



HASHDEX

Market Pulse

Q4 2023

Ecosystem developments impacting crypto's investment case

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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

In the fourth quarter of 2023, prominent asset classes witnessed a positive quarter in terms of prices, with the Nasdaq Crypto Index (NCI) surpassing traditional risky assets like the S&P 500 and the Nasdaq 100. This indicates the growing maturity of cryptocurrencies as an asset class. Bitcoin (BTC) and Ethereum (ETH) both showed impressive returns with relatively lower volatility, suggesting a trend towards a more mature market.

Bitcoin was once again the highlight of the period and its positive price movement was backed by robust network activity, anticipation of the upcoming halving event, and progress towards the launch of a Spot ETF in the US. Ethereum, although trailing behind Bitcoin in terms of performance, maintained a strong position compared to other major asset classes, bolstered by an increasing user base and its deflationary nature.

Our year-end report introduces two critical charts for future market analysis. The first chart tracks Bitcoin's performance across different halving cycles, offering potentially predictive insights into its evolving market behavior. The second chart uses a logarithmic regression to show the sum of Bitcoin and Ethereum 'fair' market cap' providing insights into long-term market trends and sentiments.

Overall, our analysis emphasizes the positive trajectory of digital assets, particularly Bitcoin, as we look forward to regulatory developments, and ongoing growth in institutional adoption and innovation in 2024. For a detailed forecast and insights into the crypto market's future, we also recommend our recently published [Crypto Outlook 2024](#).

Samir Kerbage

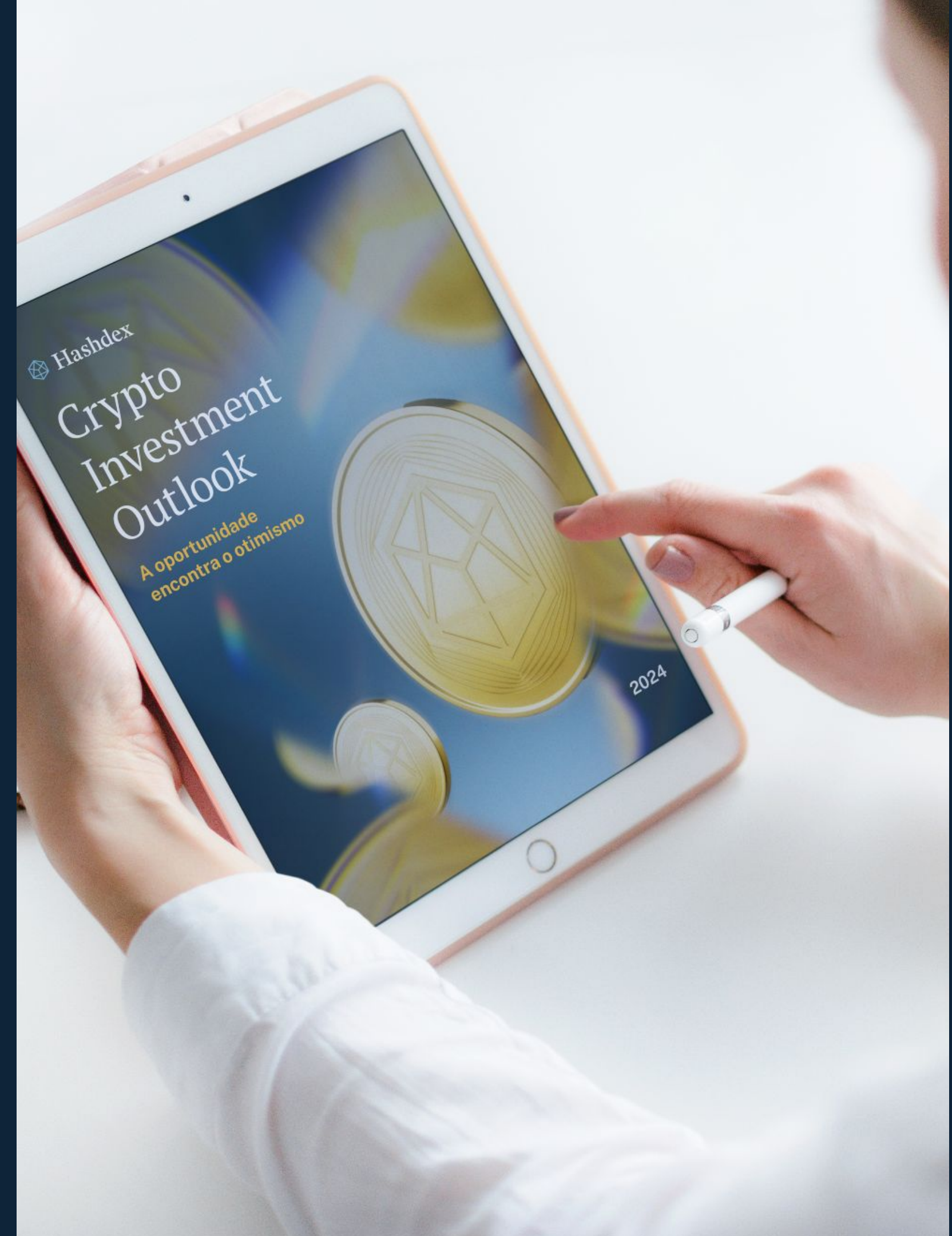
Samir Kerbage
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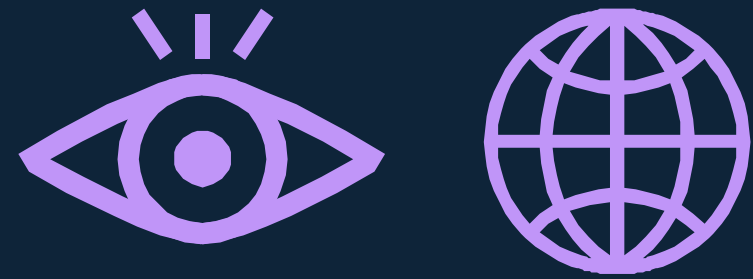
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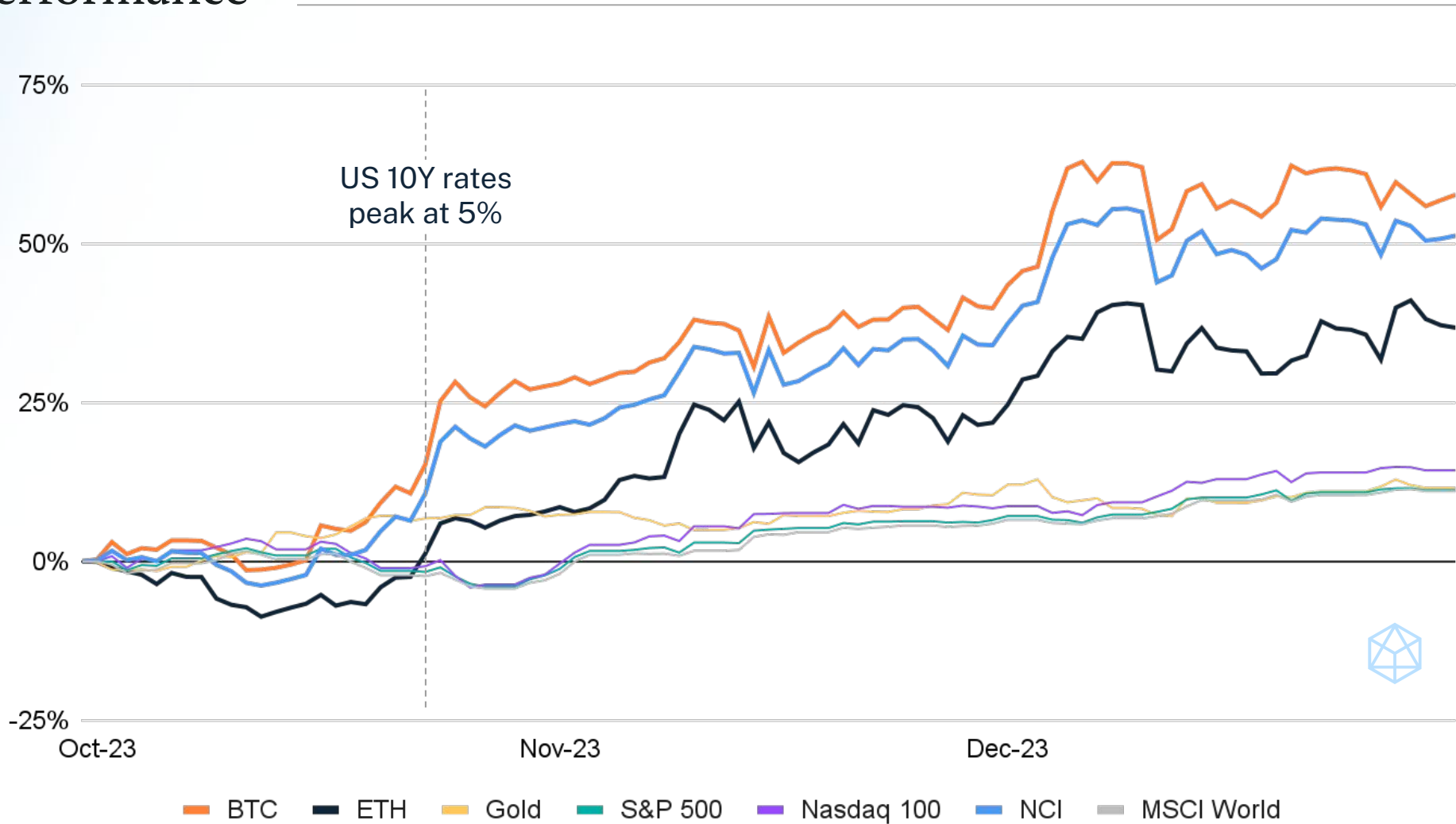
Market Overview and Global Metrics



Asset classes rise, with crypto leading the pack

In the last quarter of 2023, the market saw positive movements in key asset classes, with digital assets standing out. The Nasdaq Crypto Index (NCI) particularly shone, outperforming major indices like the Nasdaq 100 and S&P 500 in terms of returns. As the year 2024 approached, Bitcoin notably capitalized on various market trends. It successfully adapted to varying investor interests, from seeking safe-haven assets during uncertain times (risk-off) to showing resilience during periods of increased risk appetite (risk-on).

