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LOOK AHEAD

BY FIDELITY DIGITAL ASSETS[®] RESEARCH

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Are You “Too Late?”

Introduction by Chris Kuiper, CFA®

In our [2024 Look Ahead](#), the Fidelity Digital Assets® Research team opined that investors should “prepare for acceleration” with “increased adoption, development, interest in, and demand for digital assets.” However, no one could fully predict what 2024 would bring. The digital assets market experienced two significant waves of acceleration in the first half of the year with the approval of the exchange traded products (ETPs) followed by a post-election surge at the end of 2024.

The question on many people’s minds is now, “Am I too late?”

To answer this, we are reminded of a book the team read and discussed at length, *Technological Revolutions and Financial Capital*, by economist Carlota Perez.

One of Perez’s core theses is that true technological revolutions do not just affect one industry. Instead, they are so large they disrupt multiple fields and overhaul entire economic landscapes. Perez uses railroads and oil as examples—breakthroughs that reshape not only entire industries but the structure of production and communication too.

Bitcoin and digital assets could fit this theory. We are potentially past what Perez describes as an early speculative period accompanied by financial boom and busts and are now possibly entering the phase of further adoption. Researcher Jeffrey Ding also echoes this idea as he says it is not the discovery of a new technology that has the greatest effect on society and nations. Instead, it is the diffusion that happens in the decades that follow.¹

We believe we are beginning to see early signs of mass diffusion and adoption, many of which are detailed in this report. Although this process will likely take decades, 2025 has the potential to be the year that is looked back on as the pivotal time where the “chasm was crossed” as digital assets begin to take root and embed themselves into multiple fields and industries. For example, in the past year we have already seen discussions around nation-state adoption and increased [corporate balance sheet adoption](#).

Therefore, it may be too late for the speculators that want another frenzy. However, we believe we are still incredibly early in terms of this new era of sustainable adoption, diffusion, and integration.

The following is a collection of insights from the Fidelity Digital Assets Research team on what we anticipate for 2025, beginning with a more detailed look into adoption trends. Additional topics include macroeconomics, Bitcoin, Ethereum, stablecoins, payments, and more.

Parallel Pathways: The Evolution of the Internet and Digital Assets

By **Chapmann Chen**

Parallels Between Internet and Digital Assets

Innovative technology often starts at the fringes of society—such as underground communities—and gradually gains mainstream adoption. Throughout the process, incremental innovations enhance user-friendliness and regulatory compliance.

This process is not linear and can vary significantly depending on the technology, its potential impact, and the regulatory and societal response. Some technologies may remain on the fringes due to persistent ethical or legal concerns, while others may rapidly transition into mainstream use.

The journey from the fringes to mainstream adoption is shaped by a complex interplay of technological advancement, societal acceptance, regulation, and cultural adaptation. The following table gives an overview of how the adoption of digital assets might progress and where it may be today by drawing parallels to the internet’s adoption journey:

Stage	Definition	Internet	Digital Assets
Emergence	The technology first becomes known and begins to develop.	Academic researchers began using the internet in the late 1980s to share information.	Bitcoin was released in 2009 as a purely peer-to-peer version of electronic cash.
Fringe	The technology exists outside the mainstream and is often used in unregulated environments.	Early users explored anonymous communication, whistleblowing, and evading censorship.	Early bitcoin users experimented with digital money in an unregulated manner.
Innovation & Legitimization	The process of recognizing the technology's value and potential for legitimate uses beyond its original fringe applications.	In the 2000s, the emergence of ecommerce demonstrated the internet's potential for legitimate business applications.	In the 2010s, blockchain was acknowledged for its applications beyond peer-to-peer payments, such as financial systems and supply chain management.

Source: Fidelity Digital Assets Research.

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→ The Digital Assets Space Is Here

Stage	Definition	Internet	Digital Assets
Regulatory Attention	Governments begin addressing the technology through the development of legal frameworks.	As the internet grew in 2010s, regulators developed frameworks addressing issues such as privacy, intellectual property, and ecommerce taxation.	The late 2010s initial coin offering boom prompted governments across the world to develop regulatory frameworks to address concerns related to fraud, money laundering, and taxation.
Mainstream Adoption	The point at which the technology gains broad acceptance by society.	The internet saw explosive growth, becoming an integral part of modern life, affecting communication, commerce, work, and access to information.	In the early 2020s, digital assets are gaining acceptance as an investable asset class by institutions with additional use cases beyond finance.
Cultural & Societal Impact	The influence of the technology permeates societal norms, behaviors, and structures.	The internet led to a fundamental shift in how society functions and has reshaped cultural and societal norms.	Although we have yet to reach this stage, blockchain technology has the potential to reshape finance, digital identity, information privacy, and AI usage.

Source: Fidelity Digital Assets Research.

Outlook for Mass Adoption of Digital Assets

Innovation and evolution are stochastic processes where the outcomes at each moment are subject to randomness and uncertainty. However, there is a probability distribution that governs the possible outcomes. While we cannot predict the precise path to a destination, we can explore the potential final states.

There is growing recognition of the value of decentralization, which enhances security and systemic resilience. Blockchain platforms are evolving to accommodate modularization, allowing organizations to customize solutions to their specific needs. Simultaneously, public demand for data privacy and ownership is on the rise, prompting the development of privacy enabling tools.

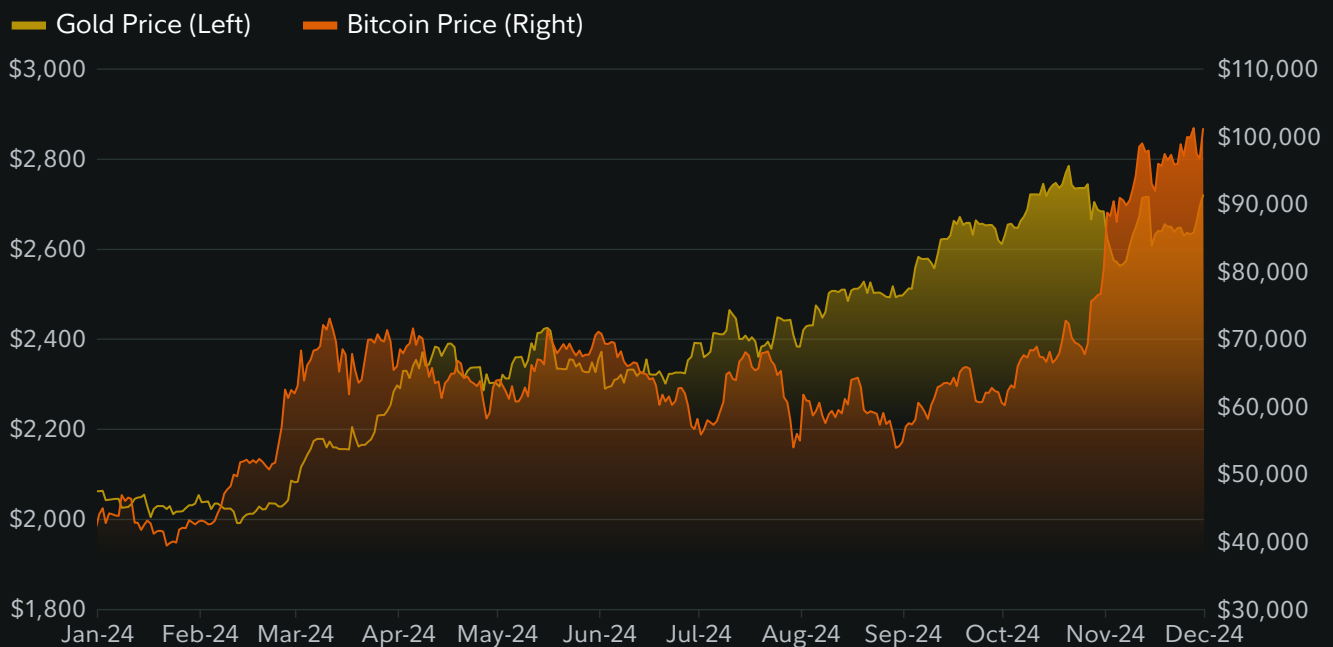
The evolution of blockchain and digital assets from their ideological roots to mass adoption reflects the dynamic interplay between innovation, societal acceptance, and regulatory clarity. While the original vision of a fully decentralized financial system faces growing challenges from corporate influence and regulators, the core principles of decentralization, modularization, and data privacy remain central to its ongoing development. As digital assets continue to mature, the asset class could potentially strike a balance between preserving its foundational ideals and adapting to the realities of mainstream acceptance and commercialization.

Bitcoin and Macro Drivers: Why Is No One Talking About Stagflation?

By Chris Kuiper, CFA®

In our 2024 Look Ahead, the team speculated whether the narrative of bitcoin as a “growth stock on steroids” would shift to “gold on steroids” in 2024. It appears this did happen as both gold and bitcoin moved together in the first part of the year, then gold continued its climb while bitcoin remained flat in the middle of the year. Bitcoin has since regained its ascension, outpacing gold again:

Bitcoin and Gold Price YTD



Source: Fidelity Digital Assets Research via Glassnode, 12/12/24.

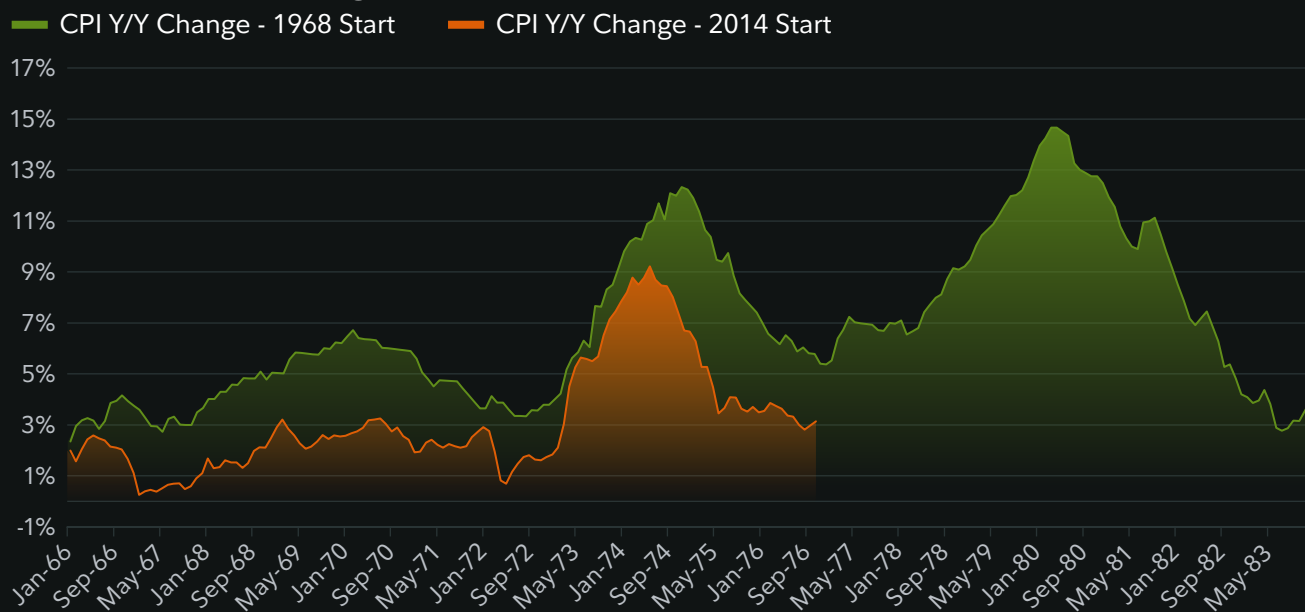
However, it is true that tech stocks also rallied during 2024 and correlations between bitcoin and tech stocks remained high, so there was not a shift or rotation from one to another. It appears that the sustained “risk on” appetite for investors continues.

Now, a new question arises: Where could we go from here? In a recent blog, we noted that the biggest macro drivers of bitcoin continue to be [liquidity and inflation expectations](#).

