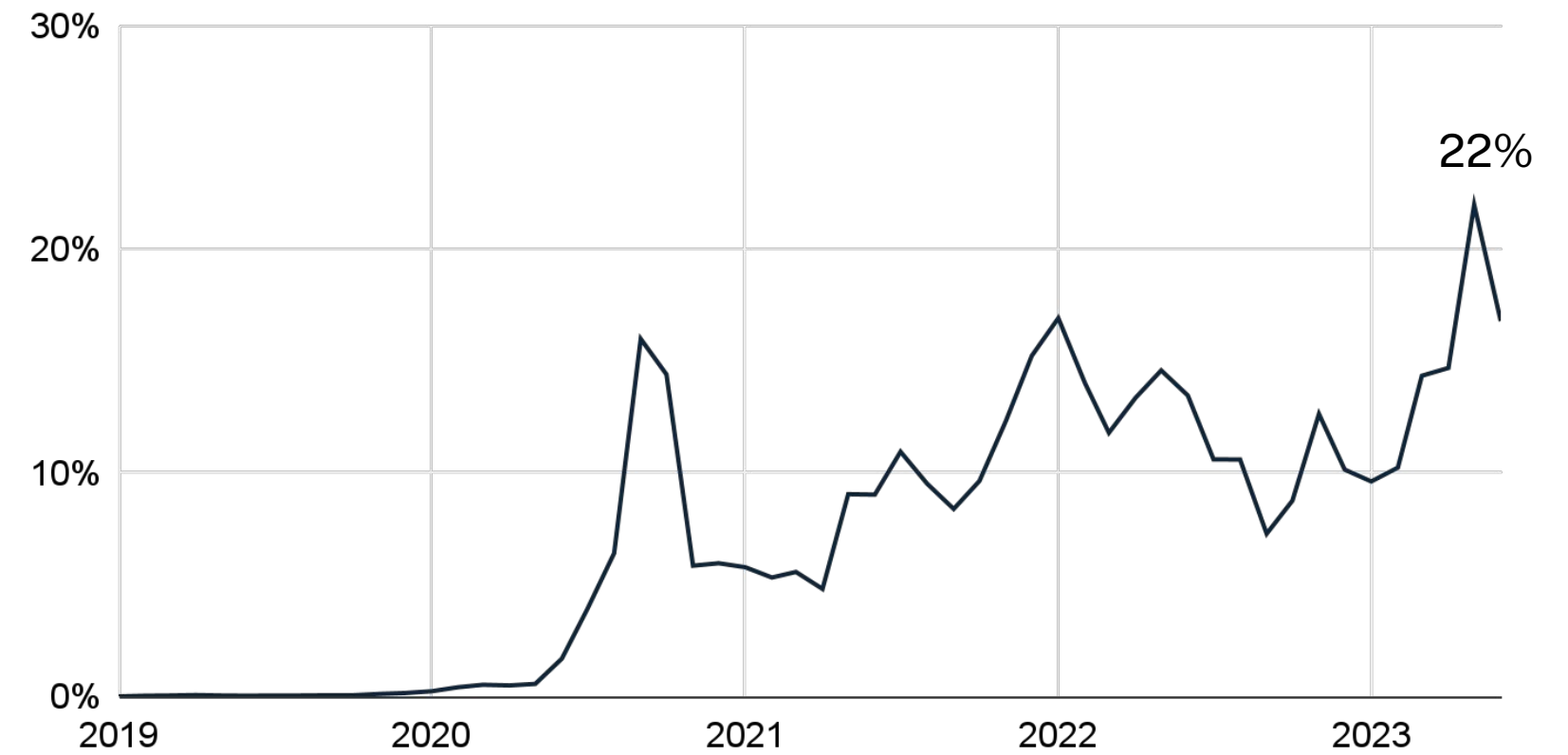


1 Source: Hashdex Research with data from Messari (from 03/31/2023 to 06/30/2023).
 2 Altcoins in the SEC lawsuit: ADA, ALGO, ATOM, AXS, COTI, FIL, MANA, MATIC, SAND and SOL (according to <https://www.sec.gov/news/press-release/2023-101>, accessed June 28, 2023).
 3 Source: Hashdex Research with data from The Block (from 01/31/2019 to 06/30/2023).
 4 Solana, Cardano, Polygon, Filecoin, Cosmos, The Sandbox, Algorand, Decentraland, Axie Infinity and Coti.

DEX to CEX spot ratios hit a new all-time-high above 20%

As gateways used by conventional centralized exchanges (CEXs) continue getting closed, decentralized exchanges (DEXs) are gaining traction in spot volumes in crypto, with the ratio of DEX to CEX volumes hitting 22% for the first time since the inception of DeFi. This strengthens the case for DeFi, and shows the maturity level the sector has achieved thus far.

DEX to CEX spot trade volume (monthly)³



Bitcoin Rush: Quest for BTC Spot ETF Surges As BlackRock Looks For Filing Approval

Amidst the regulatory uncertainty in the crypto space, **BlackRock** and **other traditional finance institutions** have filed for a Bitcoin Spot Exchange-Traded Fund (ETF).

BlackRock filed an application with the SEC on Thursday for a Bitcoin ETF. Larry Fink, their CEO, echoed the sentiment that he views **bitcoin as an "international asset" and that crypto's role might be digitizing gold**. The application includes Coinbase as the custodian for assets and pricing data. If approved, this ETF would be the first of its kind in the United States. Although the SEC has previously approved Bitcoin futures ETFs, it has denied several spot ETF applications for the cryptocurrency.

Although it is known that the initial filing venture by those actors have been **deemed inadequate** by SEC and **refilled** promptly, it is undeniable that the potential impact of a spot ETF on the demand for Bitcoin and its future outlook is significant.

BlackRock®

(\$8.6 trillion)¹



(\$4,2 trillion)²



(\$1.5 trillion)³



(\$94 billion)⁴



(\$58 billion)⁵

¹ https://s24.q4cdn.com/856567660/files/doc_financials/2023/ar/BLK_AR22.pdf (em 12/31/2022)

² <https://www.fidelity.com/about-fidelity/our-company/asset-management> (em 03/31/2023)

³ <https://invesco2021tf.q4web.com/news/news-details/2023/Invesco-Ltd.-Announces-May-31-2023-Assets-Under-Management> (em 05/31/2023)

⁴ <https://ir.wisdomtree.com/> (em 07/03/2023)

⁵ <https://www.etf.com/topics/vaneck> (em 07/04/2023)





Institutional Adoption

Notable cases for adoption of blockchain technology into business models



Louis Vuitton embraces Web3, launching its first digital collectible



Louis Vuitton has unveiled its iconic trunk as a digital collectible, delving into the world of Web3 and NFTs.

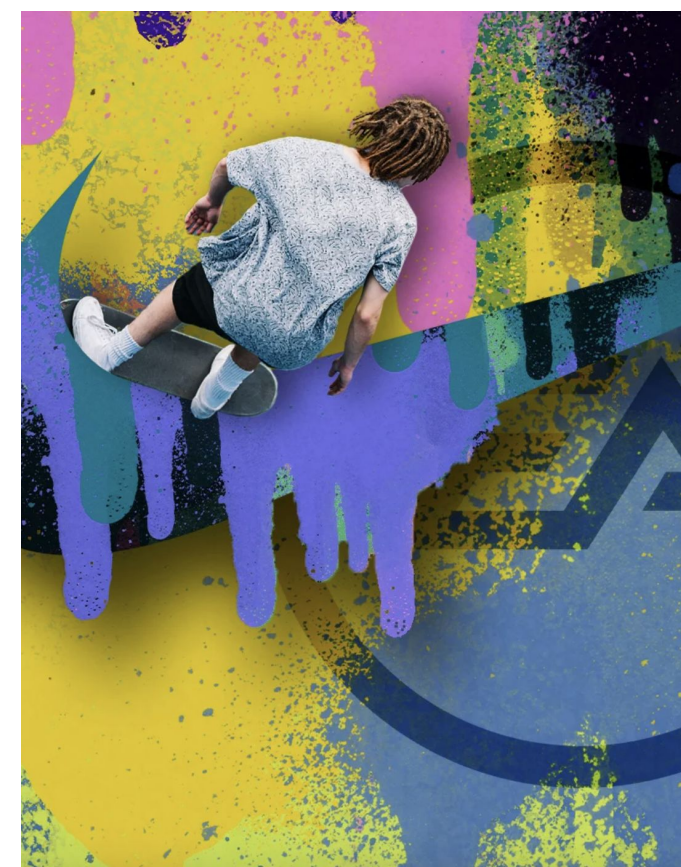
Louis Vuitton, renowned for its embrace of technology and innovation, has been a participant in the Aura blockchain project. This initiative aimed to enhance transparency and traceability throughout the luxury industry, particularly with the LV Diamonds collection.

Building upon this, Louis Vuitton is now venturing further into the Web3 space by transforming its iconic Louis Vuitton trunk into a digital collectible, marking another step forward in their technological journey.



<https://cointelegraph.com/news/louis-vuitton-embraces-web3-launches-its-iconic-trunk-as-a-digital-collectible>

Nike NFTs to Make Their Way Into EA Sports Games



Nike's .Swoosh NFT marketplace will be integrated into future EA Sports video games, allowing players to interact with Nike's digital collectibles in-game.

The specific titles from EA Sports that will feature Nike's virtual athletic attire have not been disclosed yet. However, considering EA's range of sports-related games, such as FIFA, it is likely that they will be included.

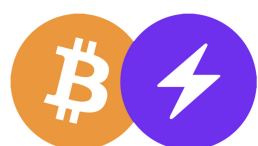
Notably, .Swoosh has already collaborated with renowned athletes like Cristiano Ronaldo, LeBron James, Michael Jordan and Serena Williams.



<https://blockworks.co/news/nike-nfts-ea-sports-games>



Strike expands its reach to over 65 countries



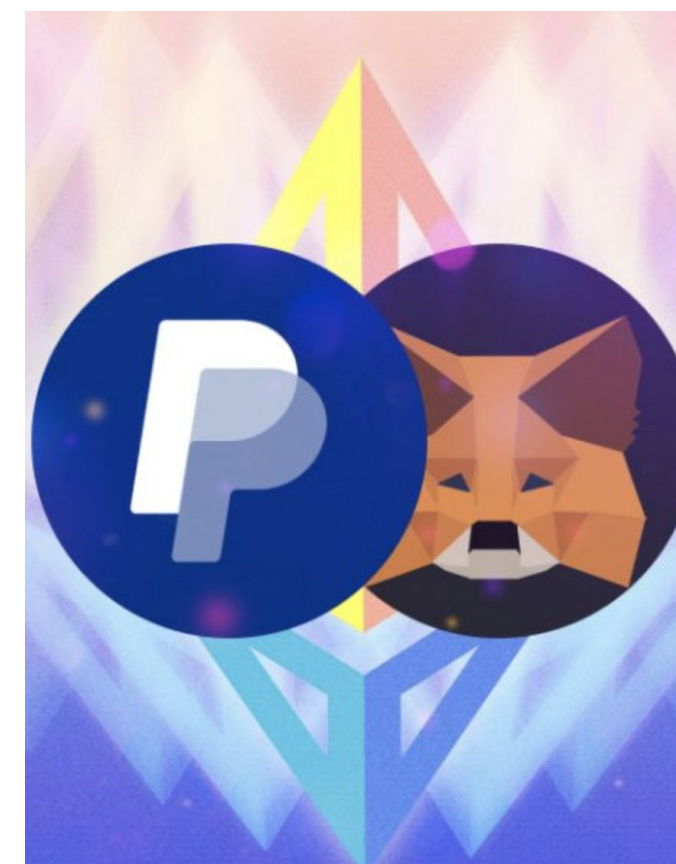
Strike, Bitcoin's payment app, expanded its global payments with Bitcoin and Lightning Networks, adding bitcoin (BTC) and tether (USDT) support.