Performance



Source: Hashdex Research with data from Bloomberg and CF Benchmarks (from September 30, 2023 to December 31, 2023).

Asset	QoQ	YTD	YoY
BTC	57.8%	157.2%	157.2%
NCI	51.3%	132.6%	132.6%
ETH	36.8%	90.8%	90.8%
Nasdaq 100	14.3%	53.8%	53.8%
S&P 500	11.2%	24.2%	24.2%
MSCI World	11.1%	21.8%	21.8%
Gold	11.6%	13.1%	13.1%

Source: Hashdex Research with data from Bloomberg and CF Benchmarks (from September 30, 2023 to December 31, 2023).

The BTC halving has usually triggered positive performance

This inaugural chart analyzes Bitcoin's price performance during its halving cycles, focusing on the 500 days before and after each event.

As the anticipated Q2'24 halving approaches (April), historically associated with upward movements, there is an acknowledgment of the uncertainty in mirroring past cycles. However, this analysis can help guide investors in identifying patterns for predictive insights.

In the ongoing 4th halving cycle, Bitcoin's price performance has, up to this point, shown similarities to patterns observed in previous cycles, as illustrated by the graph on the right. However, considering Bitcoin's current size, it's unlikely that its future price performance will mirror exactly past cycles. Despite this, an overall upward price trend is still anticipated.

Bitcoin Price Performance 500 Days before/after the halving



Source: Hashdex Research with data from Messari (from July 7, 2011 to December 31, 2023).

Modeling “fair-value” BTC & ETH market capitalization.

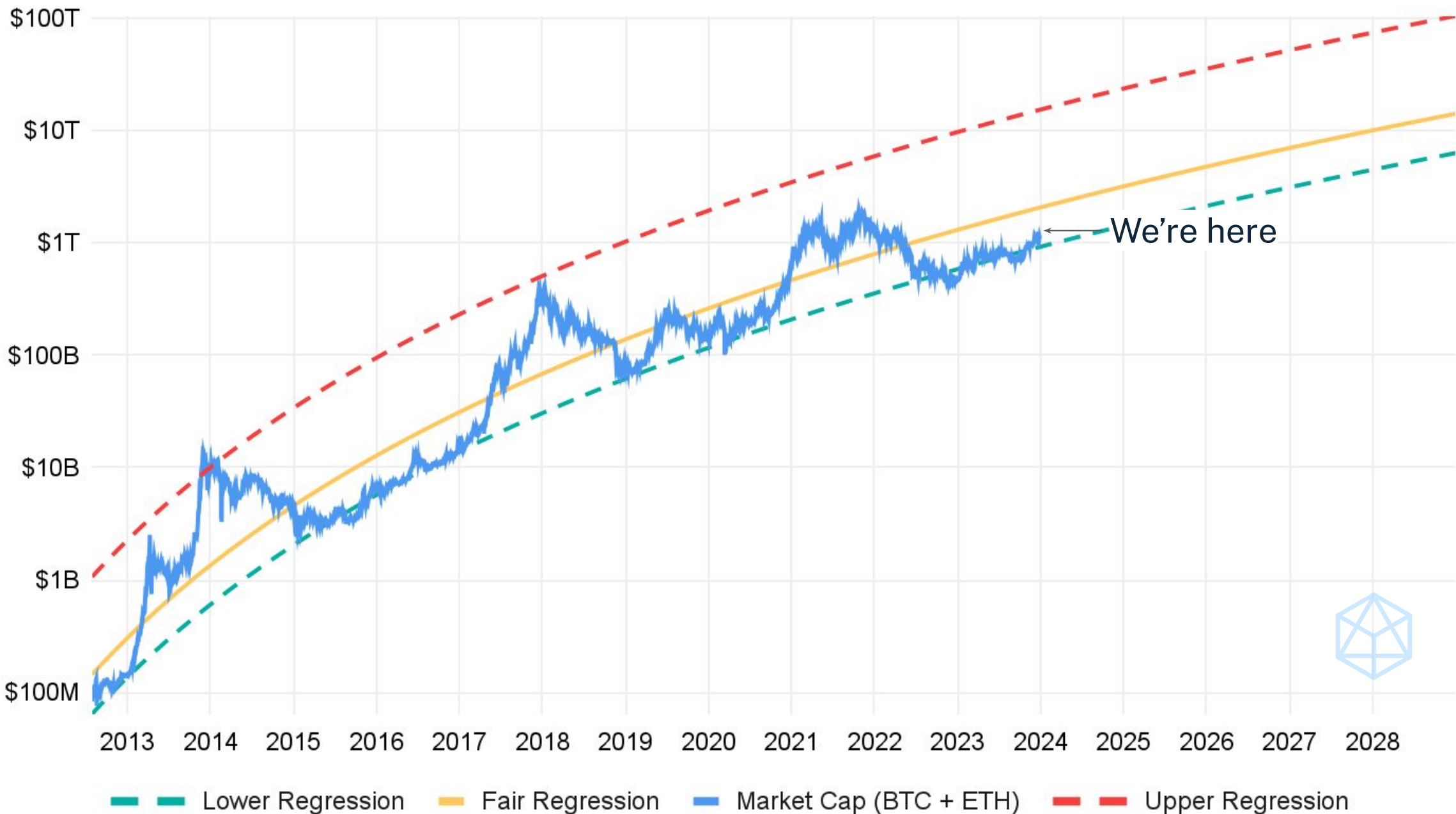
The second featured chart presents a logarithmic regression outlining the 'fair market cap' for BTC+ETH.

Historical data reveals both Bitcoin and Ethereum's exponential market capitalization growth, characterized by diminishing returns over time.

The chart establishes a long-term growth channel, incorporating mid-regression trends and upper/lower trend lines. It also aims to highlight moments of market cycles, indicating excessive greed or pessimism, particularly in the context of long-term trends.

Despite the recent strong price performance of both BTC and ETH, this regression still indicates a very favourable trend going forward over the long run.

Long-term logarithmic growth of BTC + ETH Market Capitalization



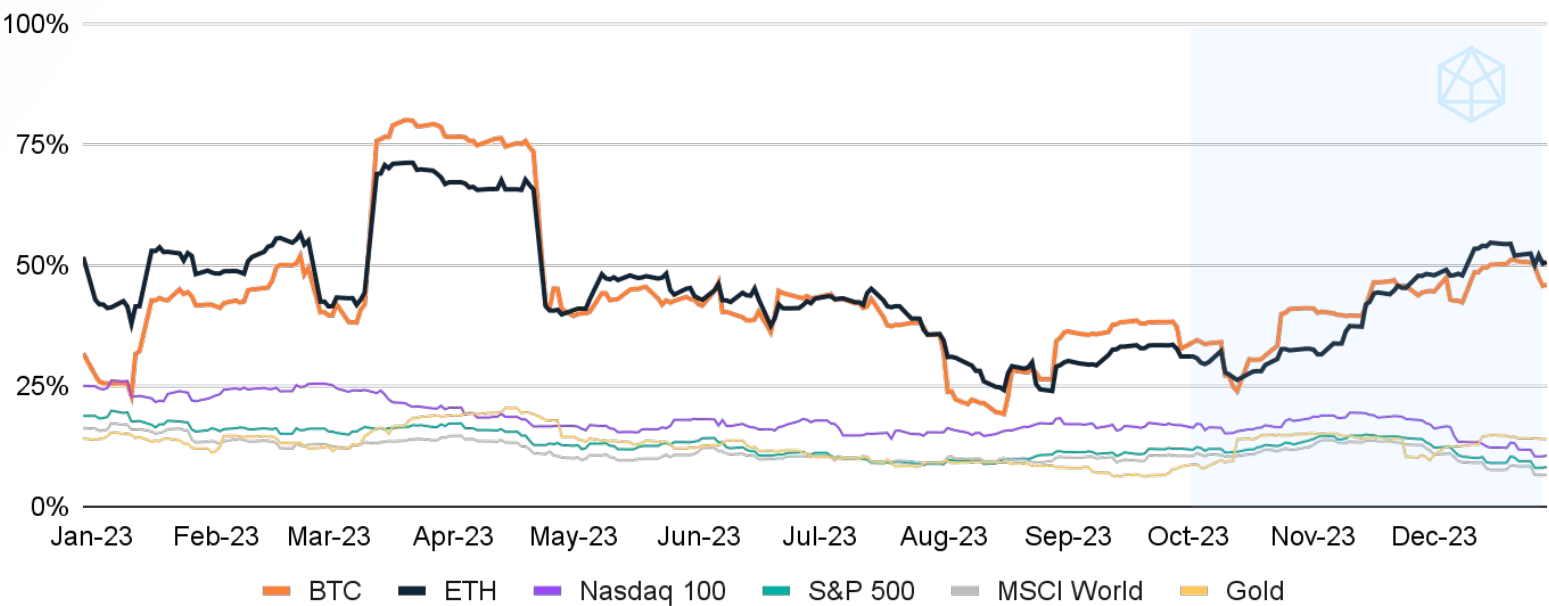
Source: Historical market capitalizations from Messari until December 31, 2023. All training data until the end of 2022. Everything in the trend lines since the beginning of 2023 is a prediction. Past performance is not a guarantee of future results.

