

# THE BITCOIN ECOSYSTEM

## 2026 Annual Report



JANUARY 21, 2026  
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## Letter from the Founder

We live in a remarkable time. Bitcoin is a viable solution to the most significant issues in the world and it emerged precisely when it was needed. Often, I'm overwhelmed with the feeling that the bitcoin ecosystem was made for me as it aligns so precisely with my personal curiosities and values. The reality is that bitcoin is just technology, and many have a similar intuition as mine for completely different reasons.

We founded Epoch on the belief that Bitcoin as a neutral global monetary system will be the most important innovation in our lifetimes. The emergence of a new monetary good has not occurred in millennia, and money is the largest market in the world. The ecosystem around this emerging monetary good requires capital. Capital is accumulated not by chance but by the concerted efforts of all individuals involved. Epoch is a capital provider dedicated to building the infrastructure, applications, and adjacent technologies at the advent of this system.

My team wrote this report to illuminate everything happening with bitcoin, educate as best we can, and encourage readers to participate in the bitcoin economy. Working in this industry is a privilege. Influencing the ideas and beliefs at the vanguard of this emerging system is a responsibility we do not take lightly.

This is the second annual bitcoin ecosystem report from Epoch, and we will do this every year until distinguishing the bitcoin ecosystem from any other ecosystem becomes pointless. This report is the result of our efforts as a firm and late nights. There are many things we didn't cover and we plan to improve it every year. Please reach out with any thoughts or feedback.

I want to thank my team for all of the hard work:

- VJ Vesnaver, Operating Partner; [@victoreejones](#)
- Adam Stryer, Analyst; [@sultanoftchart](#)
- Clark Moody, Venture Partner; [@clarkmoody](#)
- Danny Knowles, Venture Partner;  [@\\_DannyKnowles](#)

It's a beast, enjoy.

Eric Yakes, Managing Partner

*Inspiration stems from love and stress compounding*

— Atmosphere

# 2026 BITCOIN PREDICTIONS

Based on everything in this report, our team predicts the following for 2026:

- 1) The price of Bitcoin reaches at least 150,000 federal reserve notes backed by the full faith and declining credit of the US government
- 2) Bitcoin begins its decoupling from equities in 2026, but it will only be evident in 2027 hindsight
- 3) Bitcoin rises at least 50% in gold terms from a bitcoin rotation trade
- 4) A major asset manager adds a 2% allocation to bitcoin in its model portfolio
- 5) Metaplanet achieves the highest mNAV among major bitcoin treasury companies (market cap greater than \$1 billion).
- 6) An activist investor or competitor liquidates a bitcoin treasury company, capturing the spread between its mNAV discount and the value of its bitcoin
- 7) A bitcoin company receives conditional approval for a federal bank charter
- 8) A stablecoin uses bitcoin as a reserve asset to pay interest to its holders offshore
- 9) Twenty One Capital (XXI) acquires Strike
- 10) The Clarity Act does not pass: even if it does pass, it will not be the end of the fight over stablecoin yield
- 11) The core substance of the Clarity Act (asset taxonomy and allocating authority to SEC/CFTC) will be accomplished via SEC rulemaking/guidance in 2026
- 12) Republicans will lose the midterms, and there will be meaningful anti-crypto regulatory blowback (most likely in the form of consumer protection)
- 13) Samurai Wallet/Tornado Cash founders will not be pardoned this year— but there will likely be future criminal cases or appeals that vindicate them
- 14) Bitchat goes mainstream for local p2p discovery, driving over 200 known eCash mints
- 15) At least 100 small businesses begin offering discounts for payment in bitcoin instead of dollars through Square
- 16) No top 10 public bitcoin mining company achieves more than 30% of revenue from AI compute for the 2026 fiscal year, driven by significant development delays
- 17) A federally chartered bank begins offering bitcoin collateralized loans
- 18) Quantum preparedness conversation continues to happen around tradeoffs among various key/signature schemes. Code is written for [BIP360](#), but no concrete soft fork is in the works by the end of 2026.
- 19) The bitcoin perception gap closes 50% (see the bitcoin media section)
- 20) Bitcoin Core maintains dominance over alternative implementations
- 21) Epoch Ventures begins raising its Fund II

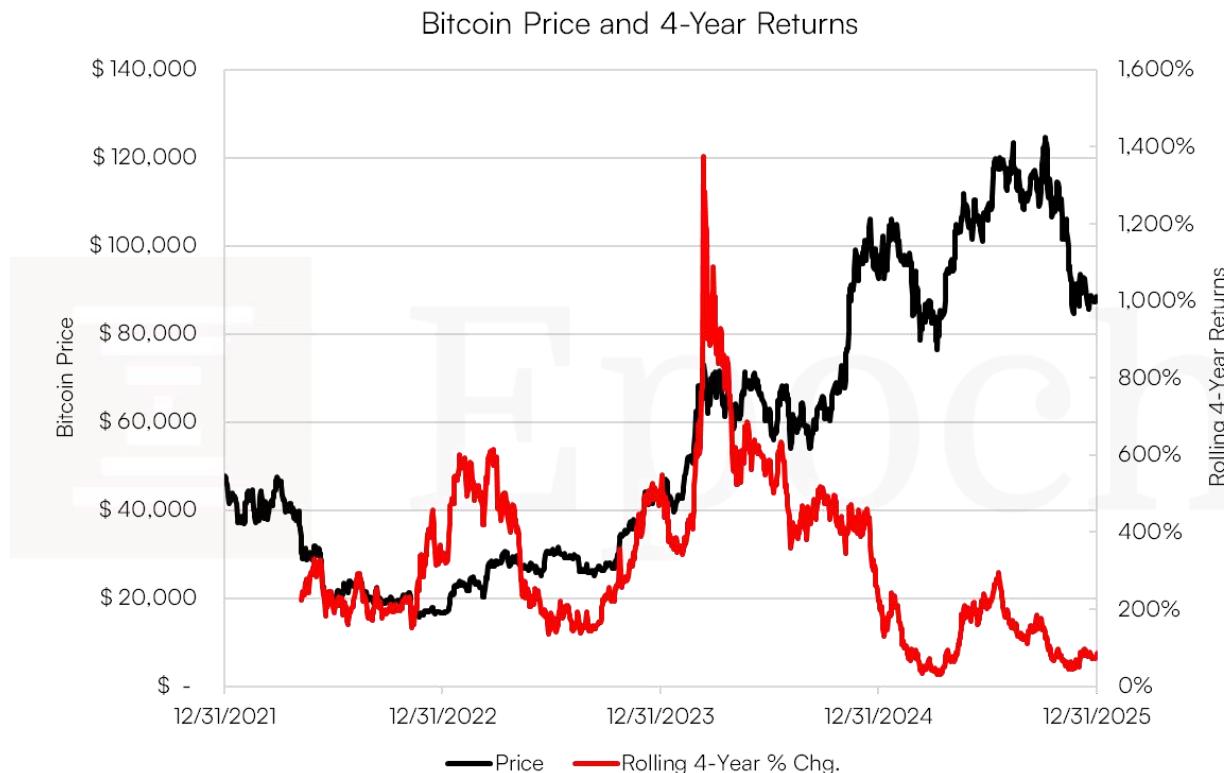
# The State of Bitcoin Adoption



## Price Analysis & the Four-Year Cycle

Over the past decade, Bitcoin allocations have driven portfolio outperformance, and we expect that to continue despite a lackluster 2025.

Bitcoin closed 2025 at \$87,500, down 6% over the past year. Its 84% gain over the past four years ranks in the bottom 3% of its historical four-year returns.<sup>1</sup>



Source: Tradingview

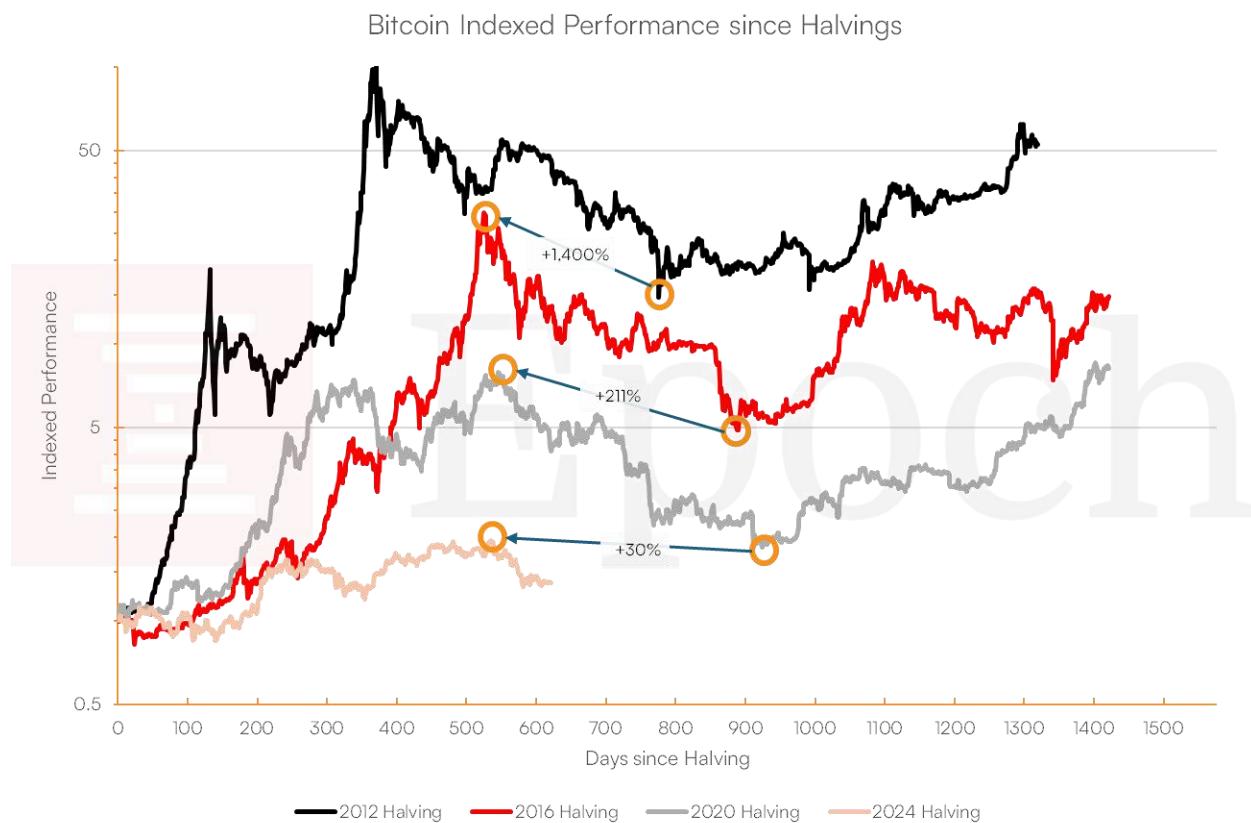
We begin this report by discussing price in relation to Bitcoin's historical 4-year cycle. We believe cycle theory is a relic of the past, and the cycles themselves probably never existed. The fact is that Bitcoin is boring and growing gradually now. We make the case for why gradual growth is precisely what will drive a "gradually, then suddenly" moment.

<sup>1</sup> Four-year returns using weekly price data from 12/2013 through 12/2025.

## Are the four-year cycles over?

Bitcoin's price history has correlated with its four-year halving cycle, and many believe this relationship is causal.<sup>2</sup> Historically, bitcoin's bull run peaked 12-18 months after the halving, entered a 12-15 month bear market, and then gradually accumulated into the next bull run.

The chart below shows Bitcoin's cyclical performance since the last four halvings. Diminishing returns to scale are evident as performance weakens with each successive cycle. If the current cycle has topped, the anomaly is how low the peak was relative to the prior cycle's bear market bottom. The ratios of peaks to prior-cycle troughs have been much higher than the October 2025 peak-to-prior-cycle trough ratio.



The Bitcoin community tracks the cycles and discusses a potential “supercycle” or extended cycle, pointing to lengthening periods between the halvings and peaks/troughs (with some exceptions). Many contend that this could be an extended cycle.

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<sup>2</sup> The halving is a programmed reduction in mining rewards that occurs every 210,000 blocks, or approximately every four years.

As Bitcoin matures into a multi-trillion-dollar asset class, we question whether the cycle theory remains intact, if evolving market dynamics have rendered it obsolete, or if it ever even existed.<sup>3</sup> Our analysis suggests the belief in cycle theory is changing.

Gradual price movement driven by low volatility can decouple bitcoin from risk assets, inducing upside catalysts while limiting significant drawdowns. This section will explore (1) price action, (2) bitcoin's relative performance to gold, (3) volatility, (4) correlations, and (5) potential upside catalysts.

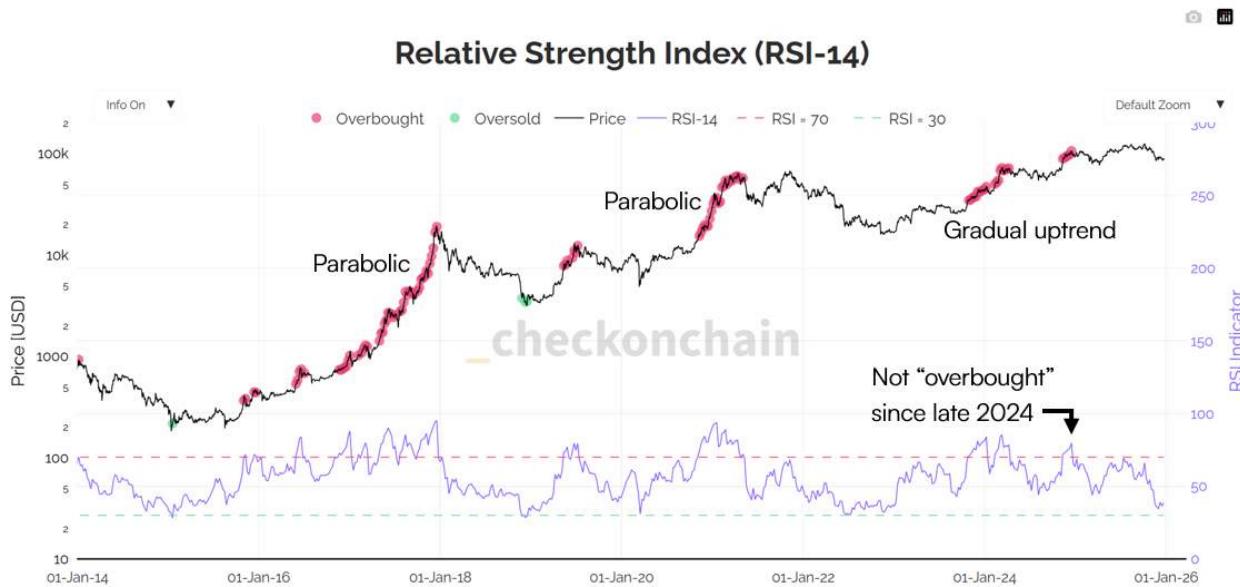
## 1. Price Action

The historical four-year cycle may have initiated a self-fulfilling prophecy that pressured bitcoin down from \$126k to \$81k; expecting a prolonged bear market could catch traders offside in 2026.

If cycle theory caused the decline, it may subsequently drive a 2026 bull market and disprove this belief. Mature markets with institutional players often counter overcrowded trades; as marginal sellers flip, momentum shifts and draws in new buyers, potentially the same cycle crowd that exited in Q4 2025.

Bitcoin's relationship with technical indicators and its performance versus gold suggest that a structural bear market began in November 2024, implying 2026 is the start of a new bull market — and before sending this to press, it appears this may be the case.

Looking at price and the 14-day relative strength index (RSI), Bitcoin did not explode upward (by historical standards) in 2025 and has not touched “overbought” levels since late 2024.



<sup>3</sup> We are often misled by spurious correlation: <https://www.tylervigen.com/spurious-correlations>

Source: checkonchain<sup>4</sup>

The relationship between price and RSI suggests that bitcoin's implied peak occurred in November 2024, and a bear market has been underway for over a year. As outlined in the chart below, the 2021-23 and 2024-26 timelines are eerily similar, suggesting December 2025 was the end of the bear market.



Source: checkonchain<sup>5</sup>

## 2. Bitcoin vs. Gold

The notion that bitcoin is already in a 1+ year bear market is strongly supported by its relative performance to gold. Denominating bitcoin in gold is a proxy that can, at least partially, insulate our analysis from fiat currency manipulation. Relative performance can be more forward-looking because it gauges capital flows and removes currency fluctuation. Priced in gold, bitcoin is down ~49% from its high and has been in a bear market since mid-December 2024.

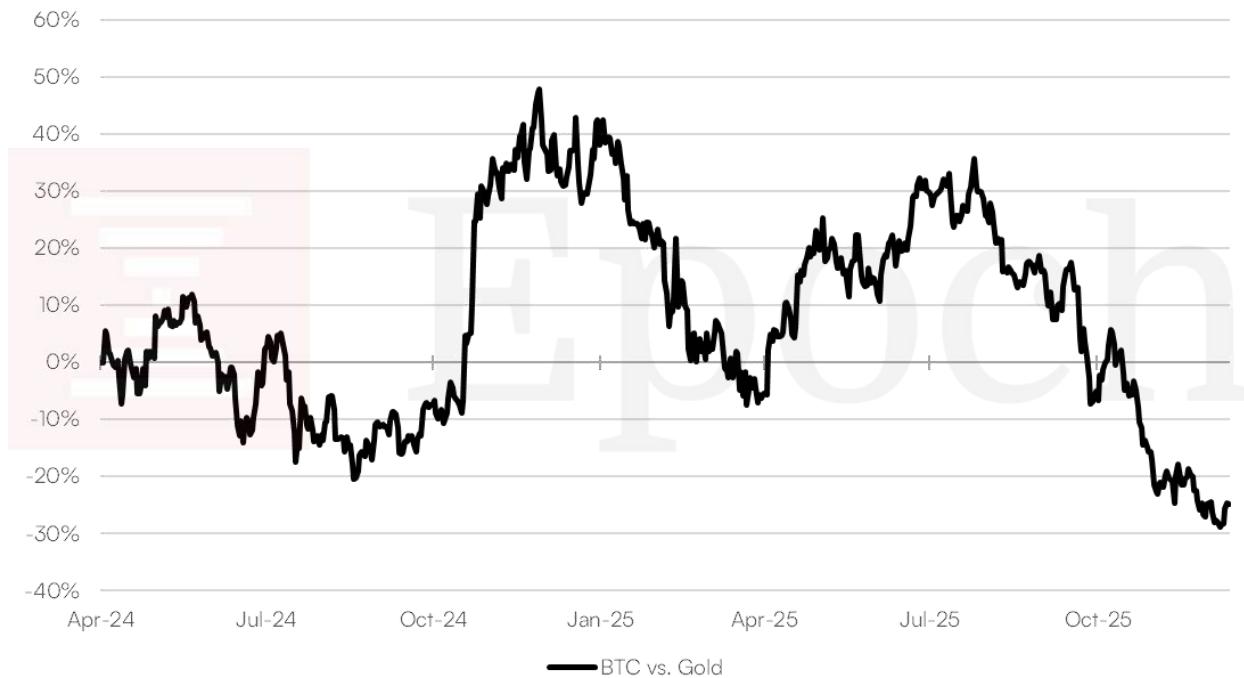
<sup>4</sup> Link to source:

[https://charts.checkonchain.com/btconchain/technical/technical\\_rsi14\\_1w/technical\\_rsi14\\_1w\\_light.html](https://charts.checkonchain.com/btconchain/technical/technical_rsi14_1w/technical_rsi14_1w_light.html)

<sup>5</sup> Link to source:

[https://charts.checkonchain.com/btconchain/technical/technical\\_rsi14\\_1w/technical\\_rsi14\\_1w\\_light.html](https://charts.checkonchain.com/btconchain/technical/technical_rsi14_1w/technical_rsi14_1w_light.html)

### Relative Performance since the 2024 Halving BTC vs. Gold

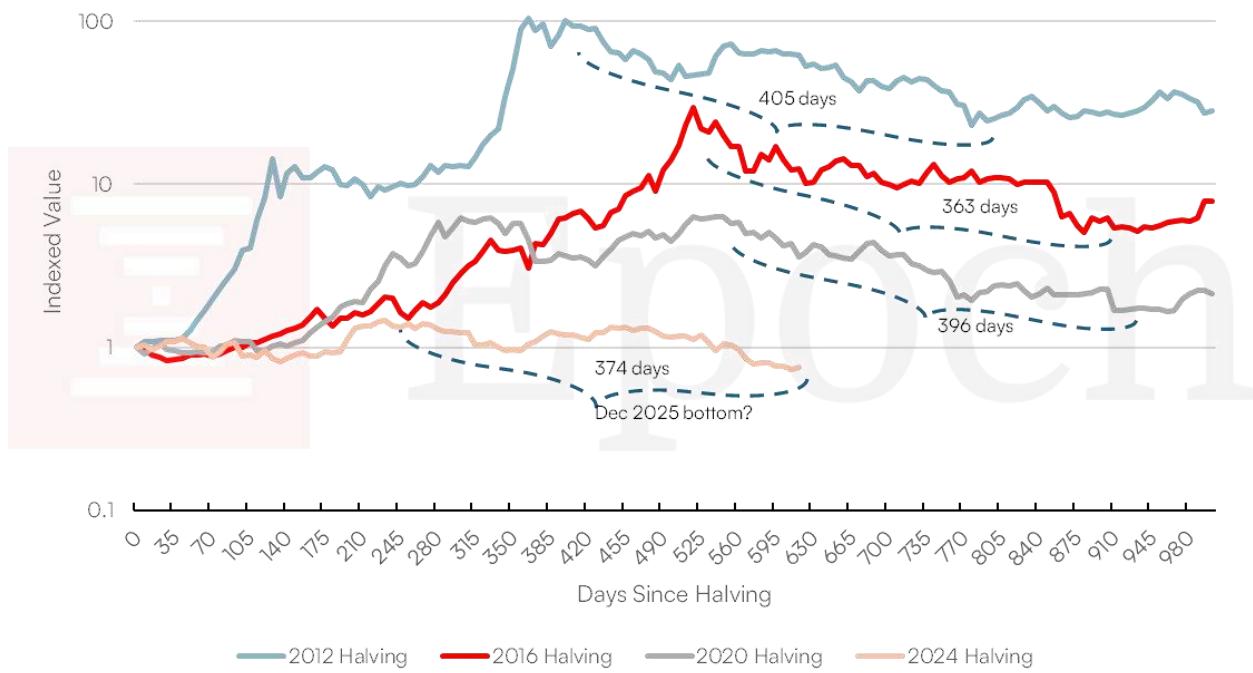


Source: Tradingview

From this perspective, the current bear market mirrors prior years. In the chart below, today's bear market aligns with prior peak-to-trough timelines.

However, gold was up 72% in 2025 after a decade of mediocrity. Gold's seemingly unstoppable rise strengthens the case for bitcoin. Bitcoin becomes more attractive relative to gold, and an overcrowded gold trade is primed for rotation into bitcoin.

### Bitcoin Relative to Gold after Each Halving

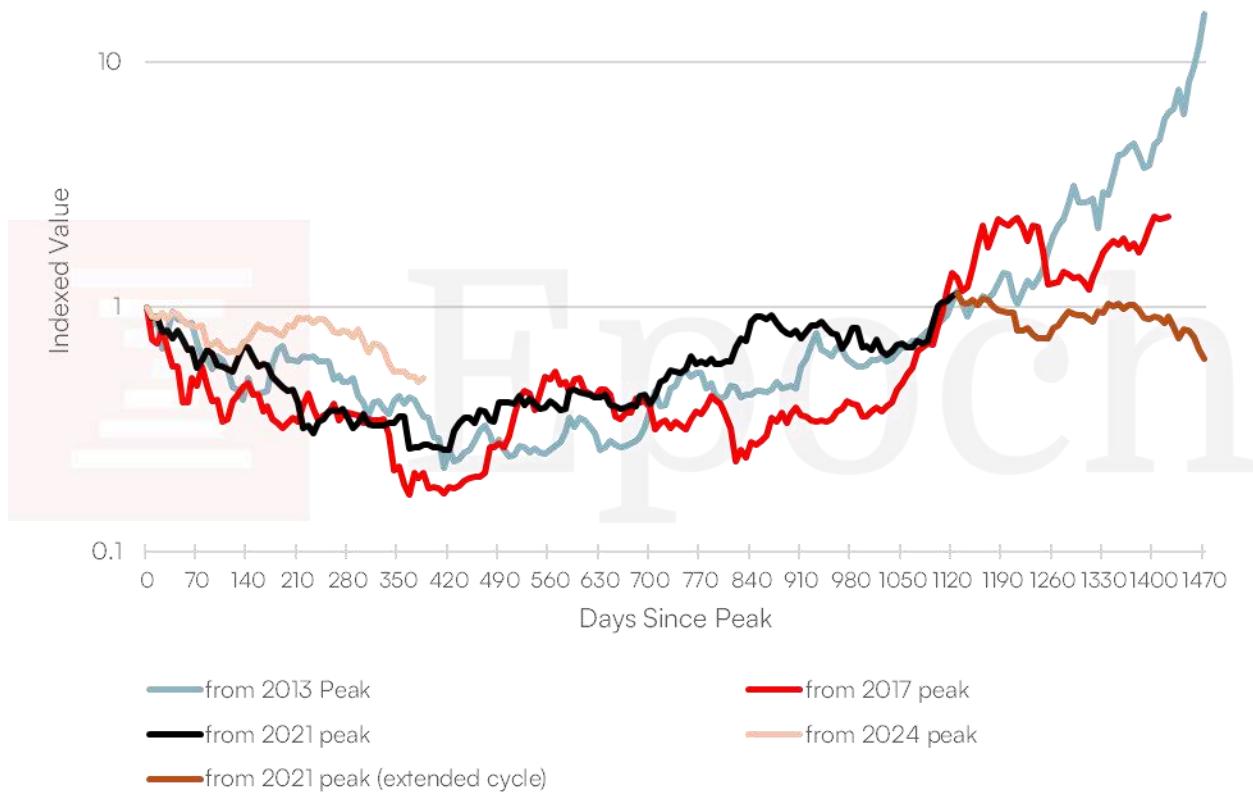


Source: Tradingview

Shifting the chart to begin at each cycle top shows us two scenarios: (1) If BTC/Gold has not peaked, the cycle will extend by hundreds of days; (2) If it has peaked, the peak occurred 300+ days early and implies that the bottom is in or very near.

Either way, the four-year cycle in BTC/Gold has fallen apart; the BTC/USD cycle may fall next.

## Bitcoin Relative to Gold from 4-year Peak



Source: Tradingview

Price action, technical indicators, parallels to prior timeframes, and relative performance to gold all suggest a significantly altered cycle. If the current drawdown reverses to a new high in 2026, it would upend the four-year cycle narrative.

### 3. Volatility and its Second-Order Effects

Bitcoin is becoming boring. The more boring bitcoin is, the more likely it is to become ubiquitous money.