The Federal Reserve is now embarking on a rate cutting course, which generally has led to more liquidity. Monetary aggregates like U.S. M2 and global M2 are once again on an upward path, and we think that any financial market disruptions in the next year will be met with even more liquidity as it has become the central banker’s tool of choice to quell volatility and dislocations. This, in turn, is historically beneficial for digital asset prices.

When looking at inflation, we often reflect on the 1970s and 1980s, which is widely regarded as one large, continuous decade of high inflation. A closer examination reveals there were at least two (and arguably three) distinct waves of inflation that took place. While past performance is not indicative of future performance, we do find some striking similarities—most notably, the notion that central banks believe they have tamed inflation, only to see it return stronger.

Year-over-Year Change in CPI: 1968-1983 vs. 2014-2024



Source: Fidelity Digital Assets Research via the U.S. Bureau of Labor Statistics, 12/12/24.

Current inflation measures, such as CPI and PPI, are significantly lower than previous 40-year highs. However, they remain “stubborn” or “sticky,” resisting a return to the central bank’s preferred 2% target. Combine this with continued large and structural fiscal deficits—along with a Fed that has now embarked on a rate cutting cycle—and it is not difficult to imagine inflation coming back in a second wave.

This is why the long end of the bond curve may still be high with rates *actually increasing* despite initial rate cuts by the Federal Reserve. We think this is what gold had been “sniffing out” throughout 2024 and now the long-term bond market is as well—the potential for sticky or even reaccelerating inflation.

If this trend continues and the outcome is anything worse than a “soft landing” and a historically typical recession, it could quickly escalate into stagflation. While this is not a prediction, we do find it unusual that it is not discussed more as a possible scenario.

How Could Bitcoin Fare Under a Stagflation Scenario?

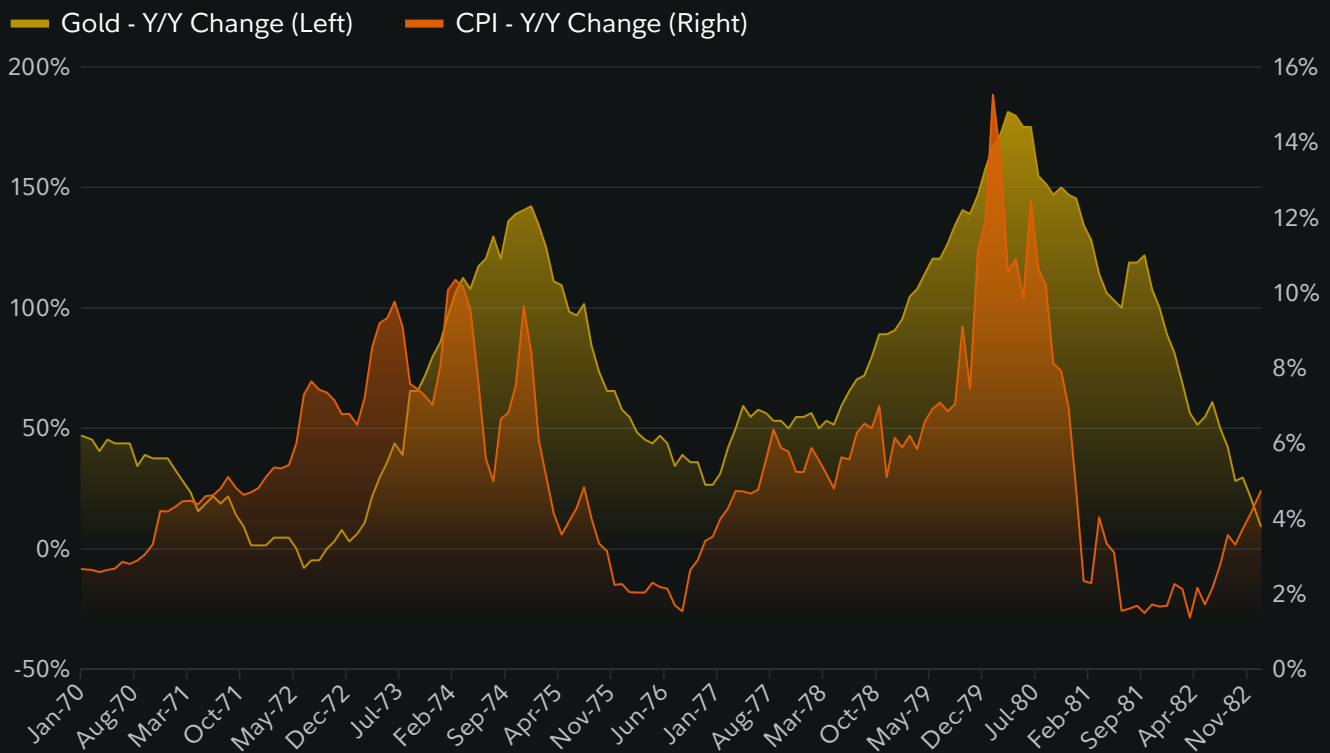
So far in its relatively young life, bitcoin has never encountered a stagflationary environment. Although it experienced a technical recession during the COVID-19 pandemic and underwent a significant drawdown, the period was brief. Bitcoin recovered quickly alongside other assets like equities. During this time, GDP contracted, but the high inflation did not take hold until afterward, avoiding the stagflation scenario of high inflation coupled with low or declining GDP.

Based on our research, we think if the U.S. were to encounter a stagflation scenario, the performance of bitcoin would depend on the fiscal and monetary policy response. If fiscal and monetary institutions chose to fight the “stag” part of the problem through increased spending or monetary tools, bitcoin could potentially perform well, albeit likely with another lag.

However, if controlling the “flation” part becomes the higher priority and is addressed with significant reductions in the money supply, liquidity, and fiscal spending, then bitcoin could potentially face headwinds on a relative basis.

Another way to consider bitcoin’s potential in a stagflation scenario is to analyze how gold performed during the stagflation era of the 1970s and early 1980s:

Gold vs. CPI Year-over-Year Changes



Source: Fidelity Digital Assets Research via the U.S. Bureau of Labor Statistics, 12/12/24.

Notice how gold rallied the hardest in the “second wave” of inflation.

While we may not know what the future holds for the macroeconomic environment for 2025, we do think bitcoin may continue to provide benefits in a portfolio for multiple economic scenarios. If a recession does occur, it will likely be responded to with additional monetary and fiscal stimulus, which historically has been good for bitcoin.

If risk assets continue to appreciate and inflation continues to run above the 2% target, bitcoin will also likely do well. Bitcoin will only face obstacles on a relative basis if there is a drastic cut in fiscal spending and slowing or reversing of money creation. However, in our opinion, this is the least likely scenario given the fiscal situation of high structural deficits and a highly indebted monetary system.

Ethereum Outlook

By Max Wadington

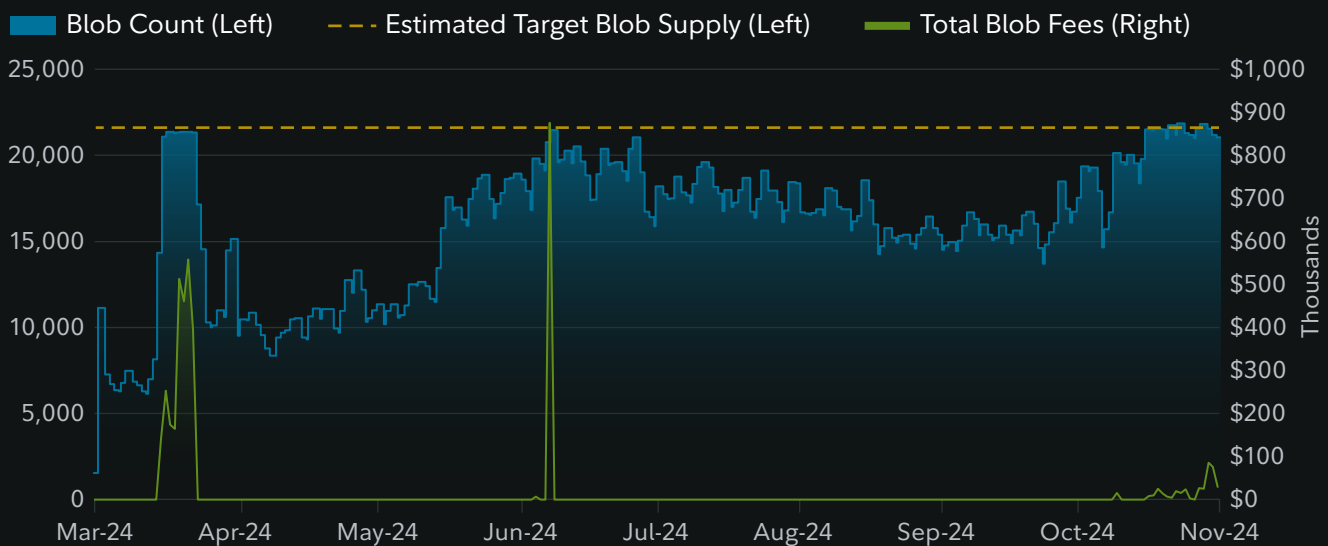
Was the Rollup-Centric Roadmap the Right Choice?

The rollup-centric roadmap was designed to scale Ethereum while keeping the Layer 1 blockchain easy to run. However, since the Deneb-Cancun upgrade, there has been debate about this decision as Layer 1 fees have plummeted. However, our viewpoint presented last year remains firm. We continue to believe that revenue from the blob market is unlikely to offset the dramatic decrease in revenue created by the previous upgrade in the short term, yet it still carries long-term positive benefits through improved network effects.

While many investors focused on cash flows may view Layer 2s as value-extractive, we think of the relationship between Layer 2s and Ethereum as mutualistic. The base layer benefits from Layer 2s providing cheap transaction execution and furthering the distribution of the ether token while being able to keep the core ethos of decentralization intact.

Layer 2s benefit from Ethereum by inheriting some level of its security, leveraging its liquidity, and enhancing the focus on their own value propositions. The mutualistic relationship holds as long as Ethereum offers cheap data availability and large liquidity to Layer 2s. These will be important metrics to watch to determine the longer-term success of the rollup-centric approach for Ethereum.

Blob Count and Fees



Source: Fidelity Digital Assets Research via Coin Metrics, 11/14/24.

The chart titled "Blob Count and Fees" shows blob fees can be seen as a long-term positive for Ethereum's network effects, specifically enabling Layer 2s to onboard more users who interact with ether. This is not to say that Ethereum has given up on future cash flows entirely. The most likely future end goal, as stated by developers, is that cash flows will come naturally after network effects have grown significantly due to the positive difference in adoption over time relative to the growth in issuance.

Ethereum core developers and members of the Ethereum foundation have recently stressed the importance of low fees for Layer 2s to grow their user base.² High fees could push rollups to other options, emphasizing the need for near-zero fees to keep Layer 2s within the Ethereum ecosystem. Due to developers' clearly stated priorities, we expect more Layer 2 announcements in 2025, and specifically those that are for specialized use cases since applications like the Ethereum Name Service (ENS) see the benefit of customizing the entire tech stack for their specific use case.³

Solana vs. Ether in 2025

We think fundamentals are most important for long-term investors. With that said, Ethereum has strong developer activity, total value locked (TVL), and stablecoin supply. Comparatively, Solana's revenue and TVL are improving at a faster rate than Ethereum's and seem to have captured significant community mind share this past year. An important caveat here is that a large portion of Solana's revenue comes from memecoin trading, which we view as a cyclical trend that remains strong during bull markets but pulls back significantly during bear markets. However, a similar argument could be made for Ethereum's main use case being Uniswap. While these use cases are similar, we believe Ethereum fundamentals are slightly less dependent on speculation and may be less volatile over the long term.

It is important to note that these fundamentals typically inform long-term investors and may not necessarily indicate which will outperform over a single year.