Volatility

Prices go up, and yet volatility not as much

After a quarter marked by notably low volatility and sideways market movement, Bitcoin (BTC) and Ethereum (ETH) displayed strong return performance in the fourth quarter of 2023. Despite the significant price movements typically leading to increased volatility, it is significant that both assets maintained volatility below the 50% threshold during this robust upward trend.

Volatility



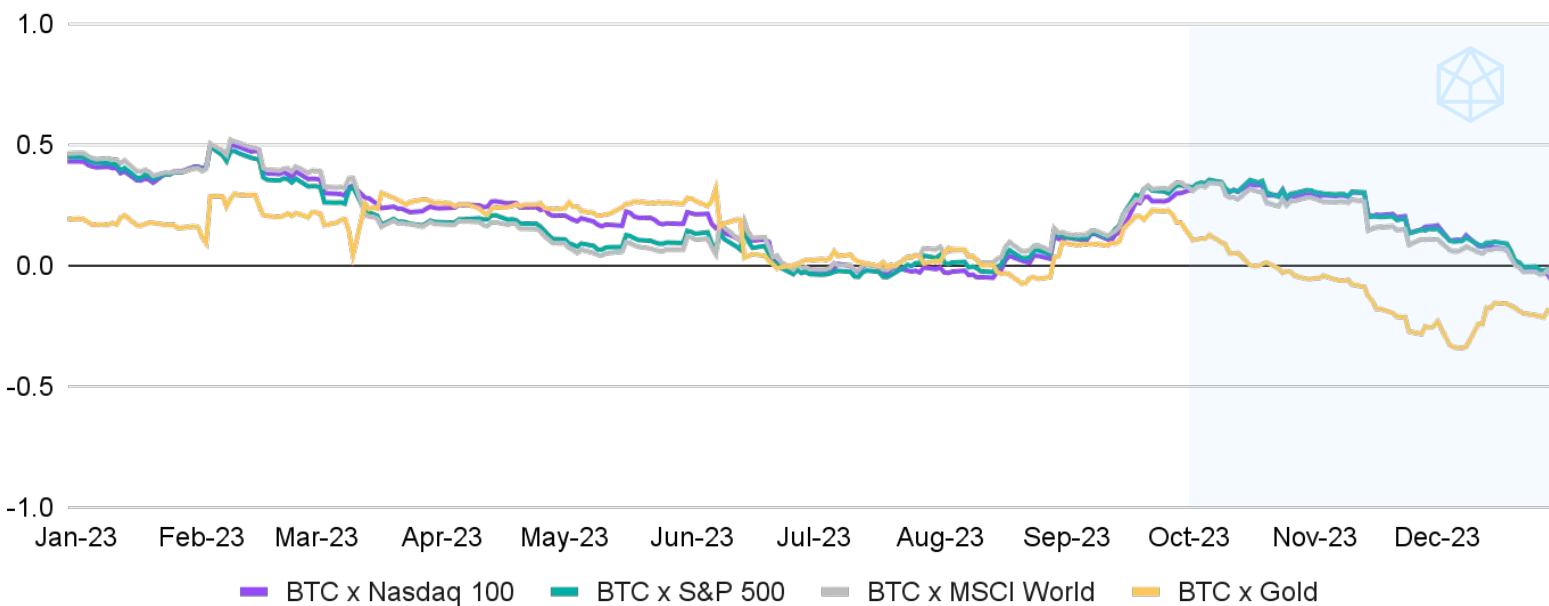
Source: Hashdex Research with data from CF Benchmarks and Bloomberg (from December 1, 2022 to December 31, 2023). Annualized volatility computed in 30 day windows (working days).

Correlation

Correlation with gold stands out from the rest for the first time in a while

Throughout the quarter, the correlation between Bitcoin (BTC) and major indices such as the MSCI World, Nasdaq 100, and S&P 500 significantly diminished, approaching nearly zero. In a notable deviation from previous trends, Bitcoin's correlation with gold shifted to a predominantly negative trend over the quarter. This was the first instance of such a trend in the extended period of 2023.

Correlation



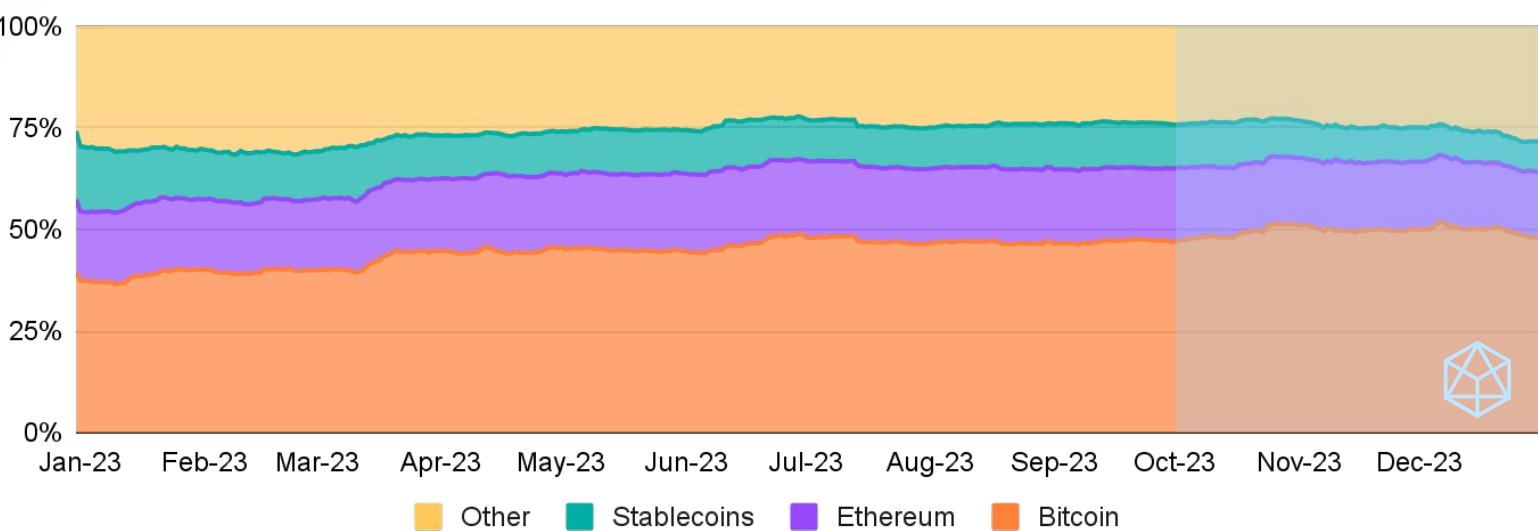
Source: Hashdex Research with data from CF Benchmarks and Bloomberg (from October 5, 2022 to December 31, 2023). Correlations computed in 3 month rolling windows (working days).



Despite great performance, BTC dominance remains stagnant

Although Bitcoin (BTC) demonstrated an impressive price performance, the onset of what appears to be a 'crypto summer' in Q4 2023 led to an unexpected stability in BTC's market dominance. Starting the quarter at 47%, it ended only 1.2% higher. This stability in market dominance is a key metric that could be greatly impacted by events such as the approval of a spot ETF for Bitcoin.