Bitcoin volatility continues its relentless decline, but many still perceive it as the most volatile major global asset. Bitcoin's volatility is in line with the largest companies in the world and typically below that of Tesla and Nvidia. Traditional finance and the uninformed still cite volatility as a deterrent, despite no qualms with mega-cap stocks. The six companies shown below comprise 1/3 of the Nasdaq 100 index; their weighted average volatility was higher than Bitcoin's in 2025.

		Tech Stocks' Weighted Average			Meta		Google	
Average 30-day Volatility in 2025	40%	46.5%	73%	55%	42%	39%	38%	34%
Nasdaq 100 Weighting		32.4%	3.8%	8.9%	3.6%	5.1%	3.5%	7.5%

Source: Invesco QQQ Holdings<sup>6</sup>

The more volatile Tesla and Nvidia comprise ~10% of the S&P 500, owned by ~62% of Americans.<sup>7 8</sup>

			
Average 30-day Volatility in 2025	40%	73%	55%
Ownership: % of Americans	~12%	over 62%	over 62%

Less than three months ago, the U.K.'s largest retail investment platform, Hargreaves Lansdowne, told investors that "cryptocurrencies shouldn't be relied upon to... meet [your] financial goals" and should not be in your portfolio.<sup>9</sup> A leading reason was that "bitcoin... is a highly volatile investment — much riskier than stocks or bonds." This is simply not true.

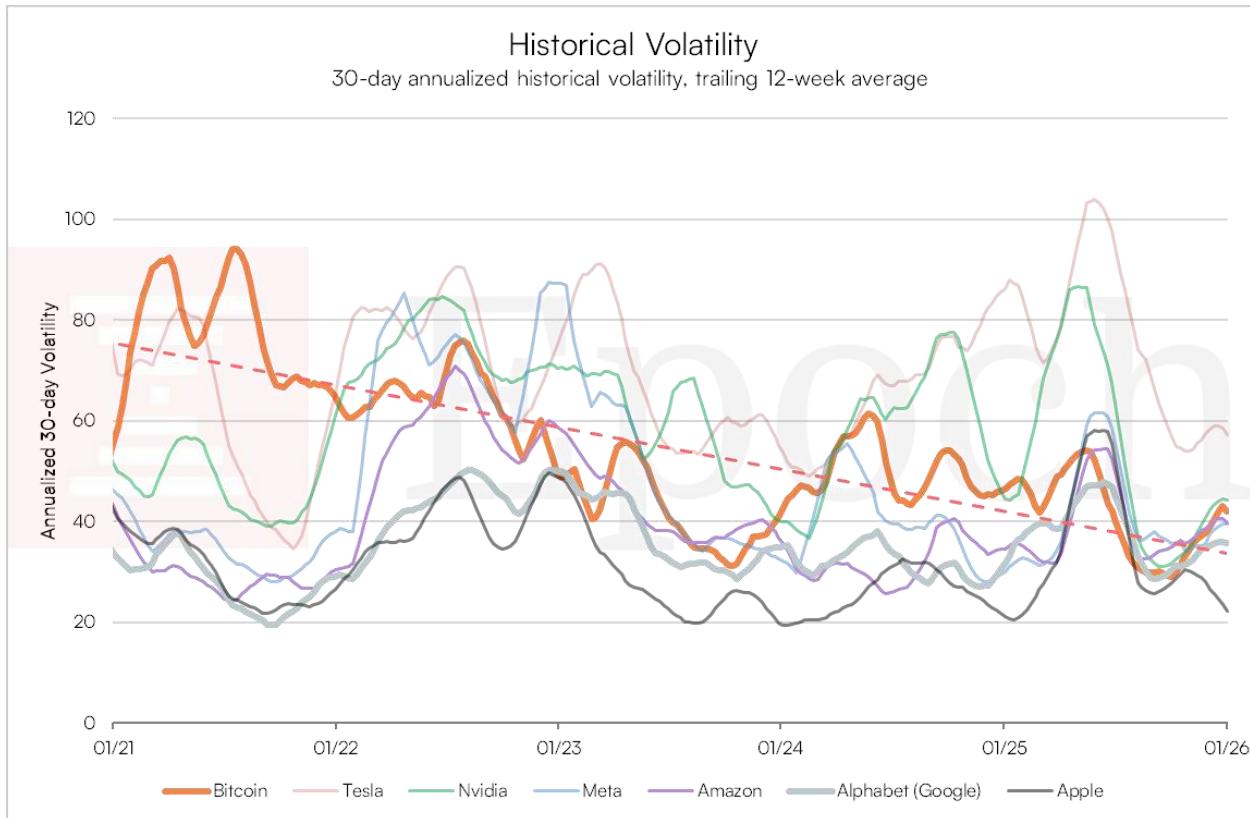
Bitcoin has been less volatile than Nvidia and Tesla since 2022. Over the past seven months, bitcoin's volatility has been nearly in lockstep with that of Meta, Amazon, and Alphabet (Google).

<sup>6</sup> Link to source: <https://www.invesco.com/qqq-etf/en/about.html>

<sup>7</sup> Link to source: <https://www.ssga.com/us/en/intermediary/etfs/spdr-sp-500-etf-trust-spy>

<sup>8</sup> 62% of Americans own stocks per Gallup which we approximate to also represent ownership of the S&P 500. <https://news.gallup.com/poll/266807/percentage-americans-owns-stock.aspx>

<sup>9</sup> Link to source: <https://www.cnbc.com/2025/10/10/uk-investment-platform-warns-traders-to-avoid-bitcoin-crypto.html>



Source: Tradingview

Lower volatility for the long run could shift retail involvement from traders to investors:

- Retail traders have exited and may not return to bitcoin.
  - Bitcoin is not the flashy object that attracts gamblers anymore. Lower volatility pushes the risk-taking cohort into new assets or alternative markets. Some of them trade bitcoin on high leverage, as seen by the October 10<sup>th</sup> liquidation event, but many have migrated to more volatile cryptocurrencies, sports betting, and prediction markets.
  - Crypto-related YouTube views are at their lowest level since 2021.<sup>10</sup>
  - Retail traders should not be confused with retail investors, who have consistently bought the bitcoin ETFs since launch (more on this in the [ETF Adoption section](#)).
- Retail traders' impact on bitcoin may be dampened.
  - In 2025, bitcoin often saw \$150Bn+ in daily trading volume across all sources.<sup>11</sup> Without a coordinated effort, the retail crowd may be mere passengers rather than the drivers of price action, as they were in 2017 and 2021.

<sup>10</sup>Link to source: <https://x.com/intocryptoverse/status/2010432836986364077?s=20>

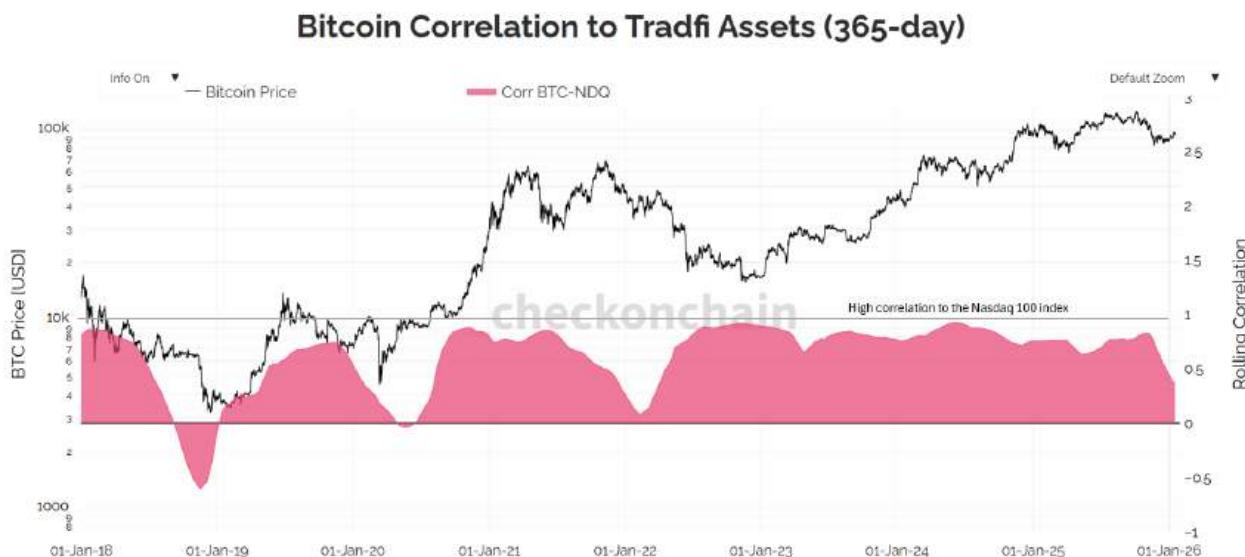
<sup>11</sup>Link to source:

[https://charts.checkonchain.com/btconchain/etfs/aggregate\\_volume\\_stacked/aggregate\\_volume\\_stacked\\_light.html](https://charts.checkonchain.com/btconchain/etfs/aggregate_volume_stacked/aggregate_volume_stacked_light.html)

- Declining retail involvement could mean high-leverage positions comprise a smaller portion of total bitcoin trading, thus reducing sharp price declines. As retail traders exit, bitcoin volatility may decline further and allow it to decouple from risk assets.

## 4. Correlations

The market continues to view Bitcoin as a risk asset, so it remains highly correlated to U.S. stocks over long periods.



As Bitcoin matures, we hypothesize that its narrative will shift from a speculative asset that benefits from expanding monetary policy, and geopolitical tensions, towards a safe-haven asset like gold.

We identify several fundamental drivers to support this shift:

1. **Declining Volatility:** If volatility continues to decline, investors with shorter time horizons will feel more comfortable allocating capital to Bitcoin.
2. **Credit Market Maturity:** Bitcoin's credit markets coming of age will lead to further stability. Instead of market exuberance, expansionary cycles will be driven by proven leverage models, and we anticipate materially smaller drawdowns in bitcoin's price.
3. **Passive Index Flows:** Inclusion of bitcoin as an asset category for passive institutional investment flows will reduce its susceptibility to extreme market reactions.
4. **Evolving Investment Narratives:** These three drivers combine to fundamentally transform Bitcoin's narrative to become a valid part of an investment portfolio. We believe that bitcoin is experiencing its "gradually then suddenly" moment. This is when investor knowledge quickly expands, and nation-state and institutional adoption provides the social proof necessary for other investors to reevaluate their investment strategies. We expect this shift to be from "speculative asset with no cash flow" to "the world's scarcest asset with unique properties that can demonetize gold." At Epoch, we believe bitcoin is

the substrate of the world's first neutral monetary system, but we are happy when investors simply understand that it is a better monetary asset than gold.

These four factors will lead Bitcoin's correlation away from economically sensitive assets like stocks and towards "safer" assets like gold — a move that could happen faster than many are anticipating. As the volatility of bitcoin continues to decline, we anticipate its safe-haven status will rise, and its correlation with other asset classes will decline. As money managers begin to see Bitcoin as a diversification tool, they may boost their Bitcoin allocations by an order of magnitude.

## 5. Potential Upside Catalysts

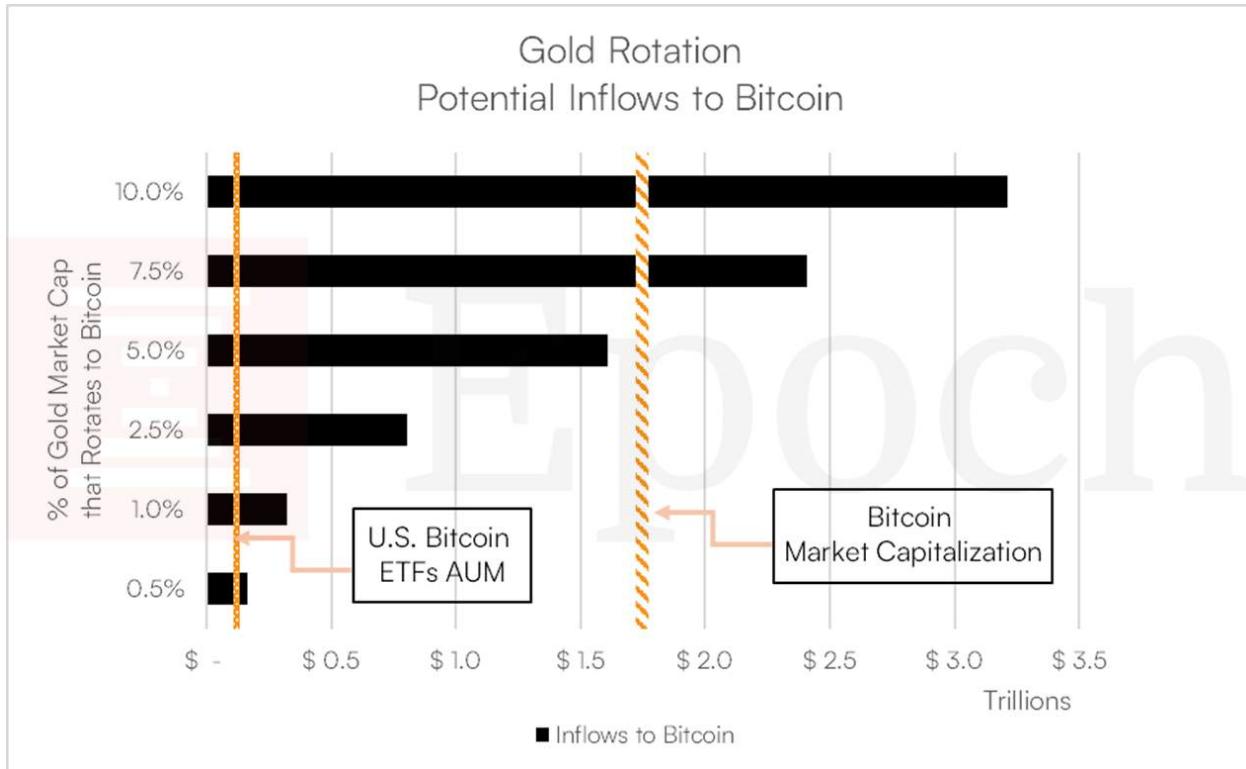
It is only a matter of time before Bitcoin's declining volatility is digested by the investment community. If an extended period of decorrelation from risk assets occurs from this, all bets are off. Bitcoin decorrelating from risk assets is the quantitative driver of a *suddenly* moment that few are expecting. We believe this begins with a material rotation away from gold (and other commodities) by investors. To consider how far it could go, we'll now look at the size of the peripheral markets that could convert to marginal buyers.

The following are potential catalysts we see emerging in the near to medium term:

- I. Gold Rotation
- II. Consistent ETF Inflows
- III. Nation State Adoption
- IV. Mega-cap Companies Allocating to Bitcoin
- V. Wealth Managers Allocating Clients
- VI. Inheritance Allocation

### I. Gold Rotation

Gold's rise strengthens the case for bitcoin. If a mere 0.5% of gold reallocates to bitcoin, it would induce greater inflows than the U.S. ETFs; at 5.5%, it would equal bitcoin's market capitalization. Gold's rise makes bitcoin more attractive on a relative basis, and the higher gold goes, the more likely a rotation into bitcoin.



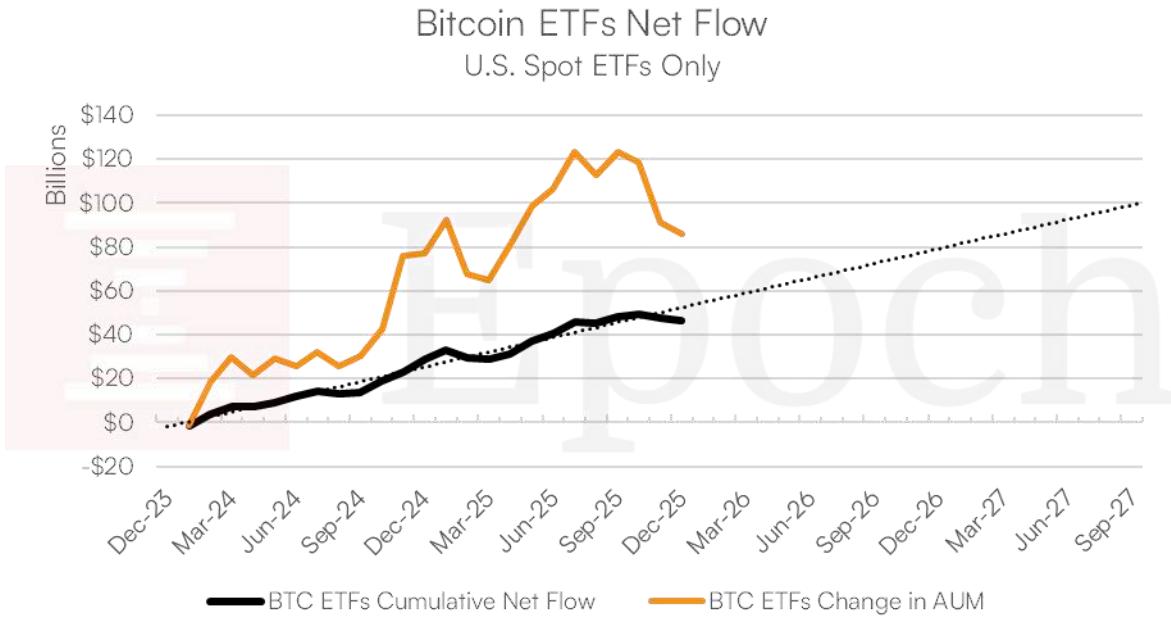
Source: CompaniesMarketcap.com<sup>12</sup>

## II. Consistent ETF Inflows

Over \$40bn has flowed into the U.S. bitcoin ETFs in the two years since launch. Net flows have recently flattened out but still display a linear (or logarithmic) uptrend since 2024. If flows continue this trend, U.S. ETFs would reach \$100bn in cumulative inflows in 2027.

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<sup>12</sup>Link to source: <https://companiesmarketcap.com/assets-by-market-cap/>



Data source: checkonchain<sup>13</sup>

For comparison, U.S. Gold ETFs launched in November 2004, and gold's price proceeded to 4x over the following 7 years.<sup>14</sup> Gold's market capitalization was ~\$1.5trn or ~\$2.4trn in inflation-adjusted 2024 terms.<sup>15</sup> The ETFs could be a stronger long-term tailwind for bitcoin, given that it was worth ~\$850bn at launch and ~\$1.8trn today. More importantly, U.S. gold ETFs did not reach \$50bn until six years after their launch, compared to three months for bitcoin ETFs.<sup>16</sup>

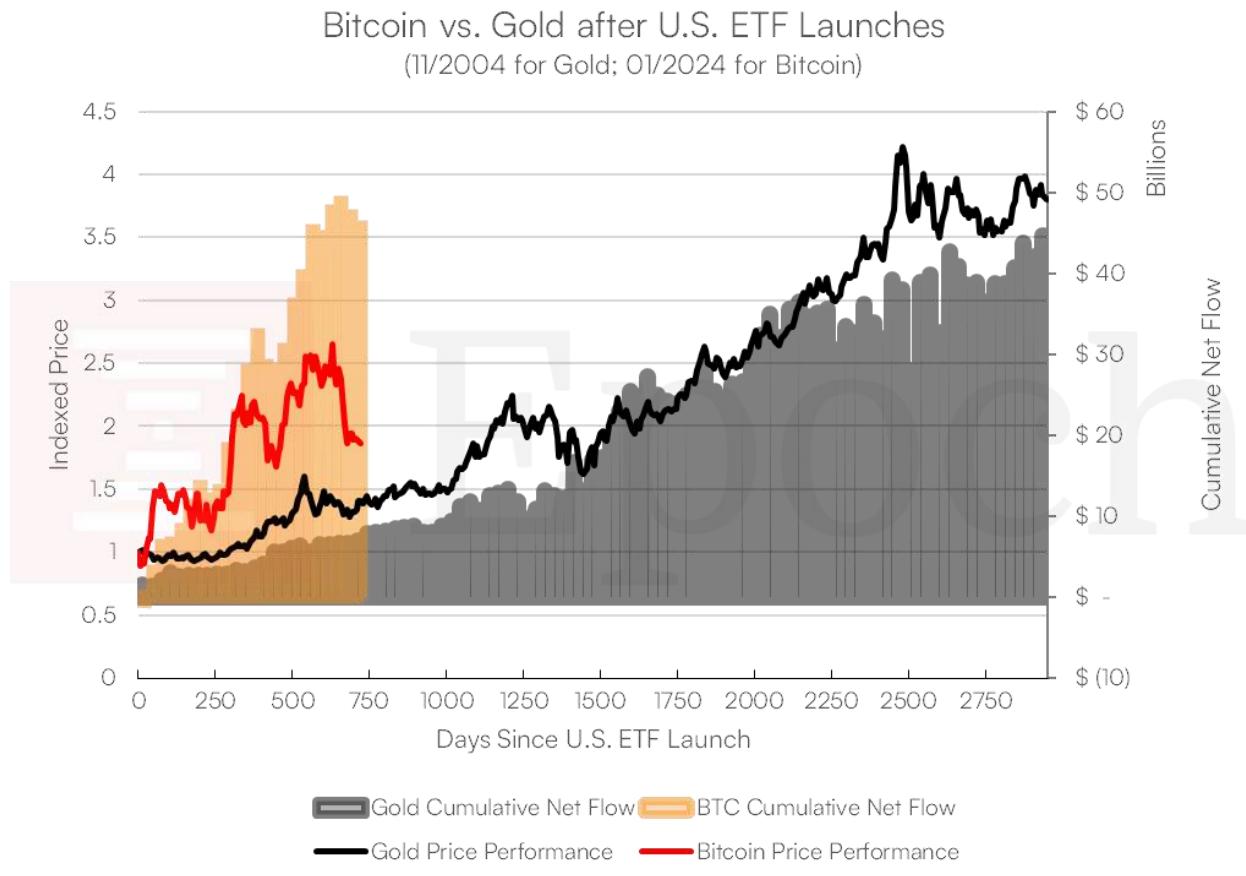
Since the launch of their respective ETFs, bitcoin is sharply outperforming gold. The chart below compares price performance and ETF inflows after their U.S. ETF launch. Bitcoin ETF inflows are nearly 4x those of gold in the same timeframe. Although the pace of ETF inflows may slow, steady flows from ETFs could keep bitcoin in a steadier uptrend than in prior cycles.

<sup>13</sup>Link to source: <https://charts.checkonchain.com/>

<sup>14</sup> Link to source: <https://50years.gold.org/moment/34/gold-etfs-enhance-access>

<sup>15</sup> Link to source: <https://www.bitget.com/wiki/what-was-the-price-of-gold-20-years-ago>

<sup>16</sup>Link to source: <https://www.gold.org/>



Institutionalization via the Bitcoin ETFs arrived just two years ago, and only now are banks allowing their advisors to allocate clients to them (see our [ETF Adoption — Bank Recommendations](#) section). Many high-net-worth investors have had to find workarounds to invest in Bitcoin, though access is improving. Those underexposed to bitcoin could induce a multi-year bull market that puts the four-year cycle belief to rest.

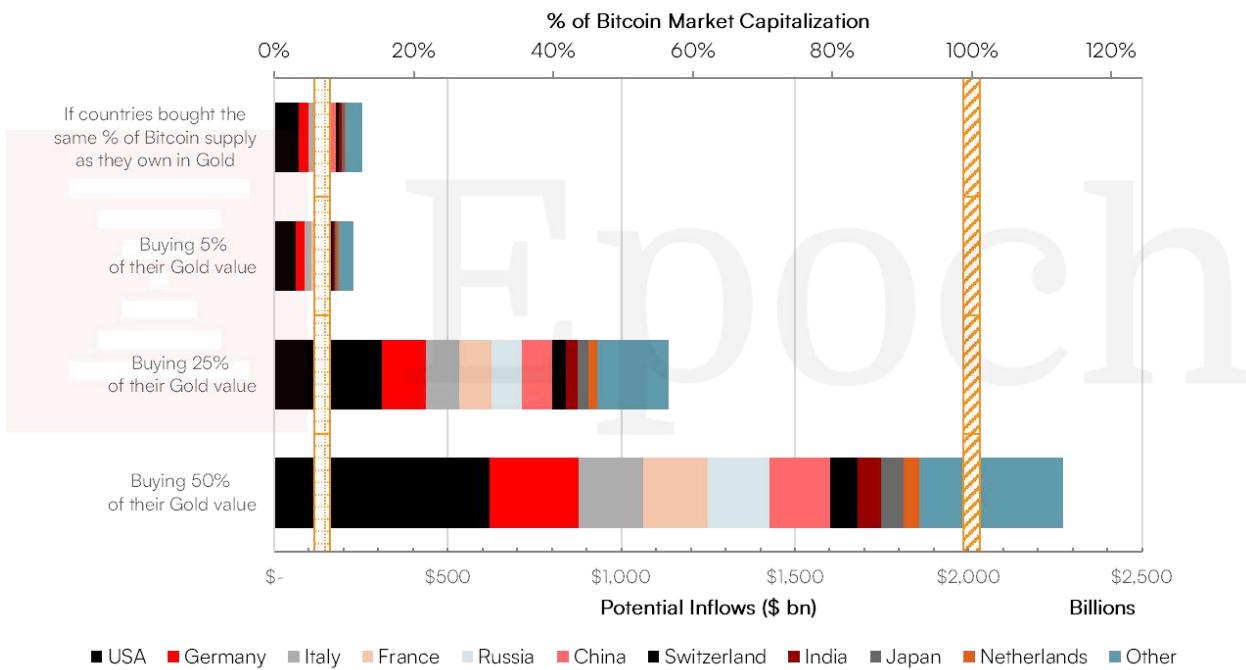
For more on ETFs, see our [ETF adoption section](#).

### III. Nation State Adoption

Bitcoin's most significant issue as a nation state reserve asset is that it is young. As it grows, its depth of capital market liquidity and subsequent reduction in volatility will position it as the apex reserve asset. All the other fundamentals of bitcoin are superior to those of other reserve assets; it just needs time to grow.

If the gold rotation extends to nation states, inflows would be significant. Acquiring the same percentage of bitcoin supply as nation states own in gold would produce inflows nearly twice the size of U.S. Bitcoin ETFs. Rotating 25% of their gold value to bitcoin would exceed \$1 trillion in inflows.

### Potential Inflows to Bitcoin based on Nation State Gold Ownership



For more on Nation States, see our [Nation State Adoption](#) section.