Short-term price trends often revolve around narratives, and Solana may be the more notable contender in this regard throughout 2025 given the planned upgrades for both networks. Solana's Firedancer upgrade—which has been highly anticipated within the community—promises a substantial increase in transactions per second (TPS), which may directly enhance Solana's value proposition.

Conversely, Ethereum's Prague/Electra upgrade is expected to generate less community hype as it does not significantly impact ether's value proposition. While the upgrade enhances core features that make Ethereum unique, such as its unrivaled security design, it is relatively less impactful from an investment standpoint.

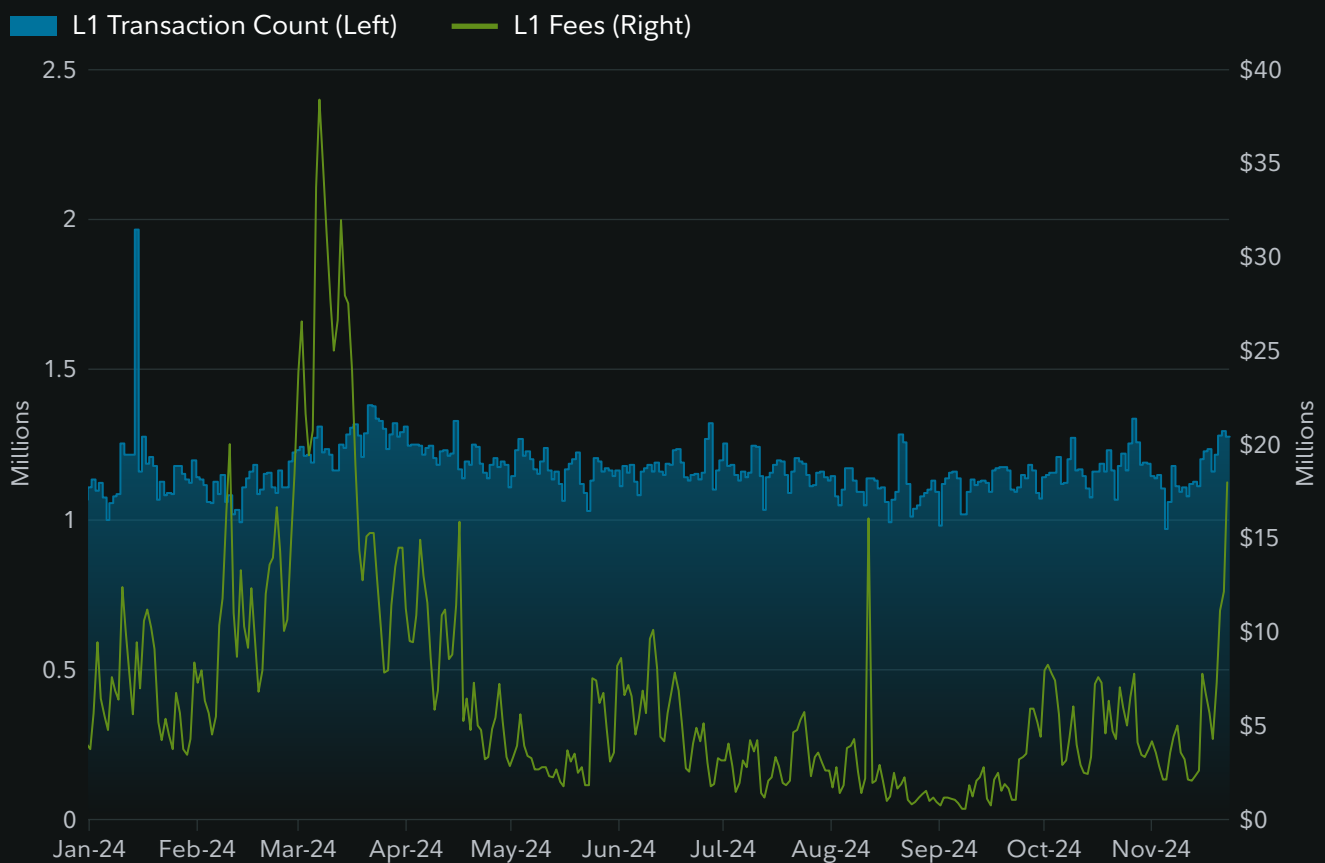
Currently, a clear advantage that ether has over Solana is its accessibility via ETPs. While it is possible that this advantage may disappear at some point, it is uncertain if or when this might occur. It is clear to see that a decision from regulators in either direction could either solidify ether's advantage in this area or completely remove it, making it an important development to track in 2025.

Although Solana appears to have more short-term tailwinds than ether, its relative performance could provide significant upside for ether, similar to how Solana's prior underperformance provided a substantial runway leading into 2024. As prices get extended throughout this bull market, investors will likely increasingly focus on fundamentals, which may sway them back into ether.

Ether's Monetary Outlook

Since the Deneb-Cancun upgrade, ether's monetary outlook remains stable, with the annualized inflation rate of ether in 2024 at 0.22%. This indicates that even with historically low Layer 1 activity, supply remains relatively stable. After correctly predicting that Layer 1 transaction demand would not surpass the loss to Layer 2s in last year's Look Ahead, we continue to believe that ether supply is likely to be slightly more inflationary than deflationary over the next few years. Although the base layer has experienced periods of higher fees, especially during the recent run-up in price and even in times of market turmoil, these occurrences have not been frequent enough to offset issuance.

Ethereum L1 Fees and Transactions



Source: Fidelity Digital Assets Research via Coin Metrics, 11/14/24.

The chart titled "Ethereum L1 Fees and Transactions" highlights an important point. Although more transactions are occurring on Layer 2s, transactions on the base layer have not fallen compared to before the upgrade even though the fees paid from those transactions have decreased substantially. This could imply that even though Ethereum has prioritized Layer 2 improvements, users still see utility in transacting on the base layer.

Lastly, for those still holding out for Ethereum to provide free cash to investors, there is a possibility that reductions to issuance could be implemented in the next few years, potentially accelerating the point at which total fees burned exceed issuance.

Ethereum's scaling roadmap can be summarized by an attempt to increase the number of blobs over time. More blobs combined with more demand from users on Layer 2s means more absolute payments to Ethereum. If demand continues to increase over the long term, we think it is possible that the total fees paid from Layer 2s combined with the fees from the Layer 1 could eclipse the amount of ether issued each year, therefore possibly providing free cash to token holders in the form of a net deflationary supply. The path to get here will take significant improvements in the supply of blobs, which we think is doable in a relatively short time frame. The lever for investors to watch will be the rate of adoption of Layer 2s that is required to saturate the blob supply. Lastly, developers are coming around to the idea of scaling Layer 1 in addition to supporting rollups which is a significantly positive development for those who value cash flows.

While we do not expect revenue from blobs to be meaningful next year, we believe that Ethereum could reach a point of producing fees above issuance while also providing low fee transaction options to its users over the long term.

Although this can be difficult to model out, the rationale for this stance is based on the positive difference in the supply of transactions on Ethereum versus the increase in issuance over time. While this is unlikely to occur in 2025, what we should be looking for is low fees for Layer 2s while they continue to increase their throughput over the next year. Keeping Layer 2 fees low over the next year will be easier given the increase in blob supply in the Prague/Electra upgrade. However, the demand for blob space from Layer 2s has grown steadily since the upgrade, reflecting the continuous rise in user activity across the Layer 2 landscape.

Ethereum Upgrades to Look Out For

The upcoming Ethereum upgrades include several key features and improvements: MaxEB, Blob Supply Increases, PeerDAS, EOF, and Verkle Trees. These enhancements are crucial for the Ethereum roadmap as they address scalability, efficiency, and network performance.

The Prague/Electra upgrade, slated for first half of 2025, features several optimizations related to the proof-of-stake mechanism and other Layer 1 changes. Initially, it was set to be the largest upgrade in Ethereum's history, aiming to improve almost every core aspect of Ethereum. However, the scope has been limited to focus on a cleanup of The Merge and short-term solutions for scaling Layer 2s.

The most positive improvement for investors to consider is the increase in blob count to a target of six and a maximum of nine. This should provide Layer 2s with enough runway to remain aligned with Ethereum until PeerDAS is ready to be implemented. This aligns with our projection of significantly more Layer 2s coming online along with their further specialization.

We expect PeerDAS to be one of the most bullish upgrades to Ethereum. It could be the first step in solidifying Ethereum's probability of providing users with low transaction costs *and* free cash flow to all ether holders due to its ability to allow Ethereum nodes to handle a significantly higher throughput of blobs. Current timeline estimates suggest that the Prague/Electra upgrade will be implemented in Q2 of 2025 and PeerDAS sometime in 2026.

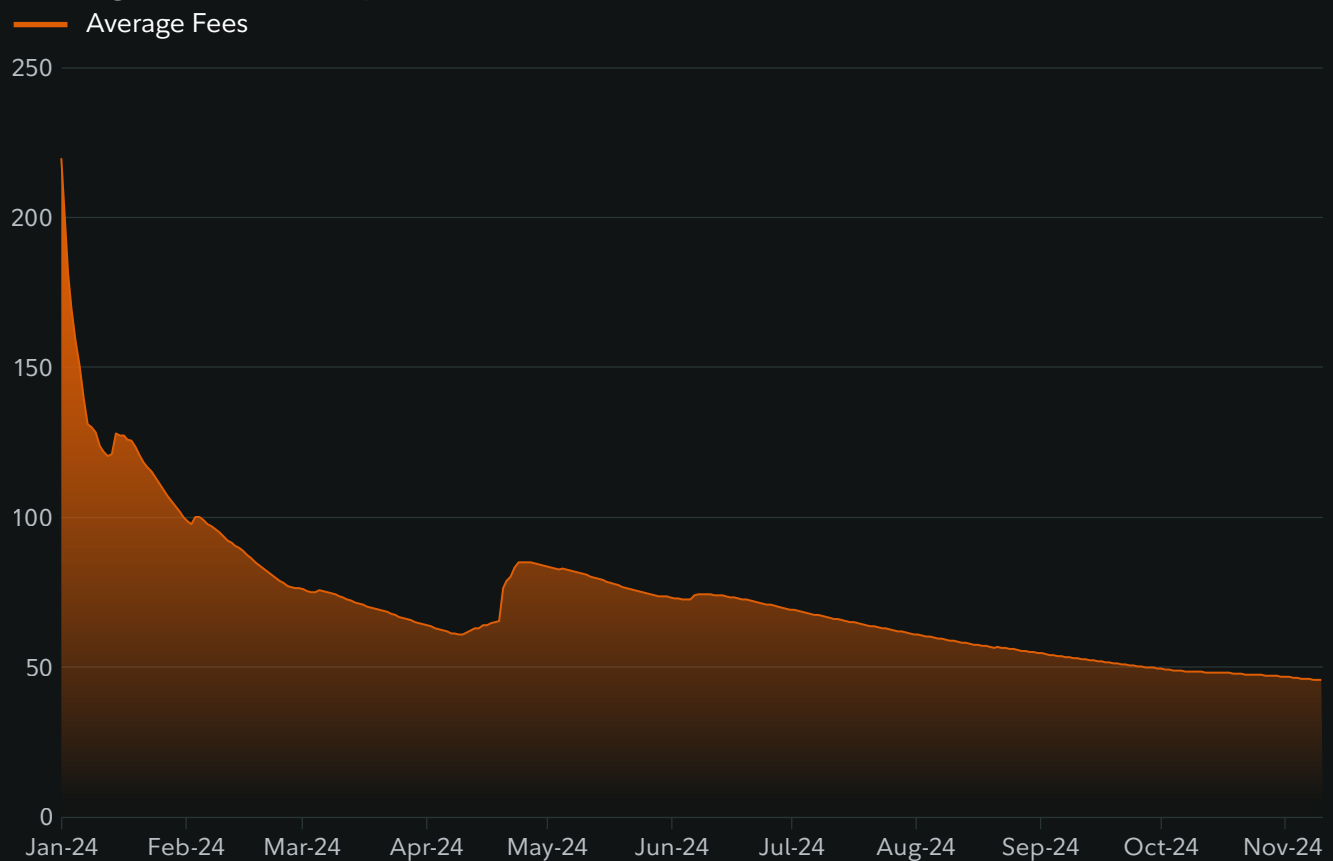
The Changing Landscape of Bitcoin

By Zack Wainwright

The Mining Fee Squeeze

As bitcoin joins the traditional financial system, its investor base has shifted. Less focus on self-custody coupled with a greater ability to trust institutional third parties has led to less activity on Bitcoin's base layer. Miners have faced a dual challenge in 2024, as average fees per day have declined throughout the year alongside the block subsidy being halved in April.