Crypto Dominance

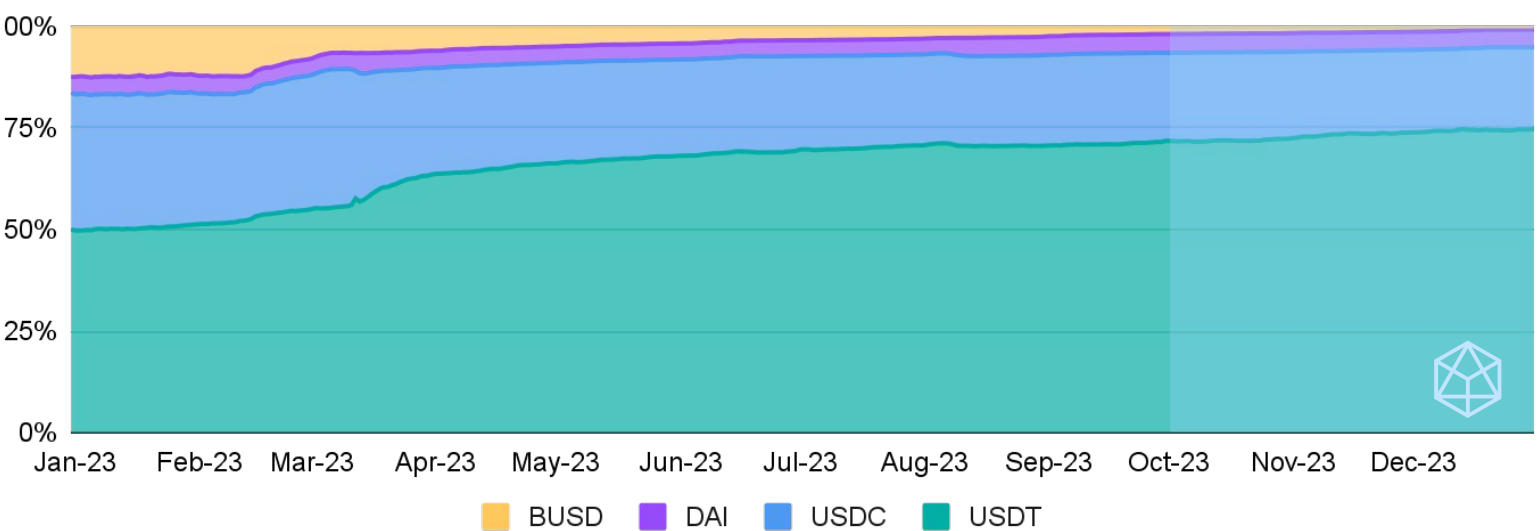


Source: Hashdex Research with data from Messari (from December 31, 2022 to December 31, 2023).

Gradually and consistently, Tether continues to solidify its dominance over the competition

During the fourth quarter of 2023, there was a continued, albeit less pronounced, trend of Tether USD (USDT) increasing its market share to 75% in comparison to other stablecoins. This trend represents a significant point of market concentration in the cryptocurrency space, something to pay attention to overtime as the sector develops.

Stablecoin Dominance



Source: Hashdex Research with data from Messari (from December 31, 2022 to December 31, 2023).





Institutional Adoption



Abrdn and Archax aim to lead in the race to tokenize traditional finance.



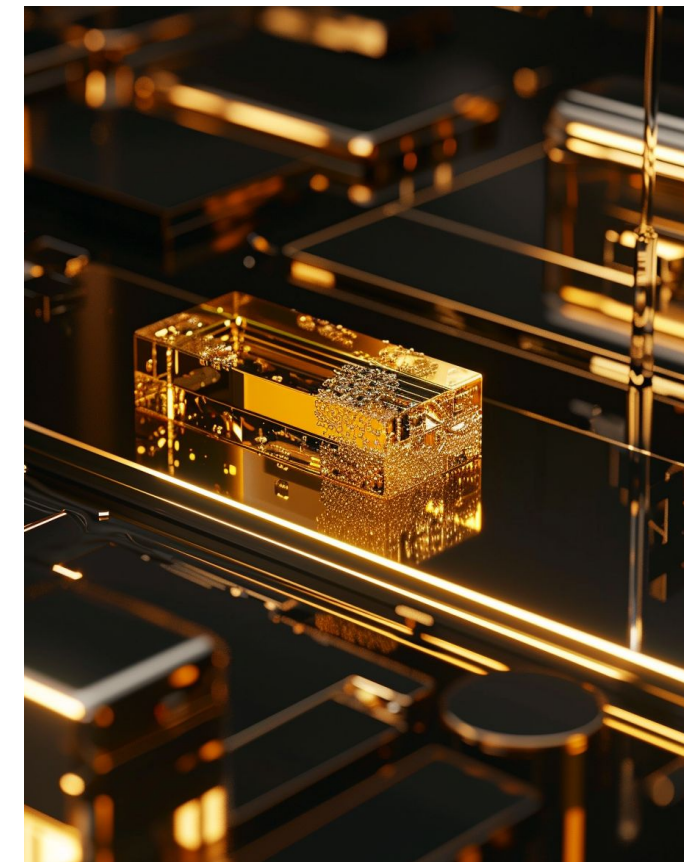
After creating trading pairs for Bitcoin and tokens linked to a money-market fund, the firms are now exploring using this institutional-grade token as collateral elsewhere.

The introduction of a token that represents ownership in a money market fund, functioning as a yield-bearing stablecoin is a significant development. This advancement in the tokenization of real-world assets marks a strong indicator of the broader adoption of blockchain technology. This evolution brings practical functionality to the forefront of this innovative technology, allowing various institutions to enhance their offerings. This seamless integration of blockchain into existing financial products is a prime example of the objectives DeFi aims to fulfill, and it represents an encouraging direction for the future of decentralized finance.



<https://www.coindesk.com/markets/2023/12/04/asset-manager-abrdn-crypto-exchange-archax-strive-for-pole-position-in-race-to-tokenize-tradfi/>

HSBC boosts tokenization momentum with a gold-focused offering.



HSBC now offers tokenized ownership for physical gold in its London vault, using DLT for trading. One token on the gold platform represents 0.001 troy ounce.

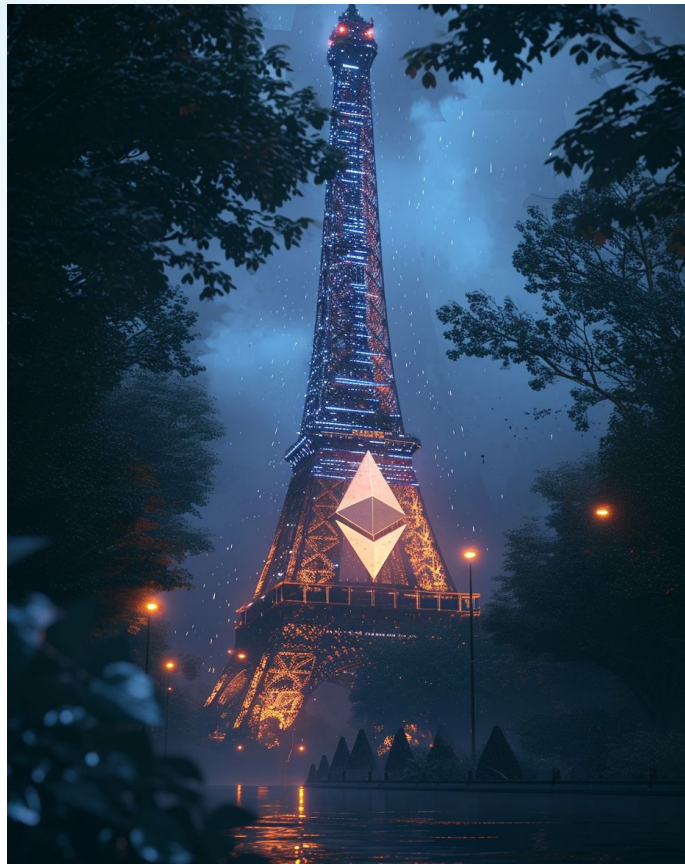
Gold faced challenges related to its transferability and other limiting factors. In response, imperfect solutions like the issuance of tradable certificates (IOUs) have been implemented to address the issues arising from gold's inherent constraints. The positive aspect of tokenization lies in the ability to issue such certificates in a manner that enhances the efficiency of the auditing process, preventing disparities between the total volume of traded gold and the collateral amount. Also, the involvement of HSBC as a tokenization agent, leveraging its experience with Orion in the issuance of tokenized bonds, stands as another noteworthy factor.



<https://blockworks.co/news/hsbc-explores-gold-tokenization>



Société Générale is poised to be the first major bank to list a stablecoin.



French lender launches trading of token fully backed by euros on Bitstamp exchange

This development represents a significant stride for a traditional financial institution into a segment of cryptocurrency trading that is currently dominated by specialized digital asset firms. While other major banks like JPMorgan have their stablecoins, they are limited to specific institutional clients. In contrast, Société Générale's stablecoin will be accessible for trading to a broader audience. Asset managers and banks are increasingly delving into the tokenization of assets, including bonds and funds, a process that demands digital currency. Despite this trend, the market for such endeavors remains comparatively modest.



<https://www.ft.com/content/cd733a7c-2e74-412f-b234-6f495c118cc6>

UBS pilots tokenized money market fund using Ethereum.



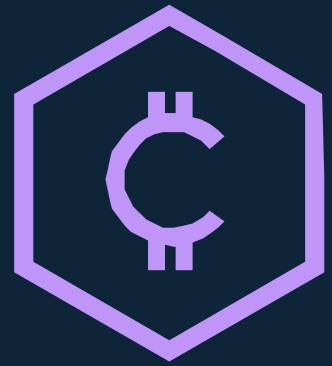
UBS Asset Management launched a live pilot for a tokenized money market fund on Ethereum as part of Project Guardian.