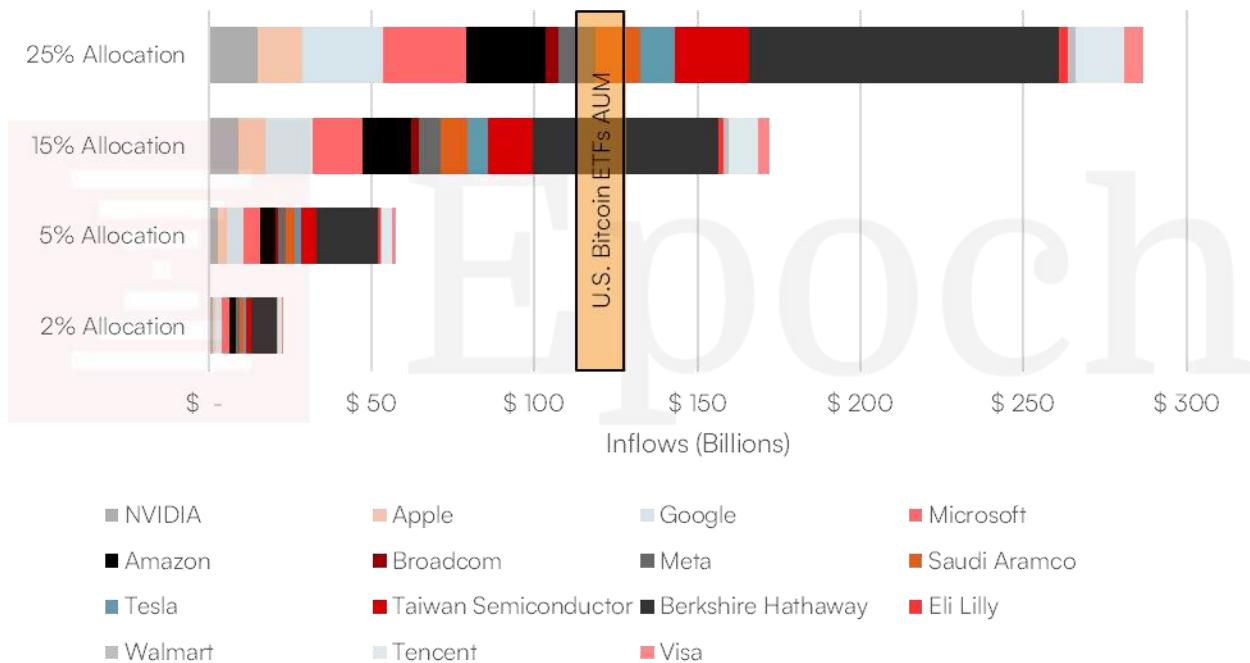
#### IV. Mega-cap companies allocating to Bitcoin

The 15 largest companies by market capitalization held \$1.15 trillion in cash as of the most recent quarter.<sup>17</sup> Just 10% of their cash would nearly equate to the size of the Bitcoin ETFs.

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<sup>17</sup> Excludes J.P. Morgan because banks do not report cash on hand. <https://www.tradingview.com/markets/world-stocks/worlds-largest-companies/>

## What if the Top 15 Companies Swapped Their Cash for Bitcoin?



For more on mega-cap company adoption, see our [Business Adoption](#) section.

### V. Wealth managers allocating clients

The top 13 wealth management firms held ~\$32 trillion in assets under management in 2025. Applying the suggested allocations from the top 13 wealth management firms to their AUMs results in potential inflows of \$400-\$835 billion to Bitcoin.<sup>19</sup>

<sup>18</sup>Link to source: <https://www.tradingview.com/markets/world-stocks/worlds-largest-companies/>

<sup>19</sup>We applied a “Low Allocation” of 1% and “High Allocation” of 2% to firms with no explicit recommendation.

## Potential Inflows to Bitcoin by Wealth Management Firms' Recommendations



Source: <https://investingintheweb.com/blog/largest-wealth-management-firms/>

## VI. Inheritance allocation

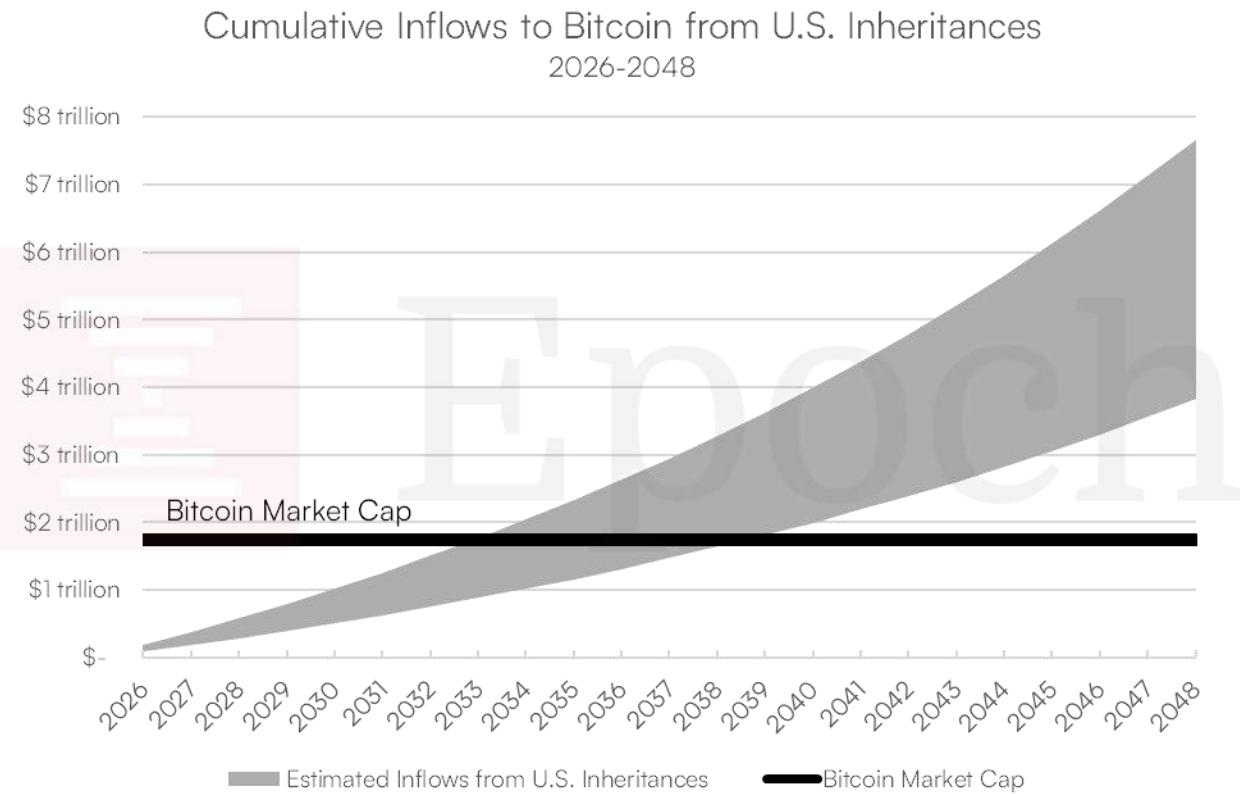
Aging demographics in the U.S. will provide a natural tailwind to bitcoin over the next 20 years as \$105 trn passes to heirs through 2048.<sup>20</sup> Less than 5% of people over 65 own bitcoin; as Gen X (5-10% own bitcoin) and Millennials (20-25%) gain control of this wealth, bitcoin will be a key beneficiary.

If the \$105trn grows at 5% per year and an equal share is inherited each year through 2048, we estimate inheritances could generate \$1.2-\$2.3 trillion cumulatively through 2035 and as much as \$9.6 trillion by 2048, nearly 5x bitcoin's market cap today.<sup>21</sup>

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<sup>20</sup>Link to source: <https://www.cerulli.com/press-releases/cerulli-anticipates-124-trillion-in-wealth-will-transfer-through-2048>

<sup>21</sup>Using the [Cornell Bitcoin Club's survey](#) data, we can estimate the average portfolio allocation to bitcoin among people who own it is ~19%. Based on the proportion of each age group that own bitcoin, we estimate Gen X holds 1.0%-1.9% of their wealth in bitcoin vs. Millennials' 3.8%-4.8%.



For more on inheritance, see our [Demographics](#) section.

With these catalysts and many more, bitcoin has plenty of upside, and price action may stray from conventional narratives like the four-year cycle. When you understand these fundamental drivers of demand, it paints a brighter picture than simple price analysis. Many of these are long-term tailwinds that could push bitcoin past an inflection point and into a gradual uptrend, putting the four-year cycle narrative to rest once and for all.

## Quantum Computing Risk to Bitcoin

Towards the end of 2025, a focus on quantum computing risks to bitcoin's underlying cryptography potentially drove an institutional investor sell-off. We believe that this part of the investment community is driven by several behavioral biases, namely loss aversion, herd mentality, and availability.

Here, we provide a summary of the arguments and our perspective.

The concern is Neven's law, which states that the computational power of quantum computers increases at a doubly-exponential rate relative to that of classical computers. If true, the timeline to break Bitcoin's cryptography could be as short as 5 years.

Moore's law for classical computers is akin to Nevin's law for quantum computers. However, Moore's law was an observation. Neven's law is not an observation because logical qubits are not increasing at such a rate. Neven's law is an *expectation* of experts. Based on our understanding of expert opinion in the fields we are knowledgeable about, we are highly skeptical of expert projections.

Today, quantum computers have not observably factored a number greater than 15. If quantum computers begin to factor larger numbers, then we would see evidence of growth, but whether that growth is exponential is a separate question.

All we have seen is that progress in physical (not logical) qubits has increased, and error rates are declining. The problem is that these factors have not mapped to the real world. Said differently, rising physical qubits and lower error rates are not increasing logical qubits and factorization.

Further, a potentially existential issue for quantum computing is that error rates scale exponentially with the number of qubits. If this relationship holds, even if logical qubits grow exponentially, it may still not translate into factorization. At its current rate, it may even be more likely that classical computers, through Moore's law and algorithm improvements, break the cryptography used by Bitcoin before quantum computers do.

So, we need to see quantum computers factor greater numbers to really point to any meaningful progress. Until then, the sky is not falling, and this risk is not even a priority for consideration. Assuming that it was a real risk, the question would then become: what is the Bitcoin community going to do?

Quantum-resistant signature algorithms exist — implementing one of them is not the issue. The issue is that they're all too large for Bitcoin and would consume block space, thereby lowering transaction throughput on the network. New signatures emerging today are being tested and are increasingly data-efficient. This is one of the primary risks of implementing a quantum-resistant signature scheme prematurely — we may end up with a much less efficient scheme than we could have had if we had waited.

Chaincode Labs conducted an in-depth research paper on the problem, recommending the community consider a 2-year contingency plan and a 7-year comprehensive plan. For the short-term contingency plan, we know that taproot address types can make commitments to spend before the public key is revealed — thus hiding the public key from a quantum computer and protecting quantum-vulnerable public keys. Basically, modern address types have a hidden form of quantum resistance that can be unlocked, and this could be used if quantum factorization suddenly grows exponentially.

The significant risk is that achieving bitcoin consensus for improvement proposals is very challenging. Historically, the community has adopted consensus soft forks. If there is an existential risk, we anticipate that far more stakeholders would align on a soft fork solution than the majority. If a solution were ultimately adopted, there is a risk that these signature types would materially decrease the efficiency of the blockchain. The BIP360 team is working through the research on these proposals today.

In summary, the progress being made in the quantum computing field is not translating to practical outcomes, and the community itself has an incentive to make the public believe it is (to raise funding/awareness/etc). However, it is undoubtedly a topic worth considering and understanding for the community to begin long-term planning of the various trade-offs associated with solutions that already exist today. The worst-case scenario we see for quantum risk is that a solution is implemented prematurely, with an exponentially lower efficiency trade-off had we waited longer before implementing.

As an investor, your job is to identify the most material risks to an asset and focus on understanding those. There are numerous risks to consider for Bitcoin as it competes in a geopolitical environment with monetary commodities and fiat currencies. We do not view quantum computing as a primary risk for the reasons above, and your intelligence is best spent elsewhere while the technical community develops solutions. If you're reducing your allocation because of quantum risk, you're being driven by behavioral bias and failing to see the benefits of a bitcoin allocation on net.

We recommend the following sources for further reading:

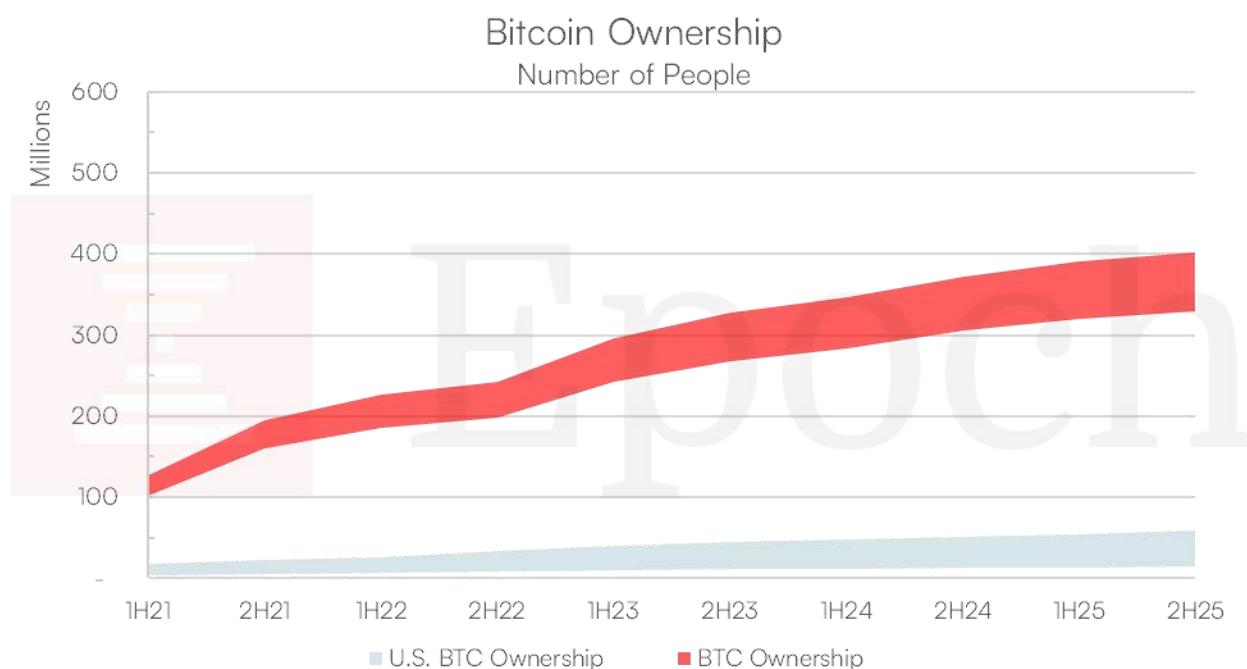
- Chaincode Labs: [Bitcoin and Quantum computing](#)
- Rearden Code: [Gwart Show Quantum Computing Podcast](#)
- Nic Carter: [Bitcoin and the Quantum Problem](#)
- BIP 360: [BIP360.org](#)

# Adoption

## Individual Adoption

Price appreciation, institutional acceptance, and portfolio diversification have led Bitcoin adoption to over 300 million owners worldwide. Global bitcoin ownership has grown at a compound annual growth rate (CAGR) of ~30% since the first half of 2021.

- We estimate global ownership falls between 330 and 400 million people.
- U.S. ownership of 41 to 55 million people (including spot ETFs).<sup>22</sup>



Pinpointing Bitcoin ownership is a Sisyphean task. Address data can vary across sources, and top addresses are custodial wallets that represent millions of people.<sup>23</sup> The best signals can come from exchanges: Binance hit 300 million users in December 2025, up 50% in 18 months, and Coinbase has over 100 million verified Coinbase users.<sup>24</sup> These two exchanges could represent

<sup>22</sup> About 12%-14% of Americans own bitcoin — 41-49 million people. The spot ETFs are difficult to estimate, hence the range up to 55 million U.S. owners.

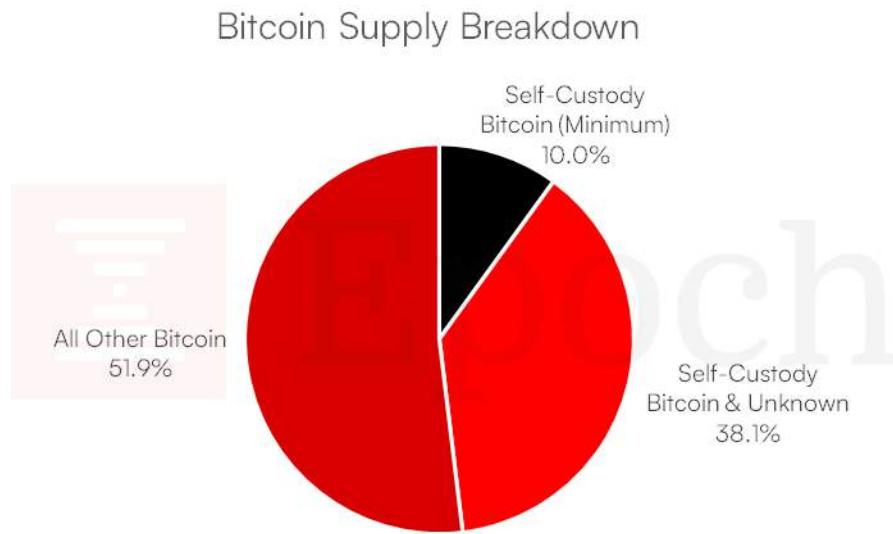
<sup>23</sup> Link to source: <https://bitinfocharts.com/top-100-richest-bitcoin-addresses.html>

<sup>24</sup> Link to source: <https://www.binance.com/en/square/post/33422576775561>

130-175 million Bitcoin owners.<sup>25</sup> In total, over 300 million people may own through exchanges, making address data a misrepresentation of ownership.<sup>26</sup>

Given the difficulty, we use a “wisdom of the crowd” approach to provide a range of figures for Bitcoin ownership and for Bitcoin’s 21 million total supply held in self-custody.

We estimate 10-48% of Bitcoin is self-custodied today. The 10% minimum aggregates survey data and industry sources. The 48% maximum is the remaining portion of Bitcoin supply after accounting for known sources.



Bitcoin’s ownership ambiguity benefits its owners and demonstrates that Bitcoin is serving its role as a (somewhat) private form of money and wealth.

## Demographics

The typical American bitcoin owner doesn’t fully understand it. As this knowledge gap closes, ownership could multiply and produce immense inflows as the aging population passes their wealth to younger generations.

Bitcoin’s decentralization and pseudonymity makes it challenging to understand ownership demographics without relying on surveys like those of the Cornell Bitcoin Club.<sup>27</sup> In our 2024 report we gave a broad overview of Bitcoin ownership demographics between age groups,

<sup>25</sup> 300m Binance users and ~120m Coinbase users —> if 30% of accounts are dormant, ~294 million people have funded accounts —> based on ratios of total crypto vs. bitcoin ownership, 45%-60% likely own bitcoin —> 132-176 million people own bitcoin through Binance and Coinbase.

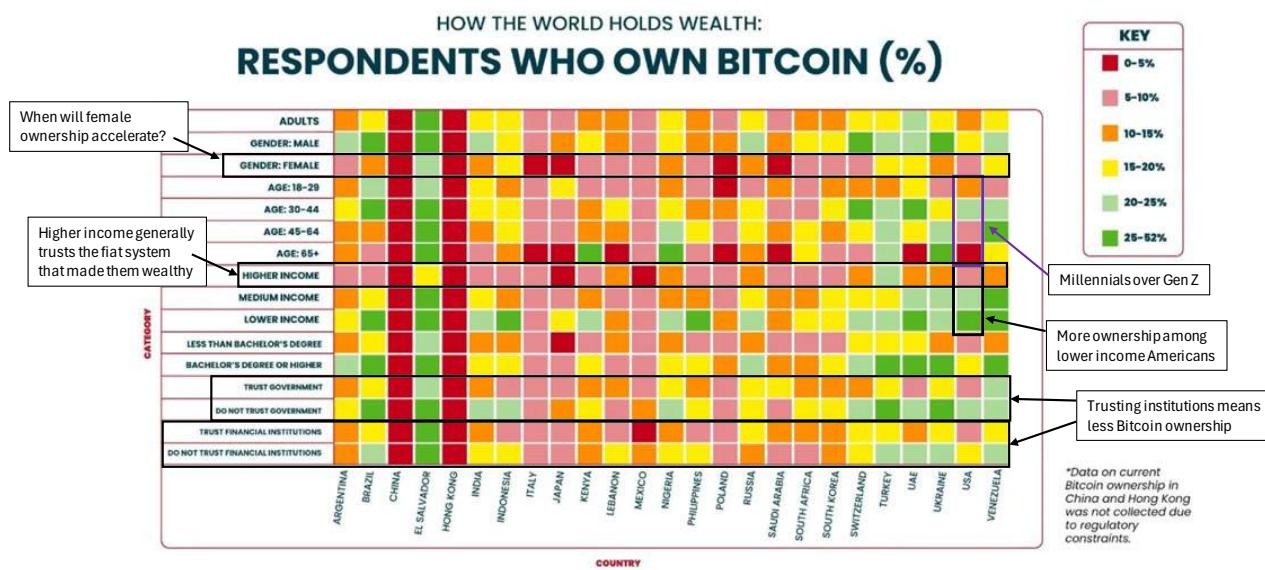
<sup>26</sup> Market share data (CoinGecko) indicates Binance and Coinbase have 45%-50% market share. Applying this implies all exchanges account for 264-382 million people. This is a rough market sizing calculation that makes dubious assumptions.

<sup>27</sup> Link to source: <https://www.cornellbitcoinclub.org/>

gender and political affiliation using data from the Nakamoto Project.<sup>28</sup> The data likely still applies today while the Cornell survey illuminates more recent findings.

The Cornell Bitcoin Club's survey of 25k people among 25 countries provides a unique view of global knowledge and sentiment around Bitcoin.<sup>29</sup>

- The U.S. is aware of Bitcoin but not knowledgeable. China is the opposite.
  - ~85% of Americans are aware of Bitcoin but only 6% know of Bitcoin's 21 million fixed supply. This implies that half of American Bitcoin owners lack basic Bitcoin knowledge.
  - Chinese respondents were the least aware of Bitcoin at ~66%, but the most knowledgeable, with ~29% aware of BTC's supply cap.
  - Among those aware of Bitcoin, Chinese people are over 6x more likely to know of its supply cap than Americans.
- In the U.S., Bitcoin ownership is higher for the following demographics: men over women, younger people, higher education, people distrusting of institutions, and lower income.
  - Lower-income Americans own Bitcoin at a higher rate than high-income Americans. This can be partially attributed to age, and we expect that an aging population will be a tailwind for Bitcoin's price as Millennials' and Gen Z's incomes rise. Lower-income Americans also may view Bitcoin as a lifeline to build long-term wealth and narrow the wealth gap.



Source: Cornell Bitcoin Club<sup>30</sup>

<sup>28</sup> The Nakamoto Project, <https://www.thenakamoto-project.org/report>

<sup>29</sup> See their reporting here: <https://www.cornellbitcoinclub.org/repository>

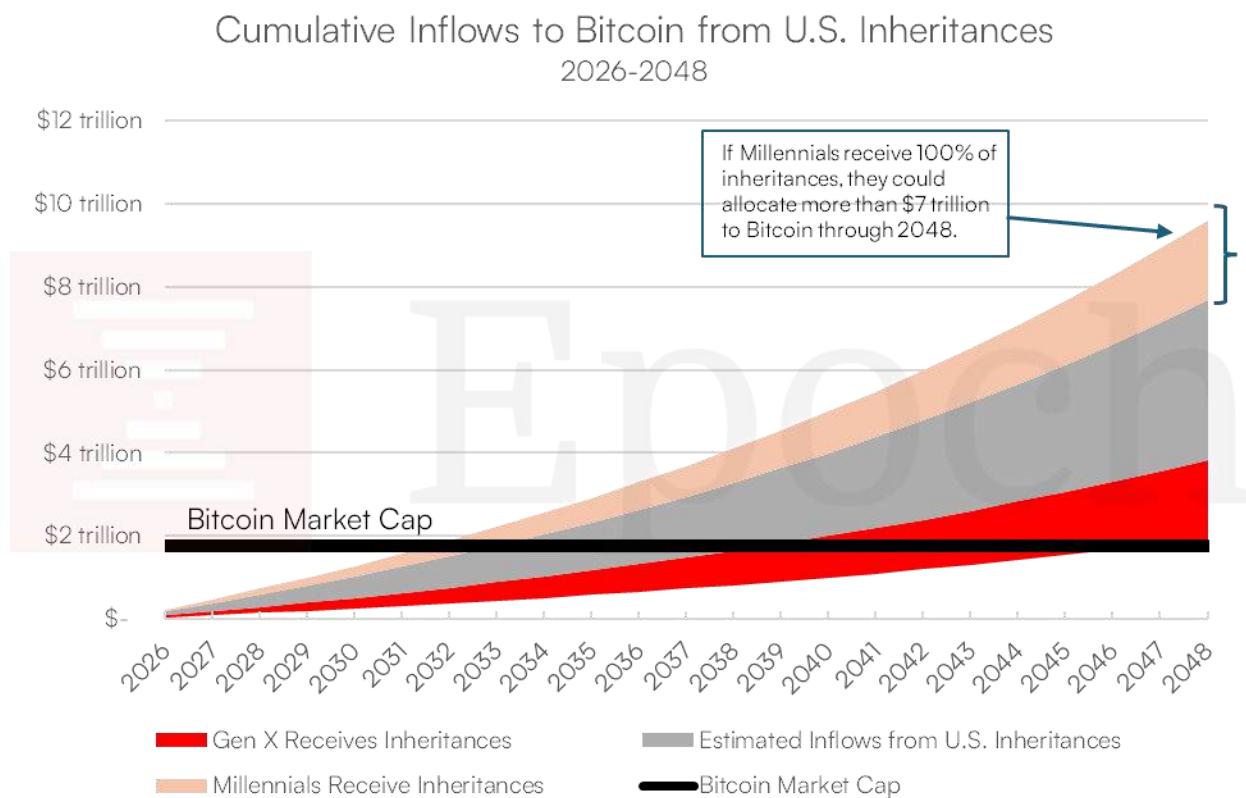
<sup>30</sup> Link to source: <https://www.cornellbitcoinclub.org/repository/week2>

## Inheritance: Inflows to Bitcoin

Aging demographics in the Western world will provide a natural tailwind to Bitcoin over the next 20 years. The “Great Wealth Transfer,” as it is termed, will see \$124 trn pass to the younger generations via inheritance through 2048, with \$105 trn passing directly to heirs.<sup>31</sup> Less than 5% of people over 65 own bitcoin; as Gen X (5-10% own bitcoin) and Millennials (20-25%) gain control of this wealth, bitcoin will be a key beneficiary.

For simplicity, assume the \$105trn grows at 5% per year and an equal share is inherited each year through 2048. Using Cornell’s survey data,<sup>32</sup> we estimate that inheritances could generate inflows to Bitcoin of:

- \$92-\$185 billion in inflows in 2026.
- \$1.2-\$2.3 trillion in total inflows over the next decade.
- \$3.8-\$7.7 trillion in total inflows through 2048.



<sup>31</sup>Link to source: <https://www.cerulli.com/press-releases/cerulli-anticipates-124-trillion-in-wealth-will-transfer-through-2048>

<sup>32</sup>Using Cornell’s survey, we can estimate the average portfolio allocation to bitcoin among people who own it is ~19%. Based on the proportion of each age group that own bitcoin, we estimate Gen X holds 1.0%-1.9% of their wealth in bitcoin vs. Millennials’ 3.8%-4.8%. We’re assuming that inheritance is evenly distributed across millennials in this analysis. We can’t say whether owners of bitcoin are likely to receive more or less inheritance than the average.