Average Fees per Day (BTC)



Source: Fidelity Digital Assets Research via Glassnode, 11/11/24.

The main driver behind this drop in fees has and continues to be spot bitcoin ETPs, which launched in January 2024. This alternative has given investors the same level of exposure to bitcoin with the conveniences that come with traditional finance—and it appears demand for such a product is historically high. Bitcoin ETPs in the U.S. now hold over one million bitcoin, or 5% of the total supply.⁴

Bitcoin Held in ETPs



Source: Fidelity Digital Assets Research via Glassnode, 12/11/24.

A shift occurred in 2024 as accredited institutions—the cornerstone of the traditional financial system—became heavily involved with digital assets. Investors who have been using these institutions for decades are typically more inclined to continue doing so with bitcoin versus taking on the potential risk of trusting a crypto-native start-up or self-custody. We anticipate that this transition to third-party, traditional finance options will continue growing in 2025, leading to a low-fee base layer environment long term.

Lower Activity on Bitcoin's Base Layer Should Be Welcomed

The migration to third-party solutions results in less activity on the base layer of the bitcoin network. It is reasonable to think this trend could continue. For example, in the future we may see a traditional payment company or processor handle millions of payment transactions and then batch them together into one base layer transaction for final settlement.

Moving activity off the base chain may seem like a challenge for miners, and for some it may be. However, in our opinion, the concern that low fees would equate to no mining activity or a less secure Bitcoin network is overstated. It may mean that miners with high operating costs can no longer operate, but a country with a low-cost energy option and infrastructure already in place would likely continue mining.

Moreover, a third-party exchange or custodian would have a substantial incentive to secure the Bitcoin network even if it means mining at a loss. There are many nations, institutions, and corporations who profit from bitcoin—and not by mining. Instead, these entities save, use, and offer the digital currency in a variety of ways. Therefore, mining to secure the network could be viewed as an operating cost.

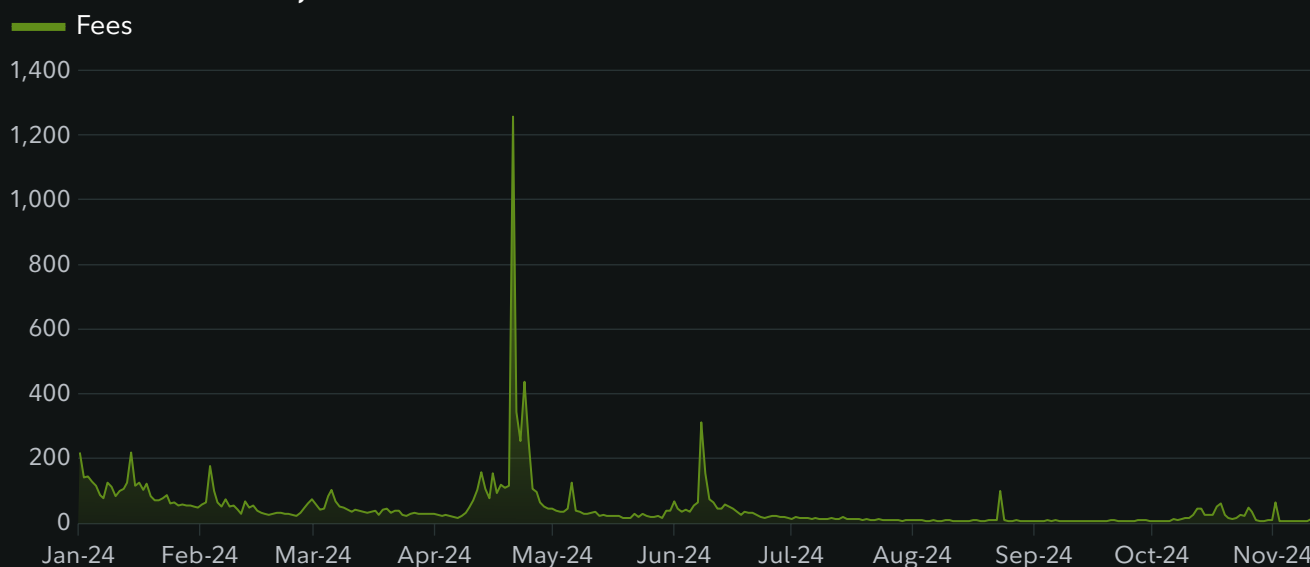
Looking ahead, it may be more practical to onboard a profitable bitcoin company or nation-state into the mining space. Viewing mining as a liability line item to help secure the network could be a more effective approach than focusing solely on driving activity on-chain, especially in a world increasingly shifting off-chain. Any bitcoin mined in this scenario would be seen as a bonus, not a necessity, and the network would be better off for it with more resilient miners.

In short, convenience is the key to scaling in a meaningful way. The ability to scale via third-party custodians or other operators does not significantly compromise the overall health of the network. The power of bitcoin is that everyone has the ability to choose. Cryptologists that started the adoption of bitcoin may continue to hold their bitcoin in their own wallets on the base layer, run their own nodes, and build their own mining rigs. Investors becoming involved today or in the future will most likely choose the more convenient path offered by third parties. Either of these options are beneficial for Bitcoin as they both grow the network.

Ordinals, Inscriptions, and Runes Appear To Be No More Than a Fad (So Far)

One potential solution brought forward to combat the lack of network fees have been Ordinals, inscriptions, and Runes. During the April 2024 halving, the Runes protocol launched, creating an influx of transaction fees that was short lived.

2024 Bitcoin Daily Transaction Fees



Source: Fidelity Digital Assets Research via Glassnode, 11/11/24.

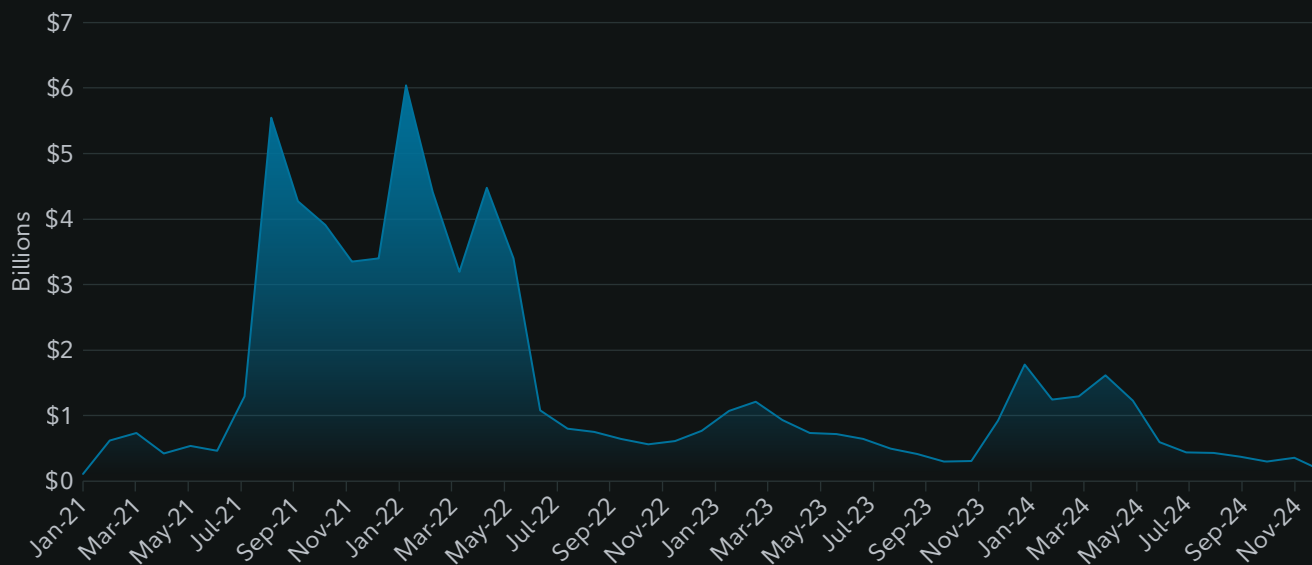
These events do create meaningful revenue for miners able to find a block during the fleeting mania that ensues. However, this mania comes at the expense of the speculators who often pay exorbitant fees to complete their transaction only to see their newly acquired digital token experience high levels of volatility with a downward trend over time. The halving block specifically had 37.62 bitcoin in fees, worth over \$2 million.⁵

Simply put, Runes are just another way to launch and trade "meme" coins, like the popular altcoin ecosystems of Ethereum and Solana. There is nothing novel about Runes or Ordinals to sustain the mining space long term. In fact, we may have already seen the bubble burst as network fees continue to remain low since the April halving spike.

Runes had become the latest in a long line of speculative fads within the digital asset ecosystem. What started with Ordinals or Bitcoin-adjacent non-fungible tokens gave way to the next logical progression: Runes, or Bitcoin-adjacent fungible tokens.

In 2023, Ordinals were a novel concept, but non-fungible tokens (NFTs) in general were not innovative or new. On networks such as Ethereum and Solana, NFTs experienced a massive bubble in 2021 and 2022. That ecosystem and its most popular projects have not recovered and remain well below all-time highs.

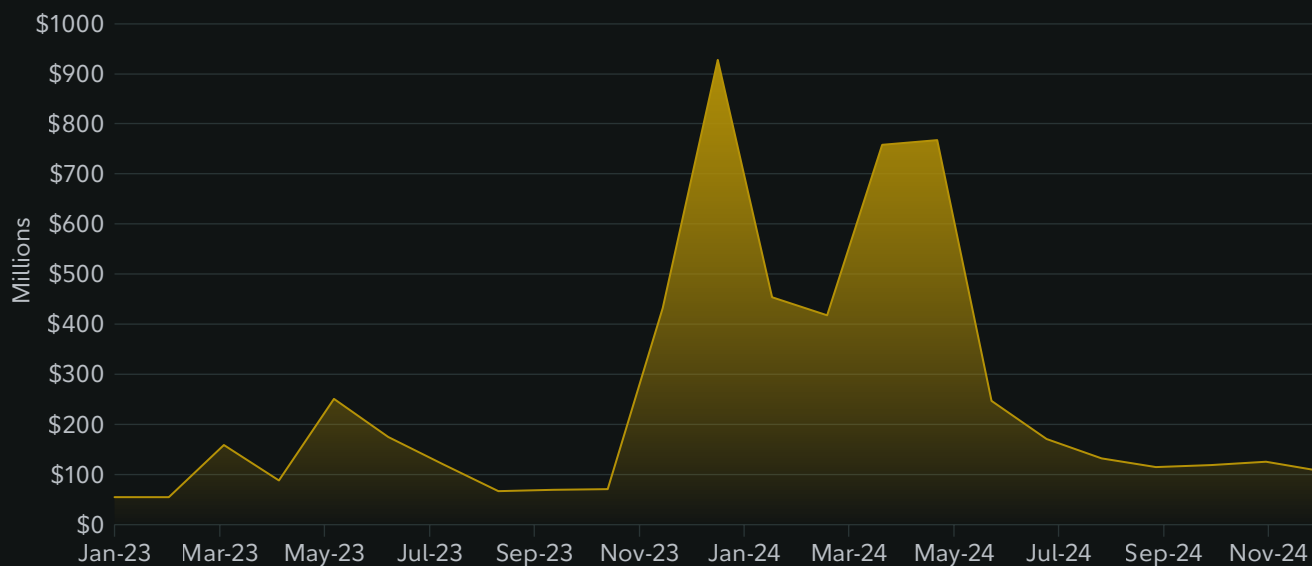
Ethereum NFT Sales Volume



Source: Fidelity Digital Assets Research via CryptoSlam.io, 01/01/21-11/11/24.