UBS Asset Management has launched a pilot for a tokenized money market fund on Ethereum, forming part of Project Guardian. This collaborative initiative, led by the Monetary Authority of Singapore (MAS), is the initial step in a series of 'live' pilots UBS intends to introduce. The move exemplifies the rising popularity of tokenization, a process that integrates off-chain or real-world assets onto blockchain platforms. There are plenty of reasons to be encouraged by the milestones that the most recent tokenization initiatives have been achieving, given the fact that it enables the tracking, trading, programmability, and management of real-world assets, representing a noteworthy trend poised to reshape finance, transcending the confines of the crypto sphere.



<https://www.theblock.co/post/253790/ubs-ethereum-tokenized-fund-pilot>





Ecosystem Developments





Bitcoin reaching a pivotal moment, fundamentals and historical trends set to align

Bitcoin (BTC) showcased a consistently strong performance in the last quarter, with gains across three consecutive months. This upward trend suggests that the market might be anticipating the approval of Bitcoin spot ETFs in early 2024. This impressive year-end performance has sparked investor speculation about how bitcoin prices will behave in 2024 - a halving year.

Historically, as highlighted at the beginning of the report, halving years have been associated with strong price growth for Bitcoin. This upcoming halving cycle aligns with an optimistic macroeconomic forecast as well as the much-awaited introduction of a Bitcoin spot ETF in the United States.

Considering these factors, 2024 is shaping up to be a particularly promising year for Bitcoin. It is being referred to as the 'Year of Bitcoin', reflecting the high expectations for its performance in the forthcoming period.

Bitcoin price action in Q4'23



Source: Hashdex Research with data from CF Benchmarks (from September 30, 2023 to December 31, 2023).





Innovation on Bitcoin: Runes, CBRC-20 and other token standards

In our previous quarterly report, the topic of adopting inscriptions for single data records on Bitcoin was discussed. It was suggested that this could act as a driver for demand and lead to innovative applications. This prediction was confirmed in Q4'23, as we witnessed the introduction of new token standards like Runes and CBRC-20 tokens, which spurred increased demand for network usage. As has been consistently emphasized, such developments serve as long-term drivers for adoption, enhancing the network's sustainability. This is an important metric to acknowledge and highlights the evolving utility and engagement within the Bitcoin network.

Comparison between BRC token standards

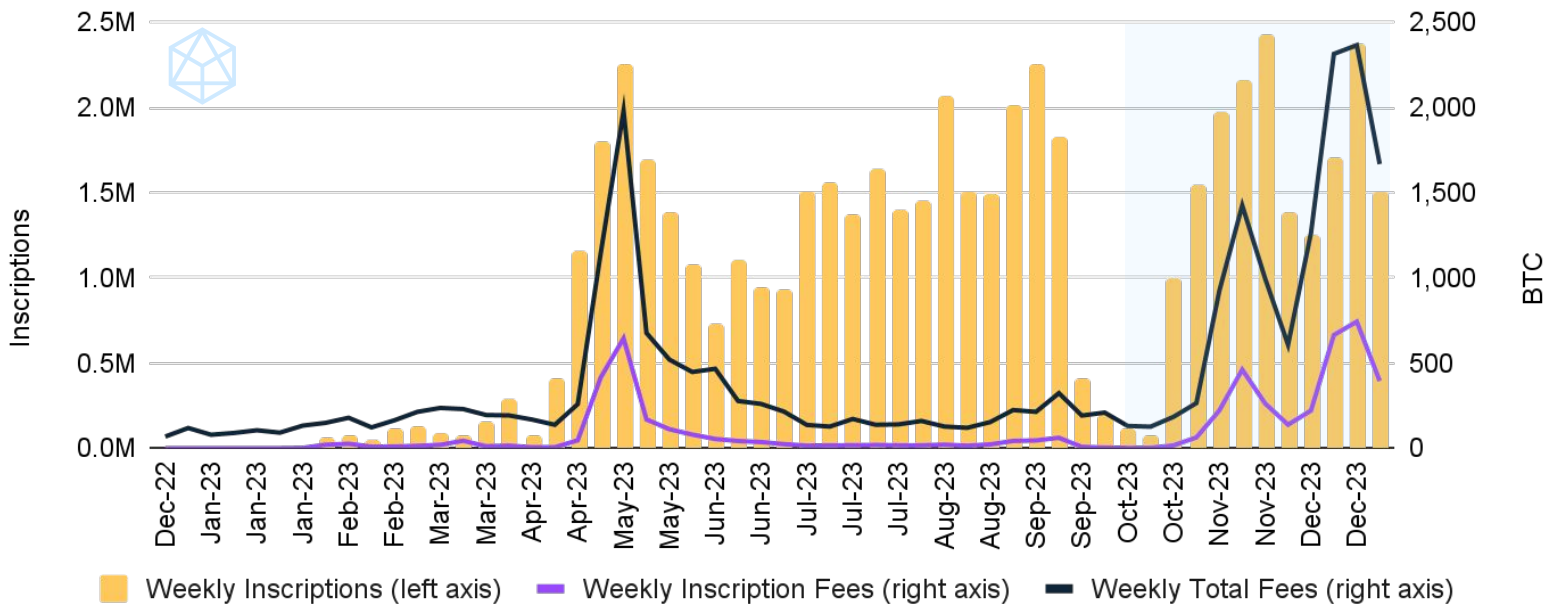
	CBRC-20	BRC-20
Inscription Cost	Reduces per-inscription costs with direct embedding	Higher per-inscription costs, script-based approach
Indexing Process	Efficient Token Management w/ Inscription Info	More complex script-based token state management
Data Format	Supports all types of data in token operations	Restricted support for certain data formats
Feature Compatibility	Leverages Ordinals v0.10+ features	Limited to Ordinals v0.9 capabilities
Token Interaction	Enables unique token interactions & practical applications	Traditional token interaction

Source: Hashdex Research adapted from [@katt_ordinals](#) (accessed January 5, 2023).

Inscriptions surpass 50 million, provoking onchain fees to spike again

The excitement around inscriptions, runes, and other new token standards on the Bitcoin network has led to a significant milestone: surpassing 50 million inscriptions. In this environment, the demand for the network was so high that, on several occasions, transaction fees in each mined block equaled the block mining reward in terms of Bitcoin value. Envisioning a future where such scenarios become more common suggests greater confidence in the long-term sustainability of the Bitcoin network.

Weekly inscription number and fees on Bitcoin



Source: Hashdex Research with data from [Dune Analytics](#) (from December 14, 2022 to December 31, 2023).

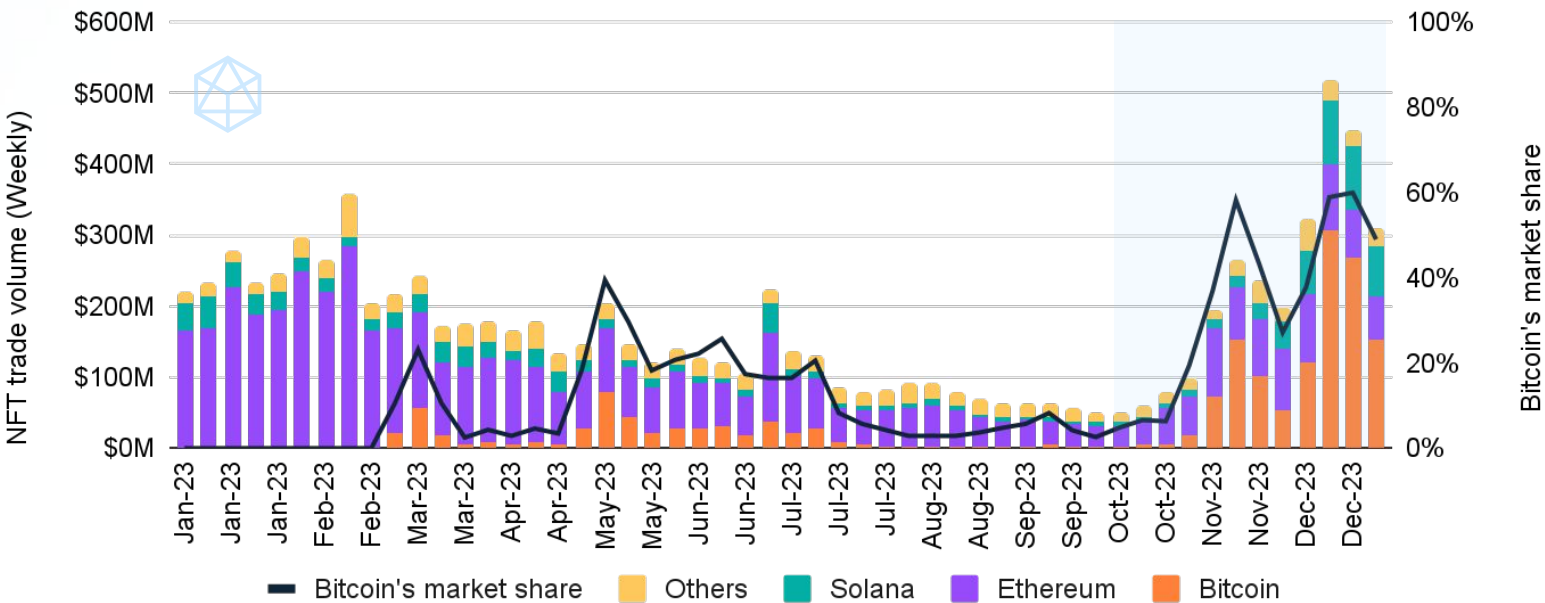




Bitcoin NFT volumes surpass Ethereum

In the same context, it's essential to highlight a remarkable development: the surge in demand for single data record transactions on the Bitcoin network was so significant that trading "NFTs" on the network surpassed the volumes traded on the Ethereum network (via its ERC-721 tokens). This achievement, unimaginable just a year ago, underscores to investors that increased utility on the Bitcoin network is a key driver for greater usage of its native token. The ability to register ownership of unique assets on the most robust network is incredibly encouraging and could serve as an additional demand catalyst for BTC in the coming years.