The analysis accounts only for U.S. inheritance, which comprises 31% of total private wealth.<sup>33</sup> Including the rest of the world would multiply these estimates by ~3.2x.

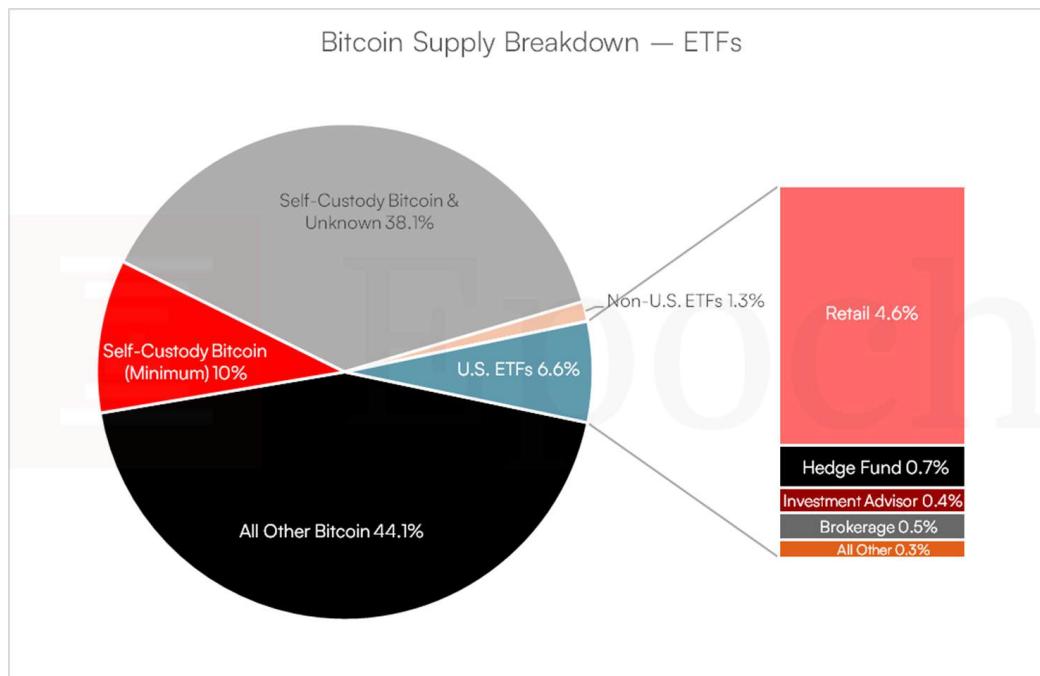
As Americans become more educated on Bitcoin, inheritance-driven inflows could exceed these estimates.

## ETF Adoption

The spot Bitcoin ETF approval in 2024 contributes to improving risk perception and expands Bitcoin ownership. The ETFs' ease of access through traditional financial markets has generated a historic response. Spot Bitcoin ETFs launched in January 2024 and had the most successful launch in ETF history. IBIT and FBTC were the largest-ever ETF launches on first-month assets under management (AUM).<sup>34</sup> U.S. Bitcoin ETF net flow has outpaced that of gold since 2024, despite gold's stellar 2025.

Bitcoin ETFs now account for 8.3% of today's supply (~\$144bn), with 6.9% from U.S. ETFs (~\$121bn) that are primarily comprised of retail investors.

Retail investors own ~70% of U.S. spot Bitcoin ETFs, making them the largest cohort by a wide margin. Institutions that file 13F forms with the SEC comprised ~30% of holdings at the end of Q3 2024. "Non-filers" are impossible to parse, but the strong majority are U.S. retail investors who now own ~4.6% of the 21 million Bitcoin supply via the ETF.

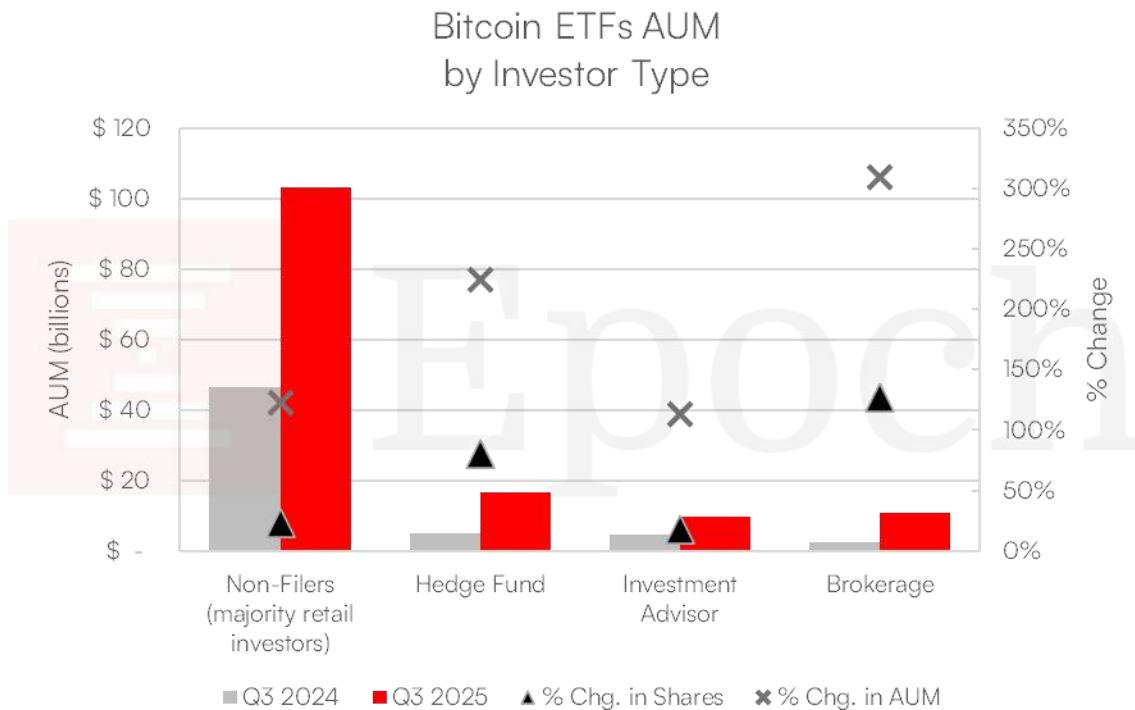


<sup>33</sup>

Link to source: <https://www.ubs.com/us/en/wealth-management/insights/global-wealth-report.html>

<sup>34</sup> @EricBalchunas on X, <https://x.com/EricBalchunas/status/1755702963778023718>

U.S. spot Bitcoin ETFs saw inflows from all major investor cohorts between Q3 2024 and Q3 2025. Institutional inflows outpaced retail, most notably, hedge funds increased their holdings by 80%. With Bitcoin's gains during the period, hedge fund AUM grew 224%. Allowing their bitcoin positions to balloon indicates that Wall Street leaned bullish at the end of September. The Q4 filings will show how professional investors reacted to the decline from ~\$126k.



Source: ETF Action<sup>35</sup>

ETF flow remains strong on many fronts — in absolute terms and relative to gold ETFs in the periods following gold's U.S. ETF launch and over the past two years.

When U.S. gold ETFs launched in 2004, it rose 4x over the following 7 years.<sup>36</sup> Gold's market capitalization was ~\$2.4trn in inflation-adjusted 2024 terms.<sup>37</sup> ETFs could be more impactful to bitcoin given bitcoin's ~\$850Bn market cap upon ETF launch and ~\$1.8trn today. More importantly, U.S. gold ETFs did not reach \$50bn until six years after their launch compared to three months for bitcoin ETFs.<sup>38</sup>

Since the launch of their respective ETFs, bitcoin is sharply outperforming gold. The chart below compares price performance and ETF inflows after their U.S. ETF launch. Bitcoin ETF inflows are nearly 4x those of gold in the same timeframe. Although the pace of ETF inflows may slow,

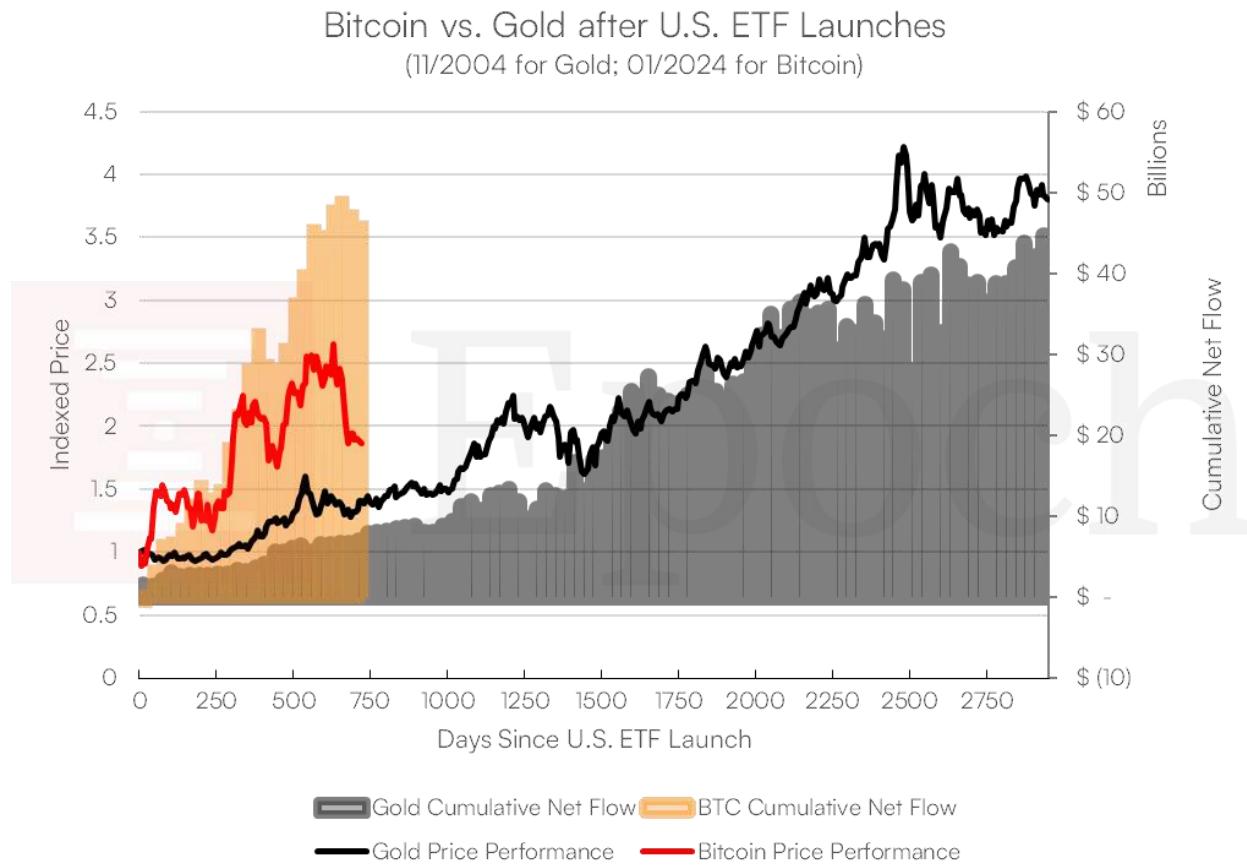
<sup>35</sup>Link to source: <https://www.etfaction.com/>

<sup>36</sup>Link to source: <https://50years.gold.org/moment/34/gold-etfs-enhance-access>

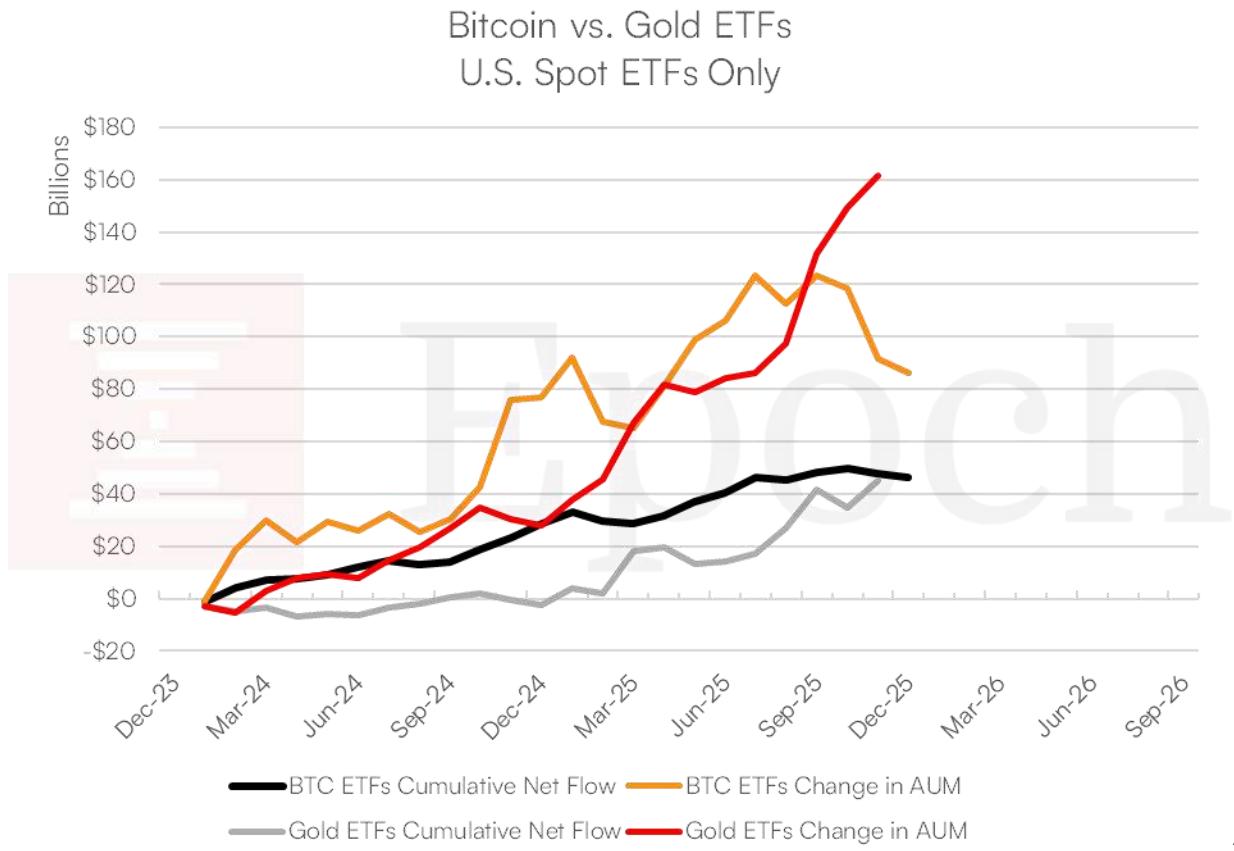
<sup>37</sup>Link to source: <https://www.bitget.com/wiki/what-was-the-price-of-gold-20-years-ago>

<sup>38</sup>Link to source: <https://www.gold.org>

consistent flows from the ETFs could keep bitcoin in a steadier uptrend compared to prior cyclicalities.



Demand for Bitcoin ETFs has been so strong that inflows are outperforming gold ETFs amid gold's standout year. Considering gold's ~64% gain in 2025, a market cap ~17x greater than bitcoin's, and the perception of gold as a "safe-haven" asset in a diversified portfolio, it is surprising that inflows to bitcoin ETFs have held higher since their debut. Inflows are theoretically a gauge of where the money thinks an asset is going and bodes well for bitcoin long term.



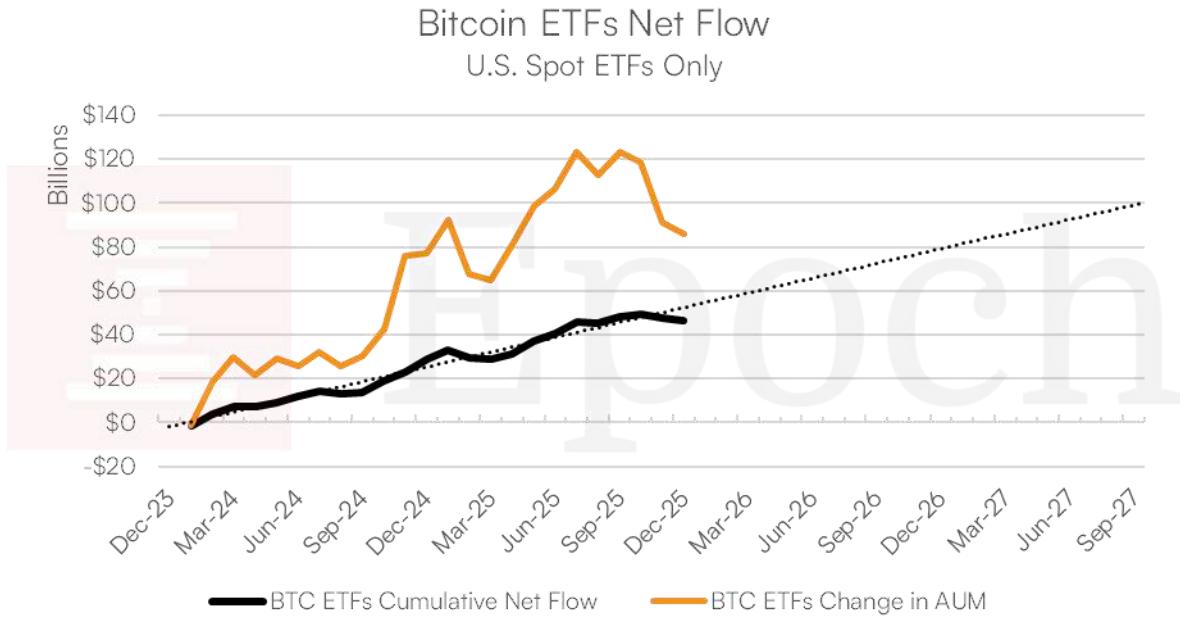
39

Source: Gold.org, checkonchain<sup>40</sup>

Bitcoin's price decline has kept AUM changes muted since the end of 2024 despite 2025 net inflows of ~\$18bn. Net flows have recently flattened out but still display a linear or logarithmic uptrend since 2025. Linear growth is unlikely to persist in perpetuity so we apply a logarithmic growth projection. If flows continue this trend, U.S. ETFs would reach \$100bn in cumulative inflows in 2027.

<sup>39</sup> Net flows are estimated based on AUM and price changes.

<sup>40</sup>Link to source: <https://charts.checkonchain.com/>



Source: checkonchain<sup>41</sup>

Based on this projection and various scenarios, we can forecast the bitcoin supply held by U.S. ETFs compared to today's 6.6%. Under bearish price action, the ETFs could reach 15%+ ownership of bitcoin. More likely is that U.S. ETFs reach ~10% ownership by 2030. If bitcoin's average price through 2030 is \$100k, U.S. ETFs would reach 13% of supply.

Average BTC Price	2026	2027	2028	2029	2030	2031
\$50,000	10%	12%	15%	17%	20%	22%
\$75,000	9%	10%	12%	14%	15%	17%
\$100,000	8%	9%	11%	12%	13%	14%
\$125,000	8%	9%	10%	11%	12%	13%
\$150,000	8%	9%	9%	10%	11%	12%
\$200,000	7%	8%	9%	9%	10%	11%
\$250,000	7%	8%	8%	9%	9%	10%
\$300,000	7%	8%	8%	8%	9%	9%
\$350,000	7%	7%	8%	8%	8%	9%
\$400,000	7%	7%	8%	8%	8%	9%
\$450,000	7%	7%	7%	8%	8%	8%
\$500,000	7%	7%	7%	8%	8%	8%
\$600,000	7%	7%	7%	7%	8%	8%
\$700,000	7%	7%	7%	7%	8%	8%
\$800,000	7%	7%	7%	7%	7%	8%
\$900,000	7%	7%	7%	7%	7%	7%
\$1,000,000	7%	7%	7%	7%	7%	7%

<sup>41</sup>Link to source: <https://charts.checkonchain.com/>

Bitcoin's decentralization is a key attribute that will help enable it to become the dominant global reserve currency. From our table, ETF centralization doesn't appear to be a major concern.<sup>42</sup> Even if bitcoin is flat through 2030, linear growth in ETF flows would produce 14%-15% held by U.S. ETFs. We view the 8%-10% scenarios by 2030 as more likely. Of course, a multitude of variables can impact this forecasting but this provides a baseline of reasoning.

## Bank Recommendations for their Clients; Institutional Support to Drive Greater Adoption

Financial advisors and global financial institutions had a change of heart about Bitcoin in 2025. Citi announced plans to launch a custody service in 2026 and Morgan Stanley opened the door for advisors to allocate all clients to Bitcoin, rather than a select group of clients, and importantly this applies only to Bitcoin funds, not crypto.<sup>43</sup> Likewise, Bank of America allowed its advisors to allocate to Bitcoin on January 5, 2026, and Vanguard flipped its longstanding anti-Bitcoin/crypto stance.<sup>44</sup> As the gatekeepers of financial trust, institutions warming up to Bitcoin could draw billions in capital and accelerate individual adoption.

Last year we highlighted that more "trust" was necessary for increased Bitcoin adoption to overcome negative perception associated with FTX and crypto scams. From an investment standpoint, people must feel comfortable with Bitcoin as a store of value. As discussed in the section on bitcoin volatility, Bitcoin is no more volatile than the most widely held equities, but perception outweighs reality. As Bitcoin's volatility continues to decline, so too will the "risky" narrative. As trust in Bitcoin as a store of value increases, financial experts will drive perception of Bitcoin as an investment.

J.P. Morgan is allowing clients to buy Bitcoin and accepting Bitcoin and Ethereum as collateral for loans. This is a reversal for CEO Jamie Dimon, who called Bitcoin a "pet rock" as recently as 2024.<sup>45</sup> Permitting it invokes trust in Bitcoin among its clients and retail investors worldwide. Neither Dimon nor J.P. Morgan recommends a Bitcoin allocation, but JPM analysts in November 2025 projected ~70% upside within 12 months.<sup>46</sup>

Leading global wealth management firms are explicitly recommending Bitcoin allocations. Morgan Stanley and Julius Baer recommend allocating up to 5% of client portfolios to Bitcoin. Morgan Stanley suggests 2% for balanced growth and 4% for aggressive growth, while CI

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<sup>42</sup> Although ETF issuer centralization does not appear to be a major concern, custodians may be the greater risk if the same few companies custody all ETFs' and treasury companies' bitcoin.

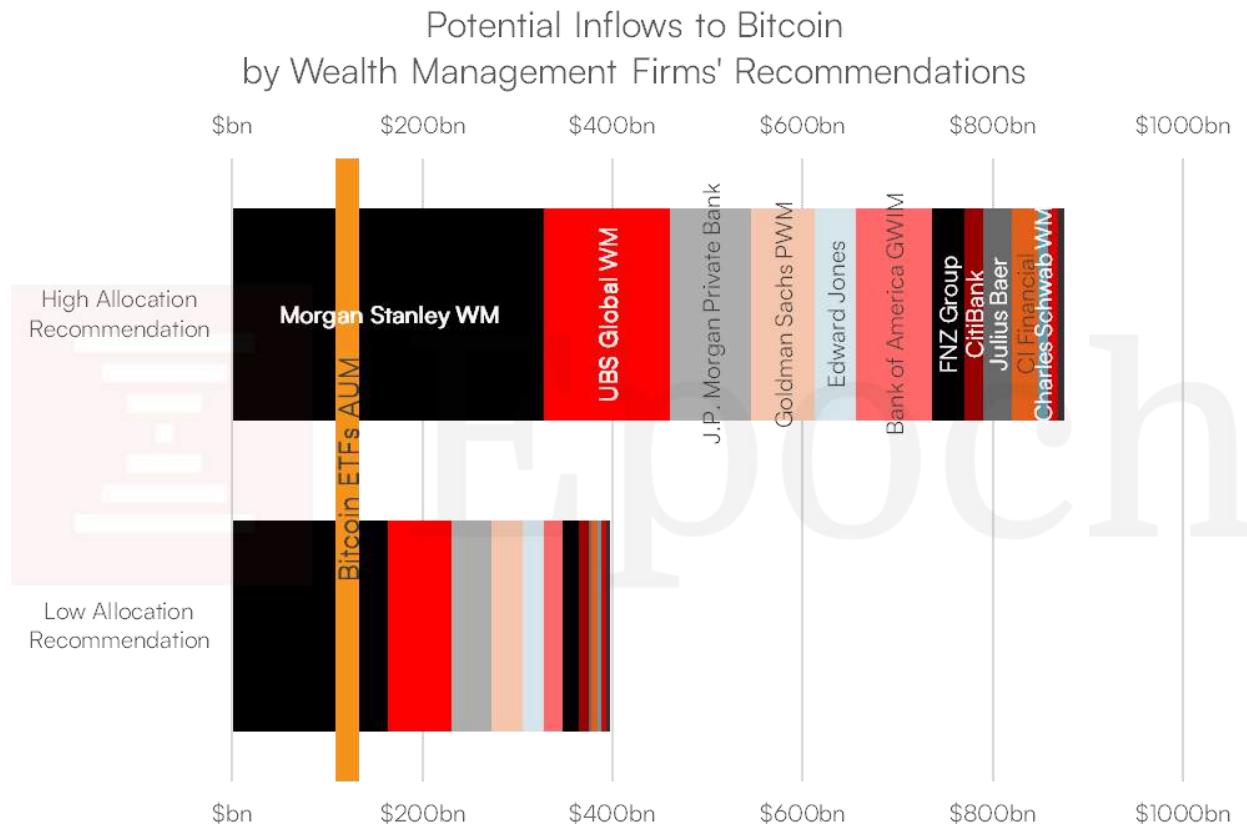
<sup>43</sup>Link to source: [https://www.barrons.com/advisor/articles/crypto-bitcoin-citi-morgan-stanley-00169b5e?st=D2r7Qg&reflink=desktopwebshare\\_permalink](https://www.barrons.com/advisor/articles/crypto-bitcoin-citi-morgan-stanley-00169b5e?st=D2r7Qg&reflink=desktopwebshare_permalink)

<sup>44</sup>Link to source: <https://www.gemini.com/blog/bank-of-america-and-vanguard-warm-to-crypto-goldman-strikes-deal-for-etf>

<sup>45</sup>Link to source: <https://www.cnbc.com/2024/01/17/jamie-dimon-says-hes-done-talking-about-bitcoin-i-dont-care.html>

<sup>46</sup>Link to source: <https://www.theblock.co/post/377891/jpmorgan-bitcoin-price-170000-next-6-12-months>

Financial finds the best approach is to “get off zero.”<sup>47</sup> If Morgan Stanley’s wealth management arm allocated 2% of client assets to Bitcoin, it would generate ~\$180bn in inflows, roughly 20% larger than the ETFs’ AUM and nearly 10% of Bitcoin’s market capitalization. Applying the suggested allocations from the top 13 wealth management firms to their AUMs results in potential inflows of \$400-\$835bn to Bitcoin.<sup>48</sup>



Source: <https://investingintheweb.com/blog/largest-wealth-management-firms/>

Asset management presents an even greater opportunity for Bitcoin with ~\$150trn in global AUM.<sup>49</sup> Asset management includes institutional and individual wealth.