Strike's recent expansion is set to significantly broaden its total addressable market, reaching approximately 3 billion individuals.

Manuela Rios, the Vice President of Product at Strike, expressed their ultimate objective of serving the entire global population of 7 to 8 billion people across all countries in an interview with CoinDesk.

<https://www.coindesk.com/tech/2023/05/19/bitcoin-payments-app-strike-expands-to-65-countries-from-three/>

MetaMask and PayPal, all you need to know about buying ETH



MetaMask, the pioneer in web3 wallets, now enables users in the US to conveniently purchase ETH using PayPal.

MetaMask has introduced a user-friendly "buy crypto" feature within its wallet, simplifying the process of purchasing ETH and other cryptocurrencies.

To expand the payment options for its users in the US (excluding Hawaii), MetaMask has now integrated PayPal as a supported payment method.

<https://metamask.io/news/latest/metamask-and-paypal-all-you-need-to-know-about-buying-eth/>



Societe Generale's crypto division has launched a Euro stablecoin on Ethereum



EURCV will be provided to institutional clients as a solution to connect traditional capital markets with digital assets, aiming to bridge the gap between the two.

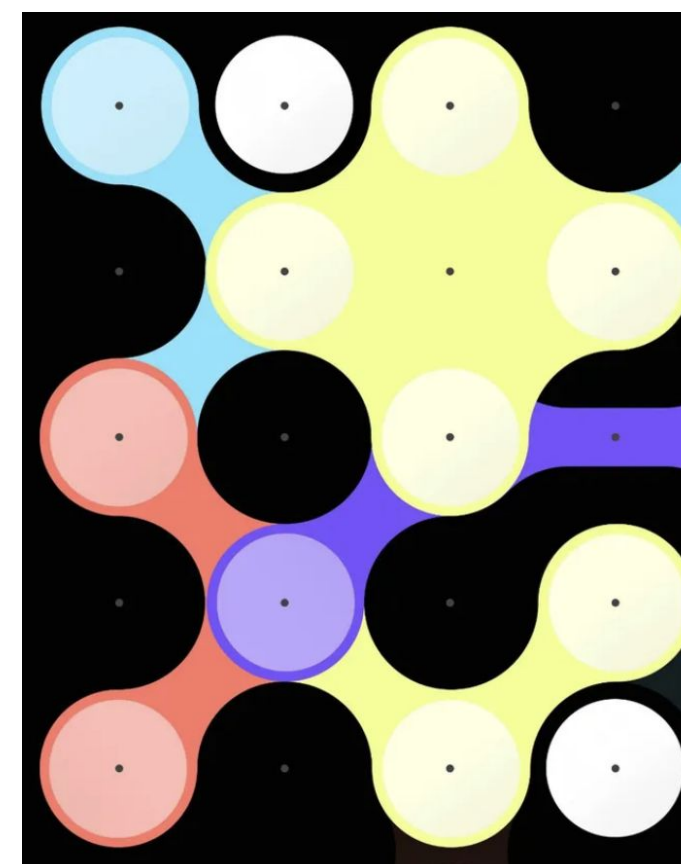
SG Forge is responding to growing client demand for a secure settlement asset for on-chain transactions, as well as a source of on-chain liquidity funding and refinancing.

The division of Societe Generale obtained registration from France's Autorité des Marchés Financiers (AMF) last September, allowing them to provide cryptocurrency trading and custody services. This development reflects the increasing institutional adoption of digital assets in France.



<https://www.coindesk.com/business/2023/04/20/societe-generales-crypto-division-introduces-euro-stablecoin-on-ethereum/>

Goldman Sachs, Microsoft, and other companies co-launch a blockchain



Canton

The Canton Network is specifically designed to cater to the requirements of traditional financial institutions.

The Canton Network utilizes Daml, a smart contract language developed by Digital Asset, to enhance its functionality. Currently, the network has attracted 30 participants, including prominent entities such as Paxos, Goldman Sachs, BNP Paribas, Cboe Global Markets, and Microsoft.

The group anticipates a rapid expansion of network connections throughout the year as new applications are developed.

<https://www.bloomberg.com/news/articles/2023-05-09/goldman-microsoft-cboe-and-others-to-launch-blockchain-network>



The Digital Real, a platform for tokenized assets being developed by the Brazilian Central Bank, will be compatible with the Ethereum Virtual Machine (EVM).

The **Digital Real**, a platform for tokenized assets (including the Brazilian currency Real) being developed by the Brazilian Central Bank (BCB), will be tested using **Hyperledger Besu** network, a private blockchain platform that is compatible with Ethereum and its Ethereum Virtual Machine (EVM Compatible).

- The platform is expected to be launched by end of 2024.
- Hyperledger Besu will act as the “settlement layer” between financial institutions.
- Being EVM compatible will enable the BCB to leverage the existing Ethereum ecosystem and benefit from a wide range of tools, libraries and developer communities that have been built around Ethereum.
- The Central Bank will be able to leverage all the applications and services already developed and tested in DeFi (Decentralized Finance).
- This is a strong statement in favor of blockchain technology coming from one of the most innovative central banks in the world.





Ecosystem Developments

Notable cases for adoption of blockchain
technology into business models



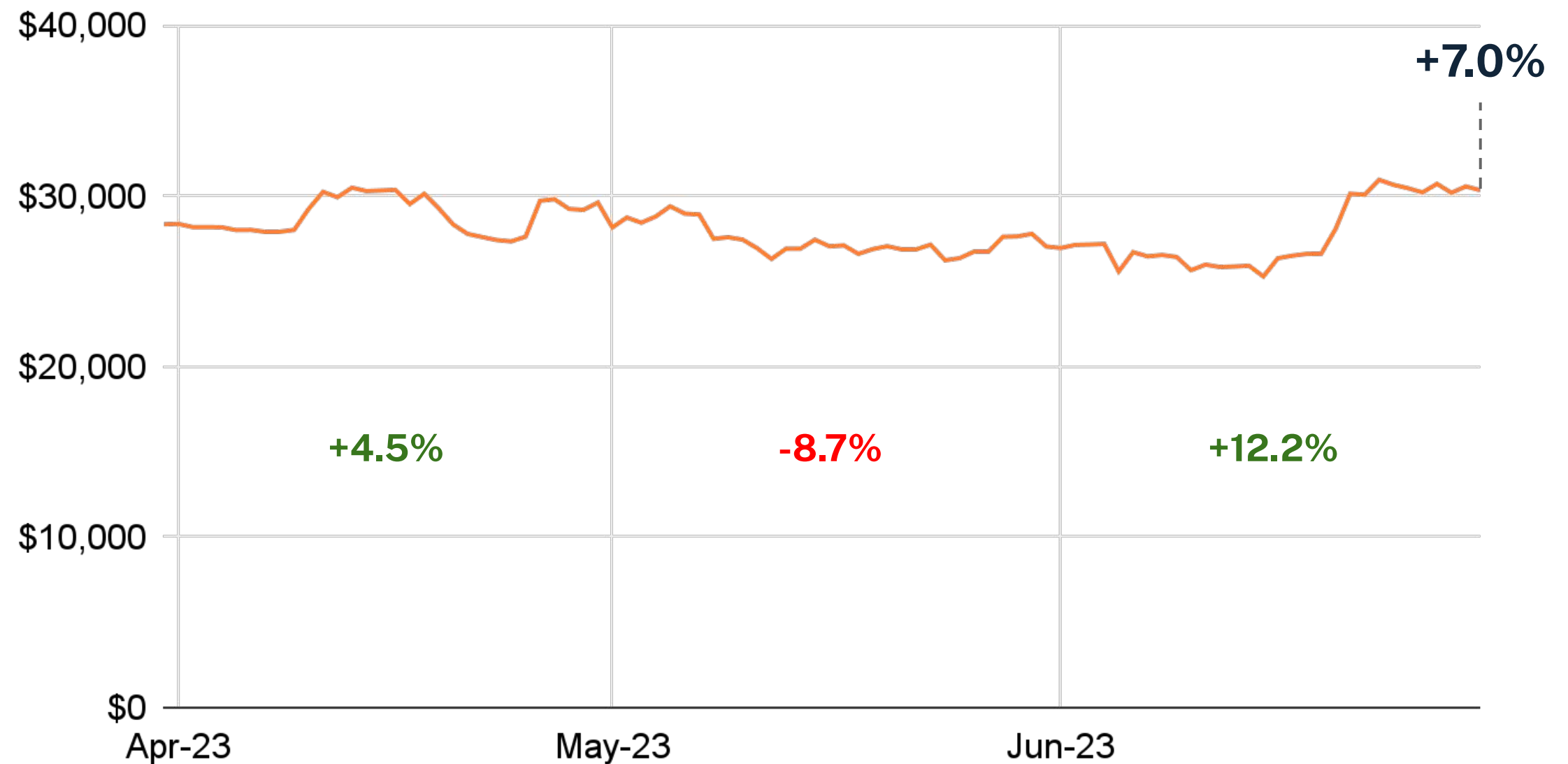
Institutional push for a spot ETF in the US brought renewed steam for bitcoin by quarter's end

With no major events driving crypto after an outstanding first quarter for the year, **April** brought the beginning of a consolidation phase for BTC, with the flagship crypto asset going up by 4.5% in the month.

May finally closed the four green months streak in BTC's price for 2023, with a healthy correction of 8.7% for the month.

SEC lawsuits against Binance and Coinbase have brought volatility and uncertainty back to the asset class in **June**. While the whole space was negatively affected by SEC actions, the end of June was marked by top-tier institutions such as BlackRock, Invesco and Fidelity filing for a spot BTC ETF in the US. BTC reversed all its month-to-date losses and flipped the month green with a 12.6% move up.