NFT Trade Volume by blockchain in 2023

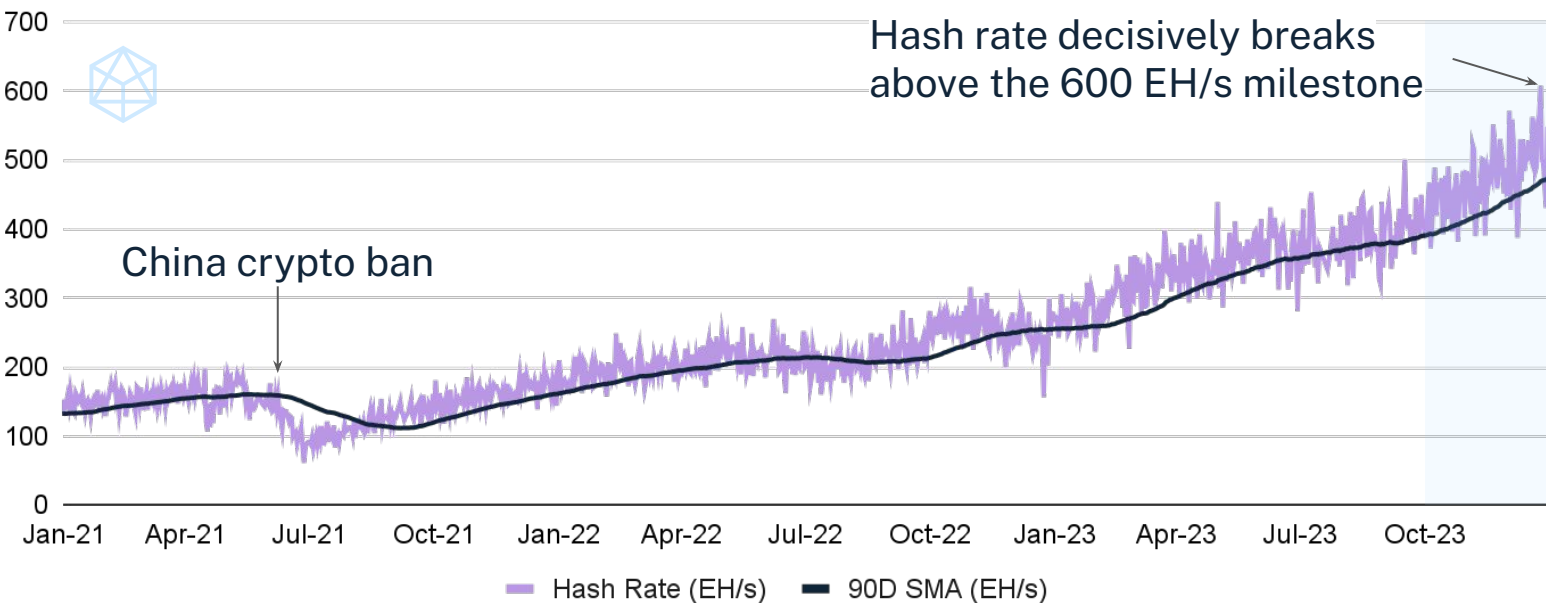


Source: Hashdex Research with data from [The Block](#) (from January 1, 2023 to December 31, 2023).

Hash rate goes above 600 EH/s, a new ATH

On December 25, 2023, Bitcoin's hashrate achieved a historic peak of 607 EH/s, a computational power equivalent to millions of high-end computers operating simultaneously. This significant increase in hashrate not only indicates a rising demand for Bitcoin but also substantially enhances the network's security, making any potential attacks increasingly expensive and difficult to execute. To put this into perspective, this hash rate is equivalent to the combined power of approximately 6 quadrillion high-end personal computers, each with a hash rate of 100 megahashes per second, highlighting the colossal scale of Bitcoin's computing power.

Bitcoin's hash rate since 2021



Source: Hashdex Research with data from mempool.space (from January 1, 2021 to December 31, 2023).



Bitcoin metrics steadily improve in Q4’23, as positive price momentum wraps up amazing year for BTC and encouraging on-chain activity buoy interest in the Bitcoin network



Metric	Q4'23	Q3'23	2022	1Y ago	QoQ	YTD	12M
Price (USD)	\$42,608	\$27,008	\$16,565	\$16,565	57.8%	157.2%	157.2%
Market Cap (USD)	\$825.4B	\$524.7B	\$319.4B	\$319.4B	57.3%	158.4%	158.4%
Dominance	48.2%	47.1%	39.5%	39.5%	2.4%	22.0%	22.0%
24h Exchange Volume (USD)	\$8.0B	\$2.8B	\$4.9B	\$4.9B	184.2%	62.6%	62.6%
Hash Rate (EH/s)	516.9	411.5	277.5	277.5	25.6%	86.3%	86.3%
Active Addresses	791.6k	1.0M	843.1k	843.1k	-22.4%	-6.1%	-6.1%
Daily On-chain Fees (USD)	\$15.0M	\$581.2k	\$201.9k	\$201.9k	2,485.9%	7,344.7%	7,344.7%
Lightning Capacity (BTC)	5,034.1	4,497.4	4,830.2	4,830.2	11.9%	4.2%	4.2%

Source: Hashdex Research with data from Messari, beaconcha.in and Etherscan (from December 31, 2022 to December 31, 2023)



Yet another quarter marked by solid fundamentals and commendable performance for ETH

Even though Ethereum (ETH) lagged behind Bitcoin (BTC) in terms of performance during the quarter, its price still significantly outperformed other major asset classes, exceeding the returns of gold, the Nasdaq, and the S&P 500 by more than three times.

Despite the absence of major narratives propelling ETH to outshine the market in the short term, it's important to recognize that the Ethereum network operated smoothly without technical issues, and its token maintained deflationary levels by the end of the quarter.

While Bitcoin often dominates the spotlight, Ethereum's consistent and strong performance should not be underestimated. Ethereum has the potential to emerge as a formidable asset, particularly as the initial excitement around Bitcoin's specific value drivers starts to wane.

Ether price action in Q4'23



Source: Hashdex Research with data from CF Benchmarks (from September 30, 2023 to December 31, 2023).





Total Value Locked (TVL) increases by 66%, setting the tone for a notably positive quarter

During a quarter where Ethereum's network experienced a quieter recovery in both prices and overall activity compared to Bitcoin, a notable metric was the substantial increase in Total Value Locked (TVL) on Ethereum. The capital deployed on the network rose by almost 70%, a rate exceeding the appreciation of its native token (ETH). This trend suggests that it's not just the prices that have increased, but also the amount of capital invested by users into the network has surged significantly. This increase in TVL serves as a positive indicator of the current market sentiment towards the decentralized applications (dApps) and DeFi ecosystem on Ethereum.