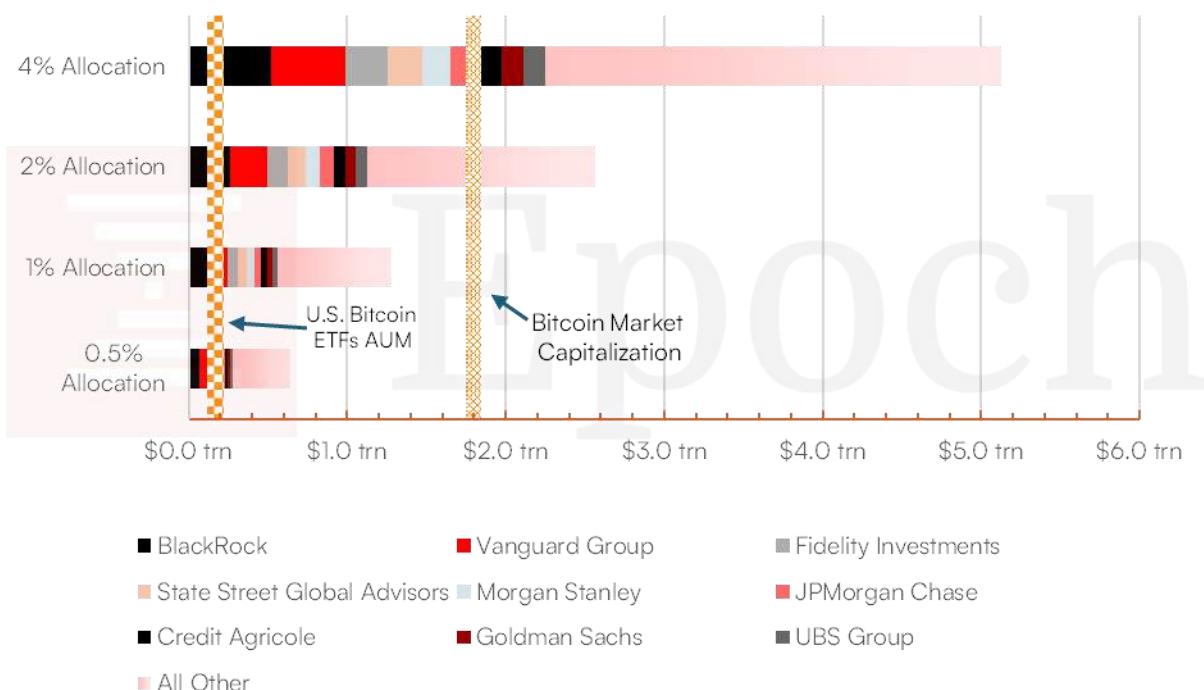
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<sup>47</sup>Link to source: <https://finance.yahoo.com/news/wall-street-pivots-morgan-stanley-114628117.html>; <https://www.cifinancial.com/ci-gam/ca/en/expert-insights/articles/the-impact-and-opportunity-of-bitcoin-in-a-portfolio.html#:~:text=Next%20we%20calculated%20the%20correlations,financial%20planning%20and%20wealth%20preservation.>

<sup>48</sup>We applied a “Low Allocation” of 1% and “High Allocation” of 2% to firms with no explicit recommendation.

<sup>49</sup>Link to source: <https://www.mckinsey.com/industries/financial-services/our-insights/asset-management-2025-the-great-convergence>

### Potential Inflows to Bitcoin by Largest Asset Managers Allocations



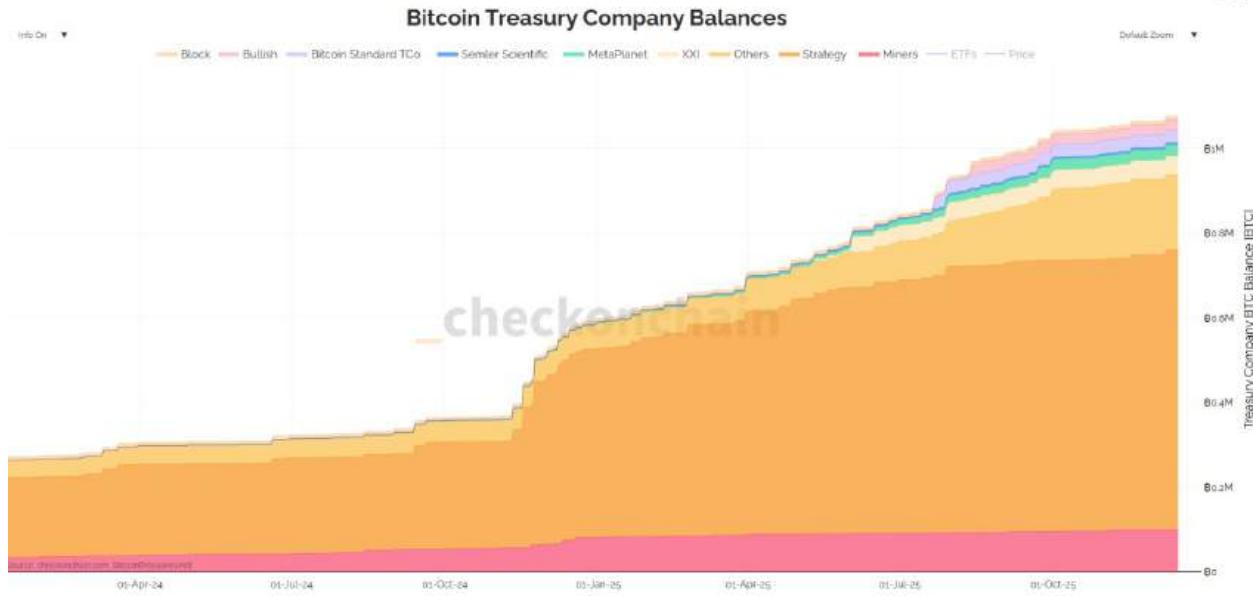
Source: ADV Ratings<sup>50</sup>

## Business Adoption

Business adoption of Bitcoin skyrocketed in 2025 as incumbent bitcoin treasury companies (BtcTCs) accelerated their purchases and newcomers went public to accumulate bitcoin for their balance sheets.

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<sup>50</sup>Link to source: <https://www.advratings.com/top-asset-management-firms>



Source: checkonchain<sup>61</sup>

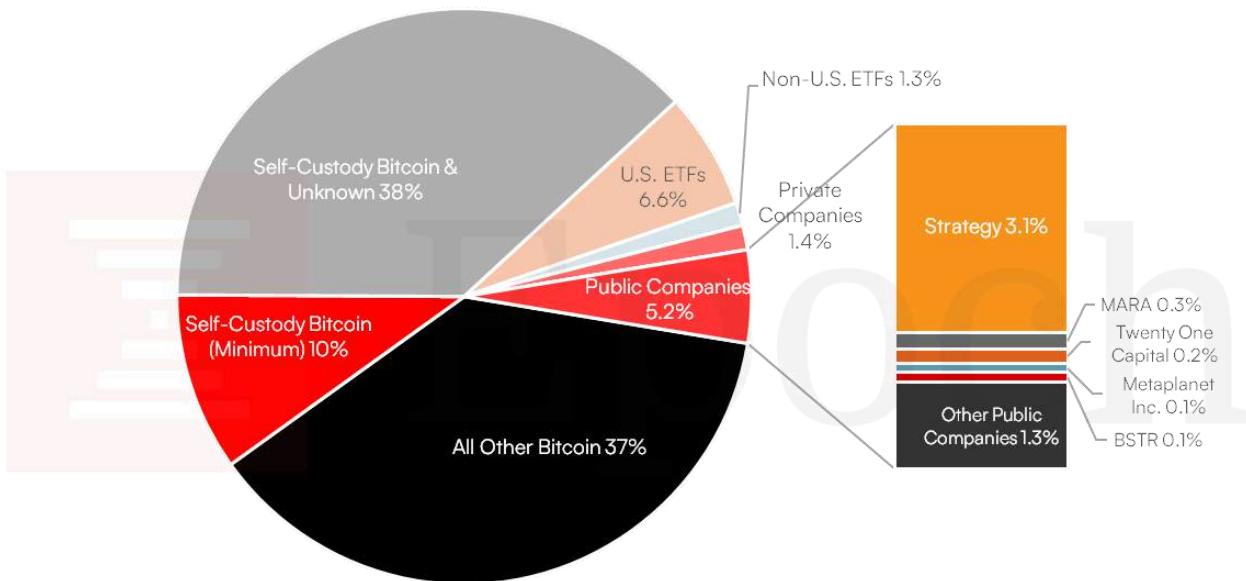
BtcTC stocks climbed to euphoric levels by mid-2025. Many investors believed BtcTCs deserved a valuation 10-30x the value of their bitcoin despite having no underlying business. By year-end, many of them were down 90% and trading below their bitcoin holdings' value. We dive deeper into BtcTC fundamentals, their 2025 rise and fall, and our views on BtcTCs in our [Bitcoin Corporate Finance](#) section.

Amid the BtcTC bubble popping were positive developments for Bitcoin adoption and Bitcoin-backed credit markets. Public company bitcoin holdings increased 82% y/y to \$1.08 million.<sup>52</sup> The number of public companies holding bitcoin grew from 69 to over 191 throughout 2025. Corporations own at least 6.4% of total Bitcoin supply — public companies 5.1% and private companies 1.3%.

<sup>61</sup>Link to source: <https://charts.checkonchain.com/>

<sup>52</sup>Link to source: <https://bitcointreasuries.net/>

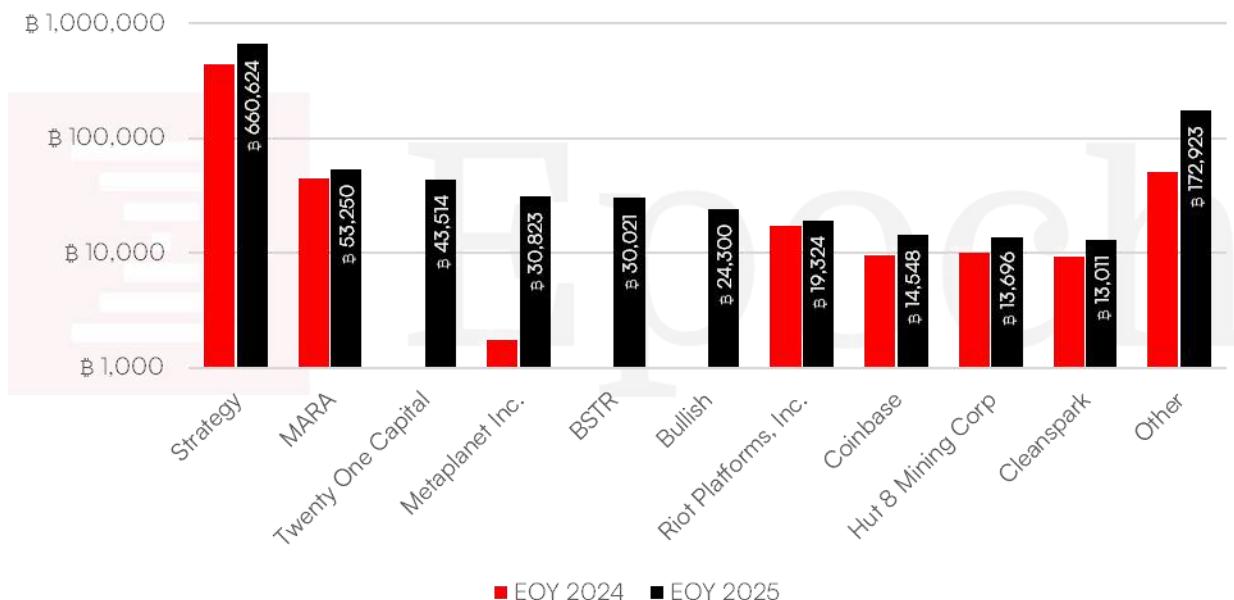
### Bitcoin Supply Breakdown - Public Companies



Source: [bitcointreasuries.net](http://bitcointreasuries.net)

Strategy's \$661k overshadows other BtcTCs and comprises 61% of public company holdings; excluding MSTR, public company holdings grew 189% y/y. Newly formed Twenty One Capital (XXI) and Bitcoin Standard Treasury Company (CEPO) immediately entered the top 10 BtcTCs and Metaplanet went all-in on Bitcoin, growing its stack 16x from \$2k to \$31k.

## Public Company BTC Holdings EOY 2025



Source: bitcointreasuries.net

For a deeper dive on BtcTCs visit our [Bitcoin Treasury Companies](#) section.

BtcTCs propelled 2025 business adoption; the next wave could come from unrelated businesses allocating to bitcoin rather than repositioning their business around it. Business BTC ownership is not exclusive to BtcTCs and crypto companies that serve as bitcoin proxies rather than an equity. Businesses should own bitcoin for the same reasons as individuals: diversification, store of value, performance potential, permissionless money, and it could be particularly useful in cross-border payments.

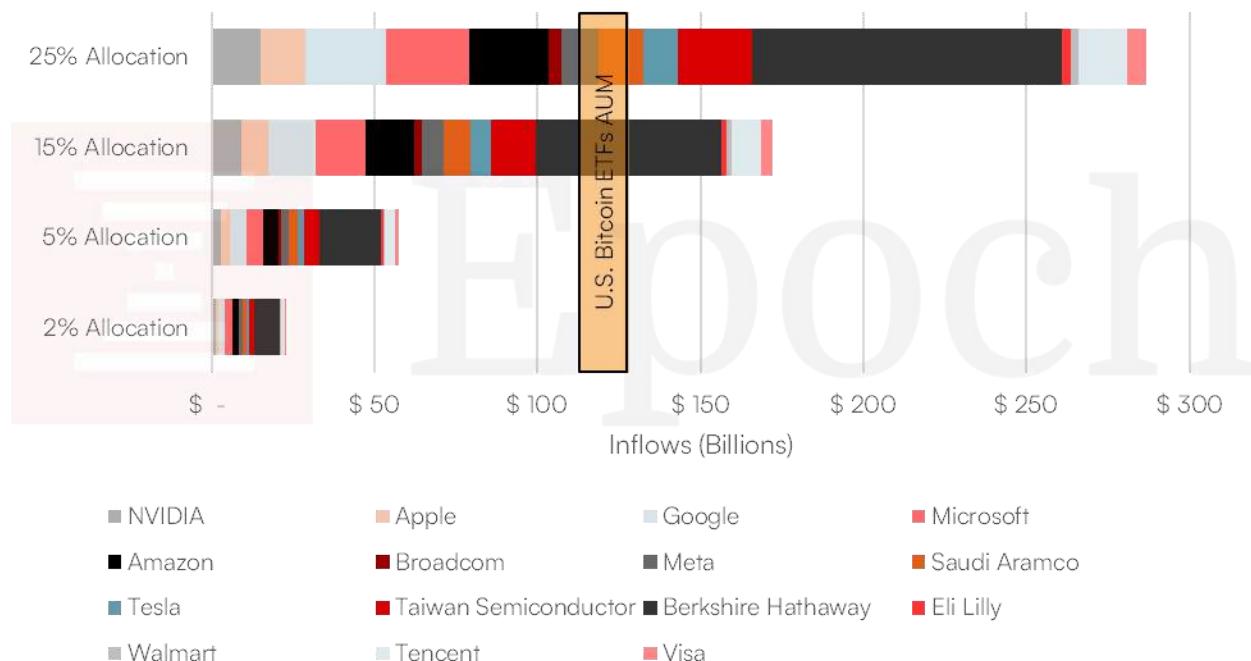
Large companies hoard cash and treasury bonds or return capital to shareholders via dividends or share buybacks. Their cash earns little to no return while dividends and buybacks are imperfect. A few trailblazing companies outside the crypto space hold bitcoin including MercadoLibre (MELI), Figma (FIG), Gamestop (GME), and Rumble (RUM). We believe the largest public companies will eventually allocate to bitcoin and culminate explosively.

Compared to BtcTCs in 2025, mega-cap company adoption will differ on strategy, market sentiment and impact on stock prices and bitcoin. Mega-cap companies will take a measured approach to buying bitcoin. While many newly formed BtcTCs in 2025 bought bitcoin in bulk via capital raises, mega-cap companies will adopt bitcoin to their capital allocation strategy. Companies will allocate a portion of their cash flow to bitcoin gradually like dividends, buybacks, or capital expenditures. The announcements would be trivial to stock prices of their size, but not for bitcoin. Improved market sentiment and perception from bitcoin holdouts could induce a short-term frenzy and ultimately a local peak. More importantly, mega-cap company allocations

would serve as a passive tailwind to bitcoin like retirement funds to the S&P 500 that limit downside risk.

As perception of Bitcoin improves due to institutional acceptance and declining volatility, mega-cap companies may begin allocating to bitcoin. The 15 largest companies by market capitalization held \$1.15 trillion in cash as of the most recent quarter.<sup>53</sup> Just 10% of their cash would nearly equate to the size of the Bitcoin ETFs.

### What if the Top 15 Companies Swapped Their Cash for Bitcoin?



Source: Tradingview<sup>54</sup>

The chart above only accounts for cash on hand from the 15 largest companies. Their current assets, some of which are investments, are often 2-3x their cash balance. Smaller public companies, private companies, and small businesses present an opportunity that is orders of magnitude greater than the top 15.

Momentum is growing in small business Bitcoin adoption too. In November, Square launched Bitcoin payments with zero processing fees compared to the standard 2-3%.<sup>55</sup> Square's ~4 million merchants are incentivized to accept Bitcoin and this could prove to be a critical moment for business adoption. Companies like [Castle](#) offer an Acorns-like product for businesses to

<sup>53</sup> Excludes J.P. Morgan because banks do not report cash on hand. <https://www.tradingview.com/markets/world-stocks/worlds-largest-companies/>

<sup>54</sup> Link to source: <https://www.tradingview.com/markets/world-stocks/worlds-largest-companies/>

<sup>55</sup> Link to source: <https://squareup.com/us/en/releases#bitcoin>

passively invest a portion of their cash flow in Bitcoin. More on this in the [Bitcoin Business Models](#) section of the report.

## Nation State Adoption

Nation state adoption built on the momentum gained in 2024 while failing to live up to unrealistic expectations. In 2024, China, Japan, Russia, and the EU called for bitcoin reserves, multiple U.S. states proposed Bitcoin allocations and the incoming president promised a strategic reserve.<sup>56</sup> The U.S. established a Bitcoin reserve and Texas became the first U.S. state to buy Bitcoin.<sup>57</sup> El Salvador is actively accumulating, Bhutan is mining, and the Czech Republic bought \$1m in BTC, though the wealthiest countries remain sidelined.

The March 2025 U.S. executive order establishing a “Strategic Bitcoin Reserve” prevents the government from selling previously confiscated Bitcoin.<sup>58</sup> Notably, the executive order does not prevent the sale of other cryptocurrencies. While it is progress, critics were disappointed it has not resulted in the U.S. purchasing bitcoin.

From the viewpoint of a sovereign nation, bitcoin possesses several attractive characteristics:

- 24/7/365 real-time and final settlement
- Independent sovereign custody
- Liquidity of capital markets
- Certainty of scarcity
- Efficiency of verification and portability

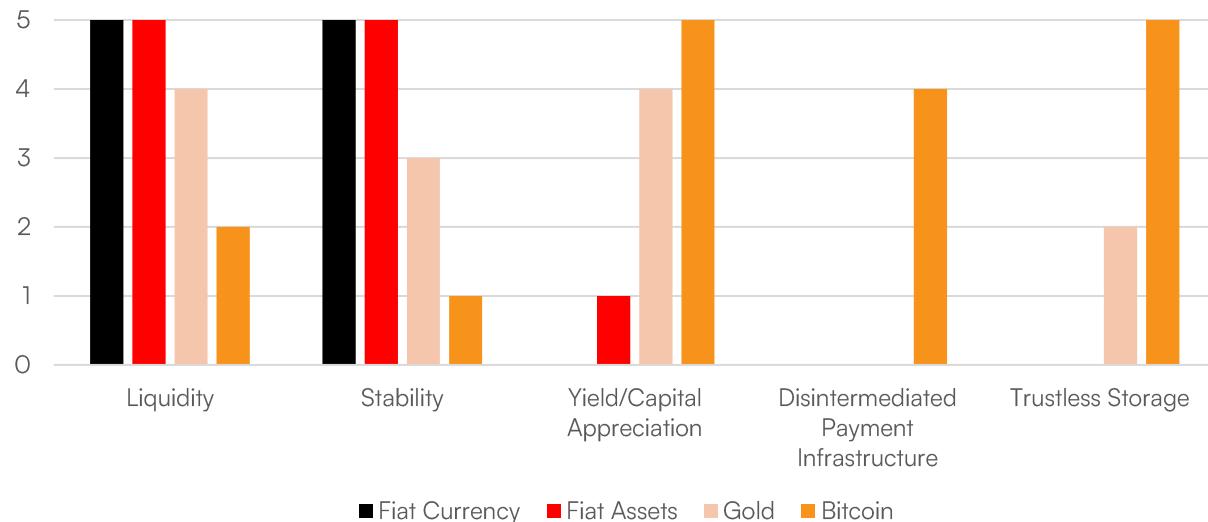
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<sup>56</sup>Link to source: <https://www.forbes.com/sites/tomerniv/2024/12/16/the-cold-war-of-national-bitcoin-reserve-global-race-for-digital-gold/>

<sup>57</sup>Link to source: <https://www.newsnationnow.com/us-news/southwest/texas-buys-5m-bitcoin-starts-nations-first-crypto-reserve/>

<sup>58</sup>Link to source: <https://www.whitehouse.gov/presidential-actions/2025/03/establishment-of-the-strategic-bitcoin-reserve-and-united-states-digital-asset-stockpile/>

## Illustrative Comparison of Reserve Asset Properties

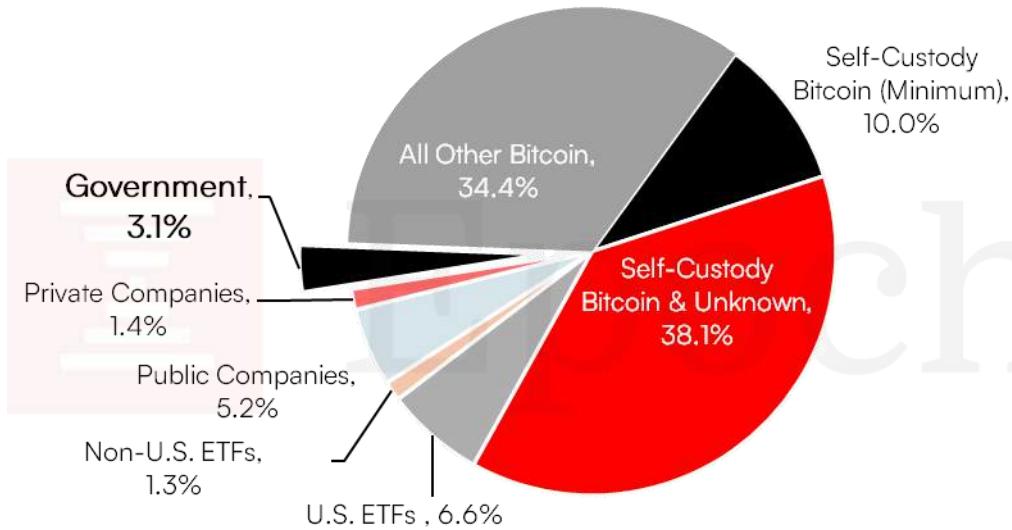


For these reasons, we view Bitcoin as a superior sovereign reserve asset to gold and expect it to consume that market in the medium term. Today, gold's primary advantage over bitcoin is the depth of its capital markets. However, we expect this advantage to transfer to bitcoin over the coming decade, as it is superior in nearly every other category.

Bitcoin's biggest issue as a nation state reserve asset is that it is young. As it grows, its depth of capital market liquidity and subsequent reduction in volatility will position it as the apex reserve asset. All the other fundamentals of bitcoin are superior to those of other reserve assets; it just needs time to grow.

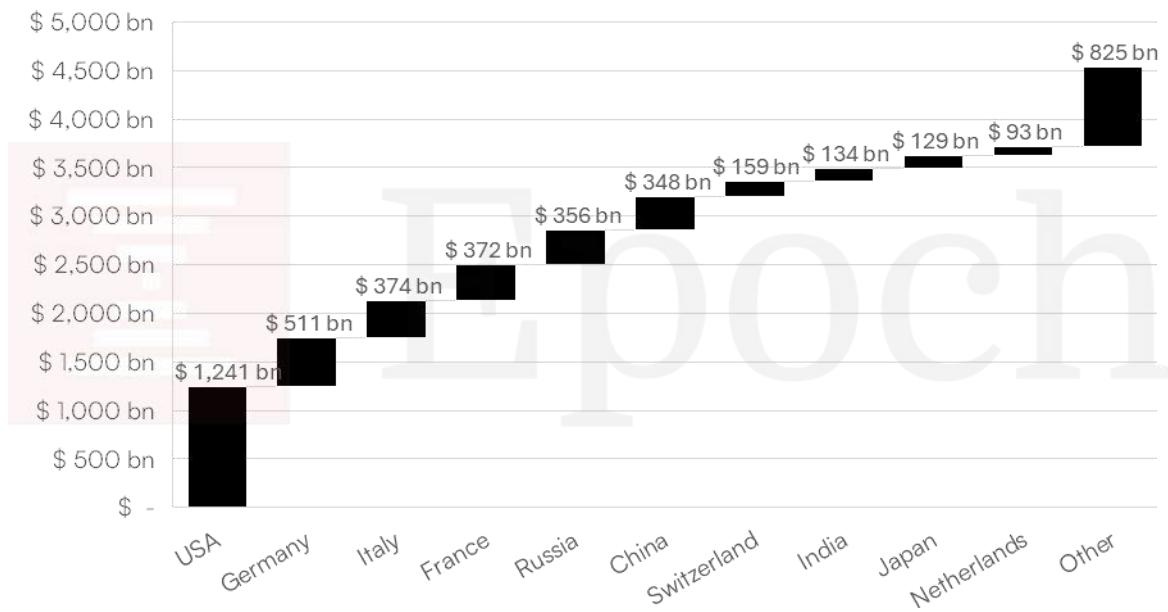
Nation states own ~643k BTC or ~3.1% of total supply, primarily comprised of confiscated bitcoin.

### Bitcoin Supply Breakdown



At Epoch, we believe bitcoin will eventually become the world's first global neutral monetary system. In the near to medium term, however, it must first consume the market of gold and we view this market as the most addressable. The U.S. holds ~\$1.2trn in gold and globally, total nation state gold reserves are over \$4trn.