Similarly, Ordinals have had a fad-like bubble since their introduction in 2023.

Ordinals Sales Volume



Source: Fidelity Digital Assets Research via Glassnode, 04/20/24-11/11/24.

Fast forward to present day, and it is more of the same speculation. However, this time the focus has been on Runes. Once again, it is likely nothing more than a short-lived speculation event with no significant long-term impact.

Runes Fees (BTC)



Source: Fidelity Digital Assets Research via Glassnode, 04/20/24-11/11/24.

Speculation persists as one of the largest use cases of cryptocurrency today with the lure of quick gains. The halving was the perfect marketing tool to launch such an ecosystem on Bitcoin, but like so many speculative assets before it, the Runes fad is seemingly coming to an end.

While there may be small spikes during the bull market in 2025, ultimately, we expect the downward trend in activity of speculative assets on Bitcoin to continue and believe this area of the market will never reach or surpass the peaks it has already seen.

Building on Bitcoin

By Daniel Gray

No Shortage of Bitcoin Scaling and Capital Efficiency Ideas to Monitor in 2025

In the 2024 Look Ahead, we speculated that higher fees on Bitcoin's Layer 1 would bring about more scaling capabilities. While fees were largely muted in 2024, new technology and layers to handle scaling have continued to emerge.

Projects utilizing BitVM2 (the successor of BitVM), zero knowledge proofs, rollups, SNARKs (succinct non-interactive arguments of knowledge), PIPEs (Polynomial Inner Product Encryption), and hash collisions have emerged as new solutions to Bitcoin scalability and user privacy.^{6, 7, 8, 9}

Additionally, projects such as ARK, a Layer 2 protocol, continue to innovate alongside the Lightning Network and expand use cases to beyond that of peer-to-peer channels. Compared to Lightning, which requires channels with liquidity on both sides, ARK introduces shared Unspent Transaction Outputs (UTXOs), which allows users to share virtual UTXOs (vUTXOs) with a larger amount of users instead of on a one-to-one basis.^{10, 11}

New projects addressing idle bitcoin capital have also emerged from the bear market. Babylon aims to enhance the utility of bitcoin capital by enabling investors to stake said bitcoin and provide security for external proof-of-stake protocols.¹²

Some users may argue that holding bitcoin is using bitcoin, but that view may not be shared by traditional investors who are accustomed to cash flows and yields. In addition to Babylon, the Solv Protocol is offering investors another way to "unlock the full potential" of their bitcoin.¹³ Solv has enabled bitcoin users to put their funds to work through various staking tokens and seamless connections to DeFi ecosystems.

Currently, Solv offers three ecosystems to users through liquidity tokens: Babylon, CoreDAO, and Ethena.¹⁴ Solv's overarching goal is to offer composability across the Ethereum Virtual Machine (EVM) and all Bitcoin Layer 2s. Users would then earn yield in various ways that are still emerging today such as: staking, pooling in DeFi, collateral, and yield strategies. As of December 2024, the Solv Protocol has a total of roughly 29,676 bitcoin (\$2.9 billion) locked (TVL) on the network.¹⁵

The ever-rising bitcoin market cap reflects an increasing amount of capital that could eventually seek investment opportunities rather than remaining idle. Companies may look for lucrative ways to put that capital to work while also generating yields for clients.

As activity continues to heat up within the Bitcoin ecosystem, we will be closely monitoring projects as users are onboarded. Our monitoring will focus on the productive capital associated with these protocols, as previous companies promising yield have historically fallen short for bitcoin investors.^{16, 17, 18, 19}

Is the Community Ready for a Soft Fork?

As these projects develop, we have noticed a common idea among them: “X implementation does not require any changes to Bitcoin’s code. However, a soft fork would drastically improve its efficiency and development while also reducing complexity.”

One of the overarching themes of these soft forks are covenants. There are a few Bitcoin Improvement Proposals (BIPs) related to covenants that have been floating around the community for a few years. Two prominent BIPs include OP_CHECKTEMPLATEVERIFY (CTV) (BIP-119) and OP_CAT (BIP-420).

CTV (BIP-119), proposed by Jeremy Rubin, would introduce “covenants.” Covenants allow restrictions to be placed on the future spending of bitcoin, more specifically, where bitcoin can be sent. This feature is useful for creating smart contracts previously thought to be too complex and too risky to implement on Bitcoin’s Layer 1. Some of the features from CTV include congestion-controlled batching, efficient creation of discreet log contracts, and other payment tools. Most intriguingly, it would enable vaults and non-interactive payment channel creation.

Vaults are a storage mechanism for bitcoin that allows users to impose specific withdrawal conditions. For example, imagine a withdrawal limit within an arbitrary time schedule to predefined addresses, limiting loss and access to pre-defined authorized users. Similar to how a bank may limit withdrawals to a specific amount, users could define their own rules and withdrawal addresses to protect their wealth without the need of a third party.

A more specific example would be a vault that can only send 0.1 bitcoin within any given month, creating an allowance type setup. This allowance is then sent to a secondary vault where new transactions going to non-defined addresses must wait one week before they are valid. Pre-defined addresses do not have this limitation according to this specific user’s setup. This allows one week for outbound transactions to be caught and safely recovered to the user’s own address.

For Layer 2 protocols like Lightning that require coordination between two parties to create a payment channel, CTV would establish these channels without requiring any negotiation by utilizing predetermined conditions. This would facilitate smoother transactions on Lightning and enhance user experience on Layer 2s.

OP_CAT would reintroduce a formerly abandoned opcode written by “Satoshi” themselves. This opcode would enable more complex covenant functionalities by enabling concatenation on the bitcoin stack. Put simply, two different datasets would now be able to merge, tying their states to each other.

Think of this like the introduction of a stapler to businesses. One sheet of paper (data/information) can now be explicitly joined to other sheets of paper. By enhancing bitcoin’s scripting capabilities in this way, Bitcoin could support more advanced smart contracts. In short, OP_CAT would be a significant step toward enhancing Bitcoin’s functionality in line with other projects while also maintaining decentralization.

While both proposals are still under community review, they may need to be considered sooner rather than later. During the high fee environment created with the introduction of Ordinals and Runes, discussion around scalability and usability resurfaced quite quickly.

If we were to enter another sustained period of high fees, we imagine a speedy trial proposal may surface for some of these soft forks. However, it is hard to measure the sentiment or support behind these BIPs as Bitcoin remains largely decentralized with most users vehemently against any and all changes. Even within the Fidelity Digital Assets Research team, we could not come to a consensus on whether these changes are needed and “who” needs them. Unless new protocols emerge outside of Bitcoin that can minimize trust and enable unilateral exits back to Bitcoin’s Layer 1, then the demand for tools on-chain that enable these features should continue to grow.

Keeping Proof-of-Work Decentralized

A new pool was created in 2023 with decentralization at the forefront of its mission. It also aimed to filter out Ordinal transactions from its mempool using a customized version of Bitcoin Core software known as Knots.²⁰

A new mining protocol was born from this mission of decentralization: DATUM (Decentralized Alternative Templates for Universal Mining). DATUM allows the proposer of new blocks to customize their own template for the pool operator, similar to how [Stratum V2](#) was intended to further decentralize block template building within mining pools.

Put simply, DATUM allows the individuals within a pool to choose what transactions belong in their blocks. Individuals are then empowered to create their own template and choose how to build the blocks they find.

Currently, pool operators create a template that dictates what transactions are allowed to be included in the block. Miners connected to these pools have no control over the template and only focus on producing a valid hash and proposing a block within the parameters of said template.

The problem with this is the asymmetric control over the miners connected to that pool. The theory remains that if a pool were caught acting maliciously, miners would choose to connect to a different pool as that connection can be quickly and cheaply changed.

However, using DATUM, this is no longer required. Miners in the OCEAN pool can and are creating their own templates by utilizing the DATUM protocol. This also means that even though OCEAN intends to filter inscriptions, a miner can circumvent that intention by using their own template.

More interestingly, it appears that most OCEAN blocks do not contain inscriptions.²¹ It was previously thought that miners would not forgo any potential revenue streams, but this suggests that miners within OCEAN are running Knots and filtering these inscriptions themselves. Fees are not substantial right now. Therefore, these miners may not have been thoroughly tested of their will to filter these inscriptions.

If there is another inscription craze that drives fees above the block reward of 3.125 bitcoin and one of these miners is lucky enough to mine the block, will they still forgo that reward? Since inception, OCEAN’s pool dominance has risen to 1% of the network’s hash rate.

Stablecoins:

As Adoption and Use Cases Expand, Expect Evolution

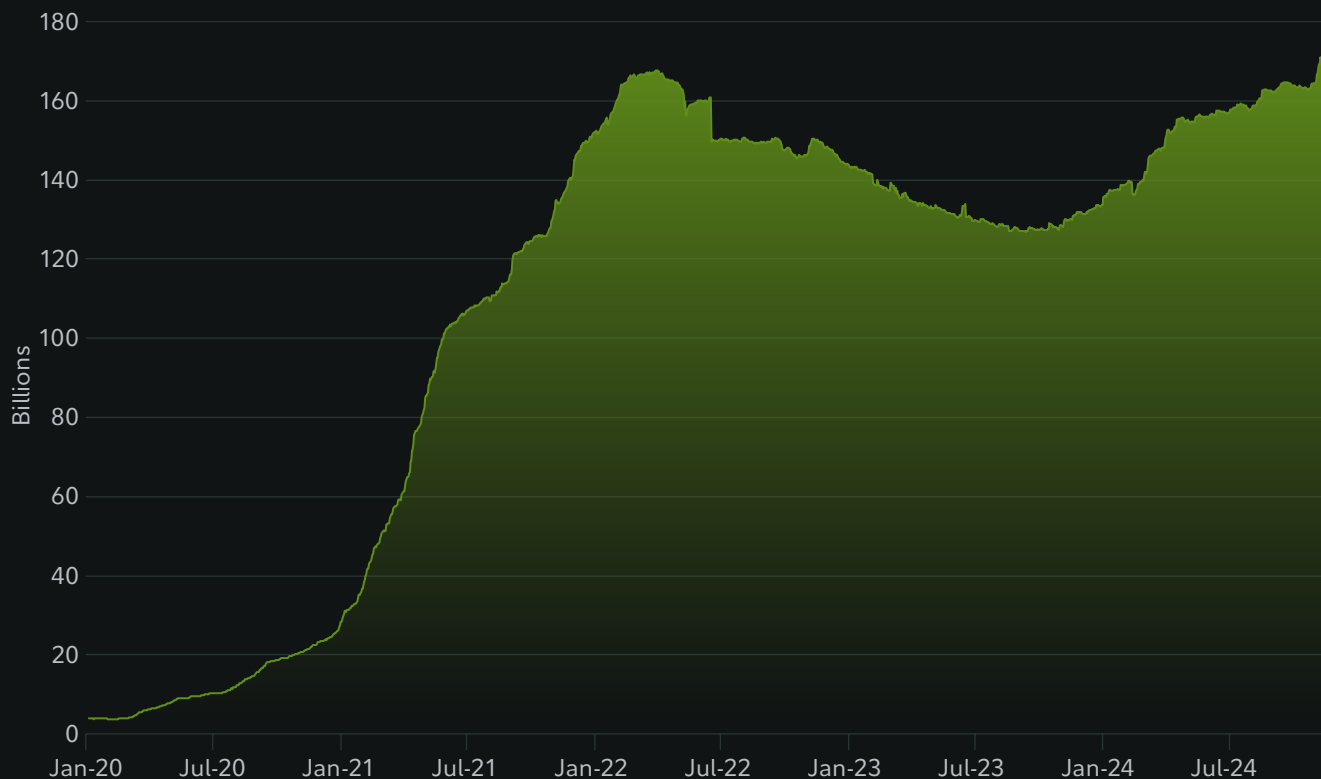
By Martha Reyes

In the 2024 Look Ahead, we flagged stablecoins as an important trend. Today, we think that they could potentially continue to evolve as a major use case that complements other potential apps such as the tokenization of real-world assets. However, while progress has been made, stablecoins are not a perfect product fit just yet.

