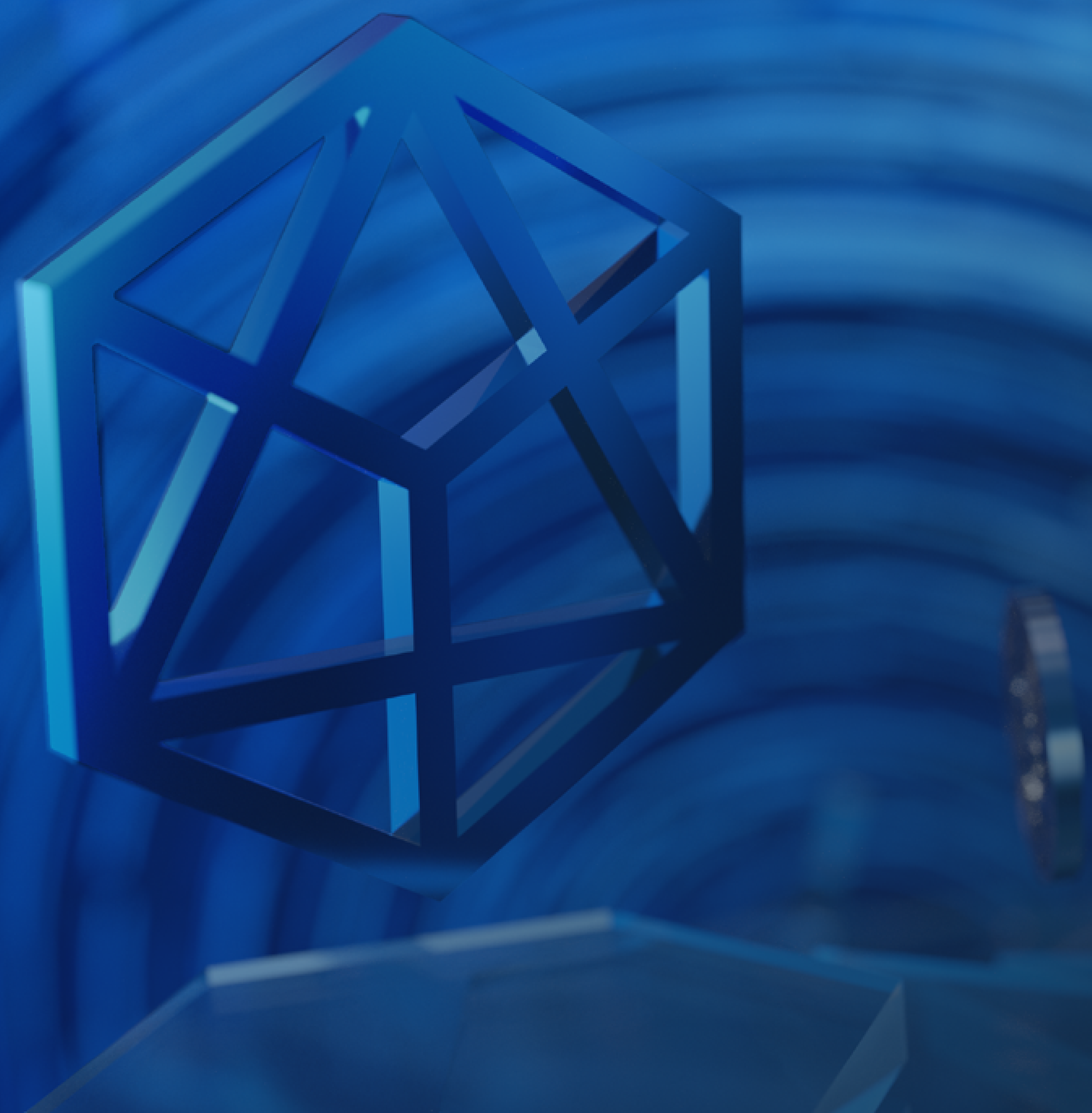
Hashdex

2025 Crypto Investment Outlook

Into the mainstream



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Crypto's shot

Marcelo Sampaio, CEO

> *The plan is to fan this spark into a flame.*

This line from the Broadway play Hamilton has been on my mind as I reflect on 2024. Just as Hamilton's ambition drove him to seize his moment during the independence of the United States, we believe crypto's moment has arrived.

Since 2018, our team has been dedicated to helping investors understand how this crypto "spark" has transformed into a powerful flame of innovation and investment opportunity. And 2024 might be remembered as the year that flame burned the brightest. The year was marked by two pivotal milestones for our industry: the approval of bitcoin ETFs at the start of the year and the election of a pro-crypto US president and Congress.

In between, we witnessed other critical developments. Large public pension plans allocated to crypto ETFs, major financial institutions advanced **tokenization** initiatives, and governments across the globe moved toward more fully embracing blockchain technologies.

2024 was also a landmark year for Hashdex. From launching the Hashdex Bitcoin ETF in the US, to seeing our Hashdex Nasdaq Crypto Index Europe ETP become the largest multi-asset crypto ETP in Europe[1], to expanding institutional channels across Latin America's traditional finance sector, our achievements have solidified our position and prepared us to navigate the current bull market that is taking shape.

Bitcoin and other crypto assets are closing out 2024 with a unique opportunity to deliver on their promise of an open, transparent, and accessible economy. As part of our commitment to empowering investors, we've compiled the Hashdex 2025 Crypto Investment Outlook, analyzing the most significant developments that we believe will shape the crypto asset investment landscape in the coming year and beyond.

As we enter this new mainstream era for crypto, our team remains as dedicated as ever to ensuring that investors don't miss this opportunity.

We're grateful for your trust and look forward to serving you in the months and years ahead.

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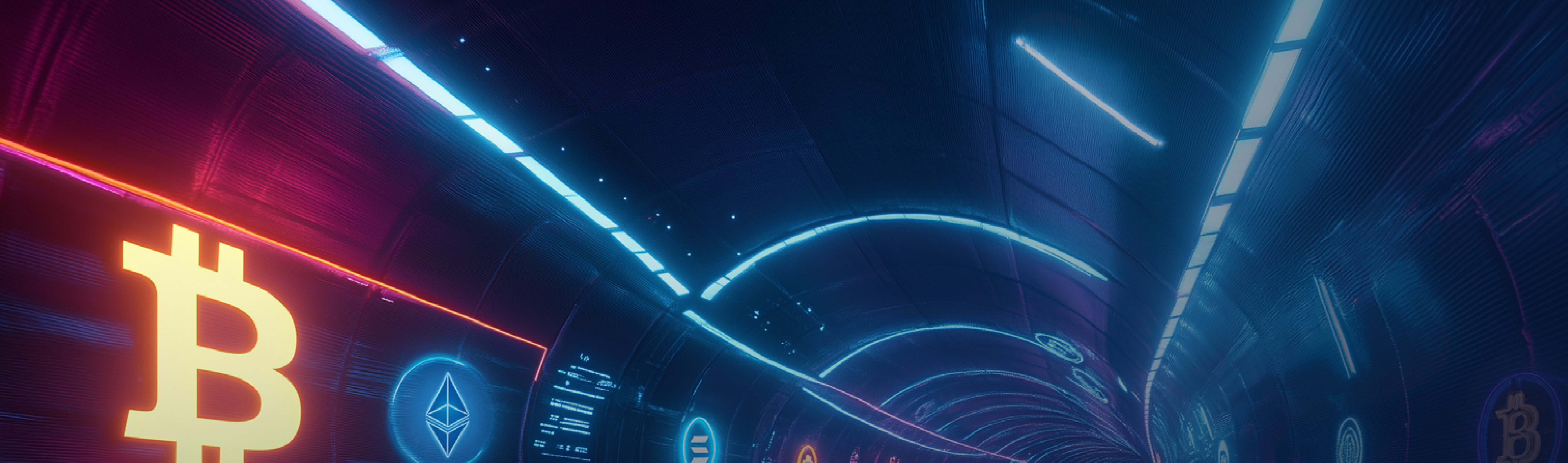
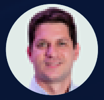
[1] As of October 31, 2024 the Hashdex Nasdaq Crypto Index Europe ETP had $409M in net asset value