## Gold Reserves by Country



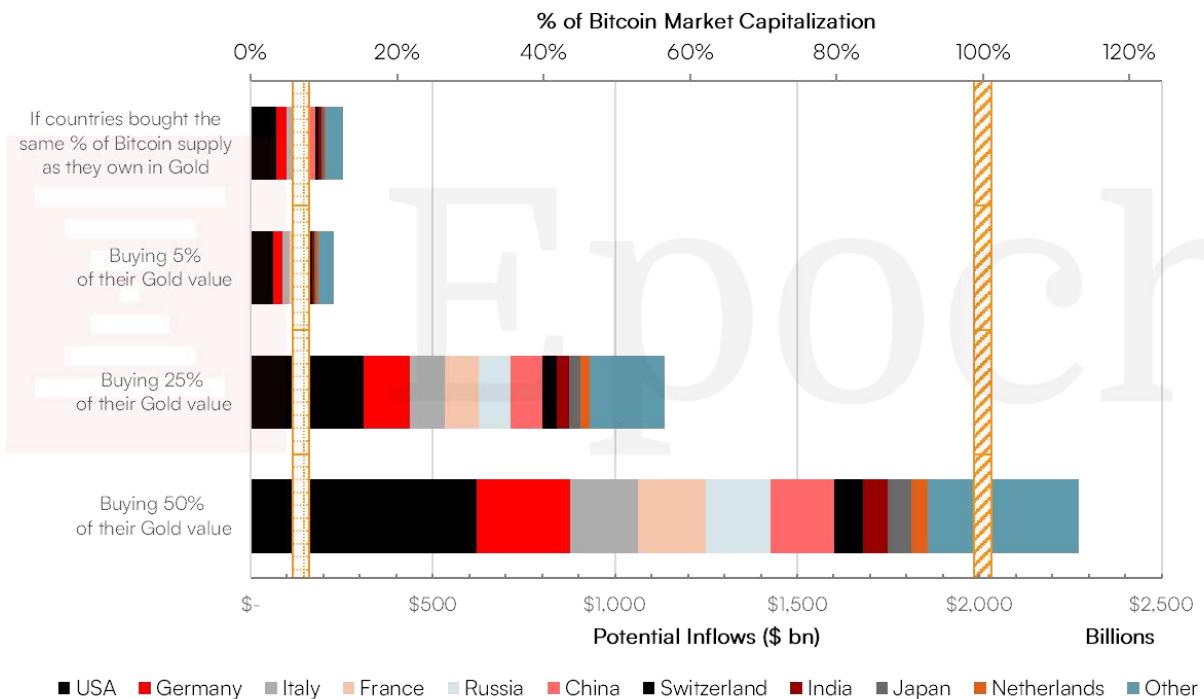
Source: Bullion Vault<sup>59</sup>

Using gold ownership as a proxy we can examine how much bitcoin nation states would target. Buying the same 17% of supply that they own in gold, nation states would generate \$253bn in inflows at current prices, almost double the AUM of U.S. spot ETFs. If they bought half of the USD value they own in gold, inflows would exceed Bitcoin's market capitalization by ~30%.

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<sup>59</sup>Link to source: <https://www.bullionvault.com/gold-news/infographics/which-country-owns-most-gold-gold-reserves-nation>

### Potential Inflows to Bitcoin based on Nation State Gold Ownership



In our view, nation state adoption is a question of when, not if. But when governments finally decide to own Bitcoin, will there be enough to satisfy their targets?

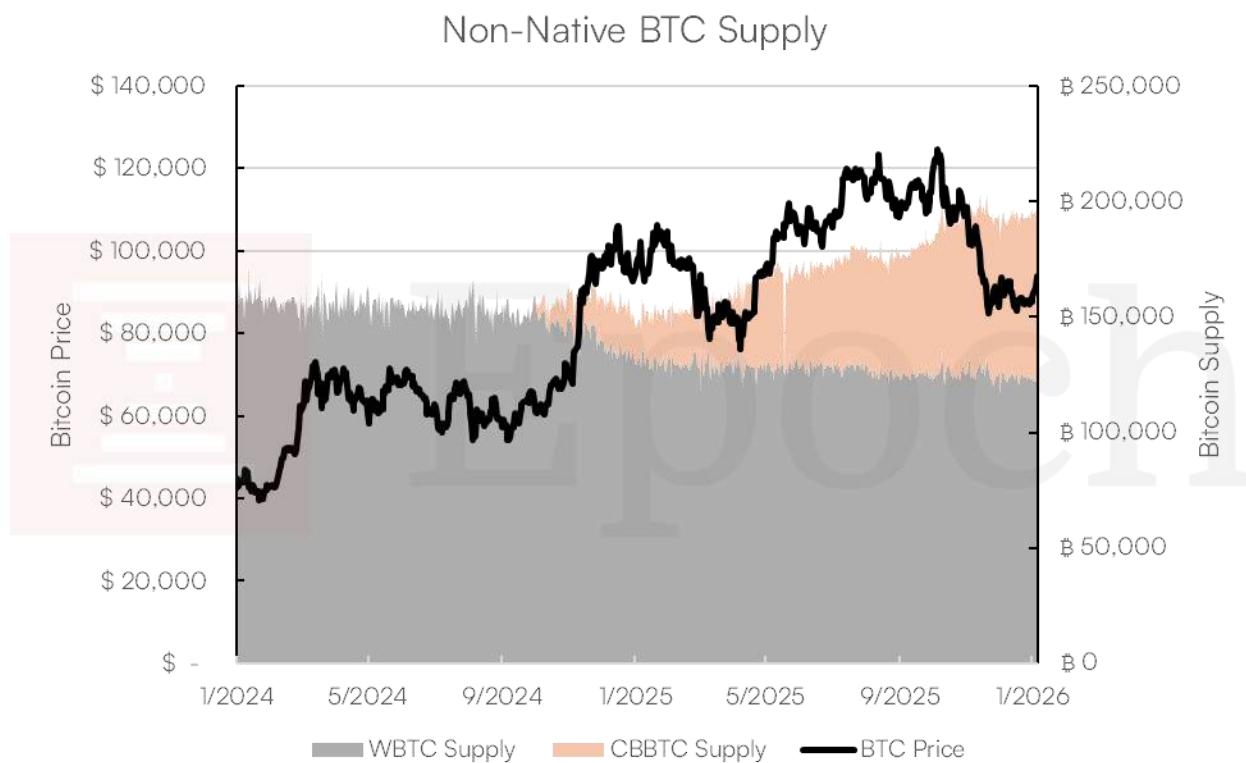
Nation state adoption, particularly among the G7 nations, China, India, or Russia, could create a frenzy of FOMO from other nations fearing long-term economic relegation or adverse currency fluctuations. In addition, we suspect democratic governments would announce their intent to purchase before doing so which would create a wave of buying from investors and speculators.

Nation states own approximately ~\$4.4trn of gold, equating to 17% of total gold supply. At current prices, 17% of Bitcoin is less than \$300bn which seems palatable, but where would they get 3.6 million BTC? Of course, sellers would emerge as BTC price rises but a rapid ascent and narrative shift could restrict holders' willingness to sell. As governments buy, a portion of the ~3.5m BTC from ETFs and exchange reserves would likely change hands. The other sources are longer-term holders that believe in Bitcoin as the future of money, freedom tech, or core to their business. Setting a price target based on future inflows is an impossible task. Nation state adoption could attract and provide enough capital for bitcoin to rival gold's market cap of \$32 trillion.

## Non-Native BTC

Non-native BTC is a way to “own” Bitcoin on other blockchains. Tokens like WBTC and CBBTC are ERC20 tokens backed by Bitcoin. While they are not direct ownership of Bitcoin itself, many users of ETH, SOL, and Base have gravitated to these tokens to gain BTC exposure outside the Bitcoin ecosystem.

Total supply of wrapped bitcoin tokens is ~\$362k, up 5% y/y largely due to the growth in Coinbase’s CBBTC.<sup>60</sup> CBBTC launched in September 2024 and quickly became the second-largest wrapped bitcoin token. CBBTC supply stands at ~\$72k, up ~330% y/y.

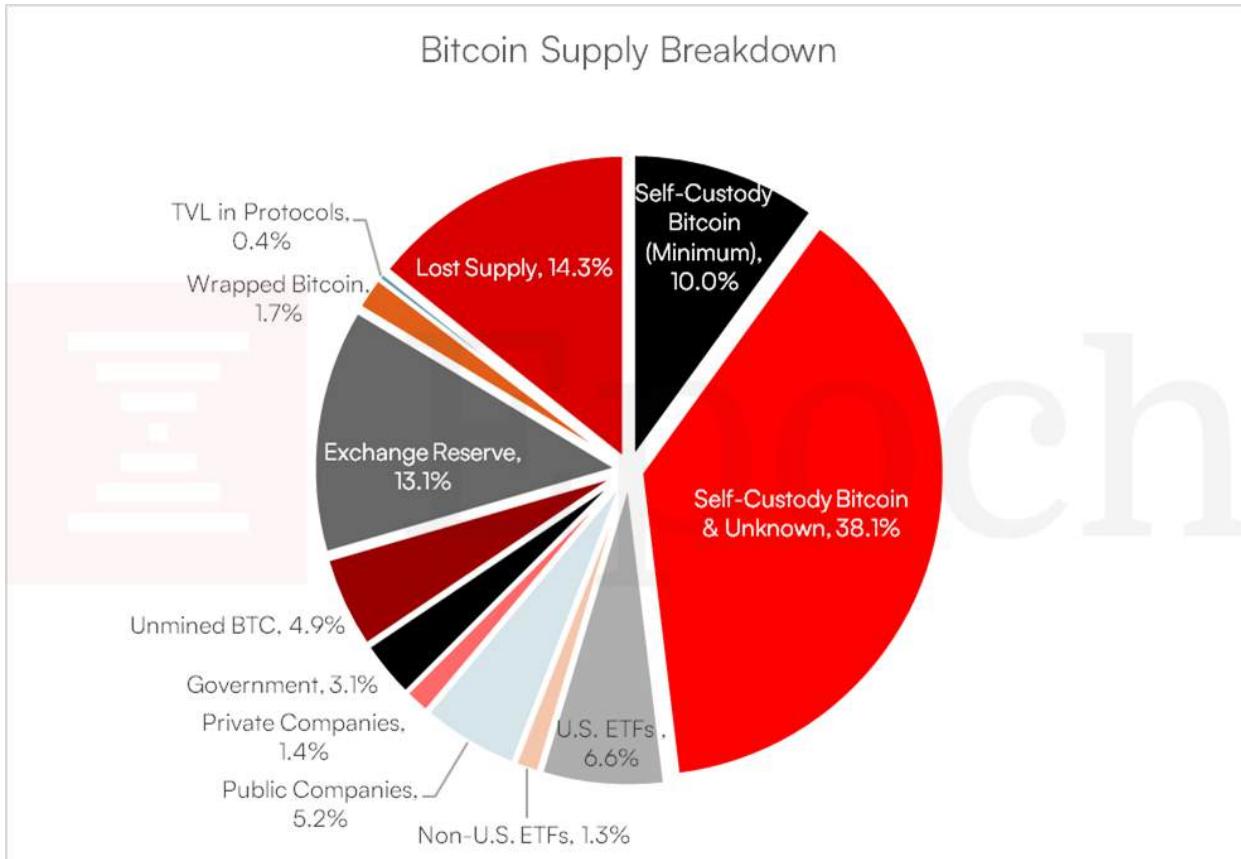


Source: Tradingview, Defillama, Cryptocap

Wrapped bitcoin supply may continue growing due to attractive yields on alternative blockchains. Greater activity on other chains generates trading fees which produces higher yields throughout the ecosystem. Liquidity pools between two wrapped bitcoin tokens, such as CBBTC/WBTC or CBBTC/xBTC, typically exceed yields offered on Bitcoin-native platforms like Botanix. For non-native BTC growth to reverse, Bitcoin-native yields need to compete. Without a significant decline in activity on Solana and other chains or an increase in Bitcoin activity, non-native BTC may continue growing.

<sup>60</sup>Link to source: <https://www.bitcoinlayers.org/analytics>

## Bitcoin Supply Breakdown



## Dominance

Despite episodic rallies in altcoins, Bitcoin has consistently outperformed the crypto ecosystem since 2022.

Bitcoin dominance<sup>61</sup> rose steadily from January to June 2025 and resumed its uptrend after a brief altcoin boom in summer 2025. The memecoin craze of 2024 carried into early 2025, after which Bitcoin dominance steadily rose for ~6 months. In July, euphoric-level valuations in Bitcoin Treasury Companies like Kindly MD (NAKA) and Smarter Web (AQUIS: SWC) attracted similar strategies for altcoins and marked a reversal in Bitcoin dominance.

Public companies like Bitmine Immersion Technologies (BMNR) and Upexi (UPXI) adopted Ethereum and Solana treasury strategies, respectively, and drove altcoin inflows. In just four

<sup>61</sup> We exclude stablecoins from the analysis of bitcoin dominance but keep the highly inflationary and expanding crypto-economy in the measurement whereas some “true” measures of bitcoin dominance ([bitbo.io/bitcoin-dominance](http://bitbo.io/bitcoin-dominance)) only take the top crypto-currencies by market cap. While much of the smaller tokens market cap comes from market manipulation we still view some proportion of it as capital allocation into the cryptocurrency ecosystem and not into bitcoin and thus we would rather be wrong with a conservative measure than wrong with something more liberal.

months from July through October, the top four ETH treasury companies acquired ~3.9m ETH or ~3.2% of total supply. For context, Bitcoin treasury companies acquired ~\$486k (2.3% of total supply) during all of 2025. As the hype around digital asset treasury companies faded, Bitcoin's outperformance continued through December.

Most noteworthy is Bitcoin's resilience relative to other cryptocurrencies despite a bull market in risk assets and the creation of hundreds of new memecoins per day. Towards the end of the last two bull runs, Bitcoin dominance fell from ~70% to ~40% as Ethereum and other altcoins peaked.<sup>62</sup> Today, it sits at bear market levels from prior cycles of ~66% despite a broad bull market. During Ethereum's DAT-driven summer rally, dominance bottomed at 62%. Bitcoin is gravity in the crypto economy, and we expect it will continue to consume the monetary value that still exists in many tokens.



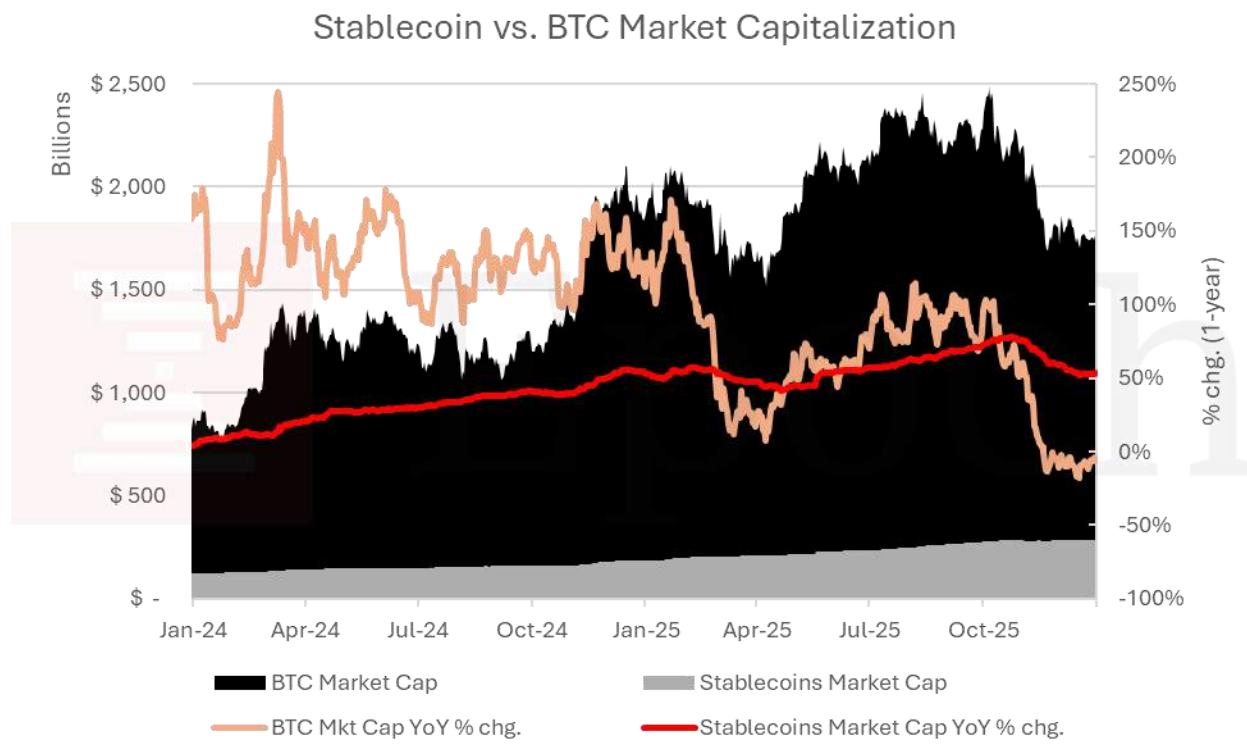
Source: TradingView, Cryptocap

<sup>62</sup> Our figures for Bitcoin dominance are derived by the market caps of Bitcoin vs. all other cryptocurrency excluding stablecoins, as seen in the “Market Cap Dominance” chart.

## Stablecoin Impact on Bitcoin Dominance

Stablecoins are a mechanism for bitcoin demand. They're driving adoption of digital rails and payment infrastructure that reduces friction against long-term bitcoin adoption. Importantly, stablecoins *do not* provide final settlement and are censorable. Stablecoin adoption in emerging markets is significant but their limitations will ultimately lead individuals to bitcoin. Bitcoin is gravity.

Stablecoins market capitalization grew ~53% in 2025 to ~\$286bn. Stablecoins are becoming increasingly important to the Bitcoin and cryptocurrency ecosystems. At ~10% of total crypto market cap and growing, stablecoins have materially impacted Bitcoin dominance.<sup>63</sup>



Source: TradingView, Cryptocap

Stablecoins could eventually flow into Bitcoin as holders seek investment opportunities. Much of the stablecoin supply generates yield through DeFi protocols, but interest rates will compress as more stablecoins are issued and memecoin trading volume declines. If we assume supply grows at a modest 20% CAGR over the next ten years, the stablecoins market cap would reach ~\$1.8trn creating a liquidity channel roughly the size of Bitcoin today.

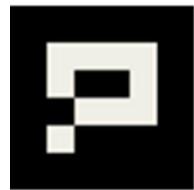
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<sup>63</sup> Stablecoins are likely to grow consistently while Bitcoin and cryptocurrencies fluctuate, potentially skewing the data. We advise caution when examining dominance as commonly cited figures include stablecoins.

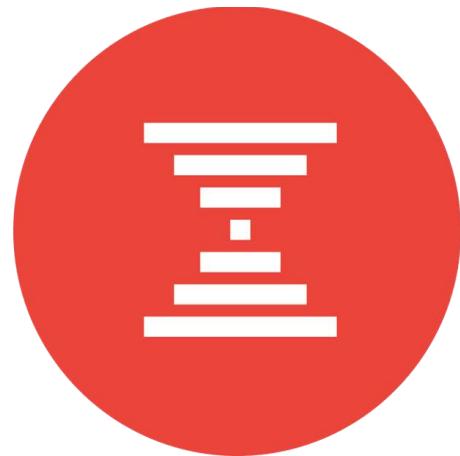
## Summary

- Bitcoin's recent price behavior and relative performance to gold challenge the historical four-year cycle framework, suggesting market maturation, lower volatility, and altered capital dynamics may render cyclical narratives increasingly unreliable.
- Sustained declines in volatility are reshaping Bitcoin's market structure by reducing speculative retail trading, limiting drawdowns, and supporting a gradual decoupling from risk assets toward a profile more comparable to large-cap equities or gold.
- Relative performance versus gold indicates Bitcoin has already endured a prolonged bear market, while gold's strong rally may catalyze future capital rotation into Bitcoin and undermine traditional cycle-based expectations.
- Multiple structural demand drivers — including ETF inflows, wealth manager allocations, corporate treasury adoption, inheritance-driven wealth transfer, and eventual nation-state participation represent potential inflows that are massive relative to Bitcoin's current market capitalization.
- Global Bitcoin adoption has grown to an estimated 330—400 million with bitcoin exposure, driven by ETFs, exchanges, and institutional acceptance, despite persistent knowledge gaps and uncertainty around custody and ownership data.
- Bitcoin continues to consolidate dominance within the crypto ecosystem, supported by institutionalization, business and sovereign adoption trends, and stablecoins acting as a transitional liquidity layer that may ultimately flow into Bitcoin.

# Bitcoin in the Media



**Perception**



This section analyzes sentiment structure and narrative patterns across media. It reveals important insights for anyone building, investing, or communicating in this space.

Perception is a research and deliverables tool built for Bitcoin, stablecoins, and tokenized finance. It monitors 650+ sources automatically, organizes what matters to you, and generates professional outputs—board updates, competitive analysis, PR briefs—with full citations in minutes. Think of it as an always-on research analyst.

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<https://perception.to/> - [@BTCPerception](#)

## Introduction

Bitcoin's media landscape is fractured. Conference attendees live in a world where Bitcoin is winning. Wall Street Journal readers live in a world where Bitcoin is problematic. Both are confident they understand reality. Both are wrong about the other's.

This report maps the gap.

Prepared by Perception, this analysis covers 356,423 datapoints across 653 sources from January 1 to December 30, 2025. Unlike traditional media monitoring that tracks volume, we focus on sentiment structure and narrative patterns, the second-order signals that reveal where perception is heading and why it matters for anyone building, investing, or communicating in this space.

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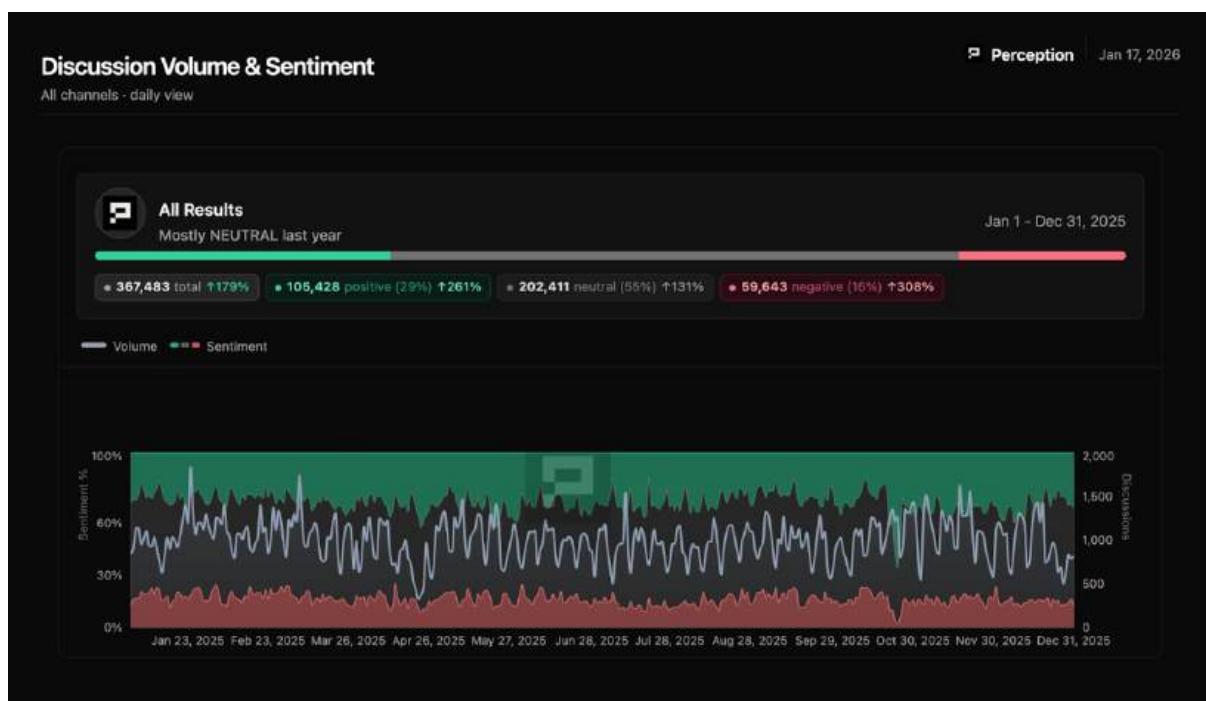
## Ten Findings That Matter

1. **The obituary era has ended.** "Bitcoin is dead" is dead. FUD has evolved from existential threats to institutional and legal framing.
2. **FUD volume is constant; only the topics rotate.** Overall negative sentiment remained stable at 12-18% all year. Crime & Legal surged by +277%, while Environmental collapsed by -41%. The attack surface shifted, the total volume didn't.
3. **A 125-point perception gap separates professional audiences.** Conference attendees live in a world of +90 net-positive sentiment. Tech Media readers see a net negative sentiment of -35. Opposite realities.
4. **UK media is structurally hostile.** BBC, Daily Mail, and The Guardian run 56-64% negative, about 2-3x more negative than comparable international press. *This is editorial positioning.*
5. **Lightning dominates L2 coverage but exists on a perception island.** 33% of podcast content discusses Lightning. 0.28% of mainstream media does—a 119x gap.
6. **Bitcoin's L2 landscape isn't a zero-sum battle.** Lightning dominates as the incumbent (58%). Ark is the breakout story (24% of mentions, 154% growth). Ecash holds steady—different protocols, different trajectories, different audiences.
7. **Mining sentiment swings 67 points based purely on framing.** Mainstream covers mining at 75.6% positive. Communities discuss it at 8.4% positive.

8. Strategic Reserve collapsed 70 points from June to December. The narrative peaked at 96.3% positive. By December: 26.7% positive. Implementation skepticism replaced proposal enthusiasm.
  9. Mainstream media coverage was 41% more negative in 2025 than in 2024. Institutional adoption up, media sentiment down. The gap keeps widening.
  10. Q4 shows maximum sentiment divergence. A 50-point gap emerged between Social Media (+24.9) and Mainstream Media (-25.3). When retail enthusiasm disconnects this sharply from institutional narratives, volatility historically follows.
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## How to Read This Report

### The Core Measurements



Metric	What It Measures	Example
Volume	Raw count of mentions	"Crime & Legal had 838 mentions in November."
Overall Negative %	Share of ALL mentions that are negative	"18.3% of all January mentions were negative."
Topic Intensity	Share of mentions ON A SPECIFIC TOPIC that are negative	"91.1% of Crime & Legal mentions in November were negative."
Net Sentiment	Positive % minus Negative %	"+90 means 90 points more positive than negative."

## The 12-18% Range

When we say "negative coverage stayed between 12-18% all year," we mean the share of ALL Bitcoin mentions that carried negative sentiment. The stability of this range is the insight. FUD volume is constant, but topics rotate.

## Data Integrity

This analysis draws from 653 sources selected and weighted by practitioners with years of experience in Bitcoin media. Unlike generic monitoring tools that scrape keywords across the entire internet, Perception's source list is curated for signal quality:

Channel	Description	Examples
Mainstream Media	Major outlets weighted by reach and influence	NYT, WSJ, BBC, CNN
Crypto Media	Industry publications weighted by practitioner readership	Bitcoin Magazine, The Block, Blockworks
Financial Media	Business press covering markets	Bloomberg, Reuters, Financial Times
Regulatory Intel	Transcripts of speeches, minutes, and filings	SEC filings, FOMC minutes, congressional testimony
Podcasts & Conferences	Long-form content where nuanced discussion happens	What Bitcoin Did, Bitcoin Amsterdam, Consensus
Communities	Reddit, forums, and discussion platforms where retail sentiment forms	r/Bitcoin, BitcoinTalk, Stacker News
Social Media	X/Twitter filtered for signal (not raw firehose)	Curated accounts, not keyword scraping
Research	Academic papers, think tank reports, institutional research	University studies, think tank publications

Sentiment classification uses a combination of proprietary analysis systems and human validation on edge cases. Complete methodology documentation available at [[perception.to/methodology](https://perception.to/methodology)].