Total Value Locked in the Ethereum ecosystem

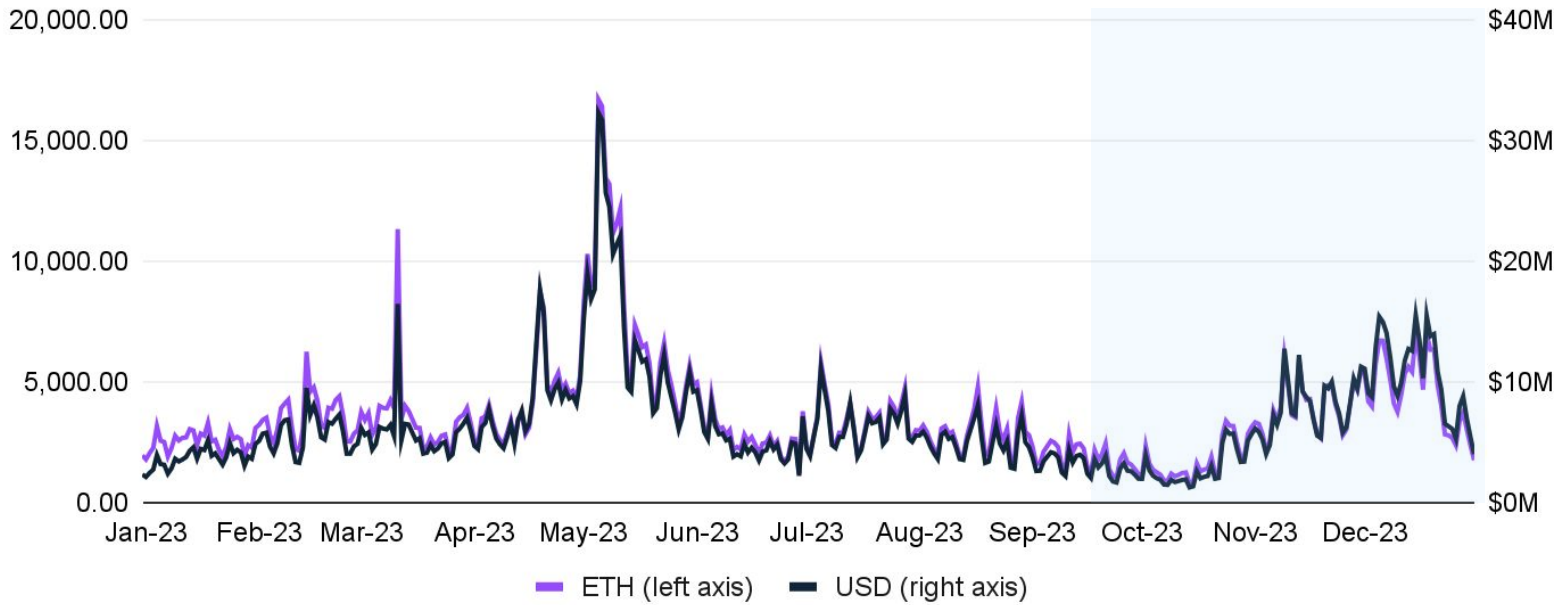


Source: Hashdex Research with data from Defillama (from January 1, 2023 to December 31, 2023). Data includes double counting and liquid staking.

In tandem with adoption, there is a discernible rise in transaction fees in the back end of 2023

As anticipated, the heightened demand for block space on the Ethereum network has corresponded with an escalation in transaction costs. It's noteworthy to emphasize the second-order impact of this occurrence, where, in the context of the Ethereum network, an increased burning of ETH has reinforced the network's deflationary trend for its native token. As **layer-2** solutions evolve and real-world demand-generating applications emerge, we can expect that network activity levels may not exert as significant an influence on **gas fee** levels.

Ethereum's onchain fees in 2023



Source: Hashdex Research with data from Messari (from January 1, 2023 to December 31, 2023).





Total staking deposits maintains steady progression

The Ethereum network, in the last quarter, saw a steady and inconspicuous increase in staking deposits, a development worth noting amidst other news. While dramatic events often grab headlines, the ongoing resilience and consistent growth in funds committed to network security through staking deposits, observed consistently each quarter, are significant. This trend may not be flashy, but it certainly points towards a bullish trajectory for the network.

Total ETH staked since the Beacon Chain’s inception

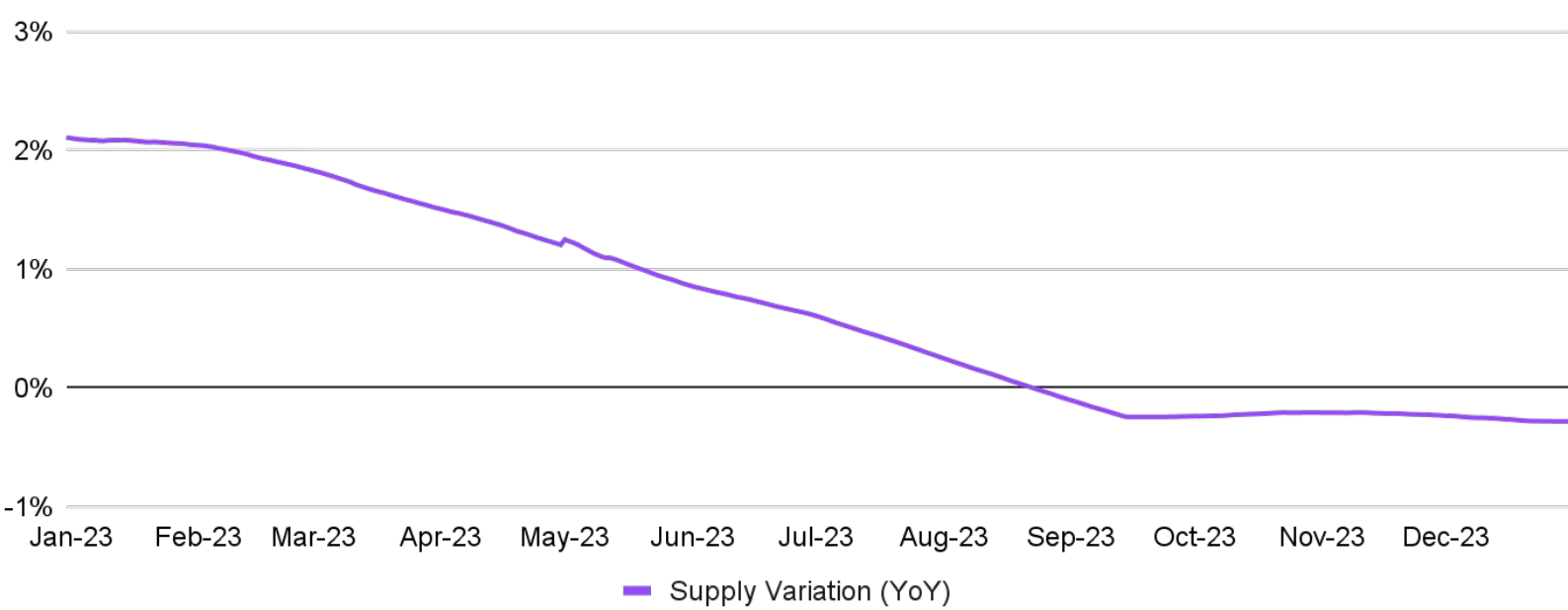


Source: Hashdex Research with data from beaconcha.in (from December 1, 2020 to December 31, 2023).

Deflationary trend sustained, with increased burn rate for this quarter

In the early part of the quarter, the Ethereum network experienced a short-lived phase of inflation, the first in over a year. However, this inflationary period was brief, and soon the network returned to its deflationary path, with November and December witnessing a decrease in its circulating supply. The continuation of this deflationary trend is an attractive value proposition for ETH investors. It highlights not just potential demand growth but also the consistent reduction in Ethereum's circulating supply for more than a year.

ETH YoY supply variation in 2023



Source: Hashdex Research with data from Etherscan (from January 1, 2022 to December 31, 2023).



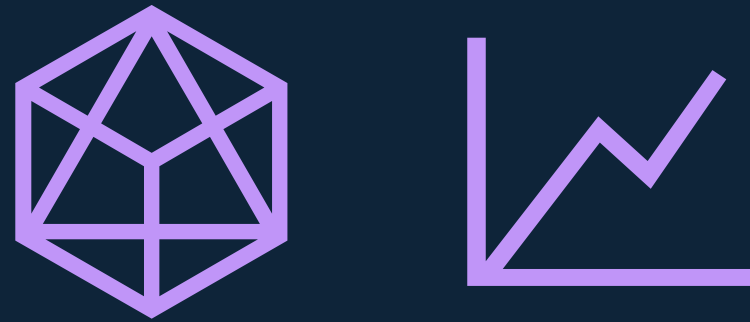


A rising tide that elevated all boats: Q4’23 closes as one of the most positive quarters for Ethereum, with bolstered metrics all across the board



Metric	Q4'23	Q3'23	2022	1Y ago	QoQ	YTD	12M
Price (USD)	\$2,294	\$1,677	\$1,202	\$1,202	36.8%	90.8%	90.8%
Market Cap (USD)	\$275.4B	\$200.5B	\$144.5B	\$144.5B	37.4%	90.5%	90.5%
Dominance	16.1%	18.0%	17.9%	17.9%	-10.6%	-10.0%	-10.0%
24h Exchange Volume (USD)	\$3.6B	\$1.5B	\$1.5B	\$1.5B	143.1%	139.8%	139.8%
Total Stake (ETH)	28.8M	26.6M	15.8M	15.8M	8.4%	82.4%	82.4%
Active Addresses	503,086	472,167	334,874	334,874	6.5%	50.2%	50.2%
Daily On-chain Fees (USD)	\$4.1M	\$2.0M	\$2.4M	\$2.4M	100.8%	71.0%	71.0%
Total Value Locked (USD)	\$67.5B	\$48.4B	\$38.5B	\$38.5B	39.3%	75.3%	75.3%