Marcelo

December 2, 2024



The next frontier: Our 2025 investment themes



Samir Kerbage, CIO

Last year was one of transition, as the crypto market went through a recovery cycle on the heels of a 2022 characterized by bad actors and fraudulent activity. This year has also been one of transition, but this time the transition is from a recovery phase to the start of a bull market.

What does this transition mean for investors, especially those considering a first-time allocation to crypto?

We think the current investment case for bitcoin and other crypto assets remains strong. The confluence of institutional demand, infrastructure advancements, and a regulatory environment that will radically improve in 2025 is setting this asset class up for what may be its strongest year on record.

The new year will prove to be a new frontier of crypto investing, one where bitcoin is an established macro asset, **smart contract platforms** compete for users across various segments of the economy, and new blockchain-based applications have the chance to prove their worth.

The most important thing for investors to keep in mind going into 2025 is that investing in this asset class should be done strategically and with a long-term outlook in mind. This is, in part, why crypto index ETFs/ETPs have been at the core of our mission. In the same way no one could have predicted which of the Nasdaq 100 stocks in 2004 would be the largest 20 years later, it's hard to predict which crypto assets will outperform in the long-term, especially in such a dynamic and fast-moving industry. And, as with many other investments, crypto investing requires patience, discipline, and a willingness to look at the world with open eyes.

As 2024 comes to a close, we want to help our clients understand where the opportunities and risks lie with this new frontier of crypto investing, which is best summed up in three themes:

Crypto's next frontier: Our 2025 themes	Key milestones from 2024
1.	
An ocean of opportunity. Crypto is becoming ingrained in traditional finance and helping shape the internet's next era, making this niche asset class an important portfolio consideration for investors.	Bitcoin and Ethereum ETF approvals US election outcome AI and crypto intersect
2.	
Bitcoin crosses the chasm. Institutional acceptance, a strengthening store-of-value thesis, and increasing utility have pushed the world's first cryptocurrency to a much broader audience of investors.	Digital gold narrative Record ETF flows Public pension investments
3.	
Finding the next "killer app" The new year will be vital for the future of blockchain applications, with infrastructure developments and emerging trends potentially uncovering exceptional use cases.	Ethereum's scalability improvements Stablecoin adoption and tokenization Smart contract platform competition

This report includes articles from our research and portfolio management teams that support these three themes and the rapidly developing investment case for crypto.

We hope you find these insights useful.

Samir

An ocean of opportunity

Pedro Lapenta, Head of Research

Crypto is becoming ingrained in traditional finance and helping shape the internet's next era, making this niche asset class an important portfolio consideration for investors.

In last year's Outlook, we noted that this unique and often misunderstood asset class was on the verge of blending into traditional finance, transitioning from an isolated river into the "expansive ocean of traditional financial markets" and creating a new wave of financial innovation. We also highlighted that despite a major correction in crypto prices in late 2022, crypto fundamentals were in fact improving — a contrary view presenting us with a generational investment opportunity. One of those rare moments where long-term drivers align with an attractive short-term entry point.

Fast forward one year, and the Nasdaq Crypto Index™ (NCI™) is up over 90%,[2] this year, once again making crypto the top-performing asset class. In the US, the world's largest capital market, the introduction of spot Bitcoin ETFs has been a notable success, with $24 billion in inflows during the first 10 months. These ETFs provide investors with a regulated, transparent, and liquid way to gain exposure to "digital gold."

Following the Bitcoin ETF launches, the SEC approved spot Ethereum ETFs in a surprising move that signaled a new chapter for crypto regulation in the US, offering investors exposure to the "programmable money" made possible by smart contract platforms. This regulatory progress has brought crypto into the spotlight for a much broader audience, including political leaders. With a Congress that's more receptive to crypto, the coming term may bring fresh perspectives on digital assets.

While the environment has evolved, our view on the impact of blockchain technology remains steadfast. Crypto is the most significant long-term investment opportunity available to both big and small investors today. In our view, this is still a generational opportunity. Below we highlight the two main forces backing this view.

1. Bitcoin as a world class store-of-value asset

The first major force is bitcoin, driven by a growing demand worldwide for store-of-value assets in a financial and geopolitically uncertain world. Total global debt hit a staggering $312 trillion[3] n 2Q24 (327% of global GDP), with little sign of political will to address this issue. Additionally, the trend toward de-dollarization gained momentum after the US restricted Russia's access to the SWIFT payment network and froze Russian central bank assets held in US Treasuries. Alongside this, a shift toward a multipolar world is emerging, with influence expanding beyond the US to nations like China, India, and other economies that are reshaping global dynamics. In this climate, investors worldwide are increasingly seeking assets like gold, silver, prime real estate, and resilient businesses as hedges against inflation and currency debasement.

Bitcoin, often referred to as "digital gold," has emerged as a compelling investment alternative with unique properties that set it apart as a store-of-value asset. Bitcoin has now entered the radar of the largest institutional investors of the world. Professional investors can no longer avoid not having an opinion about this asset.

As global demand for assets that can preserve value intensifies, bitcoin's target market share has the potential to expand dramatically, offering asymmetrical gains for early investors. Although bitcoin is nearing its 16th anniversary, we are still in the early stages of global adoption, and its growth prospects remain substantial as new markets continue to open. This cycle mirrors previous ones, marked by significant expansion in the demand for store-of-value assets. Given these dynamics, it would not be surprising to see nation-states — including the US — consider adding bitcoin to their strategic reserves as soon as 2025.

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[2] Hashdex Research with data from Bloomberg (from November 13, 2023 to November 13, 2024)
[3] According to the Institute of International Finance (IIF) study on global indebtedness. Global debt hits record $312 trillion, climate finance a challenge, banking trade group says | Reuters

2. Web3 and a new internet era

The second transformative force is the rise of a new internet era, known as the "Read-Write-Own" era, coined by a16z crypto founder Chris Dixon. Powered by blockchain technologies, this era introduces true digital asset ownership and token-based incentives, allowing individuals to participate directly in the value they help create. By enabling users to own and control their data and assets, Web3 democratizes access and challenges the dominance of big tech, giving people an economic stake in the platforms they use — a shift that is already well underway.

At the core of this evolution are smart contract platforms, providing the groundwork for decentralized applications (dApps). We are currently at a pivotal moment of development: the infrastructure phase is largely complete, a new wave of applications is emerging across sectors like social media, gaming, finance, tokenization, decentralized physical infrastructure networks, AI, governance, and more. Building on early innovations from the last cycle — such as Non Fungible Tokens (NFTs), decentralized finance (DeFi), and decentralized autonomous organizations (DAOs) — fresh products and features are emerging daily. The steady rise in crypto activity seen in this cycle, from wallet usage to transaction volumes, also reflects an expanding ecosystem ready for this surge in innovation.