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## Part I: The Sentiment Landscape

### The 125-Point Perception Gap

**BOTTOM LINE:** Where you get your Bitcoin news determines what you believe about Bitcoin. Conference attendees and Tech Media readers have completely opposite views of the same asset, and most professionals find themselves in a narrative bubble.

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A founder who attends Bitcoin Amsterdam and reads Bitcoin Magazine believes the world is coming around.

A pension fund analyst who reads WSJ and BBC believes Bitcoin remains problematic.

They're both confident in their assessment, but they're both wrong about the other's reality.

This 125-point perception gap is the most underappreciated risk in Bitcoin communications.

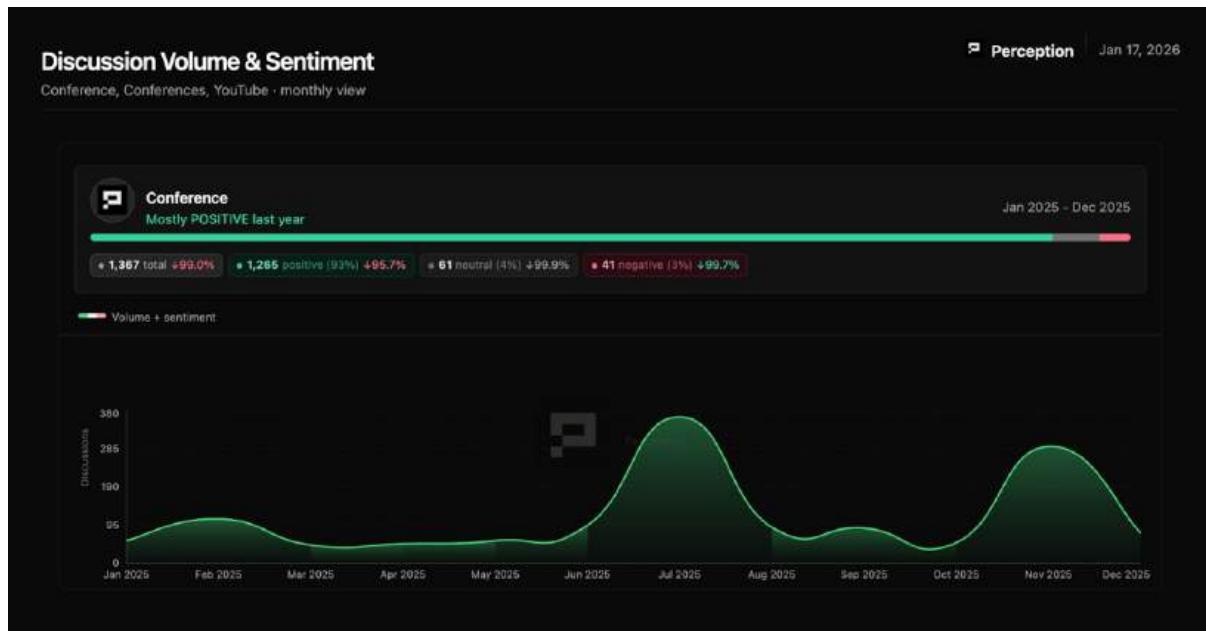
Channel	Net Sentiment	Positive %	Reality Framing
Conferences	+89.9	92.9%	"Bitcoin is winning."
Podcasts	+42.2	47.2%	"Bitcoin is promising."
Crypto Media	+27.4	48.5%	"Bitcoin is volatile but bullish."
Research	+22.4	33.6%	"Bitcoin is interesting."
Social Media (X)	+10.8	27.8%	"Bitcoin is contested."
Communities	+3.2	10.4%	"Bitcoin is complicated."
Financial Media	-1.1	26.8%	"Bitcoin is risky."
Mainstream Media	-3.1	29.0%	"Bitcoin is problematic."
Tech Media	-34.9	18.6%	"Bitcoin is bad."

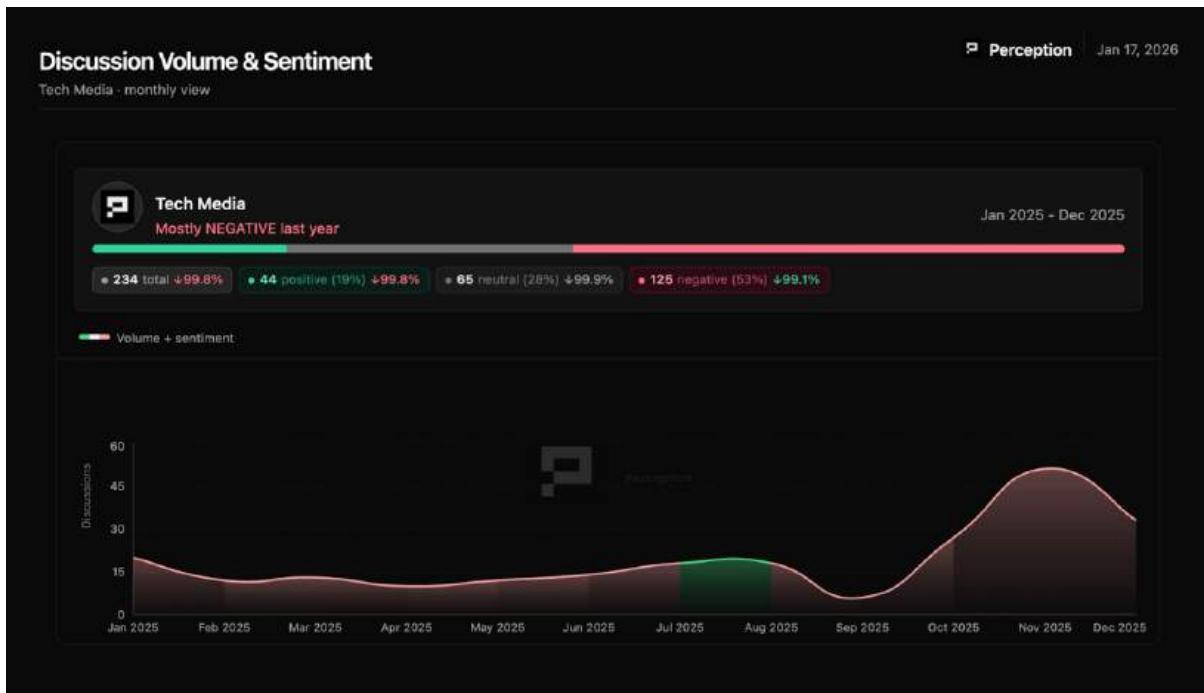
### The implication:

Those attending conferences and reading Bitcoin Magazine live in a +90 world. They assume mainstream sentiment is improving because *their* sentiment is improving.

Meanwhile, the marginal new investor is reading Yahoo Finance (-16), WSJ (-40), or BBC (-57).

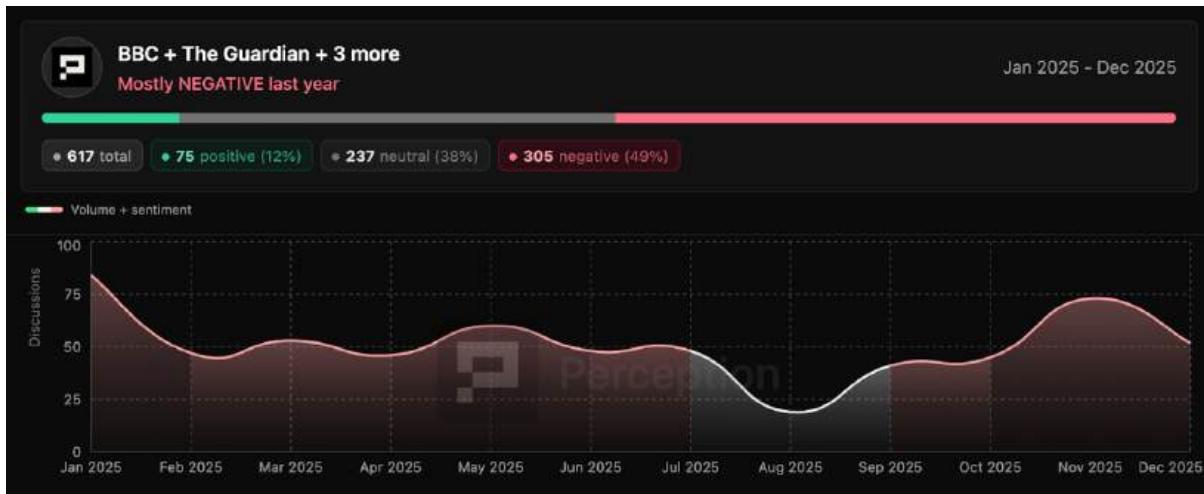
Content and messaging that bridges these worlds represent a significant opportunity, but require acknowledging that they exist as separate realities first.





## UK Media: The Skeptics' Stronghold

**BOTTOM LINE:** British media runs 2-3x more negative on Bitcoin than comparable international press. This is structural and **not** story-dependent. Adjust expectations accordingly.



Geographic analysis reveals the UK media as the most hostile English-language bloc:

Outlet	Mentions	Negative %	Positive %	Net Sentiment
Daily Mail	149	63.8%	7.4%	-56.4
BBC	40	62.5%	5.0%	-57.5
The Guardian	109	56.0%	7.3%	-48.7
The Independent	194	44.3%	13.9%	-30.4
Financial Times	104	28.8%	21.2%	-7.6
Reuters	137	25.5%	38.0%	+12.5

The pattern follows a clear hierarchy: tabloids are the most negative (63.8%), legacy broadcasters close behind (62.5%), quality broadsheets moderate (44-56%), business press approaches neutral (28.8%), and wire services are the only UK source with positive net sentiment.

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## Q4 Channel Divergence

**BOTTOM LINE:** By Q4 2025, a 50-point gap opened between where retail gets information (Social Media: +24.9) and where institutions get information (Mainstream Media: -25.3). This divergence historically precedes significant volatility. Either mainstream catches up, or retail corrects.

Channel	Positive %	Negative %	Net Sentiment	Q3 to Q4 Change
Conferences	96.0%	2.0%	+94	+2.1
Podcasts	52.4%	5.8%	+46.6	+4.4
Social Media	36.5%	11.6%	+24.9	+14.1
Crypto Media	42.1%	22.3%	+19.8	-7.6
Communities	11.7%	8.4%	+3.3	+0.1
Financial Media	28.4%	31.2%	-2.8	-1.7
Mainstream Media	19.2%	44.5%	-25.3	-22.2

November was peak divergence at nearly 60 points, coinciding with BTC crossing \$100K.

When retail enthusiasm sharply disconnects from institutional narratives, it historically precedes one of two outcomes: the mainstream catches up, or retail corrects. Either way, 2026 will likely resolve this gap.

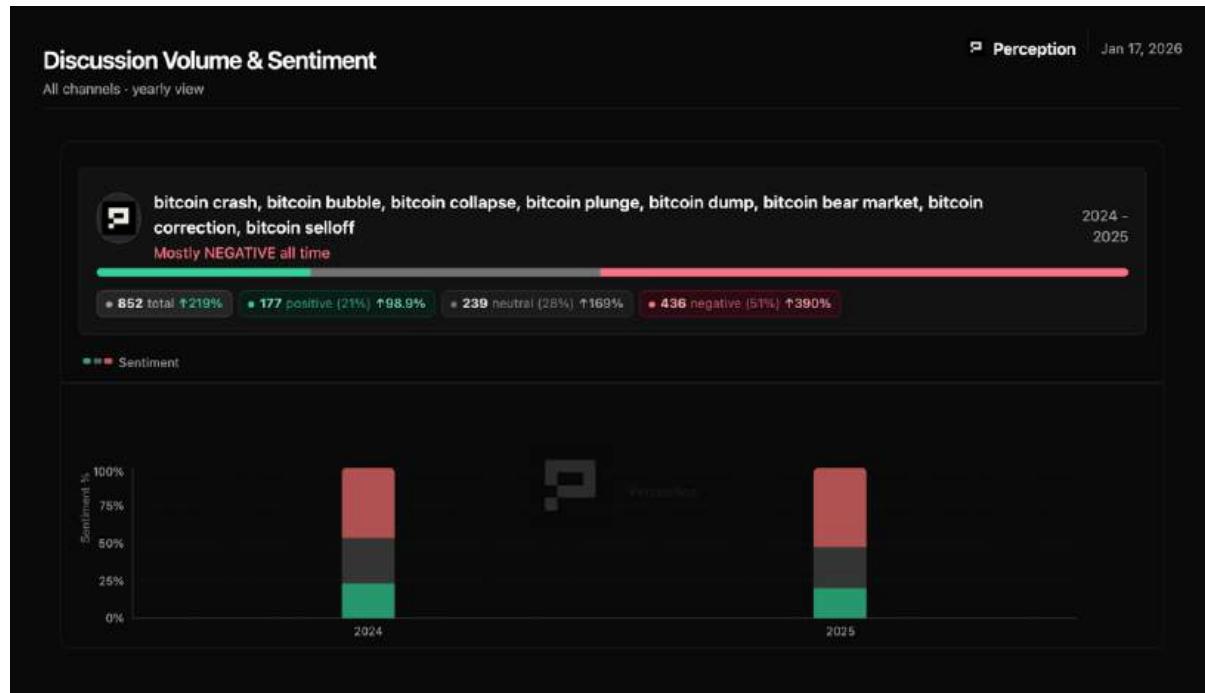
What does this mean for the year ahead? We break down three scenarios and the leading indicators to watch in Part V: 2026 Outlook.

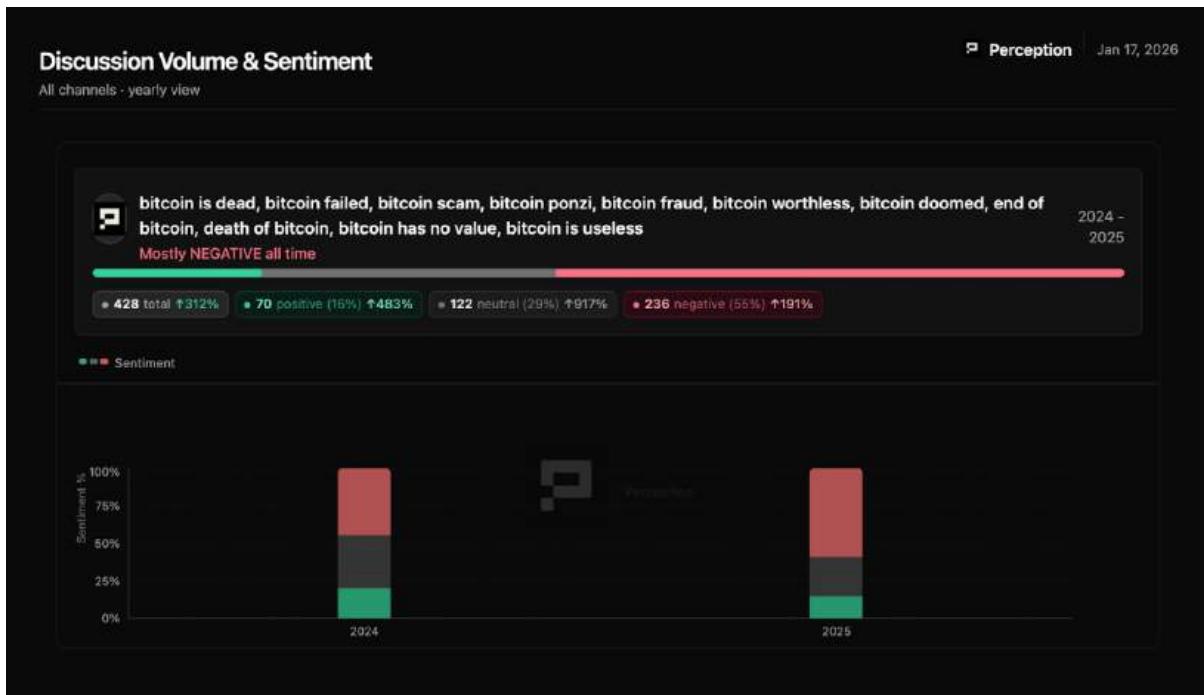
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## Part II: The FUD Evolution

### "Bitcoin is Dead" is Dead

**BOTTOM LINE:** Critics have conceded Bitcoin's existence. They now attack its price, not its legitimacy. Crash language (852 mentions) is 2x more common than existential language (428 mentions).





We tracked two categories of negative framing:

**Existential language** (attacks on Bitcoin's legitimacy): "bitcoin is dead," "scam," "ponzi," "fraud," "worthless," "doomed," "useless."

- 428 mentions
- 55% negative

**Crash language** (attacks on Bitcoin's price): "crash," "bubble," "collapse," "plunge," "dump," "bear market," "correction," "selloff."

- 852 mentions
- 51% negative

**The shift:**

Critics used to say Bitcoin was a scam that would disappear. Now they say Bitcoin will crash.

That's a fundamental concession. They've stopped arguing that Bitcoin shouldn't exist. They're just betting against its price. The attack moved from existential to financial.

## The FUD Metamorphosis

**BOTTOM LINE:** FUD isn't declining. It's shape-shifting. Total negative sentiment stayed flat across all channels at 12-18% all year. Only the topics carrying that negativity rotated as each became untenable.

The common assumption is that Bitcoin FUD is declining as the asset matures. The data tells a different story: total negative mention volume remained stable at 12-18% all year, but the composition shifted dramatically.

FUD Type	Status	Volume Trend	Intensity Trend	Risk Level
Crime & Legal	RISING	+277%	57% to 91% negative	HIGH
Cybersecurity	RISING	+274%	39% to 55% negative	HIGH
Volatility/Bubble	RISING (Q4)	+287% Oct-Nov	38% to 57% negative	MODERATE
Environmental	SHRINKING	-41%	11% to 4% negative	LOW
Regulatory	STATIC	Cyclical	21% to 45% negative	MODERATE

## The Predetermined Frame Pattern

**BOTTOM LINE:** When coverage of a topic runs 99.6% negative, we're observing an editorial position seeking evidence rather than journalism discovering a story. Understanding predetermined frames changes how you respond to media.

When Mainstream Media covered Crime & Legal topics in 2025, 99.6% of coverage was negative. Only 0.4% positive.

For context: even highly contested topics typically show 10-20% dissent in coverage. Complete consensus (99%+) is not organic discovery. It's predetermined framing.

**How predetermined frames work:**

1. An editorial position exists ("Bitcoin enables crime")
2. Stories are selected and framed to support this position
3. Counter-evidence is ignored or minimized
4. The frame appears "objective" because it's consistent across stories

**Why this matters:**

Predetermined frames don't respond to evidence. Environmental FUD declined only after years of renewable mining data made the talking points untenable. Crime & Legal is the current vehicle precisely because it's harder to disprove.

Environmental claims can be countered with energy mix data. "Bitcoin is dead" gets disproven every time the price recovers. But "Bitcoin enables crime" only requires one example to reinforce, and no amount of legitimate use cases can definitively prove that criminals *don't* use it.

### The topic rotation pattern:

The data reveals what appears to be a constant "negativity budget" in mainstream coverage. When one attack vector loses credibility, another rises to fill the gap:

- Environmental FUD peaked, then renewable mining data proliferated, then volume dropped 41%
- "Bitcoin is dead" became a meme, credibility collapsed, and there were only 52 mentions all year
- Crime & Legal emerged, harder to counter with data, volume rose 277%

The total negativity stays flat—the vehicle changes.

### Strategic implication:

Don't try to "win" coverage in predetermined-frame outlets by providing better evidence. The frame precedes the evidence. Instead:

- Accept that some outlets have structural positions
  - Focus resources on outlets with genuine editorial openness
  - Build direct channels that bypass predetermined frames entirely
- 

## Rising FUD: Crime & Legal (+277%)

**BOTTOM LINE:** Crime & Legal is the dominant FUD narrative of 2025 and will likely persist into 2026. It's strategically chosen: harder to disprove with data, carries regulatory tailwinds, and resonates with institutional gatekeepers.

### What Crime & Legal covers:

This category captures coverage that frames Bitcoin primarily through its association with illicit activity. The main narratives include:

- Money laundering and sanctions evasion
- Ransomware payments
- Dark web transactions
- Fraud and scams involving Bitcoin
- Terrorist financing concerns
- Regulatory enforcement actions

Volume increased from 222 mentions in January to 838 in November. November intensity hit 91.1% negative, near-total negativity.

When Mainstream Media covered Crime & Legal, 99.6% of coverage was negative.

#### Why this vector was chosen:

- Environmental FUD got countered by renewable mining data
- "Bitcoin is dead" became a meme that undermined credibility
- Crime & Legal is harder to disprove. You can't prove Bitcoin doesn't enable crime
- Regulatory tailwinds (AML/KYC debates) provide ongoing story hooks
- Resonates with institutional gatekeepers who need "risk" justifications

#### What to expect in 2026:

Crime & Legal will remain the primary FUD vehicle until either:

1. A major regulatory clarity event removes the ambiguity
2. The narrative becomes as obviously untenable as "Bitcoin is dead."
3. A new attack vector emerges that better serves editorial needs

None of these appear imminent.

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### Shrinking FUD: Environmental (-41%)

**BOTTOM LINE:** Environmental FUD lost its teeth in 2025. Volume dropped 41%, and intensity collapsed from 11.3% to 3.8% negative. The renewable mining data won.



This is what successful counter-narrative looks like:

- Renewable mining data proliferated and became undeniable
- Old talking points got debunked repeatedly
- The narrative became increasingly difficult to sustain

#### The lesson:

FUD can be defeated, but it requires:

- Sustained, evidence-based counter-messaging over years
- Industry coordination on data transparency
- The attack vector becoming embarrassing for outlets to repeat

Environmental FUD took 3+ years to neutralize. Crime & Legal is earlier in this cycle.

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#### Quantum FUD: A Self-Inflicted Wound

**BOTTOM LINE:** Quantum computing FUD wasn't a mainstream media attack. It was self-generated within crypto. *We shot ourselves in the foot.*

Channel	Mentions	% of Coverage	Negative %
Social Media	1,035	53.4%	13.0%
Crypto Media	329	17.0%	29.5%
Financial Media	105	5.4%	31.4%
Mainstream Media	17	0.9%	17.6%

Social Media: 1,035 mentions (53.4% of quantum coverage). Mainstream Media: Only 17 mentions (0.9%).

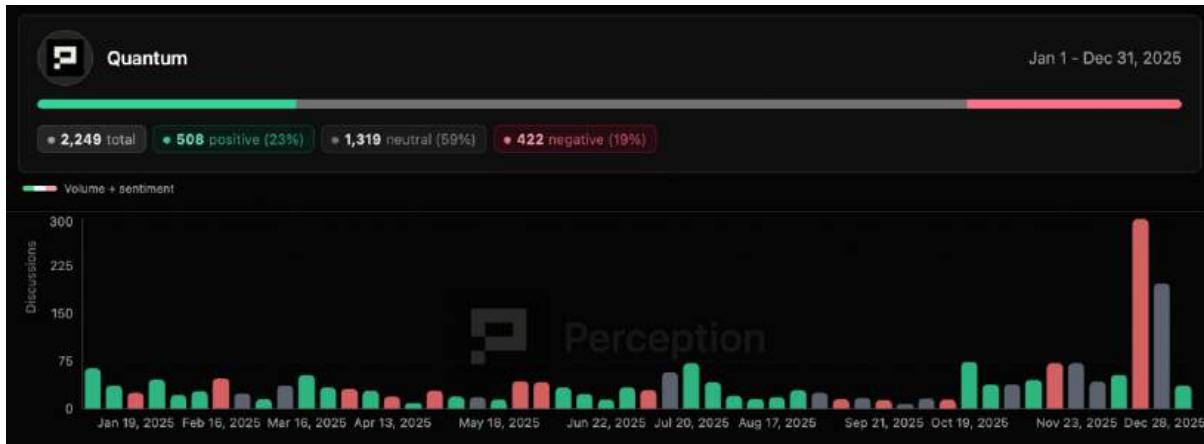
If quantum FUD impacted price or sentiment, it was NOT because mainstream media scared retail investors. It was crypto-native social media creating an internal fear cycle that financial media then amplified in Q4.

#### The pattern:

1. Technical discussion started in crypto communities
2. Social media amplified concerns without context
3. Fear cycle went viral within crypto
4. Financial media noticed the internal panic and covered it
5. Mainstream media barely registered it

#### The lesson:

Not all FUD comes from outside. Internal fear cycles can be more damaging than external attacks because they're harder to counter. You're arguing with your own community.



## Part III: Layer 2 & Scaling Coverage

### How Media Covers Bitcoin's Scaling Solutions

**BOTTOM LINE:** Lightning dominates coverage but exists on a "perception island," huge in podcasts and crypto media, nearly invisible in mainstream. The L2 landscape isn't zero-sum, but attention and sentiment follow different rules for each protocol.

Protocol	Total Mentions	% of Coverage	Positive	Neutral	Negative
Lightning	4,823	58.0%	46%	48%	7%
Ark	1,985	23.9%	42%	41%	17%
Ecash/Cashu/Fedimint	1,449	17.4%	20%	77%	3%
Liquid Network	67	0.8%	55%	43%	1%

The storylines:

- **Lightning:** The incumbent. Dominates volume (58%) with balanced sentiment. Steady, established, but not growing share.
- **Ark:** The breakout. Mentions grew 154% from January to November. But growth came with friction. Highest negative sentiment at 17%. Rapid ascent sparks debate.
- **Ecash protocols:** The technical discussion. 77% neutral sentiment suggests muted, technical coverage without strong takes. Flying under the radar.
- **Liquid Network:** The quiet achiever. Just 0.8% of coverage, but the highest positive sentiment (55%). Small devoted following while the broader conversation moved elsewhere.

Volume and perception are different games. Winning one doesn't guarantee the other.

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### The Perception Island Problem

**BOTTOM LINE:** Lightning gets 33% of podcast coverage but 0.28% of mainstream coverage, a 119x gap. Don't expect media to drive Lightning adoption. The awareness paths are entirely disconnected.

Where Lightning Lives	Coverage Rate
Podcasts	33.33% of their content
Repositories	13.45% of their content
Research	10.27% of their content
Mainstream Media	0.28% of their content
Tech Media	0.18% of their content

What this means for Lightning:

- Don't expect media to drive narrative momentum
  - Conference enthusiasm does not equal market awareness
  - Alternative go-to-market narratives are essential
- 

### Founder Insight: The "Layer 2" Label Is a Go-to-Market Trap

**BOTTOM LINE:** Mainstream media doesn't understand "Layer 2" and doesn't try to. Founders positioning as "L2 infrastructure" are invisible to the audiences that drive adoption. Position as the application, not the architecture layer.

The 119x coverage gap between podcasts and mainstream is a framing problem, and trying to call it a media failure is just a way to not face the problem.