We expect additional measures will be implemented to address counterparty and compliance risks, facilitate integration with traditional payment and lending rails, improve cross-chain interoperability, and meet the demand for yield-bearing assets.

Stablecoin trading volumes are surging in the current bull market, fueled by new issuers competing for liquidity—and with more expected to enter the market in the coming year. Stablecoin spot trading volume surpassed \$120 billion on exchanges on November 12, 2024, exceeding previous highs, while on-chain weekly volumes surpassed \$50 billion.²²

Aggregate Stablecoin Supply



Source: Fidelity Digital Assets Research via CoinMetrics, 12/11/24.

Making the Leap to Broader Use Cases

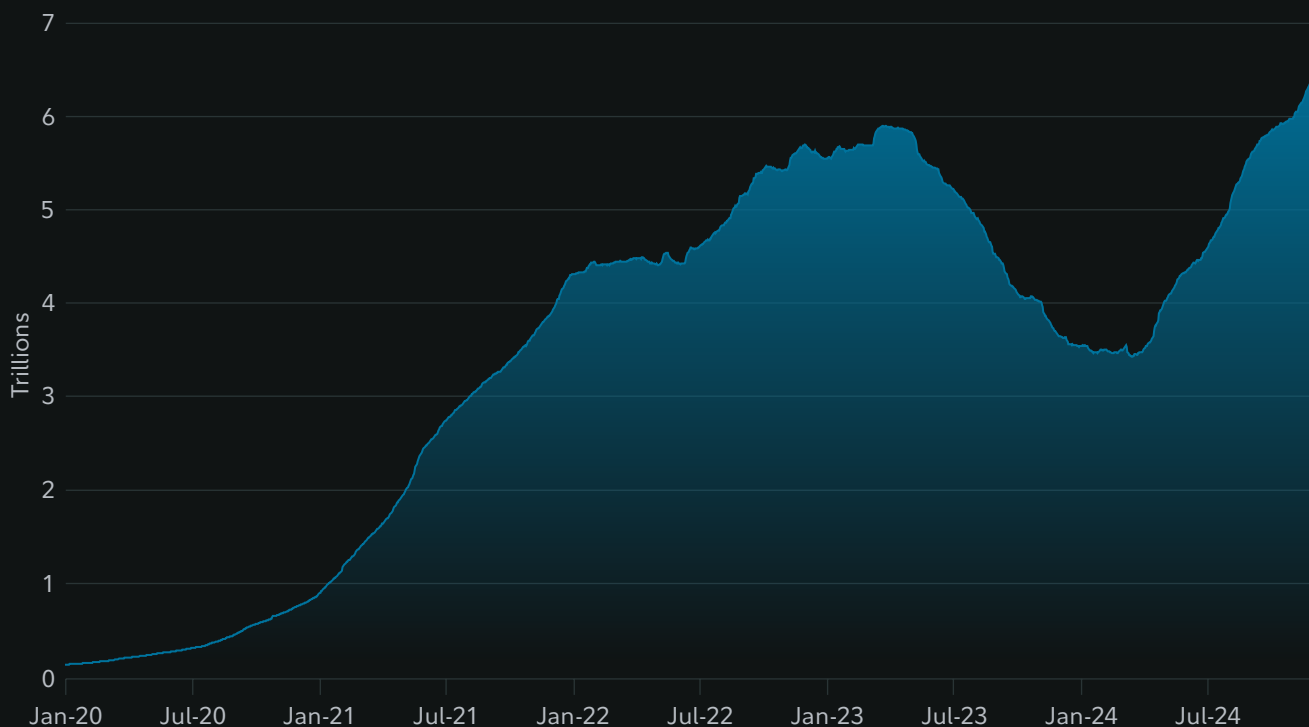
Over a decade after they first came into existence, stablecoins are now one of the most prominent use cases of blockchain technology. Not only do they provide trading liquidity, but they offer access to USD-pegged tokens in a dollar-hungry global economy. They also strive to enable faster and cheaper global payments 24/7.

As of December 2024, stablecoins have achieved \$12 trillion in transfer value, up from \$7 trillion in 2023, a milestone driven by declining fees and improved scalability. For context, Visa’s payment volume for the fiscal year 2024 was \$13.2 trillion, suggesting that stablecoins may surpass this level in the near future.²³ With that said, it is important to note that these metrics are not directly comparable, as Visa transactions largely reflect consumer spending rather than trading flows or remittances.

Both active addresses and the number of stablecoin transfers achieved a new high in October 2024, with the latter reaching a total of approximately 4.4 billion. However, the number of transactions is still a far cry from traditional payments companies, as Visa processed 234 billion transactions in 2023.

Nevertheless, the endurance of stablecoins speaks to not only digital assets trading but also other use cases—primarily remittances, cross border payments and, ultimately, the desire to easily access dollars as a store of value versus other currencies. It is no coincidence that the bulk of stablecoins are pegged to the USD. A recent survey conducted by Castle Island Ventures in emerging market countries reported that 47% of respondents used stablecoins to save in dollars, 43% for better conversion rates, and 39% to earn yield.²⁴

Stablecoin 1-Year Transfer Value (Ethereum)



Source: Fidelity Digital Assets via Coin Metrics, 12/11/24.

Demand for Dollars Should Continue to Underpin USD-Pegged Stablecoins

The long-standing success of the Eurodollar market (unsecured dollar deposits in foreign banks not subject to or protected by U.S. regulation) and a large offshore credit market is reflective of the dollar's role as a reserve currency.

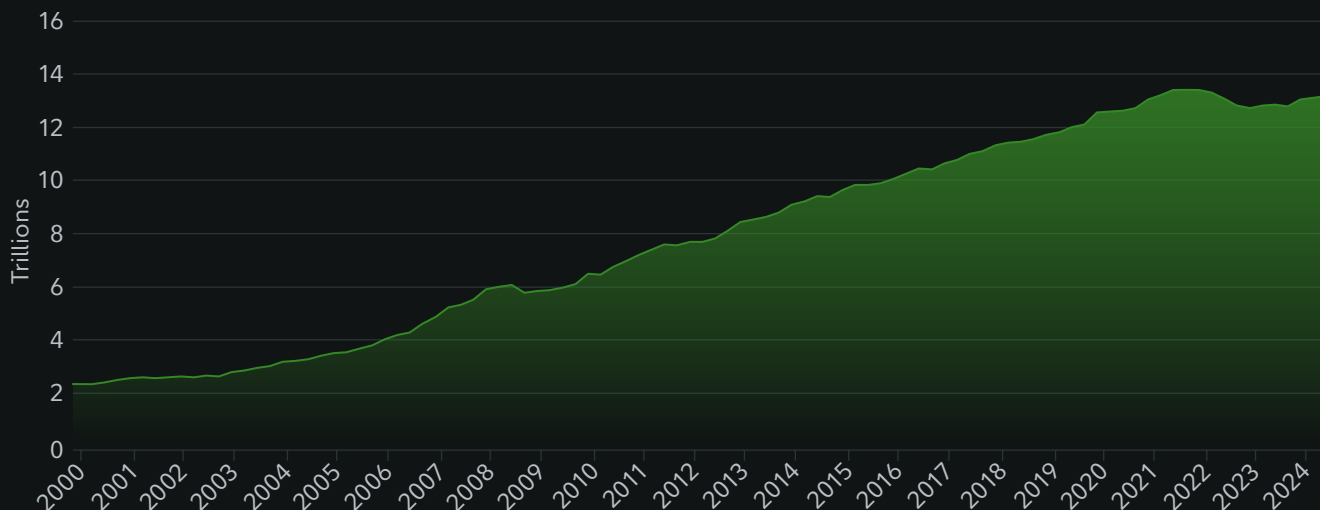
The Eurodollar market is not specific to Europe despite its name—although it did originate there. British and European banks began accepting deposits in the greenback due to changes in regulation in the 1950s that created arbitrage opportunities.

For decades, the market has been tapped by companies, governments, and individuals alike to manage cash flow and currency risk as well as to raise capital and earn interest. Its flourishing can provide an indication of stablecoins' potential growth path as many entities have USD-denominated loans and require dollars to conduct business, investment, and trade, creating enduring demand for the world's reserve currency.

Today, according to the Federal Reserve Bank of Atlanta, non-banks outside of the U.S. must make payments on approximately \$13 trillion stock of dollar debt. Meanwhile, banks must roll over maturing USD debt on \$13 trillion of deposits and bonds in addition to off-balance sheet obligations due to FX swaps, estimated to be \$26 trillion in 2022. The market is so systemically important, exhibiting steady growth over time, that the Fed has intervened as a lender of last resort during times of market stress, such as in 2008 and 2020.²⁵

Stablecoins could potentially play a role in complementing the Eurodollar market in the future and as a marginal buyer of rising U.S. Treasury issuance. This market is likely to remain pivotal as a global funding source, as a majority of international trade and payments are in U.S. dollars. Moreover, leading stablecoin provider Tether had \$102.5 billion in U.S. Treasury holdings as of September 2024, making it the eighteenth largest holder globally above nations such as Germany, Australia, and the U.A.E.²⁶

U.S. Dollar Lending to Non-Banks Outside the United States



Note: Non-banks comprise non-bank financial entities, non-financial corporations, governments, households, and international organizations. Source: BIS Global Liquidity Indicators, 06/31/2024.

A More Efficient Payment System

In addition to demand stemming from those seeking to protect themselves from currency exposure or a relative store of value, stablecoins can make remittances and cross-border payments faster and cheaper. In fact, Federal Reserve Governor Christopher Waller highlighted stablecoins as an important innovation in a recent speech.²⁷ Waller described them as a form of digital currency that can reduce reliance on payment intermediaries, lower costs on a global scale, and improve overall efficiency.

Focusing on the remittance market, which is estimated to have reached \$860 billion in 2023, nearly 80% of these funds were directed to low- and middle-income nations.²⁸ According to the World Bank, remittances are growing in importance, but sending money home remains too costly, averaging 6.4% in Q4 2023 for a \$200 dollar transaction.

Meanwhile, transaction fees on the Ethereum blockchain can still spike to several dollars, even after March 2024's Deneb-Cancun upgrade. Fees on Layer 2s have fallen by over 90% to as low as pennies on the dollar. Hence, Layer 2 solutions are crucial for scaling blockchain technology to broader applications, including the tokenization of real-world assets.

Tokenization of traditional securities could eventually drive further demand for stablecoins. Everything from bonds to equity and funds are under consideration—representing tens of trillions of dollars in assets. Stablecoins could potentially be a medium of exchange in this sphere, providing liquidity and a bridge with traditional fiat, integrated into smart contracts.

Coming into the Regulatory Fold

The year 2024 marked a milestone with the EU's regulation on stablecoins coming into effect in June. As the first major jurisdiction to introduce such guidelines, it ensures that holders of stablecoins issued by EU entities now have legal protections, including redemption rights of last resort to the issuer. The regime requires issuers to obtain an Electronic Money License and be subject to strict capital, governance, and compliance requirements. Additionally, fiat-backed stablecoins must be backed by a one-to-one liquid reserve held in custody by a third-party. Other jurisdictions could follow suit, potentially paving the way for wider adoption.