In 2024, significant advancements in blockchain infrastructure laid the foundation for the next era of growth and adoption. Major upgrades, including Ethereum's Dencun upgrade, reduced on-chain transaction costs by over 99% on Layer-2 networks and dramatically increased throughput. Now, transactions — whether sending native digital assets or transferring tokenized assets on Ethereum ecosystem — cost less than $0.01 and settle in seconds on a distributed and global 24/7 ledger. Other blockchains, such as Solana, Ton, and Sui, have also gained traction, contributing to exponential blockchain capacity growth in this cycle. Today, these networks can handle, on an aggregated basis, 50 times more transactions per second than they could just four years ago, at a fraction of the previous cost. The infrastructure is largely ready for the new phase.

Blockchain technology is catalyzing a revolution on par with the smartphone era. Just as smartphones transformed communication, commerce, and access to information by making powerful technology widely affordable, blockchain technology is democratizing access to digital assets and enabling unprecedented ownership of digital value. This technology's breakthrough innovations — such as tokenization, smart contracts, and decentralized applications — are beginning to reshape industries, from finance to media to supply chains, fundamentally changing how value is created, transferred, and owned in the digital age. Much like the smartphone fueled an ecosystem of apps that revolutionized daily life, the decentralized infrastructure of blockchains is sparking new possibilities across countless sectors, with the potential to empower individuals, disrupt legacy systems, and drive global economic transformation.

Stablecoins exemplify this shift, representing the beginning of programmable money on a global scale. With clear product-market fit, stablecoins now circulate in the hundreds of billions of dollars,[6] demonstrating both their utility and demand. Major financial institutions such as Visa, PayPal, and Stripe, just to name a few, are building innovative products around them, leveraging smart contract platforms, as both the settlement and programmable layers for versatile financial products.

Another frontier is the convergence of crypto and AI, as public blockchains address key challenges in AI such as content authenticity, data privacy and decentralized control of large language models. In the near future, we anticipate a world with millions of AI agents autonomously interacting and transacting within digital ecosystems and, without traditional bank accounts, blockchain becomes the perfect solution for their secure, seamless transactions in a digital-first economy.

The absence of regulatory frameworks for digital assets, especially in the US, has been a key limiting factor. However, the US election outcomes suggest that 2025 may bring long-awaited regulatory clarity, a critical step for broader industry growth and adoption. We anticipate great improvements in market structure, as well as stablecoin legislation, as bipartisan progress helps the industry deliver the best of crypto to the world. Historically, such shifts have often led to entirely new business models, and we expect the same here as the "Read-Write-Own" era continues to take shape.

[4] CoinGecko, Token Terminal and Etherscan (as of November 11, 2024)
[5] L2BEAT and Chainspect (as of November 11, 2024)
[6] Stablecoin Volumes Reach $450 Billion Monthly While Bitcoin Rises, Forbes, September 28, 2024

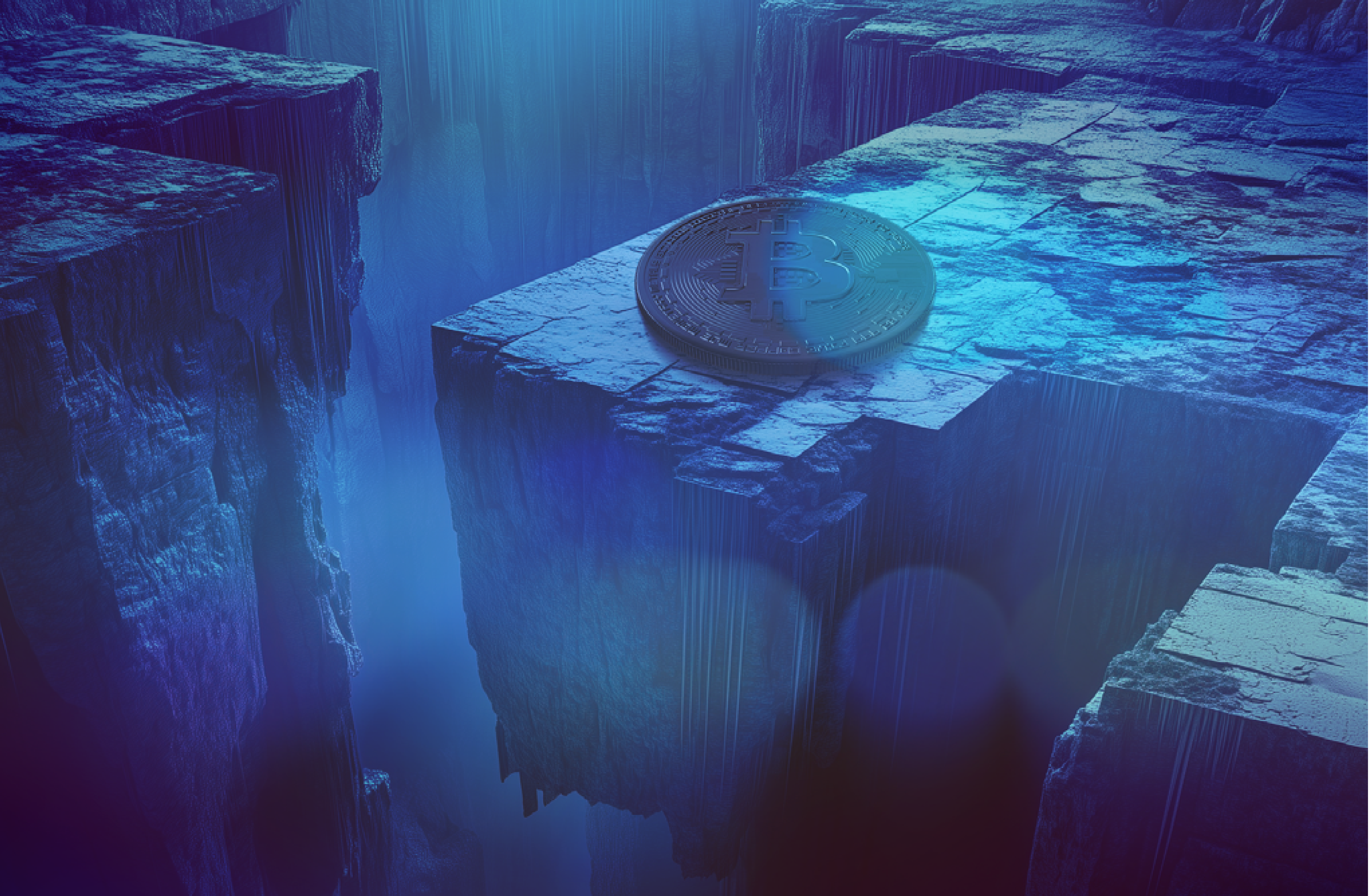
So, what's next?