BTC Price¹



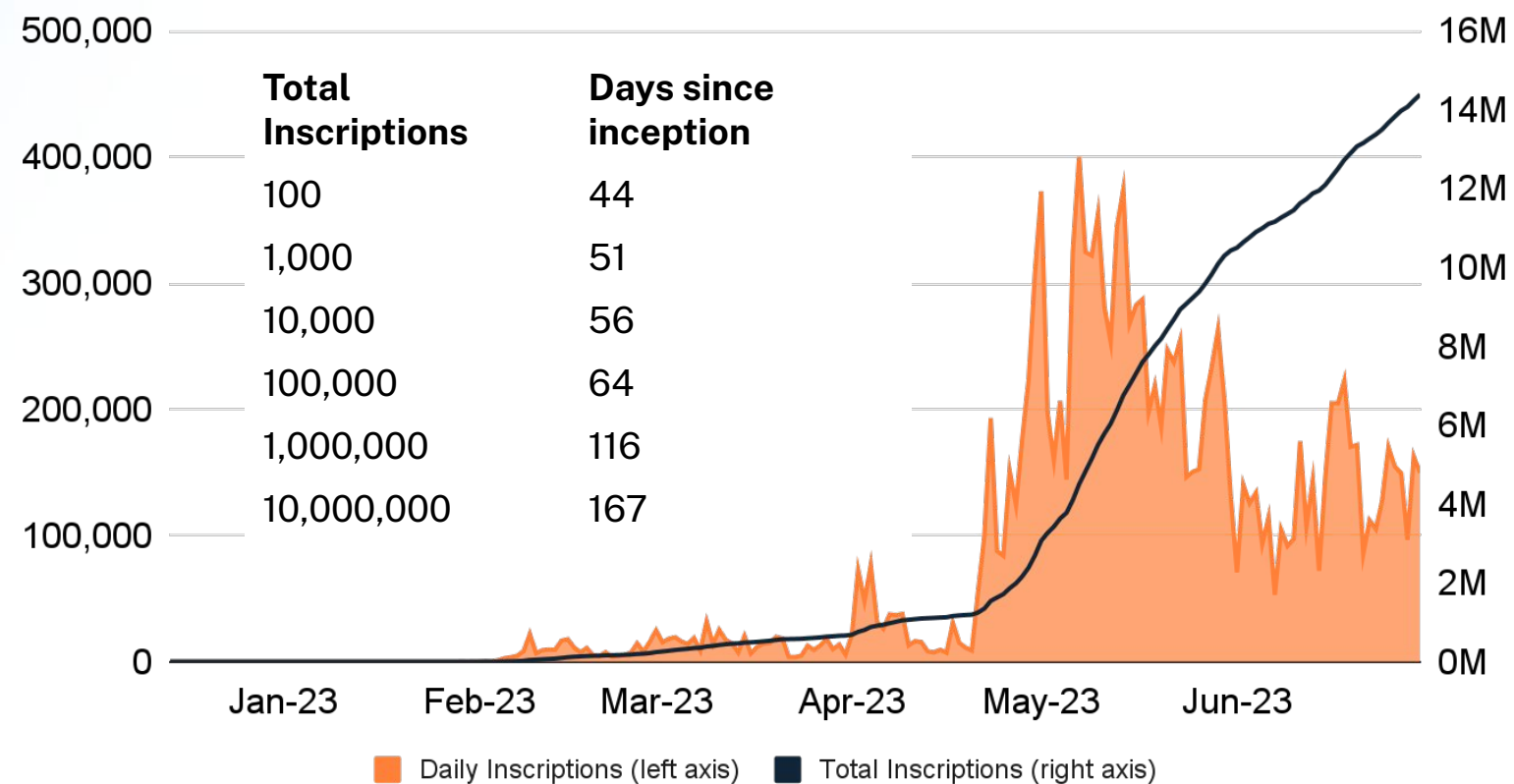
¹ Source: Nasdaq Bitcoin Reference Price Index (from 03/31/2023 to 06/30/2023)



BRC-20 tokens push total Inscriptions to above 14 million by the end of the quarter

BRC-20 is a recently introduced standard that utilizes Ordinals & Inscriptions¹ to create a notion of fungible tokens on the Bitcoin base layer. This new functionality began to gain popularity in late April, resulting in the total number of Inscriptions surpassing 10 million within just 6 months of launch of Ordinals. By quarter's end, the number of Inscriptions had reached 14 million.

Growth of Inscriptions since inception²



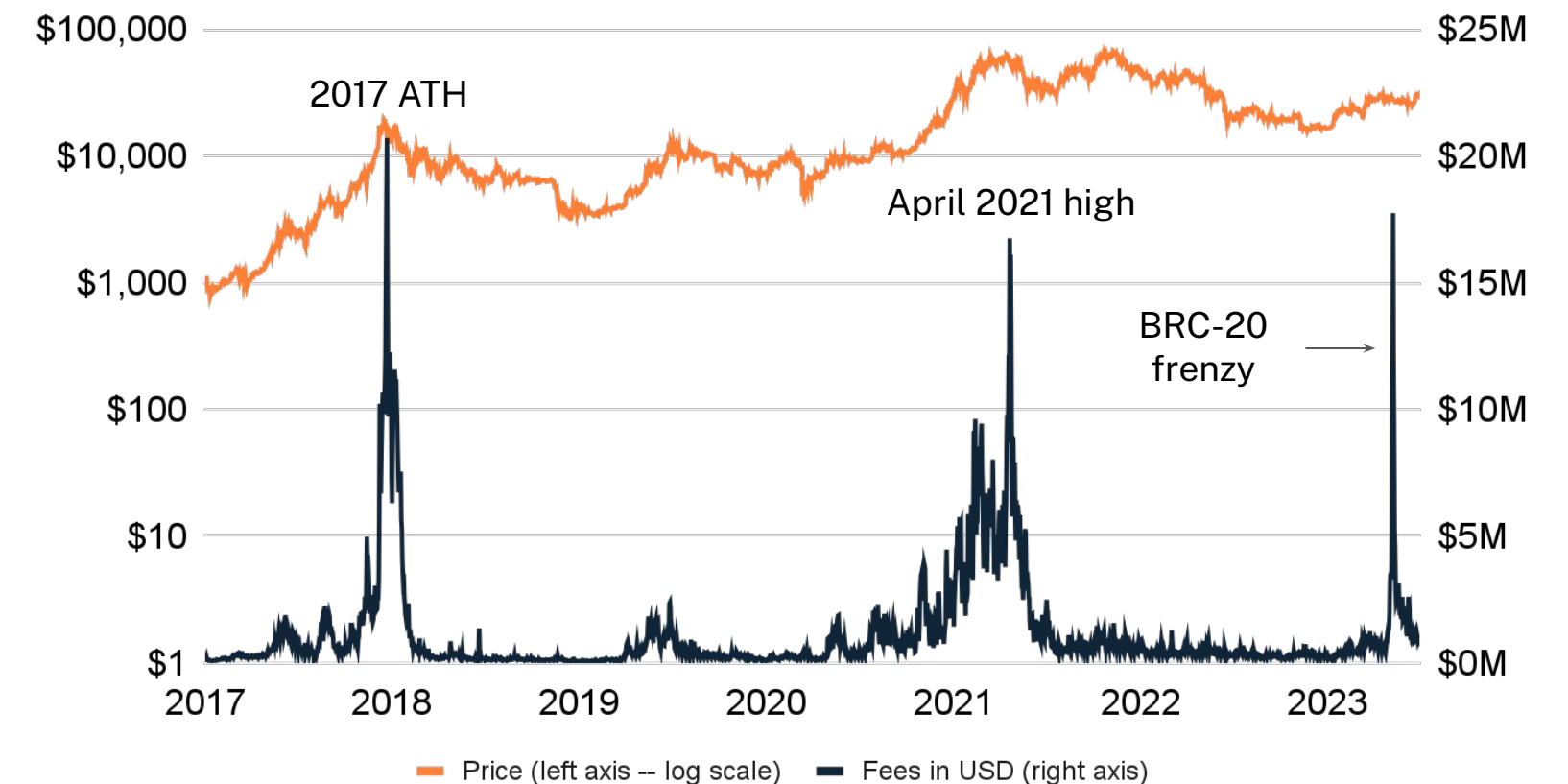
1 Source: <https://docs.ordinals.com/introduction.html>
 2 Source: Hashdex Research with data from [Dune Analytics](#) (from 12/14/2022 to 06/30/2023)
 3 Source: Hashdex Research with data from [Glassnode](#) (from 06/30/2022 to 06/30/2023)
 4 To understand the relevance of a strong fee market for Bitcoin, consider reading further our [Fundamentals Guide](#) at the end.



On-chain fees spiked to bull market levels amidst BRC-20 frenzy

The high demand for minting BRC-20 tokens led to a significant increase in daily on-chain fees, surpassing \$15 million in one single day. Such fee levels have typically been observed during the bullish phases of previous market cycles. This on-chain activity, occurring at current price levels, indicates strong investor interest in the new utility provided by Bitcoin and suggests that its long-term investment potential extends beyond being solely an emerging digital store-of-value.⁴

On-chain fees on Bitcoin³

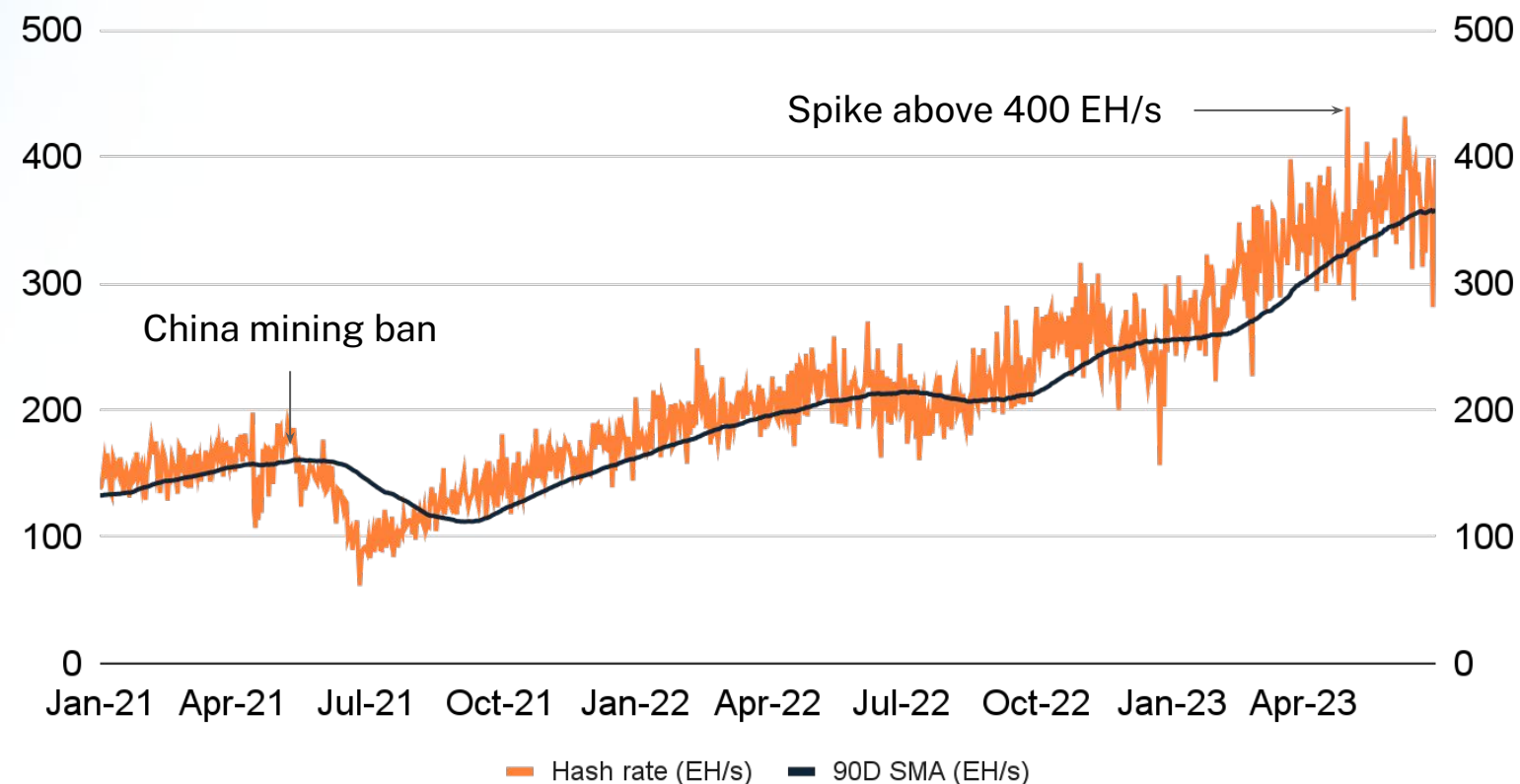


A new security milestone was reached

Hash rate reached 400 EH/s¹, twice as much Bitcoin security as before the 2021 China ban