Despite not boasting the same protections as dollar banking deposits and facing unclear regulatory status in many regions, stablecoins have flourished due to their use in digital assets trading and as an access point to U.S. dollars, a relative store of value, and means of payment around the world. Europe was the first major jurisdiction to create a framework to reduce issuer and compliance risks around these private, bearer instruments and we expect others to do the same.

Additionally, stablecoins create increased demand for U.S. Treasury bills, as USD-pegged stablecoins are predominantly backed by these instruments. As demonstrated with the rise of the Eurodollar market in the post-war era, in the past, government authorities have historically been supportive of markets that reinforce the dollar's dominant role.

Product offerings from different providers should also continue to proliferate and facilitate integration with traditional banking rails, as well as access to other cash-like instruments. They could co-exist or compete with tokenized deposits issued directly by banks and facilitate trading of tokenized traditional securities, driving efficiencies and the continued status of the U.S. dollar as the global reserve currency.

DeFi and Blockchain Trends to Watch for in 2025

By **Chapmann Chen**

The DeFi sector is poised for continued innovation and growth in 2025, driven by innovations in blockchain technology, maturing market dynamics, and renewed interest from traditional finance (TradFi).

Proliferation of Purpose-Built Chains

One development we see for 2025 is the increasing number of mature digital asset projects launching their own native blockchain. These projects, which have already achieved adoption and success within their niches, are recognizing the benefits of creating custom chains tailored to their unique use cases. By doing so, they not only improve scalability and performance of their platforms but also enable better value capture for the foundation team.

Owning a native blockchain allows projects to retain control over the ecosystem and extract value through transaction fees, governance participation, and control over tokenomics. This trend will lead to an increase of purpose-built chains that cater to specific industries. As of November 22, 2024, Cosmos, a decentralized network of interconnected blockchains using the Inter-Blockchain Communication (IBC) protocol, has 111 IBC-enabled chains and \$3.3 billion in TVL across all chains. Successful examples of this include dYdX, a decentralized exchange that offers trading in perpetual derivative contracts, which created dYdX chain using Cosmos' software development kit (SDK).

Payment for Order Flow

The ability to self-custody is a core pillar of digital assets' self-sovereignty ideology. In 2025, we expect retail self-custody wallets such as Metamask or Phantom may adopt a payment-for-order flow (PFOF) model like the one employed by many TradFi participants. This model allows wallet providers to monetize user transactions by routing orders to market makers in exchange for a fee. This evolution may represent maturity and commercialization and brings a new revenue stream for wallet providers.

Layer 2 Scaling Solutions

Layer 2 scaling solutions are expected to build on the momentum gained in 2024, with a focus on reducing transaction costs, improving transaction speed, and enhancing cross-chain interoperability. As Ethereum continues development of its rollup-centric roadmap, Layer 2 protocols such as Optimism and Arbitrum will provide critical infrastructure to support the increasing transaction load for DeFi. These solutions are designed to offload transactions from the main Ethereum network, allowing for faster and cheaper transactions.

The continued innovation in Layer 2 technology will make DeFi more accessible and scalable, potentially attracting more institutional investors and enterprises. A successful example is Coinbase's Layer 2 chain Base, which was built on the OP Stack created by the Optimism collective.

AI Agents on the Blockchain

AI-driven autonomous agents use cases are emerging in DeFi. These agents have the potential to dynamically manage portfolios by reallocating funds based on changing market conditions and risk preferences. They can also optimize algorithmic trading strategies, utilizing real-time data to maximize opportunities such as arbitrage and liquidity provisioning. For example, in the lending space AI agents can automate processes like loan repayments and collateral adjustments, reducing complexity for users. Within Decentralized Autonomous Organizations (DAOs), AI agents can automate governance processes by proposing initiatives and managing grants.

Decentralized Social Media (SocialFi)

SocialFi refers to social media platforms that are on the blockchain where users retain control and ownership of their data and account. These platforms promote interoperability through open-source code standards, enabling users to transfer their social assets across other decentralized applications. Successful examples of this include Lens and Farcaster.

In 2025, we anticipate further experimentation with token rewards models to incentivize creators in place of the traditional centralized advertising model. SocialFi currently supports a niche digital assets community looking to share ideas, similar to how Facebook solely served Harvard University students before expanding to all Ivy League colleges in its early days. We see this community growing and attracting additional users from adjacent groups, following Facebook's trajectory.

Social Media Platform	Monthly Active Users (MAU)
Facebook	3 billion ²⁹
Instagram	2 billion ²⁹
TikTok	1.5 billion ²⁹
X (formerly Twitter)	611 million ³⁰
Farcaster	270 million ^{31, 32}
Lens	25,000 ³³

Note: Table compares decentralized to centralized social media monthly active users as of Q3 2024.

Decentralized Physical Infrastructure Networks (DePIN)

DePIN is a model where physical infrastructure—such as WiFi hotspots or weather sensors—are collectively built, owned, and operated by a decentralized group of individuals, using blockchain technology to coordinate and reward participation. Projects like Helium, which is focused on Internet of Things (IoT) connectivity, and Render, a decentralized GPU network, are demonstrating how blockchains can efficiently manage real-world use cases.

DePIN as a category is still in an experimental phase. However, it has experienced strong user adoption through token reward incentives. In 2025, we expect utility and infrastructure companies to experiment with blockchain technology and participate in these protocols.

Decentralized AI

Decentralized AI refers to artificial intelligence systems that operate on a distributed network rather than being controlled by a central authority such as Amazon Web Services (AWS), enabling transparency and collaboration by leveraging blockchain technology. With the success of Nvidia in 2024, there has been significant attention brought to AI and how digital assets could help relieve the compute load and H100 GPU shortage.

Several digital asset protocols such as Bittensor create a decentralized network for AI models to share, validate, and reward knowledge using blockchains. Another example is Render which decentralizes GPU computing power, thereby providing scalable resources for AI training and inference and making advanced AI accessible. In 2025, we expect to see open-source code AI models for societal use cases such as protein mapping, genomic sequencing, personalized medicine, and drug discovery.

The Possible Drivers of Mainstream Adoption and Diffusion in 2025

By Matt Hogan

Nation-State and Government Adoption

The approval and launch of spot bitcoin ETPs earlier in 2024 led to substantial demand for exposure to bitcoin from institutional and retail investors alike. This regulated, familiar, and accessible vehicle has made allocating to bitcoin more streamlined than ever before, leading to several pensions and at least one endowment making allocations to bitcoin through these products.^{34, 35, 36} While we expect to see this trend accelerate throughout 2025, one might wonder who the next significant investor might be to add bitcoin to their portfolios.

Enter nation-states and governments. The largest government holders of bitcoin currently are the U.S., China, United Kingdom, Ukraine, Bhutan, and El Salvador.³⁷

Country/Government	Bitcoin Holdings	Approximate USD Value
United States	₿ 198,109	\$20.1 billion
China	₿ 190,000	\$19.2 billion
United Kingdom	₿ 61,245	\$6.2 billion
Ukraine	₿ 46,351	\$4.7 billion
Bhutan	₿ 11,688	\$1.2 billion
El Salvador	₿ 5,961	\$604 million

Source: Fidelity Digital Assets Research via bitcointreasuries.net, 12/12/24.

However, despite holding bitcoin, many countries with exposure have only gained that exposure through government seizures and recoveries of bitcoin associated with entities using it for illicit financing purposes—not necessarily because they want to establish a strategic and long-term position holding the asset. Further, some of these governments, such as the U.S., have certain requirements relative to the handling or auctioning of this bitcoin and cannot count them as part of their treasury.

We expect 2025 to be the year this changes for both acceptance and adoption. This is to say, we anticipate more nation-states, central banks, sovereign wealth funds, and government treasuries will look to establish strategic positions in bitcoin. Perhaps these establishments will take notice of the playbook employed by Bhutan and El Salvador, and the substantial returns they have been able to glean from such positions in a relatively short amount of time.

Facing challenges such as debilitating inflation, currency debasement, and increasingly crushing fiscal deficits, not making any bitcoin allocation could become more of a risk to nations than making one. While President-elect Donald Trump and Senator Cynthia Lummis have both been vocal about their support of and plans for establishing a strategic bitcoin reserve in the U.S., it remains to be seen if they follow through with this ambition in 2025.

Senator Lummis introduced the Bitcoin Act of 2024 to the Senate in July of 2024.³⁸ If the bill is enacted, we believe the political and financial game theory at play will force other nations to follow suit. However, if this strategy were to be adopted, it is likely that nation-states would begin accumulating in secret. This is because no nation has an incentive to announce these plans, as doing so could influence more buyers and drive up the price. While it remains to be seen if this strategy will be implemented in 2025, those who would potentially adopt it will be incentivized to do so covertly.

There has been strong interest from prospective members of the incoming administration and Congress to embrace the digital asset industry with more favorable policy. With that said, it remains to be seen whether this verbal support will be followed by policies and actions that foster innovation for the space.

The digital assets market and its industry participants may have strong beliefs that these promises will turn into policy favorable to cultivating its growth. However, elected officials may also seek to turn their attention to prioritizing other legislation that they deem to take greater precedence. While we do not know how policy will be shaped in the future, we are encouraged and hopeful to see that perception of digital assets has developed from that of a fringe community to one warranting attention from politicians for its transformative potential to disrupt the traditional financial system as we know it.

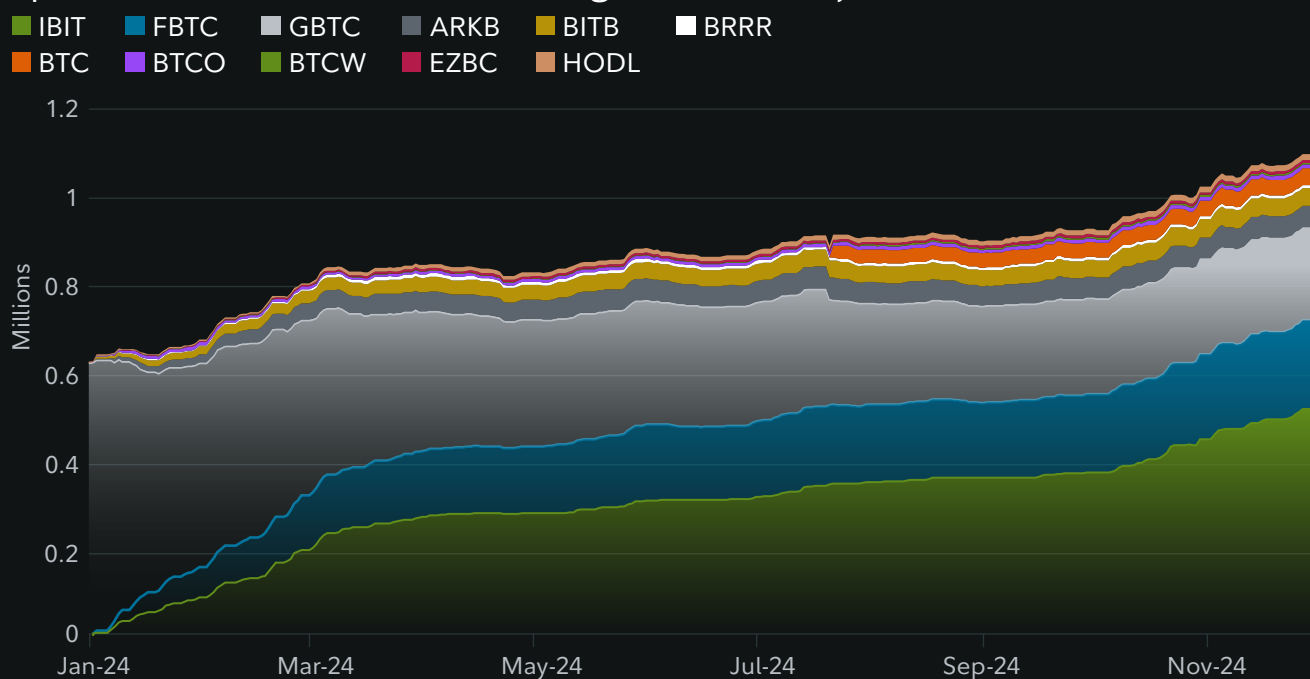
Digital Asset Structured and Managed Products Go Mainstream

As mentioned earlier, the advent and introduction of spot bitcoin ETPs has opened a door for many investors of all types to gain exposure to bitcoin and this asset class.