Performance of Hashdex's Indices

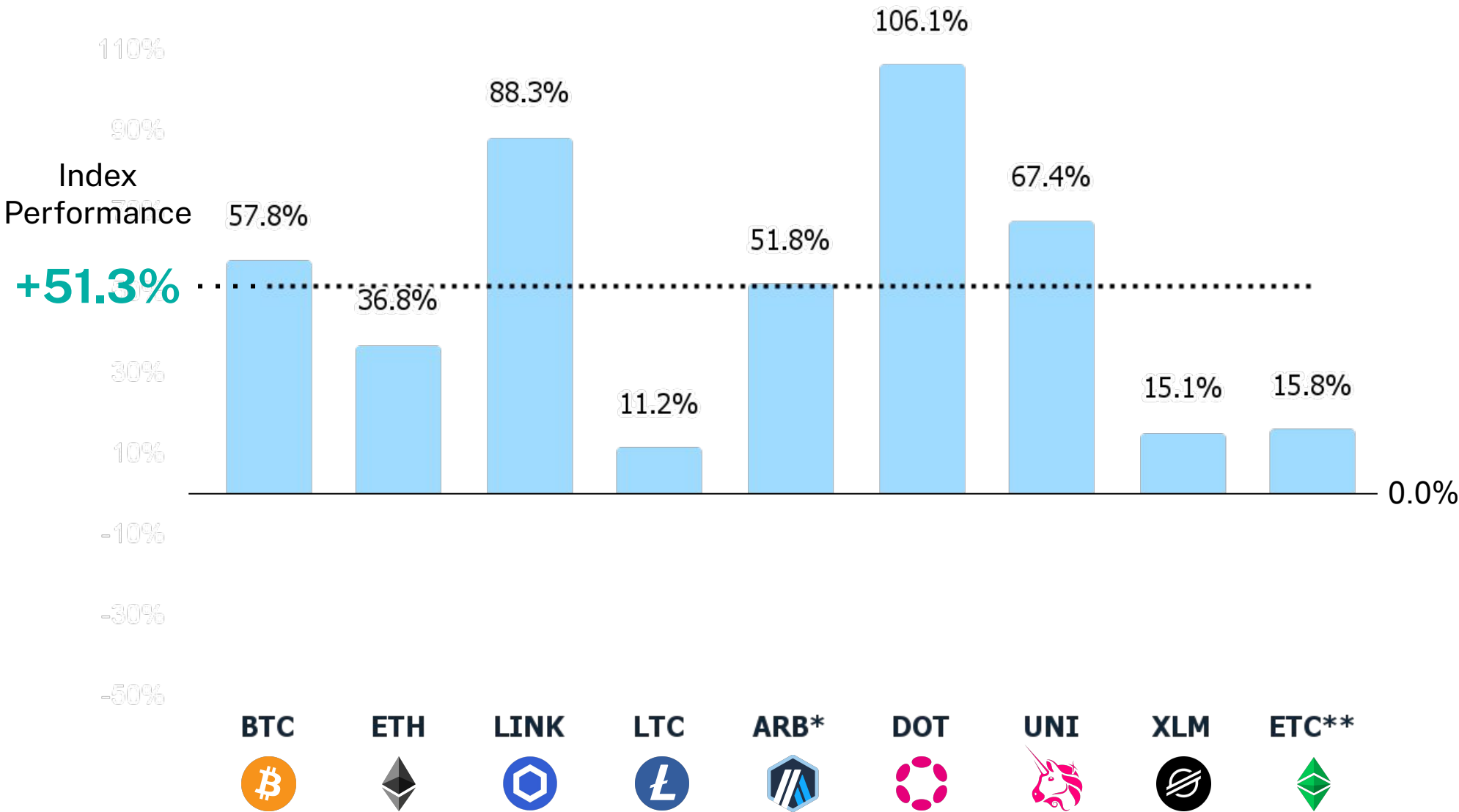


The Nasdaq Crypto Index™ (NCI™)

The Nasdaq Crypto Index (NCI) closed the year with three outstanding months, surpassing a 50% cumulative performance threshold. This impressive result was largely driven by the strong performances of LINK, DOT, and UNI, each contributing significantly to the unweighted performance within the index. ARB, a recent addition to the index, also performed in line with the overall index, interestingly enough.

Of particular note, DOT emerged as the top performer for the quarter within the NCI basket. The index as a whole showed lower volatility during the last quarter compared to both ETH and BTC.

As the investment landscape in the crypto realm evolves and incorporates into the NCI, observing how the inclusion of new assets affects cryptocurrency investments will be intriguing. This could shape a compelling investment strategy, offering an alternative to focusing exclusively on BTC and ETH.



Source: Hashdex with data from CF Benchmarks (from September 30, 2023 to December 31, 2023).
*Arbitrum (ARB) joined the NCI in the December 1, 2023 reconstitution.
**Ethereum Classic (ETC) left the NCI in the December 1, 2023 reconstitution.

Performances of indices tracked by Hashdex products



Index	Oct-23	Nov-23	Dec-23	Q4'23	Q3'23	YTD	12M
Nasdaq Crypto Index	21.1%	10.7%	12.9%	51.3%	-11.8%	132.6%	132.6%
Nasdaq Bitcoin Reference Price	27.6%	9.7%	12.8%	57.8%	-11.0%	157.2%	157.2%
Nasdaq Ether Reference Price	7.9%	13.0%	12.3%	36.8%	-12.8%	90.8%	90.8%
CF Web 3.0 Smart Contract Platforms Index	24.0%	34.5%	51.2%	152.2%	-9.9%	207.0%	207.0%
CF DeFi Composite Index	2.5%	26.1%	19.5%	54.5%	-3.7%	87.6%	87.6%
CF Digital Culture Composite Index	12.1%	16.2%	21.0%	57.6%	-16.0%	37.7%	37.7%
Nasdaq Crypto Index Europe	20.7%	12.0%	16.1%	56.9%	-9.9%	137.9%	137.9%
Vinter Hashdex Risk Parity Momentum Crypto Index	14.5%	22.4%	33.4%	86.9%	-4.6%	133.1%	133.1%





Highlights of the Quarter & Hashdex Reports



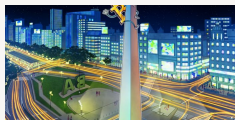
Highlights of the Quarter



Ledger exploit



FASB “fair value” accounting for digital assets



Argentina’s crypto adoption

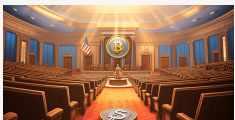


Itau launched a Bitcoin custody product



El Salvador’s bitcoin bonds

Hashdex Reports



Ether futures ETFs go live, Gensler pressured by Congress, and Coinbase expands in Europe



Crypto dodges the September effect



Brazil’s Blockchain ID, UBS on Ethereum, and ether futures ETFs slow start



SEC won’t appeal Grayscale decision, Standard Chartered bullish on ether, and new JPMorgan blockchain initiatives



ETF rumor, bitcoin crosses \$30K, and digital euro advances



Making sense of bitcoin’s recent move



Volume surge, big banks’ blockchain rails, and JPMorgan’s \$1B stablecoin



Crypto experiences another “Uptober” as bullish sentiment returns



The bulls are back in town



Fidelity calls bitcoin ‘exponential gold,’ SBF’s guilty, and PayPal’s UK plans



BlackRock’s ether ETF, HSBC’s custody plans, and is Circle going public?



JPMorgan’s tokenized funds, Santander offers crypto, and Disney’s NFT project



Binance CEO steps down, SEC sues Kraken, and spot ETF discussions continue



Crypto’s new regime: Our 2024 investment themes



The bulls will remember November



Bitcoin surges, SocGen’s stablecoin, and Brazil’s largest bank goes crypto



An update on spot bitcoin ETFs



ETFs in Hong Kong, bitcoin in Argentina, and Grayscale chairman steps down



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.

Burn - The process of “burning” coins/tokens to incentivize network users to buy and invest in protocol-specific assets. Usually intended as a counter-inflationary mechanism, burning decreases the total crypto supply, potentially increasing the value of the remaining crypto supply.

CBRC-20 - Short for “compressed BRC-20”, CRBC-20 is a new token standard on the Bitcoin blockchain. Compared to the BRC-20 standard, it boasts smaller data size and potentially lower minting fees.

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.

Gas Fee - The fees associated with transacting and executing smart contracts or decentralized applications on the Ethereum blockchain and other smart contract platforms.

Halving- Is an event that happens around every four years, it reduces the mining reward by 50%.

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" into Bitcoin satoshis (sats), which are the smallest units of the bitcoin currency. That allows unique data to be registered on the Bitcoin blockchain, in such way that it differs from how NFTs are registered in other smart contracts platforms.

Layer-2 (L2) - A parallel network that serves as a secondary set of off-chain solutions built on top of an existing Layer-1 to reduce bottlenecks and offer greater scalability and privacy.

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.

Proof-of-Work - Consensus mechanism where miners utilize electricity and computer hardware to solve a cryptographic puzzle and become eligible to include a new block on the blockchain.

Runes - Runes are the latest fungible token protocol on the Bitcoin ecosystem, promising to deliver a simpler, more efficient way to store data on the blockchain. Unlike other fungible token protocols for Bitcoin, Runes don't require data from outside of the blockchain or native tokens to operate.

Stablecoin - A stablecoin is a digital currency created with the intent of holding a stable value with respect to another asset, such as fiat currencies, precious metals and other digital assets.

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.

TradFi - Traditional finance (TradFi) refers to the financial system that exists apart from blockchain, cryptocurrency, and decentralized finance (DeFi), typically characterized by legacy financial institutions such as banks and large corporate financial enterprises that operate using a centralized model.

Tokenization - Tokenization is the act of converting the value of a tangible or intangible asset into a token. The token itself is a piece of code made up of a distinctive asset reference, unique properties, and/or specific legal rights in accordance with the smart contract through which the token was generated.

Total 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.



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