Bitcoin's hash rate achieved a significant milestone, surpassing 400 exahashes per second (EH/s).¹ This increase was driven by the BTC price range of \$25,000 to \$30,000 and the rising on-chain fees resulting from the growing demand for Inscriptions. Additionally, Tether, the issuer of the largest dollar-backed stablecoin (USDT), publicly announced its plans to commence BTC mining operations in Uruguay, specifically utilizing renewable energy sources.⁴

Mining Hash Rate²



1 One exahash per second (EH/s) is equal to 10¹⁸ hashes per second (H/s).
 2 Source: Hashdex Research with data from Glassnode (from 06/30/2022 to 06/30/2023).
 3 Source: Hashdex Research with data from Glassnode (from 06/30/2022 to 06/30/2023).
 4 Source: <https://www.cnbc.com/2023/05/30/stablecoin-giant-tether-to-mine-bitcoin-in-uruguay-using-renewables.html>
 5 Source: <https://cointelegraph.com/news/binance-lightning-network-nodes-for-enhanced-bitcoin-transactions>
 6 Source: <https://www.coindesk.com/tech/2023/05/19/bitcoin-payments-app-strike-expands-to-65-countries-from-three/>
 7 Source: <https://www.santander.com/en/stories/lightning-network-blockchain>

Lightning Liquidity

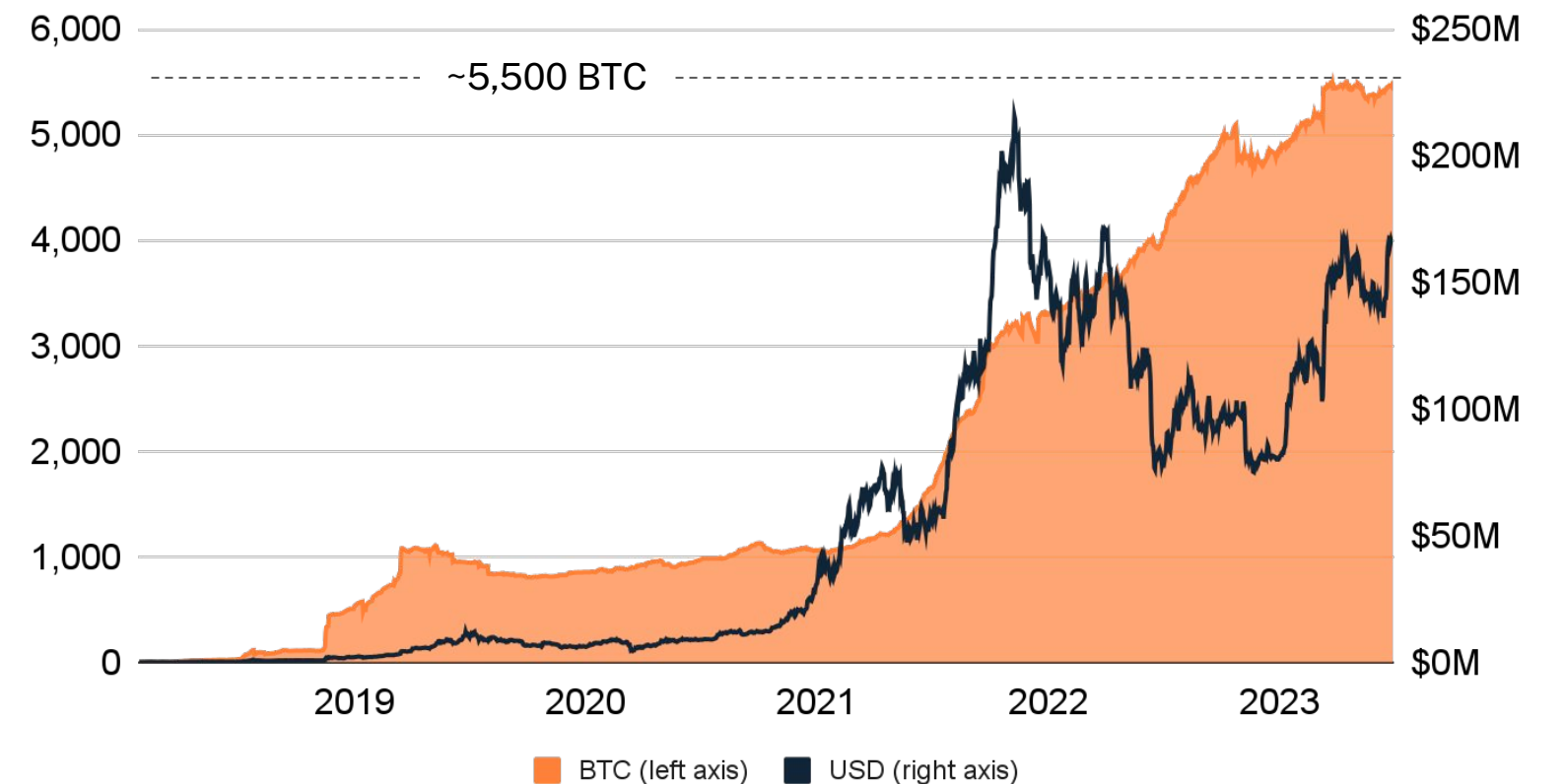


Market Pulse | Q2 2023

Lightning Network liquidity holds steady, poised for strong future growth

Lightning Capacity has remained at around 5,500 BTC, after experiencing two years of rapid and exponential growth. However, liquidity in this leading scaling solution is expected to continue increasing as Binance has publicly announced⁵ an integration with Lightning is being developed, Strike⁶ is expanding its Lightning services to other countries, and Santander⁷ released a report on the leading Bitcoin scaling solution.

Lightning Network Capacity³





All Bitcoin metrics¹ have risen significantly over the past 12 months



Metric	Q2'23	Q1'23	2022	1Y ago	QoQ	YTD	12M
Price (USD)	\$30,344	\$28,351	\$16,565	\$18,958	7.0%	83.2%	60.1%
Market Cap (USD)	\$591.1B	\$542.0B	\$319.5B	\$383.5B	9.1%	85.0%	54.1%
Dominance	49.5%	45.3%	39.4%	42.1%	9.3%	25.7%	17.6%
24h Exchange Volume (USD)	\$4.2B	\$5.4B	\$2.1B	\$3.7B	-22.9%	96.1%	13.9%



Hash rate (EH/s)	398.1	326.1	277.5	252.1	22.1%	43.5%	57.9%
Active Addresses	1.1M	1.0M	843.1k	959.4k	1.1%	25.9%	10.7%
Daily On-chain Fees (USD)	\$1.1M	\$917.9k	\$201.9k	\$320.6k	15.6%	425.5%	230.9%
Lightning Capacity (BTC)	5,463.6	5,437.4	4,830.2	4,005.3	0.5%	13.1%	36.4%

¹ Source: Hashdex Research with data from Messari and Glassnode (from 06/30/2022 to 06/30/2023)



Unveiling Ether’s price performance: the Shanghai Update, the SEC lawsuits & more

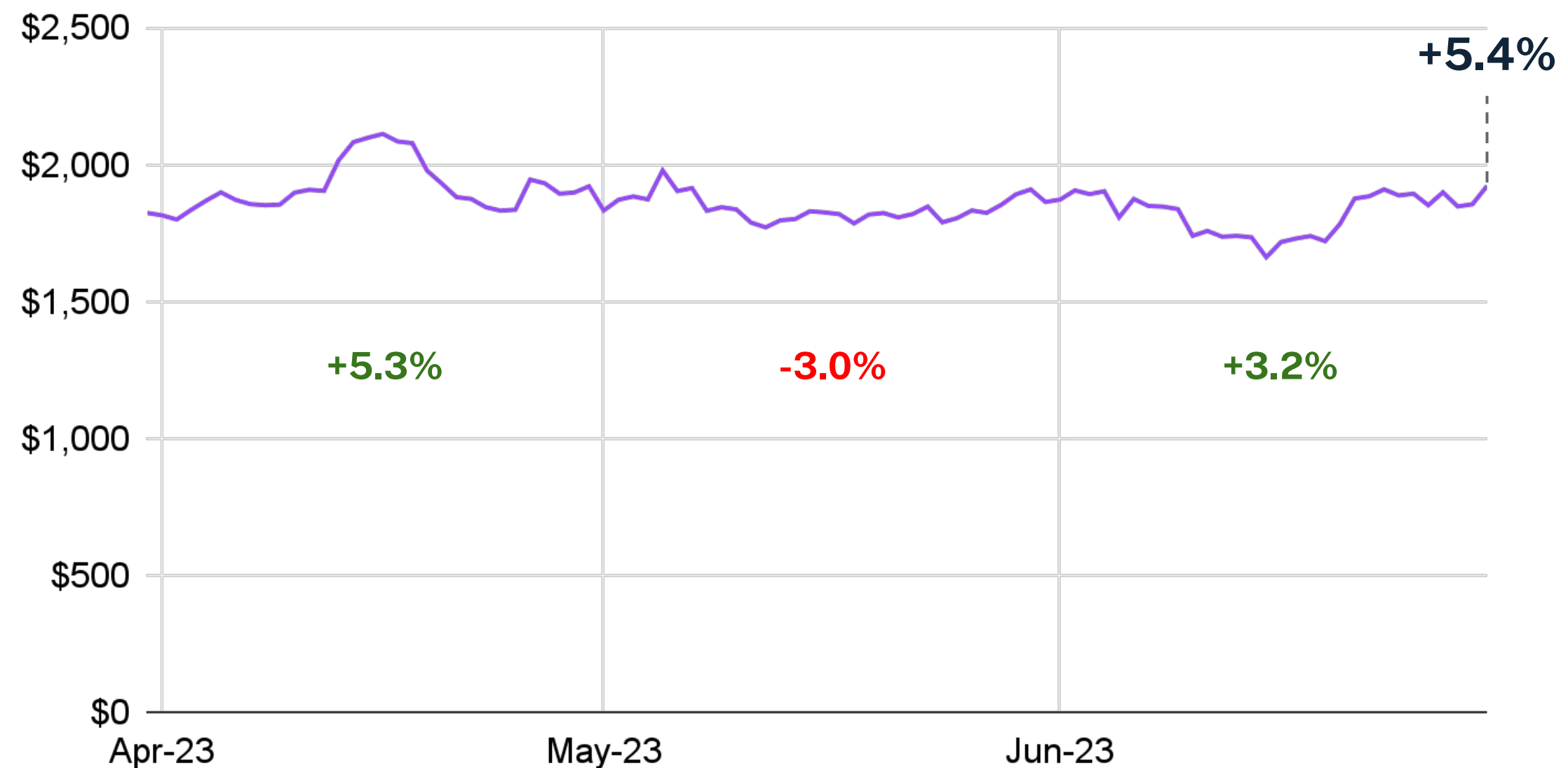
During the second quarter of 2023, Ethereum's native token, ether, demonstrated a period of relatively lower volatility when compared to Bitcoin.

This period of stability followed the successful implementation of the Shanghai update on the Ethereum network in **April**. The upgrade had a positive impact on the performance of ether, leading to notable price gains.