In my opinion, these two major trends — the rise of bitcoin as a store-of-value asset and the transformation of the internet through Web3 — can make digital assets the top-performing asset class of the next decade. Currently, the total market cap of the industry is just below three trillion dollars. It wouldn't surprise us to see this industry growing to surpass $10 trillion during this cycle, as digital assets go mainstream and these two forces pick up speed simultaneously in the coming years.[7]

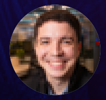
In the short term, macro factors like interest rates and economic conditions may bring volatility, but it will be adoption and utility that ultimately drive crypto's long-term success, and both of these are accelerating. In five or ten years, we may look back on 2025 as a defining moment, where investors who recognized the potential of blockchain technology and digital assets realized outsized returns. For those who believe in the transformative power of this technology, the journey is only beginning, and digital assets are well positioned to perform strongly in the years ahead.

As we witness the birth of a new, global, borderless financial system, this technology will reshape economies, unlock new markets, and empower individuals worldwide in ways previously unimaginable.

[7] Hashdex Research based on historical performance of the asset class.



Bitcoin crosses the chasm



Lucas Santana, Research Analyst

In last year's crypto investment outlook,[8] I highlighted Bitcoin's[9] evolution as a programmability platform. This was due to excitement around new utility of its blockchain, such as **ordinals** and **inscriptions**,[10] as well as the anticipated arrival of **Taproot** Assets, a new way for other digital assets to be issued on the most robust blockchain in crypto.

Although inscription growth has slowed in 2024 — up just 33% from the 52 million mark at the end of 2023[11] — and Taproot Assets launched[12] in July[13] with limited initial traction, it's fair to say Bitcoin's programmability era is not just a passing fad. This resurgence has revitalized existing programmability layers (e.g., Stacks[14]) and spurred new Ethereum-compatible[15] second layer solutions (e.g., Spiderchain[16]). Furthermore, renewed interest has ignited a race for scaling solutions[17] that enhance Bitcoin's programmability while using it as a secure settlement layer, and brought initial experimentation around shared security[18] and the use of bitcoin collateral[19] to secure other crypto services.

As these solutions develop, I'm increasingly confident that Bitcoin's "Renaissance"[20] has the potential to reshape bitcoin's investment thesis beyond a store of value, with tokenization, decentralized finance, and **NFTs**[21] making their way to the network and pushing forward the asset's industrial age.[22] While I'm optimistic about these technological possibilities, it's impossible to overlook how bitcoin's undisputed position as an emerging digital store of value in crypto was further solidified in 2024, driven by the momentum of crypto's institutional phase.

The year began with the approval of several US spot bitcoin ETFs[23] — a major regulatory catalyst.[24] More importantly, the rapid adoption of these ETFs has exceeded even the most bullish expectations. With under a year of trading, these ETFs have seen combined net inflows of more than $24 billion,[25] making this the most successful single-asset ETF debut in US history.[26]

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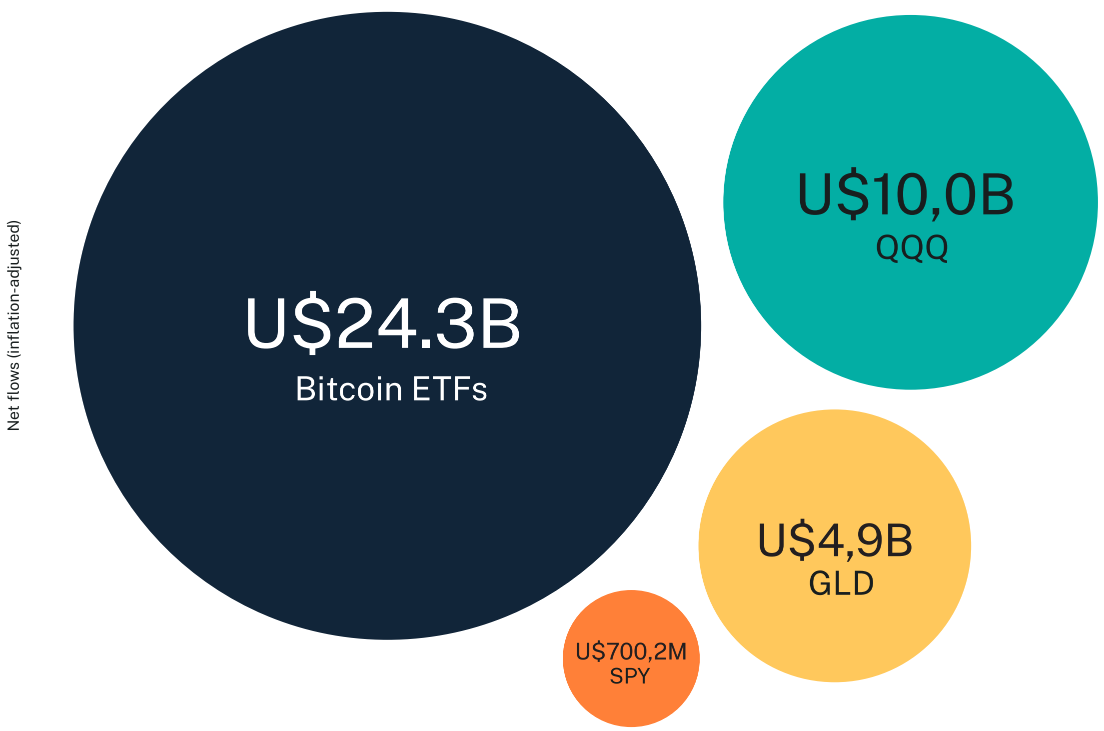
[8] https://hashdex.com/en-US/insights/2024-crypto-investment-outlook-1
[9] Bitcoin with uppercase "B" stands for the network, whereas bitcoin with lowercase "b" refers to the asset.
[10] A set of rules that distinguishes the smallest fractions of a bitcoin known as satoshis to inscribe data on the Bitcoin blockchain.
[11] https://dune.com/dgtl_assets/bitcoin-ordinals-analysis
[12] Mainnet refers to the main (production) environment of a public blockchain network, rather than its testing environments.
[13] https://lightning.engineering/posts/2024-07-23-taproot-assets-LN/
[14] https://www.stacks.co/
[15] Using the technological stack and programmability features of the Ethereum Virtual Machine (EVM).
[16] https://docs.botanixlabs.xyz/botanix-labs
[17] https://trustmachines.co/learn/what-are-rollups-and-how-can-they-work-on-bitcoin/
[18] https://www.halborn.com/blog/post/what-is-shared-security-in-blockchain
[19] https://babylonlabs.io/
[20] https://www.forbes.com/sites/leeorshimron/2024/08/13/the-bitcoin-renaissance-unlocking-trillions-in-value/
[21] NFT is the acronym for non-fungible token, a unique digital asset stored on a blockchain.
[22] https://hashdex.com/en-US/insights/2024-crypto-investment-outlook-1
[23] https://hashdex.com/en-US/insights/a-new-world-of-opportunity-bitcoin-s-investment-case-post-etf-approvals
[24] https://hashdex.com/en-US/insights/2024-crypto-investment-outlook-1
[25] Data from Farside Investors gathering net flows for all US spot ETFs from January 11, 2024 to October 31, 2024 (therefore, BTC ETFs have not completed 12 months of trading).
[26] https://finance.yahoo.com/news/bitcoin-etfs-making-history-wall-132117187.html

The chart below illustrates how, even adjusting for inflation, these ETFs attracted more than twice the inflows of QQQ (the first and largest Nasdaq 100 ETF) in its first 12 months, five times the inflows of GLD (the first physical gold ETF), and nearly 35 times the demand for SPY (the first S&P 500 ETF) within the same timeframe.[27] This success unfolded alongside the fourth Bitcoin halving[28] on April 20, which immediately reduced the asset's inflation rate by 50% and made it scarcer than gold for the first time.