Previous structured products were limited to equities of companies involved in the space, offering only indirect exposure to the asset class. Alternatively, they were passive private placement funds limited to accredited investors, holding a single asset. Other options included futures-based products that failed to track spot prices accurately or closed-end funds and trusts that struggled to have their shares trade at NAV. These types of products were simply inefficient and ineffective at capturing the price moves of spot bitcoin accurately.

Spot bitcoin and ether ETPs have seen considerable demand, with the total spot bitcoin ETP AUM sitting at \$114 billion and total spot ether ETP AUM sitting at approximately \$11 billion as of December 2024.^{39, 40} It is difficult to overstate the success of these products. Spot bitcoin ETPs saw the most successful ETP launches in history, which is reflective of the pent-up demand for institutional-grade access. They achieved 80% of gold ETF assets under management in the span of just 10 months, while the gold vehicles have been around since 2004. This equates to over one million bitcoin, or approximately 5% of the total circulating supply.

Spot Bitcoin ETP On-Chain Holdings in BTC (Daily)



Source: Fidelity Digital Assets Research via The Block, 12/11/24.

Spot Crypto Exchange Traded Products are only offered through broker-dealers and are not available through Fidelity Digital Asset Services, LLC. Information provided in, and presentation of, this document are for informational and educational purposes only and are not a recommendation to take any particular action, or any action at all, nor an offer or solicitation to buy or sell any asset or service presented. It is not investment advice.

While approximately 80% of investors are retail at this early stage, the number of institutional investors is still high compared to other similar product launches. These allocators include hedge funds, pension funds, and banks, totaling over 1,000 entities. Larger institutions with more stringent oversight or compliance restrictions may take longer to allocate, such as wirehouses and certain pensions, endowments, and foundations.

Demand has been fueled in part by the popularity of the cash and carry trade, also known as a basis trade, which is an arbitrage strategy that involves exploiting the price difference between bitcoin's spot market and its futures market. Since the launch of the ETPs in January 2024, bitcoin futures open interest on the CME, which largely reflects institutional activity, has risen by over \$12 billion and is partly related to this trading strategy.

BTC Annualized Daily Basis (Binance)



Source: Fidelity Digital Assets Research via Coin Metrics, 11/14/24.

More recently we have witnessed the launch of options on the bitcoin ETPs, which also saw strong volumes given the demand from institutional investors to express their views on the asset in a more nuanced way on a traditional exchange.

With the initial success of these products, it would not be unreasonable to expect 2025 to bring about more structured passive and actively managed digital asset products to the world of TradFi. With growing interest, adoption, acceptance, and demand for exposure to digital assets, 2025 may be the year we begin to see more digital asset native and TradFi asset managers alike begin to allocate more resources and headcount toward building bespoke idiosyncratic funds that are specific to digital assets.

Tokenization: The Killer App of 2025

In 2024, stablecoins proved the use case that tokenized assets are both useful and in demand. So, what comes next?

The market has begun to introduce novel concepts around tokenization, most notably tokenized treasuries, money market funds, global bonds, private credit, commodities, institutional funds, and equities. The total nominal amount of real-world assets on-chain currently sits at \$14 billion, up from \$8 billion in 2023.⁴¹ In our opinion, it would not be unreasonable to expect this number to double from where it currently is one year from now.

As institutions increasingly recognize the advantages of utilizing blockchains—including faster, cheaper, and relatively frictionless operability—we anticipate growth in tokenized asset classes could continue to expand. More TradFi industry stakeholders may adopt this innovation for its potential to outperform existing systems.

Beyond the scope of these pre-existing asset classes, more fringe use cases may also gain wider adoption as larger scale operations may turn to blockchains to experiment with their proposed benefits over other

current alternatives. For example, the state of California has begun to tokenize car titles, with its DMV digitizing 42 million car titles on the Avalanche network.⁴² Other nascent use cases include developments such as Story Protocol, which aims to revolutionize how intellectual property is managed, shared, and monetized while leveraging blockchain technology to create a more open and creator-friendly ecosystem.

Efforts to deploy blockchain technology for tokenized assets have mostly focused on financial services with big banks and asset managers putting traditional assets such as bonds, credit, and funds on distributed ledgers pursuing faster transactions, greater transparency, and increased efficiency. We expect to see continued trends in this space while also anticipating burgeoning applications to come to market.

Tokenization is often seen as a buzzword in the world of blockchain technology, but its potential in financial services and beyond is only beginning to be realized. If \$14 billion of real-world assets are on-chain right now, and if demand for this niche use of blockchain technology continues to expand throughout 2025, it would not be surprising to see this value approach \$30 billion by the end of 2025.

Bitcoin and DeFi Lending Markets Likely to Grow

As DeFi lending markets continue to grow in size and appeal, it is likely that bitcoin itself finds its way into similar lending markets as pristine collateral and a highly coveted and scarce monetary good. The TVL of DeFi lending markets reached \$55 billion in December 2024, up from \$22 billion in 2023.⁴³ This surge in adoption and usage is in part due to an overarching growing interest in experimenting in these markets, but also perhaps due to a gradual recovery from the digital asset bear market.

More regulatory clarity and an abatement of regulation by enforcement should also help boost these markets and their respective protocols. As more participants turn to these ecosystems for their favorable yields to borrowers and lenders alike, and for their democratization of access to loans, we expect this to be a key area of growth for the broader digital asset ecosystem throughout 2025. Having previously achieved a TVL of over \$51 billion in the spring of 2022, it would not be surprising to see that number dwarfed substantially in 2025. While decentralized lender Aave currently has the largest share of the DeFi lending market, we expect competition to rise as increasing demand drives more opportunities.

Bitcoin lending specifically is an area that may also see substantial growth throughout 2025. As TradFi acceptance and integration of bitcoin further develops, we may see more bitcoin lending services come to market in 2025. While centralized lenders have had their share of difficulty maintaining trust and capitalization in the past, traditional financial institutions with a proven track record and more robust balance sheet may have a strategic competitive advantage to enter the market to meet this demand.

Cantor Fitzgerald, a legacy financial institution that has existed since 1945, is an example of a recent market entrant. The company announced plans to launch a bitcoin financing business in July 2024, aiming to provide leverage to investors who hold bitcoin.⁴⁴ Launching with \$2 billion in initial financing and with plans to grow the operation beyond this initial amount, this service offering could help unlock more of bitcoin's potential and bridge the gap between traditional finance and digital assets.

This offering very well may accelerate the adoption of bitcoin ownership by large companies through addressing an unmet need in the market, as bitcoin holdings in their native state do not generate yield. While concerns relative to potential re-hypothecation and centralization of custody persist, the general sentiment is positive that bitcoin is finally bridging the gaps between the siloed world of digital assets and traditional finance.

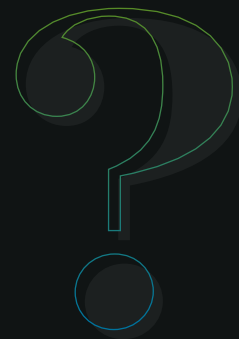
Conclusion:

Not Too Late, and Hopefully Early to a New Era

Reviewing the 2025 outlook, it is clear that investors are not too late to join the digital asset movement. In fact, we believe we may be entering the dawn of a new era for digital assets, one poised to span multiple years—if not decades. This era could see digital assets permeating various sectors—industries, technologies, fields, balance sheets, and even nation-states. The pivotal question for investors now is not whether to participate, but how actively they will engage with this transformation.

Curious how these developments may shape 2025 or potentially influence portfolio strategies?

[Get in touch with our team.](#)



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01. <https://press.princeton.edu/books/paperback/9780691260341/technology-and-the-rise-of-great-powers>
02. <https://cointelegraph.com/news/vitalik-buterin-says-ethereum-blob-count-is-uncomfortably-close-to-a-ceiling>
03. <https://www.theblock.pro/news/post/325381/ens-labs-introduces-own-Layer-2-agnostic-rollup-namechain-aiming-for-launch-by-end-of-2025>
04. <https://treasuries.bitbo.io/us-etfs/>
05. <https://mempool.space/block/000000000000000000000320283a032748cef8227873ff4872689bf23f1cda83a5>
06. <https://bitvm.org/bitvm2>
07. <https://docs.citrea.xyz/>
08. <https://www.allocin.it/uploads/placeholder-bitcoin.pdf>
09. <https://colliderscript.co/colliderscript.pdf>
10. <https://github.com/ark-network/ark>
11. <https://ark-protocol.org/>
12. <https://babylonlabs.io/learn>
13. <https://docs.solv.finance/>
14. <https://docs.solv.finance/solvbtc-liquid-staking-tokens/solvbtc.lsts>
15. <https://defillama.com/protocol/solv-protocol#information>
16. <https://abcnews.go.com/US/year-crypto-broke-customers-investors-lost-millions/story?id=96662010>
17. <https://www.cnbc.com/2022/11/28/blockfi-files-for-bankruptcy-as-ftx-fallout-spreads.html>
18. <https://www.reuters.com/technology/bankrupt-crypto-lender-voyager-digital-predicts-35-customer-payout-2023-05-17/>
19. <https://www.reuters.com/technology/crypto-lending-unit-genesis-files-us-bankruptcy-2023-01-20/>
20. <https://github.com/bitcoinknots/bitcoin/>
21. <https://ocean.xyz/dashboard>
22. https://open.substack.com/pub/coinmetrics/p/state-of-the-network-issue-286?utm_campaign=post&utm_medium=web
23. <https://annualreport.visa.com/financials/default.aspx>
24. https://castleisland.vc/wp-content/uploads/2024/09/stablecoins_the_emerging_market_story_091224.pdf
25. <https://www.atlantafed.org/-/media/documents/research/publications/policy-hub/2024/05/15/02--offshore-dollar-and-us-policy.pdf>
26. <https://tether.io/news/tether-hits-7-7-billion-2024-nine-month-profits-102-5-billion-in-u-s-treasury-holdings-almost-120-billion-usd%e2%82%ae-circulation-and-an-over-6-billion-reserve-buffer-in-q3-2024-attestation/>
27. <https://www.federalreserve.gov/newsevents/speech/waller20241018a.htm>
28. <https://www.worldbank.org/en/news/press-release/2024/06/26/remittances-slowed-in-2023-expected-to-grow-faster-in-2024>
29. <https://adamconnell.me/social-media-platforms/>
30. <https://explodingtopics.com/blog/x-user-stats>
31. <https://dune.com/queries/3430261/5761243>
32. <https://dune.com/decasonic/socialfi>
33. <https://dune.com/decasonic/socialfi>
34. <https://blockworks.co/news/wisconsin-discloses-blackrock-ibit-shares>
35. <https://cointelegraph.com/news/michigan-pension-fund-bitcoin-ether-etf-investment>
36. <https://www.coindesk.com/business/2024/10/28/emory-university-joins-bitcoin-etf-rush-reporting-16m-holding-in-grayscale-vehicle/>
37. <https://bitcointreasuries.net/>
38. <https://www.congress.gov/bill/118th-congress/senate-bill/4912/text>
39. https://charts.checkonchain.com/btconchain/etfs/etf_balance_1/etf_balance_1_light.html
40. <https://www.theblock.pro/data/crypto-markets/ethereum-etf/spot-ethereum-etf-aum-daily>
41. <https://app.rwa.xyz/>
42. <https://www.reuters.com/technology/california-dmv-puts-42-million-car-titles-blockchain-fight-fraud-2024-07-30/>
43. <https://defillama.com/protocols/Lending>
44. <https://www.cantor.com/cantor-fitzgerald-to-launch-bitcoin-financing-business/>

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