In **May**, a healthy correction occurred, which was to be expected after ether had shown consistent positive price momentum for several weeks.

As the quarter concluded in **June**, the cryptocurrency industry faced regulatory challenges, including actions taken by the Securities and Exchange Commission (SEC) against major exchanges like Coinbase and Binance. Additionally, Gary Gensler's classification of certain tokens as securities added to the regulatory concerns. However, ether seemed to be excluded from much of this regulatory scrutiny, which contributed to its favorable price action during this period.

ETH Price²

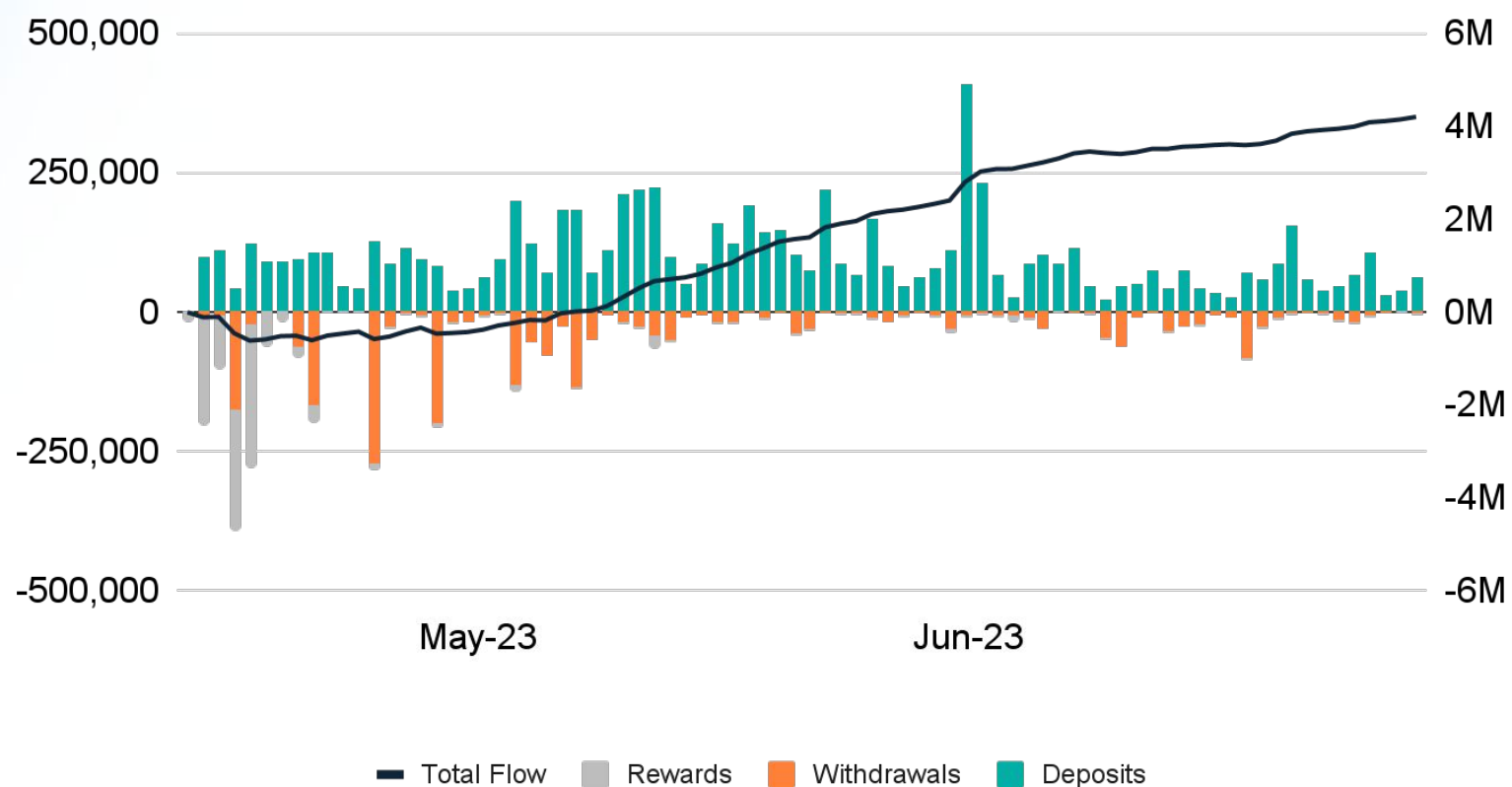


¹ Source: Nasdaq Ether Reference Price Index (from 03/31/2023 to 06/30/2023).

Staking inflows have surpassed outflows in little over three weeks post-Shanghai

In the last quarter, it was highlighted the significance of the net balance between ether withdrawals and deposits through staking as an important metric. Market participants' response to the Shanghai update was evident when total staking inflows surpassed outflows in just three weeks after the upgrade took place.

Deposits and withdrawals post-Shanghai¹



¹ Source: Hashdex Research with data from [Dune Analytics](#) (from 04/12/2023 to 06/30/2023).
² Source: Hashdex Research with data from [Glassnode](#) (from 11/03/2023 to 06/30/2023).

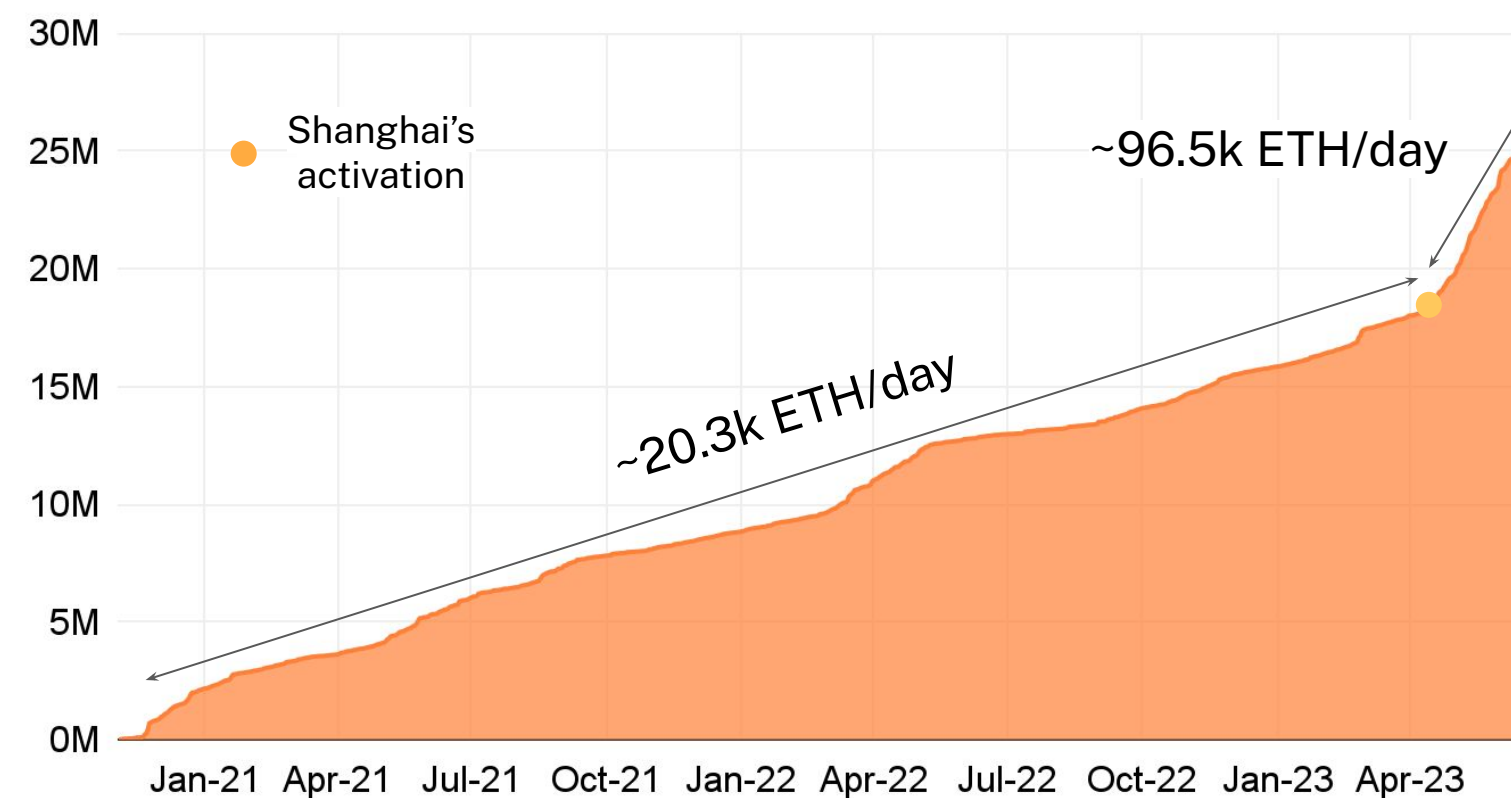


The pace of new staking deposits has increased by almost 5x after Shanghai

As highlighted in the 1Q23 Market Pulse report, there was a remarkable surge in the volume of new staking deposits, indicating a notable uptick in staking adoption, as illustrated below.

The more ether is locked in the staking smart contract, the costlier it a potential attack on the network becomes, thus making it more secure.

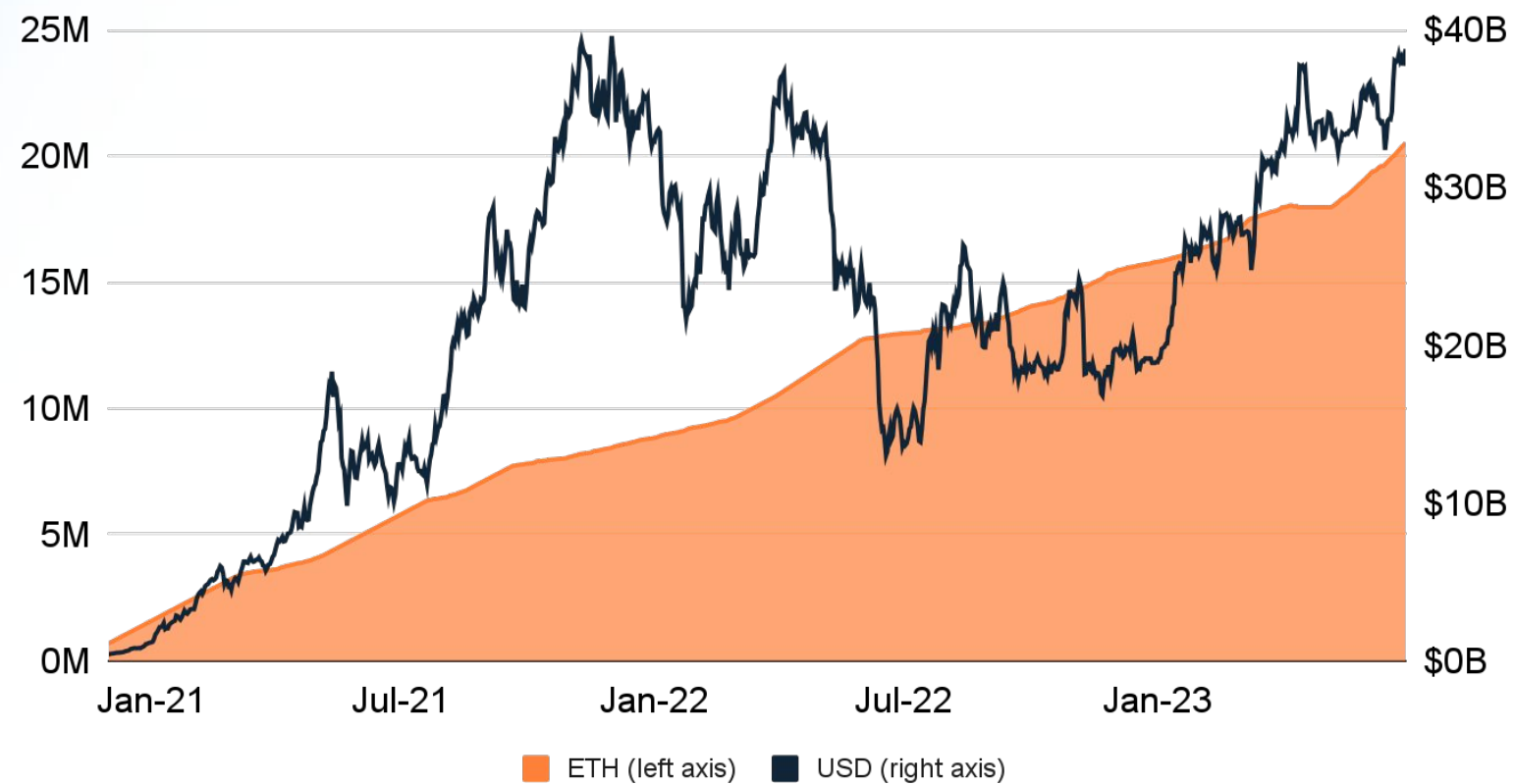
Total ETH deposits on the Ethereum's staking contract²