Net flows in the first 12 months of trading

Bitcoin ETFs have garnered $24.3 billion of net inflows in their first 10 months of trading. Even adjusting for inflation, these figures are more than twice as much as the flows into the QQQ in its first 12 months, 5 times the amount garnered by GLD in the same time frame post-launch, and roughly 35 times the demand for the SPY in its first 12 months.



Source: Hashdex Research with data from ETF.com and Farside Investors. SPY data from January 22, 1993 to January 21, 1994; QQQ data from March 10, 1999 to March 9, 2000; GLD data from November 12, 2004 to November 11, 2005; BTC data gathers net flows for all US spot ETFs from January 11, 2024 to October 31, 2024 (therefore, BTC ETFs have not completed 12 months of trading). Inflation adjustment performed using the historical time series for the Consumer Price Index for All Urban Consumers available at the Federal Reserve Economic Data. Past performance is not a guarantee of future results.

With this supply shock, demand for ETFs continued to build. Institutional investment disclosures throughout the year revealed that the first public pension funds began allocating bitcoin to their portfolios. The State of Wisconsin Investment Board disclosed a $164 million bitcoin ETF investment,[29] followed by the Employees' Retirement System of Jersey City and the State of Michigan Retirement System.[30] In October, Emory University became the first endowment to use bitcoin ETFs for digital asset exposure.[31] These announcements signal that even the world's most conservative institutions are starting to see value in digital assets, underscoring US bitcoin ETFs as a pivotal catalyst for crypto's institutional phase[32] — a trend likely to grow in the coming years as new waves of adoption unfold.[33]

These developments made 2024 a year for the record books, with bitcoin rejoining the trillion-dollar asset club while its analog counterpart, gold, broke above $2,000 after a decade-long consolidation,[34] seemingly giving birth to a new bull market in precious metals. This positive momentum has propelled the store-of-value market, represented by bitcoin and gold, from $15 trillion at the year's start to a combined $20 trillion as of writing,[35] with bitcoin growing twice as fast as gold in the calendar year. Neither shows signs of slowing, especially amid the tendencies of global dedollarization, geopolitical uncertainty, and a likely transition to a multipolar world. For bitcoin specifically, as its idiosyncratic cycles continue to rhyme, this remarkable growth happened alongside its transition from a recovery phase toward what is shaping up as an anticipated bull phase,[36] including hitting new all-time highs in the days following the November 5 US elections.

Rudolf Clausius, a founding father of classical thermodynamics, famously said that "the sum of all transformations occurring in a cyclical process can only be positive, or, as an extreme case, equal to nothing." As bitcoin has matured, transcending its cycles and reaching mainstream adoption, the possibility of "nothing" is no longer a consideration.

[27] Data from ETF.com and Farside Investors. SPY data from January 22, 1993 to January 21, 1994; QQQ data from March 10, 1999 to March 9, 2000; GLD data from November 12, 2004 to November 11, 2005; BTC data gathers net flows for all US spot ETFs from January 11, 2024 to October 31, 2024. Inflation adjustment performed using the historical time series for the Consumer Price Index for All Urban Consumers available at the Federal Reserve Economic Data.
[28] https://hashdex.com/en-US/insights/bitcoin-s-halving-an-investor-s-guide
[29] https://hashdex.com/en-US/insights/market-pulse-q2-24
[30] https://hashdex.com/en-US/insights/market-pulse-q3-2024-1
[31] https://www.coindesk.com/business/2024/10/28/emory-university-joins-bitcoin-etf-rush-reporting-16m-holding-in-grayscale-vehicle/
[32] https://hashdex.com/en-US/insights/2024-crypto-investment-outlook-1
[33] https://hashdex.com/en-US/insights/eight-takeaways-from-singapore
[34] https://hashdex.com/en-US/insights/market-pulse-q3-2024-1
[35] Outstanding supply of gold from the World Gold Council and price of one ounce troy of gold from Bloomberg. The best estimates currently available suggest that around 212,582 tonnes of gold have been mined throughout history. Bitcoin market capitalization from Messari.
[36] https://hashdex.com/en-US/insights/are-we-entering-a-bull-market

Finding the next “killer app”

Yuri Alter Szaniecki, Research Analyst

The new year will be vital for the future of blockchain applications, with infrastructure developments and emerging trends potentially uncovering exceptional use cases.

There are generally three distinct phases in the development of a disruptive idea into widespread acceptance. For new technologies that rely on network effects, growth typically follows this sequence: first infrastructure, then scalability, and finally user-driven applications. Crypto seems to be following this same progression as the internet. The internet, for example, first had a "primitives" phase, where use cases like email and messaging showed early glimpses of the internet's transformative potential. The second stage was marked by broadband,[37] which scaled the infrastructure and enabled a rapidly expanding user base to access online services and applications. Finally, with the infrastructure and user base in place, the third stage saw an explosion of internet services and applications. Developers could now focus on creating powerful tools and popular platforms, making the internet essential and ubiquitous.

As we approach 2025, it's worth asking if the transition from the scalability phase (which I wrote about in our 2024 Outlook[38]) to the third stage is already underway. This was clear to me at the Permissionless III crypto conference,[39] where the consensus was that "the crypto primitives are already here." Blockchain infrastructure appears ready for the next phase of adoption, with scaling solutions largely in place.

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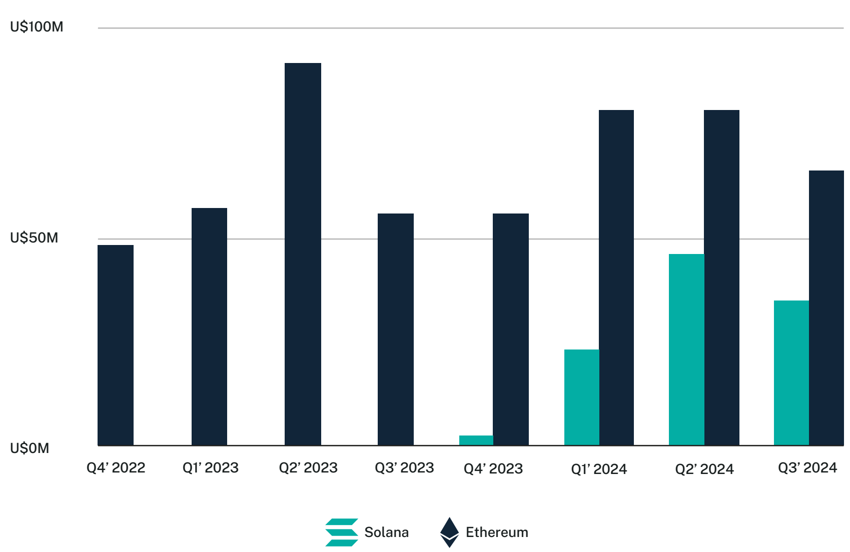
[37] https://hashdex.com/en-US/insights/crypto-s-broadband-moment-what-internet-adoption-tells-us-about-the-future-of-crypto-assets
[38] https://hashdex.com/en-US/insights/2024-crypto-investment-outlook-1
[39] https://hashdex.com/en-US/insights/permissionless-2024

However, the leaders in blockchain infrastructure are not yet set. Ethereum, the first to deploy smart contracts and adopt a modular structure, has long been the front-runner. But in 2024, Solana, with a more vertical approach, emerged as a formidable competitor, growing its use cases, user base, and fee generation to challenge Ethereum's dominance. Where there was once confidence in Ethereum's modular roadmap and the belief that every Ethereum-killer will eventually become an Ethereum Layer-2,[40] the competition with Solana has raised questions about which approach will ultimately prevail. One major shift in perspective was reinforced by Ethereum's "Dencun" upgrade this year.[41] This "necessary evil" caused a short-term decline in protocol revenue as recent scalability solutions drew users, activity and revenue away. However, I believe this move might be essential for Ethereum to reach its next level of adoption, as the enhanced throughput and reduced costs are critical for unlocking an ecosystem that can accommodate new waves of users.