Total stake on Ethereum hit 20 million ETH for the first time since inception

The number of ETH staked has surpassed 20 million tokens in June for the first time in history. Now, **1 out of every 6** ETH in circulation is staked, which reduces its liquid supply available in the market and can potentially push prices as demand for ETH continues to grow.

Total stake on Ethereum in Q2'23¹



¹ Source: Hashdex Research with data from Glassnode (from 03/31/2023 to 06/30/2023).

² Source: Hashdex Research with data from [Dune Analytics](#) (from 04/12/2023 to 06/30/2023).

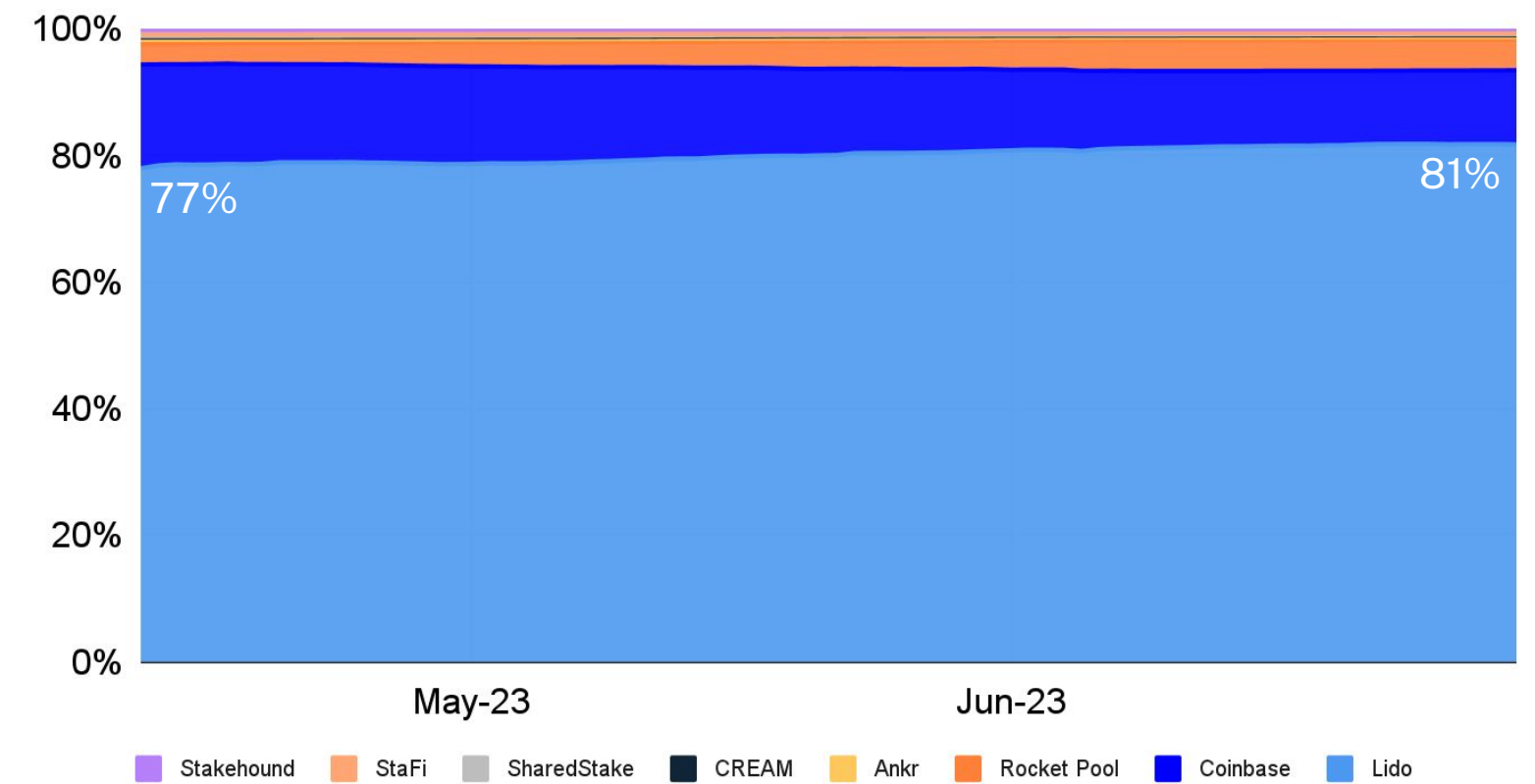
³ Such as block finality attacks (in which blocks cannot become final given an unresolved dispute for which blockchain is the correct one in a given point in time) or private key exposure for a big number of validators at once (meaning validator control is undertaken by a malicious actor).



Lido concentration in Liquid Staking continued to grow post-Shanghai

In our previous report, a noteworthy concern was the need for a more diversified market of liquid staking providers. However, it is concerning to observe that instead of diminishing, Lido's market share has significantly increased. While this is not inherently negative, it is important to acknowledge the potential risks³ associated with a single provider controlling over 80% of the market.

ETH staked through Liquid Staking since Shanghai²

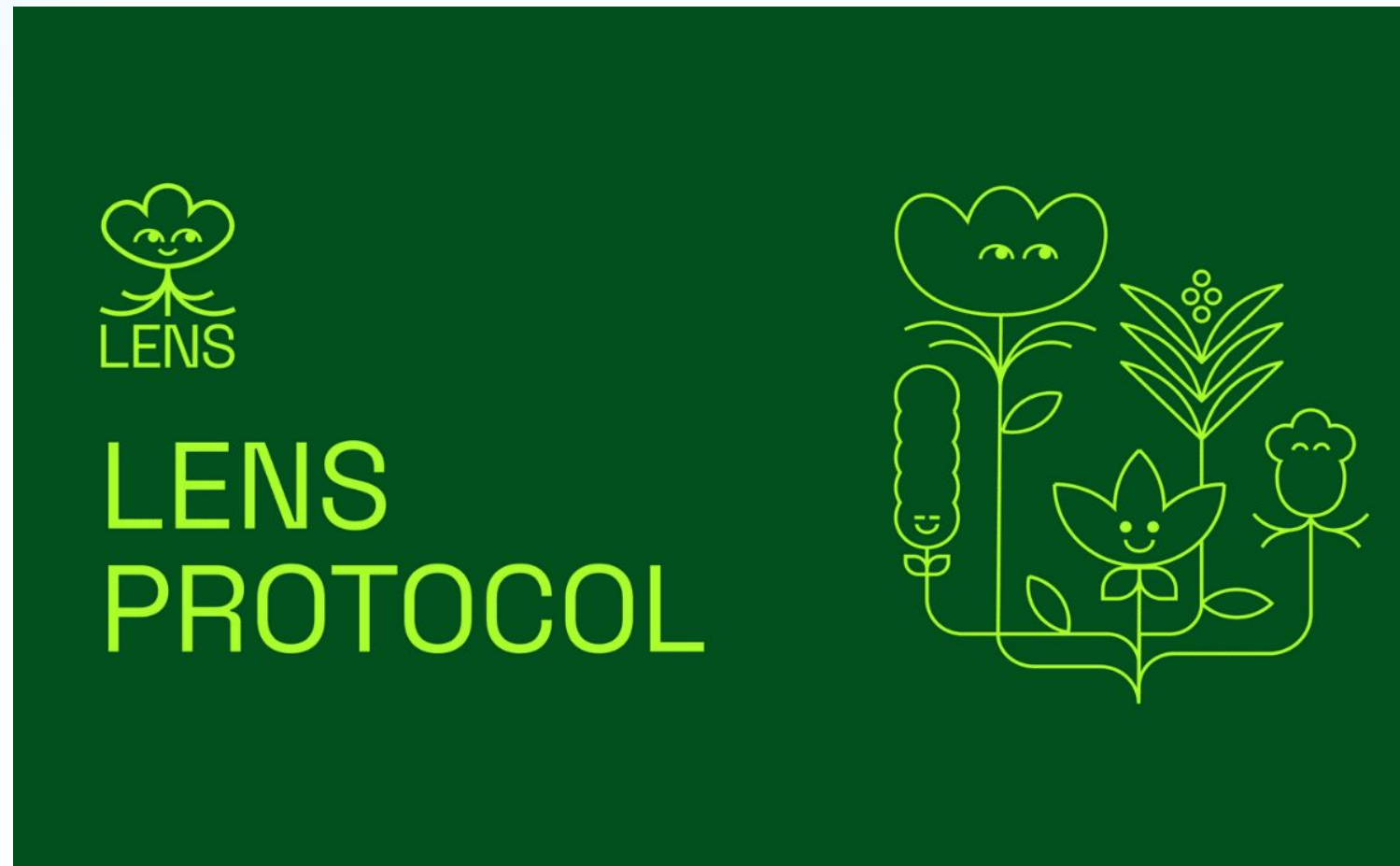


Stakehound StaFi SharedStake CREAM Ankr Rocket Pool Coinbase Lido



Lens emerges as an alternative amidst the backlash against Elon Musk's Twitter

In the midst of the recent [backlash triggered by Musk's move](#) to restrict the number of Twitter posts users can view, **Lens**, an Aave-backed protocol, has [raised \\$15M in funding](#). Lens aims to establish the necessary infrastructure for alternative platforms to potentially challenge Musk's app. Notable investors include Hayden Adams, CEO of Uniswap, Alex Atallah, co-founder of OpenSea, Balaji Srinivasan, and Sandeep Nailwal, co-founder of Polygon.



Uniswap announces its V4 iteration, strengthening the DeFi investment case

Like mentioned in our [article](#), the upcoming upgrade is expected to reinforce the protocol's position as the top DEX in trading volumes, benefiting from both **regulatory pressures on centralized exchanges** and the growing trend towards *on-chain* trading. With V4, Uniswap has the potential to surpass its centralized competitors (such as Binance and Coinbase) and achieve a higher DEX/CEX trading volume ratio, signaling its increasing dominance in the exchange niche.





Ethereum has seen staking growth and improvement in all price-related metrics

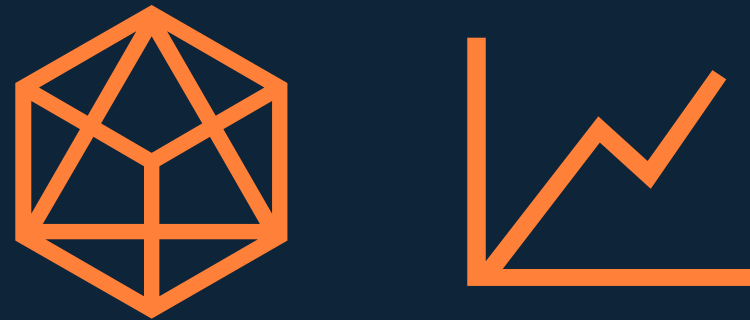


Metric	Q2'23	Q1'23	2022	1Y ago	QoQ	YTD	12M
Price (USD)	\$1,923	\$1,824	\$1,202	\$1,020	5.4%	59.9%	88.5%
Market Cap (USD)	\$222.6B	\$216.0B	\$146.8B	\$133.3B	3.1%	51.7%	67.0%
Dominance	18.7%	18.1%	18.1%	14.7%	3.3%	3.1%	27.4%
24h Exchange Volume (USD)	\$1.5B	\$2.4B	\$0.5B	\$2.9B	-39.0%	169.8%	-48.6%



Total ETH Staked (ETH)	20.5M	17.9M	15.8M	13.0M	14.6%	29.9%	58.3%
Active Addresses	443,143	481,199	334,874	414,316	-7.9%	32.3%	7.0%
Daily On-chain Fees (USD)	\$7.2M	\$6.0M	\$2.4M	\$5.0M	19.7%	203.3%	44.3%
Total Value Locked (USD)	\$53.1B	\$52.1B	\$38.2B	\$43.6B	1.9%	38.9%	21.8%





Performance of Hashdex's Indices

Comprehensive overview of Hashdex's suite of indices, designed to provide regulated exposure to crypto



The Nasdaq Crypto Index™ (NCI™)

While Q1'23 displayed remarkable growth in the crypto market, with the **NCI™** experiencing a whopping 60% QoQ increase, Q2'23 showed two distinct patterns. Blue-chip tokens and two curious cases performed better than expected, while the rest of the market underwent significant corrections due to regulatory uncertainties.

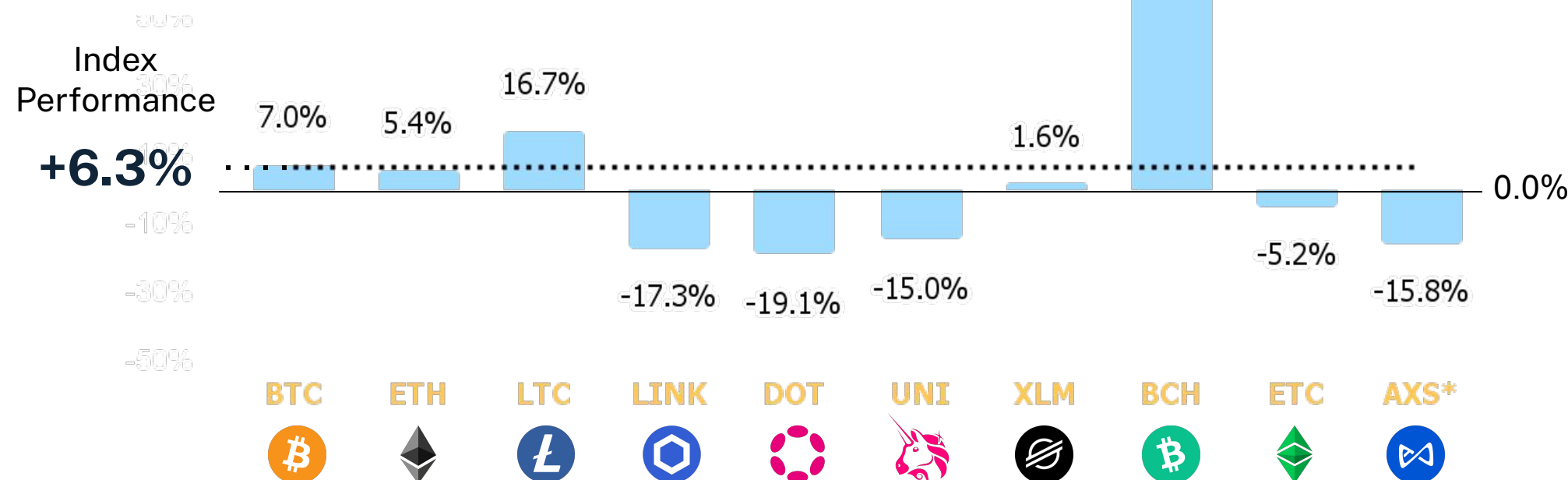
BTC and **ETH** performed well, defying expectations of a major correction. Their positive trajectory might have been influenced by both **not being deemed as securities by the SEC** amid the regulatory turmoil.

On the other hand, **Bitcoin Cash (BCH)** and **Litecoin (LTC)** ended the quarter strongly as well. BCH after being listed on a new exchange and LTC in anticipation to its next halving event, expected to take in place in early August. Most other NCI™ assets suffered with many double-digit percentage declines.

Axie Infinity Shards (AXS) was removed from NCI™ index in the last reconstitution. Besides this event, AXS was also included in the SEC list of assets deemed securities in the lawsuits against Coinbase and Binance. AXS fell 15.8% in Q2'23.

Asset Weights Before x After

Asset	Weights in Mar 31, 2023	Weights in Jun 30, 2023	Weights Change
ETH	27.91%	31.04%	3.13%
BCH	0.27%	0.57%	0.30%
LTC	0.97%	1.02%	0.05%
XLM	0.30%	0.28%	-0.02%
ETC	0.21%	0.17%	-0.04%
DOT	0.45%	0.39%	-0.06%
UNI	0.34%	0.26%	-0.08%
AXS	0.12%	-	-0.12%
LINK	0.55%	0.37%	-0.18%
BTC	68.87%	65.88%	-2.99%



Source: Hashdex with data from CF Benchmarks (from 03/31/2023 to 06/30/2023).
 *Axie Infinity Shards (AXS) left the NCI in the June 1st, 2023 reconstitution.



Performances of indices tracked by Hashdex products¹



Index	Apr-23	May-23	Jun-23	Q2'23	Q1'23	YTD	12M
Nasdaq Crypto Index	4.5%	-7.0%	9.5%	6.3%	63.9%	74.3%	65.2%
Nasdaq Crypto Index - Europe	2.9%	-6.6%	5.7%	1.6%	65.5%	68.2%	53.8%
Nasdaq Bitcoin Reference Index	4.5%	-8.7%	12.2%	7.0%	71.1%	83.2%	60.1%
Nasdaq Ether Reference Index	5.3%	-3.0%	3.2%	5.4%	51.7%	59.9%	88.5%
CF DeFi Composite Index	-3.2%	-9.0%	2.4%	-9.8%	39.8%	26.2%	18.2%
CF Web 3.0 Smart Contract Platforms Index	3.2%	-10.1%	-11.2%	-17.6%	64.1%	35.2%	-17.3%
CF Digital Culture Composite Index	-2.1%	-15.3%	-14.7%	-29.3%	47.2%	4.1%	-25.9%
Vinter Hashdex Risk Parity Momentum Crypto Index	-0.1%	-3.4%	-4.5%	-7.8%	41.9%	30.8%	-

¹ Source: Hashdex Research with data CF Benchmarks and Vinter (from 06/30/2022 to 06/30/2023). Missing performances in a given range (e.g., 12 months) relate to indices that were launched later than the corresponding initial dates.





Highlights of the Quarter & Hashdex Reports

Explore the most highly anticipated events and our insights
on all things crypto throughout the past quarter



Highlights of the Quarter

Hashdex Reports

Market Pulse | Q2 2023



Balaji Srinivasan Admits Defeat in Bitcoin \$1 Million Bet Within 90 Days



Franklin Templeton expands Its money market fund on Polygon



Helium Successfully Migrates to Solana



Sports Illustrated Revolutionizes Ticketing with Polygon-Powered NFT Platform



Texas Approves Flare Gas Emission Bill, Paving the Way for Environmentally-Friendly Bitcoin Mining



SEC Files Lawsuit Against Binance and CEO Changpeng Zhao, Citing Alleged Securities Violations



Lens Protocol, Developed by Aave, Secures \$15M Funding to Enhance Web3's 'Social Layer'



Mastercard Initiates UK Testbed for Tokenized Bank Deposits



BlackRock files for BTC Spot ETF, but... SEC Calls Bitcoin ETF Applications Inadequate



Bitcoin – environmental villain or ally? Mining as a tool for the green energy transition



Shanghai is live: The completion of Ethereum's transition to Proof-of-Stake



5 Questions with Julia Castelo Branco, Head of Legal and Compliance



The Shanghai Aftermath: Assessing the first two weeks of ETH withdrawals



MiCA: An investor's guide to the EU's new crypto regulations



Hashdex responds to UK consultation on crypto assets



Four Key Takeaways from Web Summit Rio



Regulating DeFi: Hashdex responds to Bank of France discussion paper



Axie Infinity and the Ronin Network: Is the old crypto darling poised for a resurgence?



Uniswap V4: Enhancing customization and efficiency in the DeFi landscape



Taxing DeFi: Our recommendations to the UK government



Commentary: Finding the right crypto allocation in a traditional portfolio



Crypto ETPs move toward the mainstream





Fundamentals Guide & Glossary

Understand key concepts as you explore our
Crypto Market Pulse



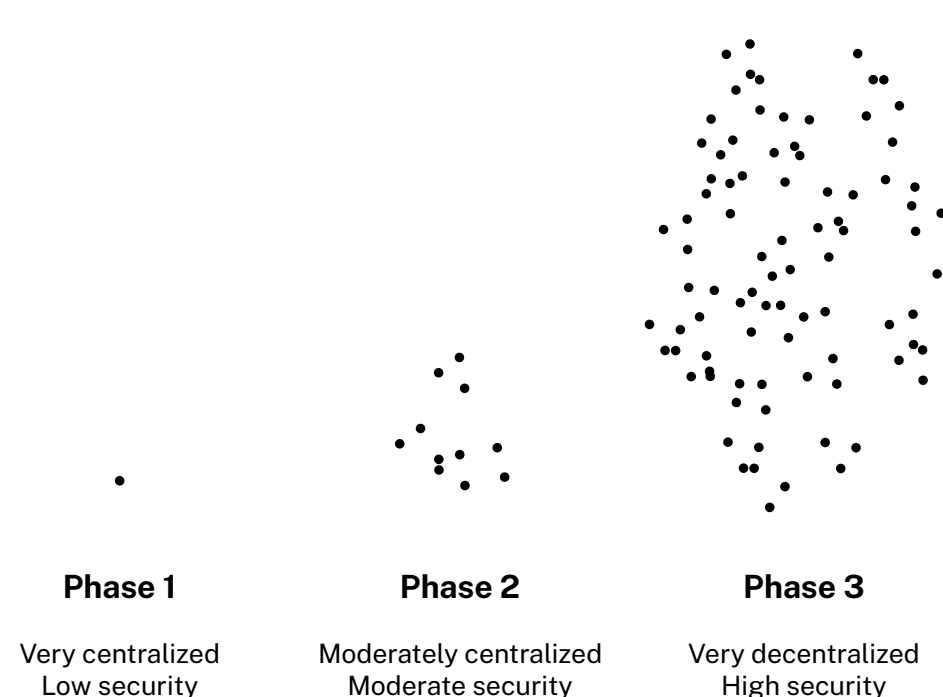
Organic fee market and the sustainability of a blockchain



Blockchains work just like companies: they have **revenues** and **expenses**. Therefore, an **economically sustainable** blockchain is one in which the **total revenue is greater than or equal to total expenses**.