Revenue generation on Ethereum and Solana

Since FTX's collapse, interest and activity on Solana have sharply declined since late 2022. Additionally, Solana's very low transaction fees make revenue generation on its protocol challenging. Yet, by steadily building a more vibrant ecosystem, Solana is gradually closing the gap as Ethereum's main alternative throughout 2024.

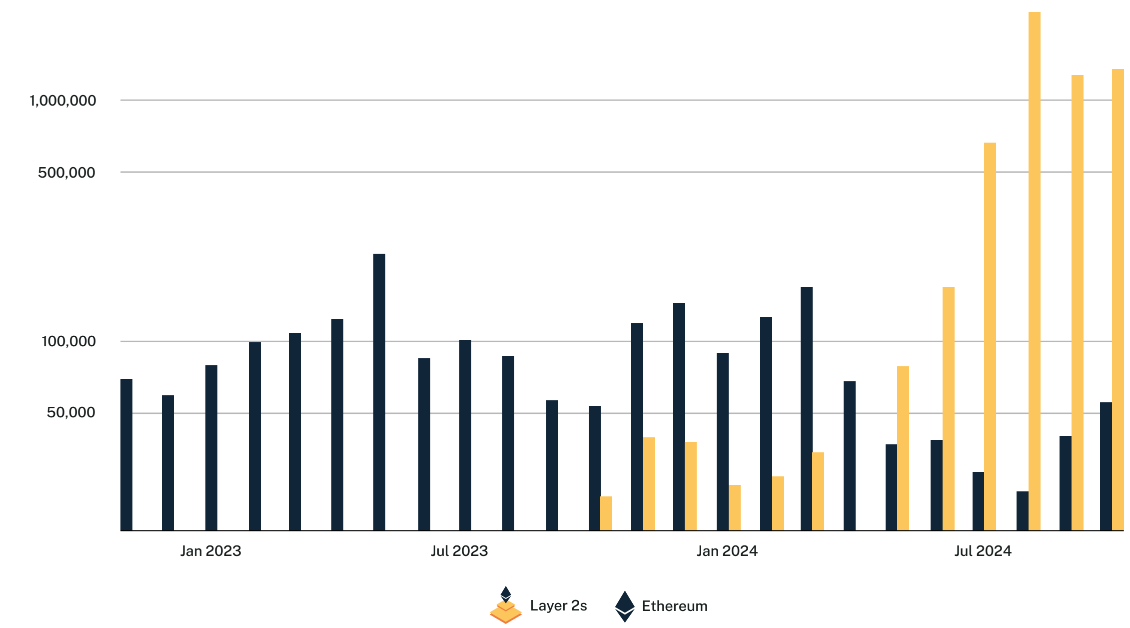


Source: Hashdex Research with data from Dune Analytics from October 01, 2022 to September 30, 2024. Revenue on Ethereum is measured by the difference between total fees paid minus its base fee, which is burned. Revenue on Solana is measured by the difference between all fees paid and what is burned, which is roughly 50%.

[40] https://hashdex.com/en-US/insights/keep-on-building-and-other-key-takeaways-from-permissionless
[41] https://hashdex.com/en-US/insights/the-dencun-upgrade-is-live-ethereum-s-evolution-continues-at-full-throttle

Total fees paid on Ethereum ecosystem (USD) in log scale

The chart illustrates how, since the introduction of scaling solutions on the Ethereum network, known as Layer-2s, activity and fee generation have clearly shifted toward these L2s, reducing demand for blockspace on the base layer (Ethereum).



Source: Hashdex Research with data from Dune Analytics from November 01, 2022 to October 31, 2024. In this case, Layer-2s are represented strictly by Base, Arbitrum, Optimism, ZkSync and Scroll

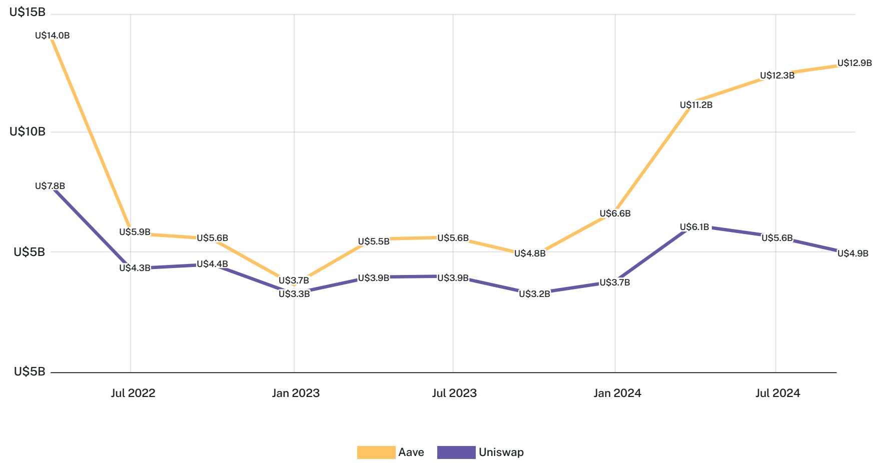
Whether Ethereum's roadmap prevails or Solana's momentum continues, the key to success for smart contract platforms remains the development of compelling applications.

While promising use cases exist, particularly in Ethereum's decentralized finance (DeFi) space with projects like Aave[42] and Uniswap[43], infrastructure improvements alone won't suffice without real-world applications that can attract hundreds of millions of users. Currently, DeFi and stablecoins use are significant drivers of economic activity, yet restrictive regulatory environments, particularly in the US, limit their broader potential in finance and international remittances. Given the US election results, this regulatory landscape will likely change in 2025, potentially unlocking further opportunities and responsible regulation of financial applications built atop public blockchains.

[42] Aave is an Open Source Protocol to create Non-Custodial Liquidity Markets to earn interest on supplying and borrowing assets with a variable interest rate.
[43] Uniswap is a decentralized cryptocurrency exchange that uses a set of smart contracts to create liquidity pools for the execution of trades.