This revenue is earned by providing customers with a **product**. Apple sells iPhones. Tesla sells electric vehicles. Blockchains sell **block space**.

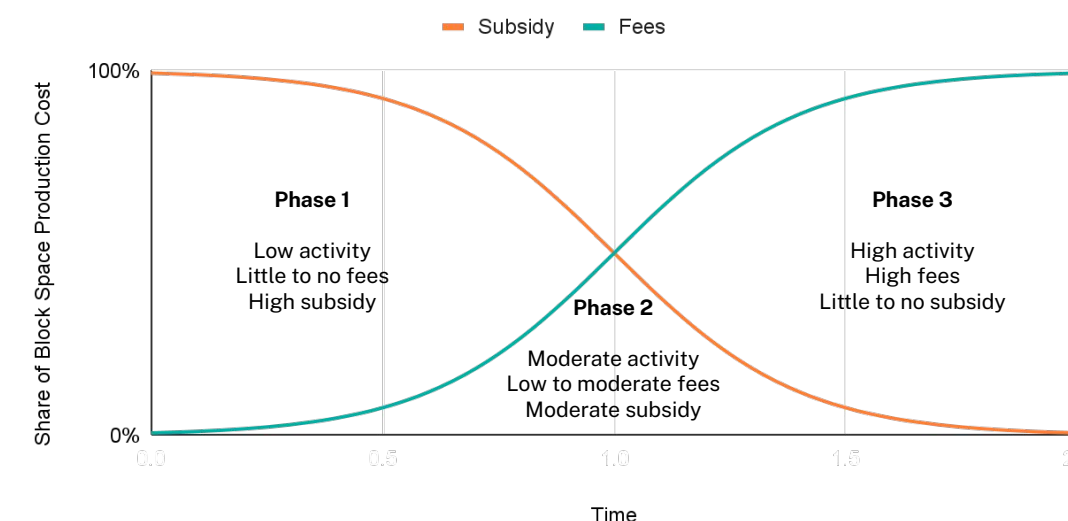
For a blockchain, revenue is given by **transaction fees** paid by users to **gain priority** in using block space. If said block space is provided by a **decentralized** and **secure** blockchain, it should also exhibit **scarcity**, as the competition for its usage creates an **organic fee market**. It should be noted that a high-quality block space is **only** achieved once security and decentralization are in place.



Bitcoin originally achieved these two features (later replicated by others) through the introduction of an **economic incentive**, leading individuals to **voluntarily provide** block space that is high-quality by fostering a **significant level** of decentralization and security.

This economic incentive comes in the form of a **native token** (BTC on Bitcoin, ETH on Ethereum, etc.), a monetary incentive that **rewards block space providers** with **newly issued** tokens (a subsidy) and allows a blockchain network to grow from **few participants to tens of thousands of individuals**. This is similar to startups, which dilute the equity held by early partners to raise money and expand faster to reach a higher number of customers.

Contrary to fees, which are paid in **existing** native tokens, **subsidies** dilute the value of a native token and count as **expenses**.



After a blockchain has risen to a significant level of decentralization and security, either **expenses (subsidies) are expected to reduce** or **revenues (transaction fees) should grow** as demand for block space increases. In other words, an **organic fee market** is expected to sustain the blockchain long term.

That **pivotal moment** has already happened to Ethereum after its switch to **Proof-of-Stake** in September of 2022, which reduced subsidies by more than 80%, making fees the **relevant share** of block space production cost. For Bitcoin, moments like the BRC-20 frenzy in early May show a glimpse of a future organic fee market on the flagship blockchain. This is particularly important given the known fact that **BTC subsidies will vanish** once the 21 million total supply is reached (at around 2140).



BRC-20 - BRC-20 is a token standard on the Bitcoin blockchain that utilizes Ordinals Inscriptions to enable the creation and transfer of fungible tokens, providing functionalities for minting and transferring digital assets using Bitcoin.

Centralized exchange (CEX) - A centralized exchange (CEX) is a specific type of cryptocurrency platform that maintains an order book for traders to place buy and sell orders at specified prices.

Decentralized exchange (DEX) - A peer-to-peer marketplace where users directly trade one token for another and provide liquidity in exchange for transaction fees independently of an intermediary.

Decentralized Finance (DeFi) - Major growth crypto sector that offers peer-to-peer (P2P) financial services and technologies built on protocols such as Ethereum.

Dominance - The ratio between a crypto asset market capitalization and the total market capitalization of the asset class, which measures the relevance of a project in the industry.

Governance token - Type of crypto asset that provides holders with a degree of influence over a platform's protocol, products, and future functionality. Governance tokens are often issued via decentralized protocols that aim to encourage community-led growth and self-sustainability.

Halving - The event where the mining subsidy per block is halved, which takes place in multiples of 210,000 blocks since Bitcoin's inception (or roughly every 4 years).

Hash rate - The conventional unit measure for the computational power on a Proof-of-Work network, a proxy for the security of a blockchain and how costly it is to attack it.

Inscription - Inscriptions refer to the metadata that is added or "inscribed" onto Bitcoin satoshis (sats), which are the smallest units of the Bitcoin currency. These inscriptions can be attached to Bitcoin unspent transaction outputs (UTXOs) and store texts, images, audios, videos and even web applications.

Lido - Lido is a versatile staking solution that enables users to enjoy the advantages of staking their cryptocurrency while maintaining partial control of their tokens. In Proof of Stake (PoS) networks, users can secure their digital assets by staking them, actively participating in the consensus process and contributing to the blockchain's block creation.

Lightning Network - A scaling solution built atop Bitcoin that allows off-chain transactions with increased speed and lower transaction costs, without giving up security.

Liquid Staking - The form of staking where depositors are rewarded with a token that can redeem the original deposited asset, while providing a liquid asset for other use cases such as DeFi.

NFTs - Non-fungible tokens (NFTs) are a special type of token that represents a unique digital asset, such as a picture, a song or a video.

Proof-of-Stake - Consensus mechanism where validators lock an amount of native tokens as a guarantee of action in good faith, being randomly selected over time to propose and attest to new blocks of transactions.

Shanghai - The Ethereum upgrade that took place on April 12, 2023, enabling withdrawals of staked tokens, lowers transaction costs, and makes improvements to the Ethereum Virtual Machine.

Staking - Staking involves pledging your cryptocurrency to support transaction validation on the blockchain. While you don't personally validate transactions, network computers handle this task, and major exchanges offer programs that make staking easy. The main motivation for staking is to earn rewards.

Stake - The total amount of native tokens locked in a Proof-of-Stake blockchain (such as Ethereum, Solana or Polkadot) as a collateral for individuals to activate and operate the network consensus. The higher the dollar value of the total stake in a network, the more capital would be necessary to subdue the network maliciously.

Total Value Locked (TVL) - The total value of all assets locked into a DeFi protocol or ecosystem. It is a metric often used to measure a protocol's growth and adoption.

Web3 - A decentralized internet infrastructure that enables global users to connect and interact with digital assets, websites and apps without any centralized control.

¹ Source: Hashdex Research with adaptations from <https://www.gemini.com/cryptopedia/glossary>.



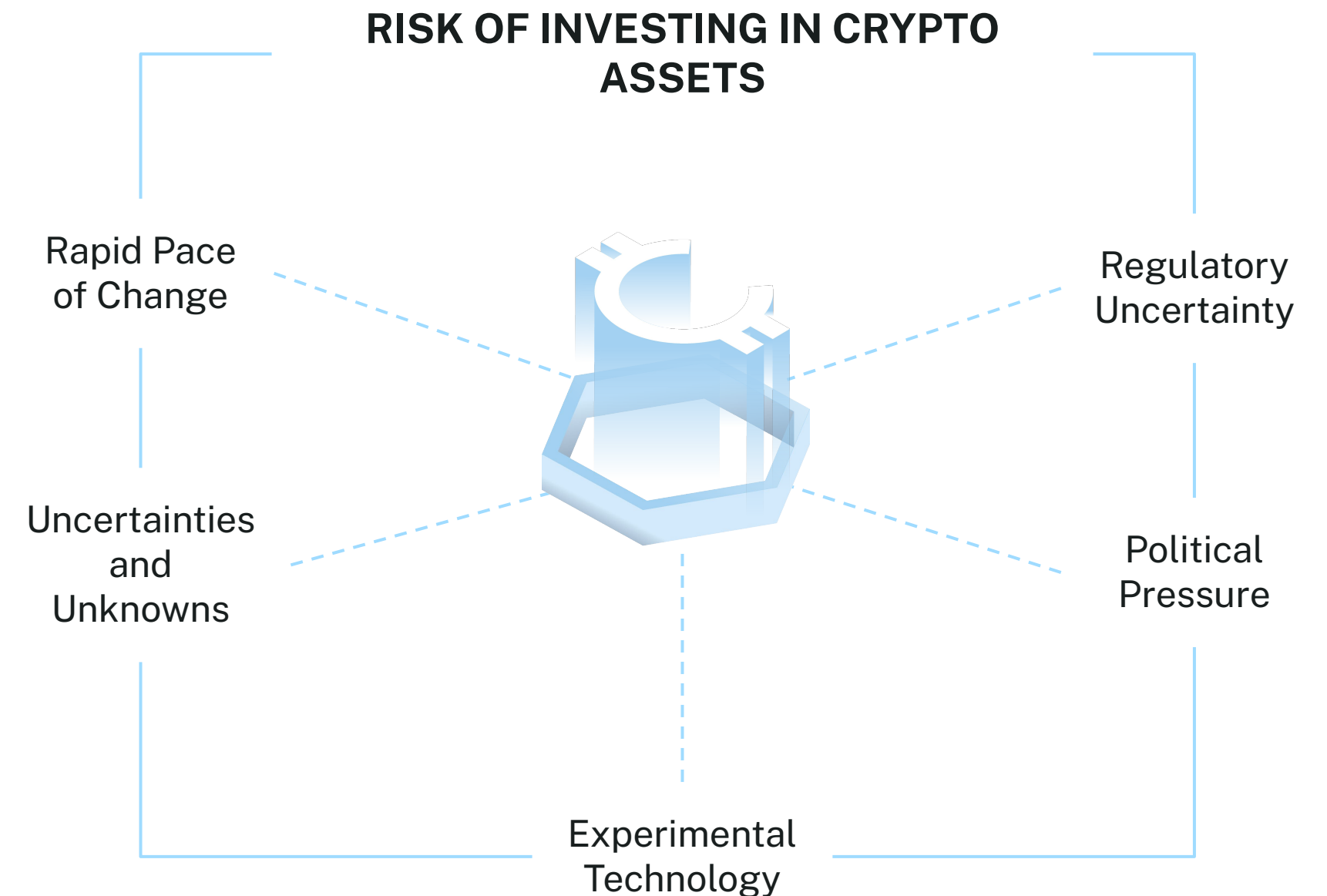
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