Total Value Locked (TVL) across Uniswap and Aave

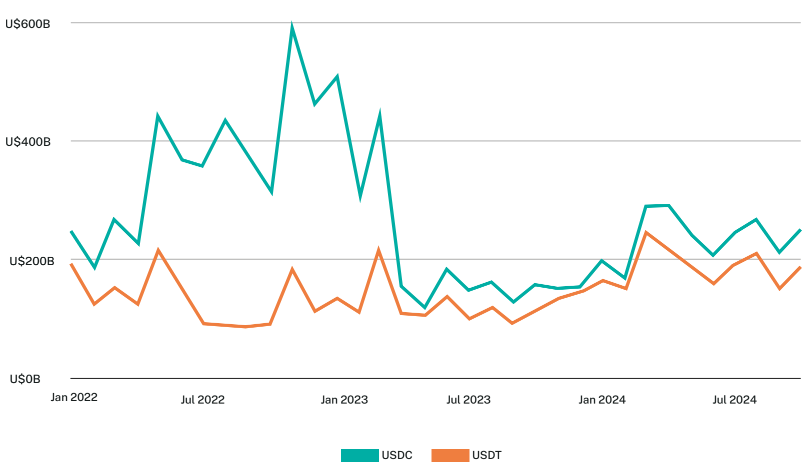
The aggregated TVL on Uniswap and Aave underscore the relevance of both dApps, highlighting the adoption and utility of these protocols. Even without clear regulation or broad institutional support, these applications already draw impressive numbers, with Uniswap alone reaching $655 billion in trading volume year-to-date. Potentially favorable regulation conditions in the U.S. in 2025 may drive growth in these applications to an even higher scale.



Source: Hashdex Research with data from DefiLlama and Dune Analytics. TVL data from March 31, 2022 to September 30, 2024); Total volume traded data from January 01, 2024 to October 31, 2024.

Stablecoin transaction volume on Ethereum

The chart below, based on over two years worth of data, shows that the stablecoin market demonstrates significant resilience to bear markets. The combined TVL of its two main tokens, USDT and USDC, has consistently remained above $200 billion, nearly quadrupling during market upswings.



Source: Hashdex Research with data from Dune Analytics from January 01, 2022 to October 31, 2024.

Looking at emerging trends, some well-established internet use cases, like social networks and blockchain games, could see major advancements on blockchain. The ability for users to own intellectual property they create within these networks is an exciting prospect, and projects like Farcaster[44] (social networks) and Star Atlas[45] (gaming) have already started drawing interest. Two areas that gained traction in 2024 were prediction markets, like Polymarket[46], which saw $3.7 billion in notional volume on election-related bets[47] and had tremendous accuracy predicting the final outcome for the US elections, and **decentralized physical infrastructure networks** (DePIN) built primarily on Solana. These areas represent novel blockchain applications that could accelerate user adoption.

A separate trend that could significantly drive crypto adoption is the integration of AI and blockchain technology.[48] Blockchain infrastructure can support unbiased data for AI training and enable decentralized high-performance computing (HPC) for AI tasks, which could improve AI performance. As AI models and agents use blockchain for infrastructure, identity, and payments, demand for block space and crypto assets will likely grow. This creates a symbiotic relationship where AI gains improved data quality and operational resilience, while crypto assets and block space see increased demand. If the internet's evolution is any guide, the success of one or more of these use cases could mark a tipping point for blockchain adoption. While 2025 may bring another bull cycle for Bitcoin, the long-term viability of smart contract platforms relies on more than token appreciation. A thriving ecosystem of practical applications is essential but currently still in its early stage, and without substantial growth in applications and user base during this cycle, the overall potential and valuation of smart contract platforms may face a notable downscale. Despite these uncertainties, I believe 2025 will be the year in which current use cases realize their untapped potential, while new emerging applications will also take the spotlight and drive smart contract platforms to a new era of adoption.

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[44] Farcaster is a decentralized social media protocol built with a focus on interoperability, user autonomy, and privacy.
[45] Star Atlas is a space exploration themed role-playing game (RPG) built on the Solana network.
[46] Polymarket is a decentralized prediction market platform where users can bet on real-world event outcomes using cryptocurrencies.
[47] https://polymarket.com/event/presidential-election-winner-2024?tid=1730424517337
[48] https://hashdex.com/en-US/insights/trust-but-verify-can-crypto-help-keep-ai-in-check

The winding roads of 2025

João Marco Braga da Cunha, Head of Portfolio Management

Central bank easing, increasing global liquidity, and election clarity are setting the stage for a strong bull market.

The poet Maya Angelou said, *"you don't really know where you're going until you know where you've been."* So, with the developments regarding crypto's investment thesis outlined in this report as a backdrop, let's take a look at where we have been from a macroeconomic perspective.

Without exaggerating the digression, after the sharp crisis of the previous year, 2023 was a year of recovery for both crypto assets and other classes of risky assets. The Nasdaq Crypto Index™ (NCI™) ended the year up 132%.[49]

A significant part of the appreciation of crypto assets, especially in the second half, was attributed to the expectation of the approval of spot bitcoin ETFs in the US. In our 2024 Outlook, we discussed the impacts of the potential approval, which was the third major regulatory event for crypto in the US, following the launches of futures in late 2017 and futures ETFs in October 2021. I argued that, unlike the previous two events, this one would not be followed by a strong devaluation.

In less than two months after the launch of spot bitcoin ETFs on January 11, bitcoin rose more than 50% and recorded a new all-time high. Despite fluctuations, it consistently stayed over 20% above its value on January 11 and, by the end of October, was hovering very close to its high again, with an annual increase of around 70%. The NCI™, in turn, had a similar rise to bitcoin in the first months and ended October only 10% below its annual high. By any reasonable metric, it cannot be said that there was a strong devaluation.[50]

Among the reasons I pointed out to justify that there would be no collapse was the expectation of an improvement in the international macro environment, especially in the US. Indeed, the decline in inflation in the world's largest economy, measured by the Core CPI, is precisely in line with expectations at the end of last year, while cuts in the interest rate set by the FOMC are expected to be greater than anticipated.

Now that we know where we have been, we can speculate about where we are going in 2025.

"I don't believe in witches, but there are witches, indeed," and something similar can be said about the cycles of crypto assets. Regardless of personal beliefs, it's noticeable how the pattern seems to be repeating in a similar way. If the cyclical pattern holds, one can expect 2025 to be a remarkable year for crypto assets, just as 2021 was and, with due proportions, 2017 and 2013.

From a macroeconomic standpoint, there are also reasons for optimism. The FOMC is expected to cut interest rates more next year than this year, by 1.2%, while inflation (again, the Core CPI) is projected at 2.2%, practically at the 2% target.[51] Other relevant economies, such as China, also signal the possibility of monetary stimulus. Crypto assets respond positively to variations in global liquidity, and it seems that 2025 will see expansion.

[49] Nasdaq data compiled by Hashdex Research
[50] Nasdaq data compiled by Hashdex Research
[51] https://www.cmegroup.com/markets/interest-rates/cme-fedwatch-tool.html

A third factor that is already catapulting the returns of crypto assets in 2025 is the US elections. With a pro-crypto president, we expect a radically different stance from the US government and its agencies regarding crypto assets. Moreover, the newly elected Congress has over 260 members that are considered pro-crypto,[52] which will help facilitate a legislative framework for the industry.

In summary, considering the sum of these three factors, one should expect 2025 to be yet another strong year for crypto assets. However, this analysis can provide us with a bit more information. This is because all three factors tend to be more favorable to small market capitalization crypto assets, the altcoins, than to bitcoin.

Regarding the cycle, in the years following the halving, as will be the case in 2025, smaller assets tend to outperform bitcoin by a substantial margin. On the macro front, the increase in liquidity also tends to impact smaller assets more. Finally, regarding the US election outcome, much of the disadvantage of altcoins compared to bitcoin in the last two years can be attributed to actions by US government agencies against protocols or companies related to crypto. This might change in 2025, including the potential for approvals for crypto asset ETFs beyond Bitcoin and Ethereum.

Alongside these three favorable factors, we expect a period of growth for crypto applications. Taken together, this suggests that 2025 could be a positive year for bitcoin and potentially even more so for smaller assets. As a corollary, I expect the NCI™ to outperform bitcoin.

Are there risks? Yes, always. Any significant adverse event in traditional markets can impact the crypto market. This fact was refreshed in our memories in August when the turbulence caused by the increase in interest rates in Japan brought down stock markets worldwide and dragged crypto assets along, leading to a decline of more than 20% in the NCI™.[53] The risk is even less negligible in a world with two significant wars ongoing.

Even without ignoring the possible setbacks, I cannot help but feel great optimism when thinking about 2025 for crypto assets, particularly for altcoins. Noel Gallagher from Oasis taught us that *"all the roads we have to walk are winding."* If this is true for investors in 2025, I believe crypto is the winding road that will take them farther.

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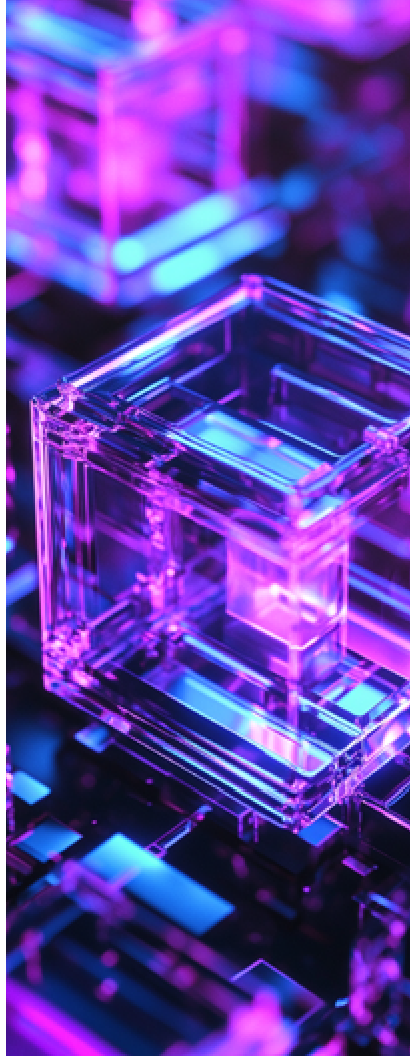
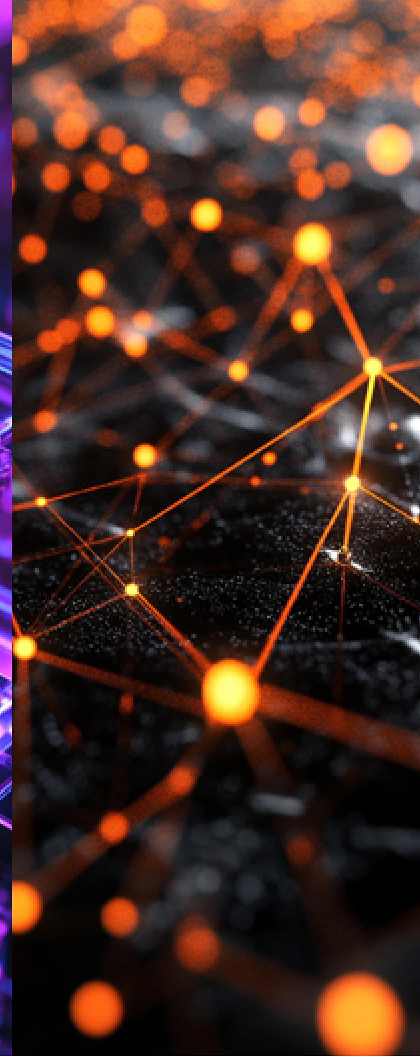
[52] Stand with Crypto data, as of November 11, 2024
[53] Nasdaq data compiled by Hashdex Research

Glossary





Decentralized Finance (DeFi)

Major growth crypto sector that offers peer-to-peer financial services and technologies, such as decentralized exchanges, lending applications and insurance, built on top of smart contract platforms.

Decentralized Physical Infrastructure Network (DePIN)

Networks that use blockchain technology to decentralize the control, operation and ownership of real-world physical infrastructure.

De-dollarization

Trend referring to a substantial decrease in the use of the US dollar for global trade and financial transactions, as well as the avoidance of US public treasuries as an important component of national reserves, reducing the reliance on the US dollar as a medium of exchange, unit of account and reserve asset.

Dencun

An upgrade activated on the Ethereum blockchain designed to enhance its performance by making execution by scalability layer-2 solutions more efficient and improving data availability across the network.

Inscription

Inscriptions refer to the metadata that is added or "inscribed" into bitcoin satoshis (sats), which are the smallest fractions of bitcoin. That allows unique data to be fully registered on the Bitcoin blockchain for the creation of fungible and non-fungible tokens, which unlike full-fledged smart contracts platforms, have more restricted programmability.

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.

Non-fungible tokens (NFTs)

A special type of token that represents a unique digital asset, such as a picture, a song or a video.

Ordinals

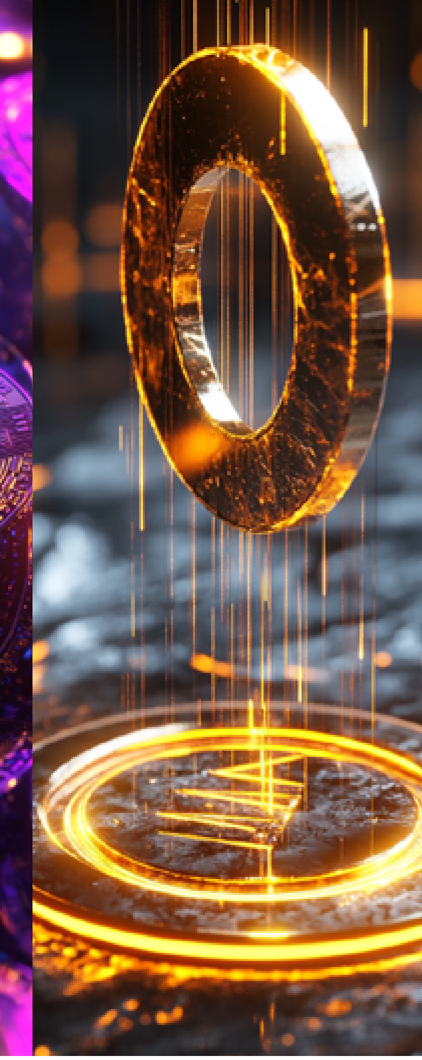
Ordinals allow for the creation of unique digital assets on the Bitcoin blockchain. Each satoshi, the smallest unit of Bitcoin, is assigned a unique serial number, or ordinal, to which additional data, like images or text, can then be assigned onto.

Smart Contracts

A program that runs automatically on a smart contracts platform when its conditions are fulfilled, regardless of trust between the parties involved.

Smart Contract Platforms (SCPs)

Smart contract platforms are decentralized digital networks that enable the deployment of blockchain-based applications using smart contracts, automated programs that execute automatically when specific conditions are met.



Stablecoin

A digital currency designed to hold a stable value with respect to another asset, such as fiat currencies, precious metals and other digital assets.

Taproot

A 2021 upgrade to the Bitcoin network aimed at improving its scalability, privacy, and security.

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.

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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