What mainstream understands:

- "Instant Bitcoin payments" (payments narrative)
- "\$0.001 remittances to El Salvador" (remittances narrative)
- "In-game Bitcoin rewards" (gaming narrative)
- "Bitcoin that works like Venmo" (consumer narrative)

What mainstream doesn't understand:

- "Layer 2 scaling solution."
- "Payment channel network."
- "Off-chain transaction protocol."

The reframe:

Stop positioning as infrastructure. Position as the application that infrastructure enables.

The tech press will find your L2 architecture interesting. They'll write about payment channels and routing algorithms. But tech press reaches developers, not users.

Mainstream reaches users. And mainstream needs use cases, not architecture.

Tactical application:

Instead of...	Try...
"Lightning is a Layer 2 scaling solution."	"Lightning makes Bitcoin work like cash."
"Ark enables off-chain transactions."	"Ark lets you spend Bitcoin privately."
"Fedimint is a federated Chaumian ecash protocol."	"Fedimint is community-controlled Bitcoin banking."

The technical accuracy matters for developers—the use-case framing matters for everyone else.

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## Part IV: Topic Deep Dives

### Mining: The 67-Point Framing Swing

**BOTTOM LINE:** Mining sentiment varies 67 points depending on who's covering it. Mainstream sees corporate success stories (+67.4). Communities see centralization concerns (-3.8). Mining companies need dual-track communications to address both realities.

Channel	Mentions	Positive %	Net Sentiment
Mainstream Media	135	75.6%	+67.4
Crypto Media	1,153	49.4%	+24.1
Financial Media	166	34.9%	+5.5
Communities	1,055	8.4%	-3.8

Mainstream Media (75.6% positive) vs. Communities (8.4% positive) = 67.2-point gap.

The framing difference:

Mainstream Media Frame	Community Frame
Corporate earnings	Hashrate concentration
ESG compliance	ASIC cost barriers
Renewable partnerships	Mining pool centralization
Data center deals	Profitability squeezes

Neither is wrong. They're answering different questions. One asks, "Is this a good business?" The other asks, "Is this good for Bitcoin?"

## Why Community Credibility Matters for Mining Companies

**BOTTOM LINE:** Mining companies are winning institutional narratives (+67.4) while losing community trust (-3.8). The institutional wins are priced in. The community credibility gap is the underexploited opportunity.

Marathon (MARA) sponsors the development of BIP 360, which may benefit their Anduro sidechain. This is strategic positioning.

Community credibility translates to:

- **Developer talent acquisition:** Engineers want to work for companies that the community respects. The best Bitcoin developers have options. They choose employers based on public perception and reputation, not just compensation.
- **Protocol influence:** Companies with community trust get seats at technical discussions. When consensus changes are debated, community-credible companies have a voice. Others are viewed with suspicion.
- **Retail shareholder base:** Bitcoin-native retail investors disproportionately hold mining stocks. Community sentiment directly impacts a meaningful portion of the shareholder base.
- **Partnership opportunities:** Bitcoin-native companies prefer working with community-credible partners. Protocol teams, wallet developers, and infrastructure projects choose collaborators based on reputation.
- **Narrative resilience:** When FUD hits (and it will), community-credible companies have defenders. Others face criticism from both outside AND inside.

The opportunity:

The 67-point sentiment gap means mining companies are optimized for mainstream narratives while underinvesting in community credibility. The mainstream wins are priced in. The community credibility gap is where differentiation lives.

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## Strategic Reserve: The 70-Point Collapse

**BOTTOM LINE:** The "Strategic Bitcoin Reserve" narrative has peaked. Sentiment collapsed 70 points from June to December as proposal enthusiasm gave way to implementation skepticism. Companies still positioning around government adoption are riding a stale narrative.

Month	Channel	Positive %	Net Sentiment
June	Mainstream Media	96.3%	Peak enthusiasm
December	Crypto Media	26.7%	Implementation skepticism

### The narrative lifecycle:

1. **Proposal Enthusiasm (Q1-Q2):** "What if governments held Bitcoin?" Pure speculation and maximum optimism.
2. **Mainstream Validation (Q2):** Major outlets covered the concept seriously. Peak sentiment.
3. **Implementation Reality (Q3):** Details emerged. Custody questions. Political feasibility. Regulatory complexity.
4. **Skepticism (Q4):** "This is harder than it sounded." Crypto-native outlets turned critical as enthusiasm met reality.

### Strategic implication:

Strategic Reserve as a narrative tailwind has peaked. Companies that positioned around government adoption narratives need to pivot messaging toward:

- Private institutional adoption (treasury strategies, ETF flows)
- Self-sovereign use cases (individual holdings, inheritance planning)
- Corporate adoption (MicroStrategy model, balance sheet allocation)

Government adoption may still happen. But the *narrative* has moved from "exciting possibility" to "complex implementation." The tailwind is gone.

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## Mainstream Media Got Worse, Not Better

**BOTTOM LINE:** Mainstream media coverage was 41% more negative in 2025 than in 2024 despite institutional adoption, ETF success, and record prices. The return on mainstream media efforts has declined.

Year	Negative Coverage %
2024	+22.9%
2025	+32.3%
Change	+41%

ETF approvals didn't help. Corporate adoption didn't help. Record prices didn't help. Mainstream outlets are entrenched.

The math has changed:

Factor	2024	2025
Effort to get mainstream coverage	High	Higher (more competitive, editors are more skeptical)
Likelihood of positive framing	Moderate	Low (41% more negative YoY)
Audience value	High	Declining (institutional readers increasingly skeptical)

What "higher effort, lower return" means:

Getting a Bitcoin story placed in the Wall Street Journal or CNBC used to be worth significant effort. The credibility and reach justified the work. In 2025, that same effort yields coverage that's 41% more likely to be negative.

You're working harder for worse outcomes.

The alternative channels:

Channel	Hit Rate	Framing	Audience
Crypto-native media (Bitcoin Magazine, The Block, Blockworks)	Higher	Contextual	Already interested
Financial trade press (Bloomberg, Reuters)	Moderate	More neutral	Institutional
Podcasts	High	Long-form, nuanced	Engaged
Direct channels (newsletters, X, owned content)	Complete control	Your framing	Your audience

The recommendation:

Don't abandon mainstream, but recalibrate expectations. Mainstream placement is now primarily a credibility signal ("as covered in WSJ") rather than a distribution channel. The actual audience building happens elsewhere.

For most Bitcoin companies, resources are better spent on:

1. Crypto-native outlets (higher hit rate, better framing)
2. Financial trade press (neutral framing, institutional audience)
3. Direct channels (complete control, engaged audience)

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## Part V: 2026 Outlook

**BOTTOM LINE:** The 50-point Q4 divergence between retail and institutional sentiment will resolve in 2026. Either mainstream catches up, retail corrects, or the gap persists, and traditional cycle dynamics weaken. Each scenario has different implications.

### The Divergence Must Resolve

By December 2025, Social Media sentiment sat at +24.9 while Mainstream Media sat at -25.3. A 50-point gap.

Historically, gaps this wide don't persist. They resolve in one of three ways:

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#### Scenario 1: Mainstream Catches Up (Bullish)

**What happens:** Institutional coverage turns neutral-to-positive. The 50-point gap closes upward as mainstream sentiment follows retail enthusiasm.

**Historical pattern:** When mainstream sentiment follows retail enthusiasm, price tends to consolidate at higher levels rather than retrace. The narrative catches up to the price.

##### What to watch:

- Mainstream negative coverage dropping below 30% (currently 44.5%)
- Financial media turning net positive (currently -2.8)
- Crime & Legal intensity declining without a replacement FUD vector

**Probability:** Moderate. Requires either a major positive catalyst (global regulatory clarity, major corporate adoption) or simple exhaustion of negative narratives.

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#### Scenario 2: Retail Corrects (Bearish)

**What happens:** Social media enthusiasm proves unsustainable. The gap closes downward as retail sentiment capitulates toward institutional skepticism.

**Historical pattern:** Sharp sentiment corrections in retail channels often precede or coincide with 20-30% drawdowns. Retail enthusiasm without institutional validation is fragile.

##### What to watch:

- Social media net sentiment dropping below +10 (currently +24.9)
- Community sentiment turning negative (currently +3.3)

- Crypto media sentiment declining further (dropped 7.6 points from Q3 to Q4)

**Probability:** Moderate. The retail enthusiasm of Q4 2025 hasn't been validated by institutional sentiment shifting.

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### Scenario 3: Divergence Persists (Cycle Structure Weakening)

**What happens:** The gap neither closes nor triggers correction. Retail and institutional markets increasingly operate on different information, different timelines, and different logic.

**Implication:** "The cycle" as a predictive framework may be losing utility. If retail and institutional sentiment can diverge 50+ points without resolution, traditional cycle dynamics are weakening.

#### What to watch:

- Gap persisting above 40 points through Q1 2026
- Different sentiment channels moving independently (not correlated)
- Price action disconnecting from sentiment patterns

**Probability:** Lower, but would be the most significant structural finding. Would suggest Bitcoin markets are fragmenting into separate retail and institutional dynamics.

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## The FUD Forecast

**Crime & Legal:** Will remain the dominant FUD vector through at least H1 2026. No obvious replacement narrative has emerged, and regulatory tailwinds continue.

**Quantum:** Likely fades. The self-inflicted nature became apparent, and the mainstream never picked it up meaningfully.

**Environmental:** Stays suppressed. The counter-narrative won.

#### New vectors to watch:

- Centralization concerns (ETF concentration, mining consolidation)
  - Custody risks (institutional custody failures, exchange issues)
  - Protocol ossification (governance debates, development pace)
-

## What to Watch: The Leading Indicators

Indicator	Current	Bullish Signal	Bearish Signal
Mainstream negative %	44.5%	Drops below 30%	Rises above 50%
Social/Mainstream gap	50 points	Narrows to <30	Widens to >60
Crime & Legal intensity	91.1%	Drops below 70%	Stays above 85%
Crypto Media sentiment	+19.8	Rises above +30	Drops below +10
Community sentiment	+3.3	Turns meaningfully positive	Turns negative

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## Strategic Actions

### 1. Run Parallel Marketing Tracks

**The finding:** 125-point perception gap between conference (+90) and mainstream (-35) audiences.

**The risk:** Single-message strategies fail. What resonates with conference attendees alienates mainstream. What satisfies mainstream sounds defensive to Bitcoiners.

**The action:**

Track A: Crypto-Native Audience (+90)	Track B: Institutional Audience (-35)
They believe Bitcoin is winning.	They believe Bitcoin is problematic.
Message: Technical progress, adoption metrics, community wins	Message: Risk mitigation, compliance, institutional validation
Risk: They'll dismiss anything defensive	Risk: They'll dismiss anything evangelical

**The test:** Before any major announcement, ask: "Does this message work for someone who reads Bitcoin Magazine AND someone who reads the Wall Street Journal?" If it only works for one, you need two versions.

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### 2. Prepare for Crime & Legal FUD

**The finding:** +277% volume increase, 91.1% negative intensity in November.

**The risk:** 2026 will see continued crime/regulation framing as the primary attack vector.

**The action:**

- Develop proactive compliance narratives before they're needed
- Create educational content on tradeoffs (privacy vs. transparency, self-custody vs. regulation)
- Build relationships with reporters who cover the nuance, not just the headline

- Prepare response templates for common crime-framing stories
- 

### 3. Accept Lightning's Perception Island

**The finding:** 33% of podcasts cover Lightning, 0.28% of mainstream do, a 119x gap.

**The risk:** Expecting media to drive Lightning adoption will disappoint.

**The action:**

- Build go-to-market narratives around use cases, not architecture
  - Focus resources on direct channels (podcasts, community, developer relations)
  - When seeking mainstream coverage, pitch applications ("instant payments"), not infrastructure ("Layer 2")
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### 4. Adjust UK Media Strategy

**The finding:** BBC, Guardian, Daily Mail run 56-64% negative, structural, not story-dependent.

**The risk:** Standard PR approaches yield negative coverage regardless of news quality.

**The action:**

- Deprioritize UK tabloids and legacy broadcasters for proactive pitching
  - Focus UK efforts on Financial Times and Reuters (more neutral)
  - Build direct-to-audience channels for the UK market
  - Accept that some outlets have predetermined frames
- 

### 5. Run Dual-Track Mining Communications

**The finding:** 67-point sentiment swing based on framing (Mainstream +67.4, Community -3.8).

**The risk:** Institutional wins don't translate to community credibility, and vice versa.

**The action:**

- Separate communications tracks for institutional and community audiences
- Institutional: earnings, partnerships, ESG compliance, growth metrics
- Community: open-source contributions, decentralization efforts, protocol support

- Invest in community credibility (sponsor development, support open-source, engage technical debates)
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## 6. Rotate Off Strategic Reserve Messaging

**The finding:** 70-point collapse from the June peak, implementation skepticism replaced proposal enthusiasm.

**The risk:** Positioning around government adoption now sounds stale.

**The action:**

- Pivot to private institutional adoption narratives (corporate treasury, ETF flows)
  - Emphasize self-sovereign use cases
  - If covering government adoption, focus on implementation challenges and realistic timelines, not hype
- 

## 7. Monitor BitVM and Ecash

**The finding:** BitVM research spike, Ecash conference momentum, potential 2026 narrative shifts.

**The risk:** The L2 landscape may shift faster than expected.

**The action:**

- Track these protocols for sentiment changes
  - Prepare positioning for potential "next Lightning" narratives
  - Understand technical differentiation for rapid response
- 

## 8. Reallocate Mainstream Media Resources

**The finding:** 41% more negative coverage YoY despite positive fundamentals.

**The risk:** Continuing to invest heavily in mainstream placement yields declining returns.

**The action:**

- Treat mainstream placement as a credibility signal, not a distribution channel
- Shift resources to crypto-native outlets, financial trade press, and direct channels
- Maintain mainstream relationships but calibrate effort to the expected (lower) return
- Build an owned audience that doesn't depend on editorial gatekeepers

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## Summary

- Bitcoin media narratives vary widely with a persistent 125-point perception gap between crypto-native audiences and mainstream or tech media, creating parallel realities that materially affect investor understanding and communication risk.
  - Overall negative sentiment toward Bitcoin remained structurally stable at 12–18% throughout 2025, but the dominant FUD narratives rotated away from “bitcoin is dead” toward crime, legal, and regulatory framing, indicating maturation rather than normalization of criticism.
  - Mainstream and especially UK media exhibit entrenched editorial hostility toward Bitcoin, with coverage becoming 41% more negative year-over-year despite increased institutional adoption, reducing the return on mainstream media engagement.
  - Sentiment divergence widened sharply in Q4 2025, with retail-facing channels turning strongly positive while institutional-facing media grew more negative, a pattern that historically precedes heightened volatility and must resolve in 2026.
  - Bitcoin Layer 2 coverage is dominated by Lightning within crypto-native channels but remains largely invisible to mainstream media, demonstrating that technical adoption and public awareness operate through disconnected narrative pathways.
  - Certain narratives peaked and reversed in 2025, notably environmental criticism and government strategic reserve enthusiasm, while crime and legal framing emerged as the primary negative vector likely to persist into 2026.
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Prepared by Perception Research

This report demonstrates the power of comprehensive narrative intelligence.

356,423 mentions. 653 sources. One year of Bitcoin perception.

Access the underlying data: [perception.to/data]

Complete methodology documentation: [perception.to/methodology]

Questions or feedback: fernando@perception.to

# Bitcoin Treasury Companies



## Introduction

In our 2024 report, we predicted that bitcoin treasury companies would explode and lead to a boom and bust cycle.



We were correct in this assessment but weren't correct about every detail. Given our learnings from 2025, this section of the report will explore:

- The fundamentals of a Bitcoin treasury allocation including the potential benefits and risks of Bitcoin treasury company investing.
- The 2025 timeline of Bitcoin Treasury companies.
- Current valuations of BtcTCs.
- Our opinion on BtcTCs broadly and how we view them compared to owning Bitcoin directly.
- Commentary on specific BtcTCs.
- Predictions on Bitcoin treasury companies in the coming years.

Rather than detailing all aspects of every treasury company, we will focus on key points where our view may differ from consensus. While this section is critical of BtcTCs, the attractiveness of an investment depends on valuation. At current BtcTC valuations, most of which are at or below 1x mNAV, we presently lean bullish on BtcTCs and expect some to outperform bitcoin. Also, buying bitcoin is very based and we love that these companies buy bitcoin — independent of their distinct investment merits.

## BtcTC Basics

### Key Terms

- **BtcTC** — Bitcoin Treasury Company
- **Pure-Play BtcTC** — BtcTCs whose primary focus is buying bitcoin. They achieve most of their market cap from their bitcoin-related business and seek to accumulate BTC. The notable “pure-plays,” like MSTR and Metaplanet, buy BTC with proceeds from equity sales and debt offerings.
- **mNAV** — multiple of net asset value. mNAV measures the ratio of a company’s enterprise value to the value of its bitcoin.<sup>64</sup>

### Benefits of BtcTCs

The primary benefits we can distill for these companies are the following:

- Bitcoin Price Exposure
- Access: markets around the world are disparate and fragmented. Funds and ETFs are often not allowed to buy bitcoin directly being relegated to credit or equity instruments. BtcTCs provide access to bitcoin price exposure in said markets that otherwise would not exist.
- User Experience: being able to access bitcoin exposure from a brokerage account provides a superior experience of users that don’t want to use a new service provider nor manage bitcoin self-custodial considerations.
- Leverage:
  - BtcTCs typically experience outsized moves relative to Bitcoin.

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<sup>64</sup> mNAV is a good way to compare BtcTCs with identical capital structures. However, no two companies are the same. Price to Book Value (P/B) is a more robust metric captures all assets rather than bitcoin only. mNAV and P/B are equal for most pure-play BtcTCs and nearly equal for more complex pure-plays like MSTR — 1.02x mNAV vs. 1.05x P/B. P/B is more useful in comparing BtcTCs that operate different business models.

For example, MARA is a bitcoin miner with over 53k bitcoin (\$4.66bn), \$3.1bn in assets (ex-BTC), and \$4.0bn in liabilities. It trades at 1.22x mNAV and 0.86x P/B.<sup>64</sup> mNAV does not account for MARA’s complex balance sheet or operating business.

So, while mNAV stands for Net Asset Value, the industry convention is to compare it to bitcoin - not actual net assets.

The implication is that MARA could pay off its debt with cash and bitcoin and have more assets left over than its company is currently worth. mNAV does not reflect that. MARA’s P/B valuation implies that the market values MARA’s operating business as worthless and even negative.

The more complex a business is, the more useful P/B becomes in comparison to mNAV. We believe the industry should adopt P/B over mNAV. This section, however, focuses on pure-play BtcTCs and thus, will use mNAV as the valuation metric.

- This is logical for BtcTCs that use leverage (i.e. finance some of their BTC purchases with debt).
- BtcTCs that exclusively raise capital via equity sales would mirror BTC performance if mNAV was constant. In theory, Bitcoin price should not affect the mNAV of pure-play BtcTCs, but the market is not always rational or is incorporating alternative expectations. BtcTCs often see leveraged returns to bitcoin, meaning mNAV is correlated to BTC price in the short term.
- Capital Management: applying a superior capital structure to bitcoin exposure that individuals cannot replicate on their own because it requires scale and institutional management
  - BtcTCs offer options markets that are not available to most Bitcoin owners. BtcTC shareholders can generate income by selling calls, protect downside risk with puts, or trade unique strategies. These are widely accessible via Bitcoin ETF options, but BtcTCs' various levels of volatility may make them more attractive.
- Tax Incentives
  - In some jurisdictions, bitcoin is not treated equally to equities. BtcTCs may be an easier option or more tax efficient.
  - Japan, for example, treats gains on bitcoin as “miscellaneous income” that is taxed on one’s income tax rate rather than a capital gains tax rate regardless of the holding period. This would provide some justification for Metaplanet to trade above 1x mNAV.

BtcTCs are advantageous for specific purposes (i.e. options strategies, leverage, hedging, retirement accounts, etc.).

	Bitcoin Treasury Companies	Direct Bitcoin Ownership
Access	Accessible via brokerage accounts. Suitable for institutional mandates.	Requires crypto exchange account and/or wallets. May face regulatory barriers.
Returns	Potential for amplified returns via leverage or mNAV expansion and risk of underperformance due to mNAV contraction.	1:1 Bitcoin price exposure
Risks	Leverage (liquidation), dilution, management distraction, regulatory risks, mNAV contraction.	Custodial risks (counterparty or lost access to wallets).
Costs	Premium to NAV, potential dilution; no direct fees but corporate overhead.	No fees (except exchange/trading fees)
Control	Rely on corporate management; counterparty risk.	Full control with self-custody.
Liquidity	Good liquidity via stock markets and options markets	Better liquidity via crypto exchanges; 24/7 trading; limited options contract availability.
Tax	Depends on jurisdiction: tax-advantaged in some regions (e.g., Japan, Germany), disadvantaged in others.	Depends on jurisdiction

Although BtcTCs serve a niche role in the market, they expose investors to idiosyncratic risk which took its toll in 2025 as some BtcTCs fell over 90% from their peak.

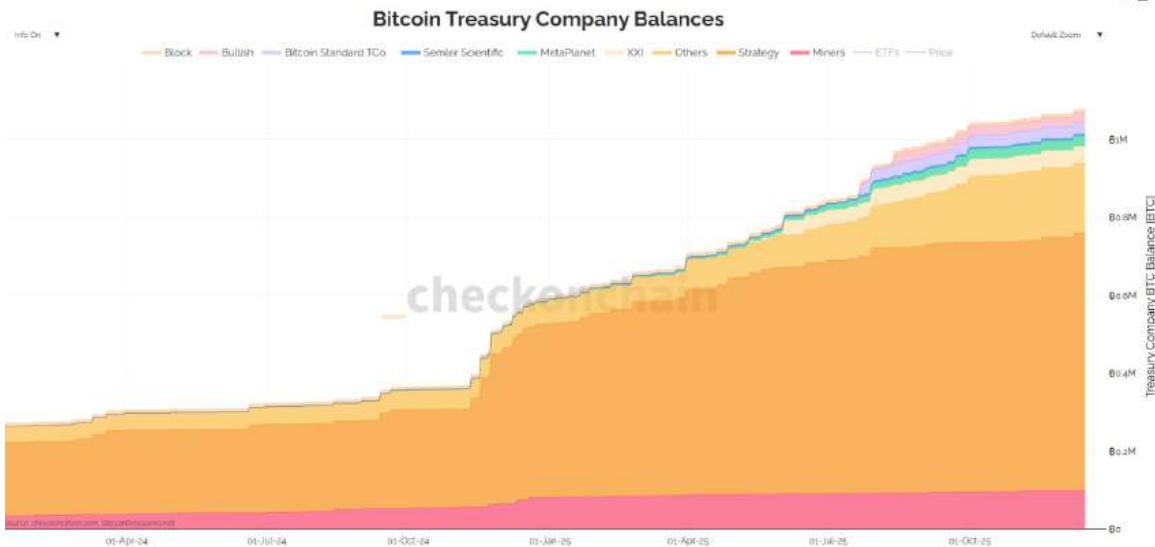
## The 2025 Rollercoaster

BtcTCs gave investors a crash course on boom and bust cycles in 2025.

In Q4 2024, bitcoin purchases by public companies accelerated and continued throughout 2025 as newly formed BtcTCs emerged and existing companies rebranded to follow the hype. Public company bitcoin holdings increased 82% y/y to ₩1.08 million and the number of public companies holding bitcoin grew from 69 to over 191 throughout 2025.<sup>65</sup> Corporations own at least 6.4% of total Bitcoin supply — public companies 5.1% and private companies 1.3%.

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<sup>65</sup>Link to source: <https://bitcointreasuries.net/>

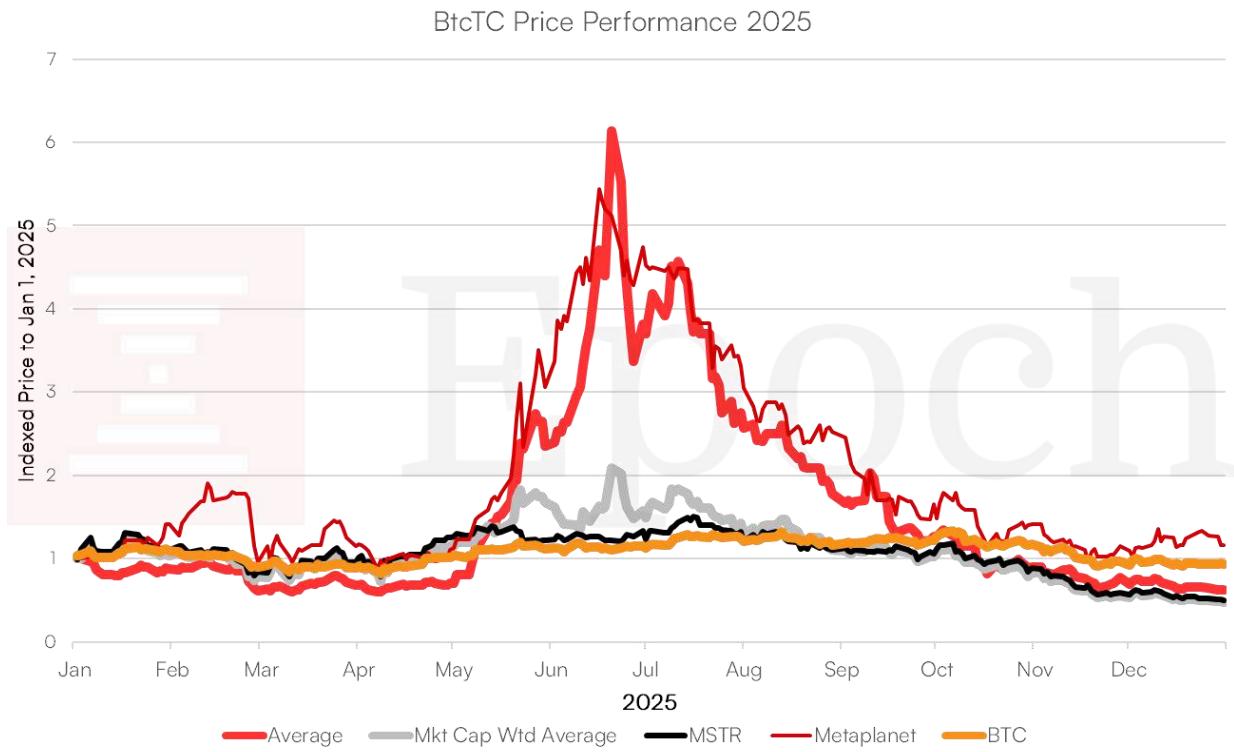


Source: checkonchain<sup>66</sup>

Throughout 2025, crypto enthusiasts, as opposed to Bitcoiners, believed “altcoin season” was imminent. The period of extreme altcoin outperformance over bitcoin never arrived. Instead, BtcTCs (and altcoin treasury companies) acted as the altcoins, reaching euphoric highs in June/July and crashing below where they began the year. Bitcoin is gravity.

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<sup>66</sup>Link to source: <https://charts.checkonchain.com/>



Source: Tradingview<sup>67</sup>

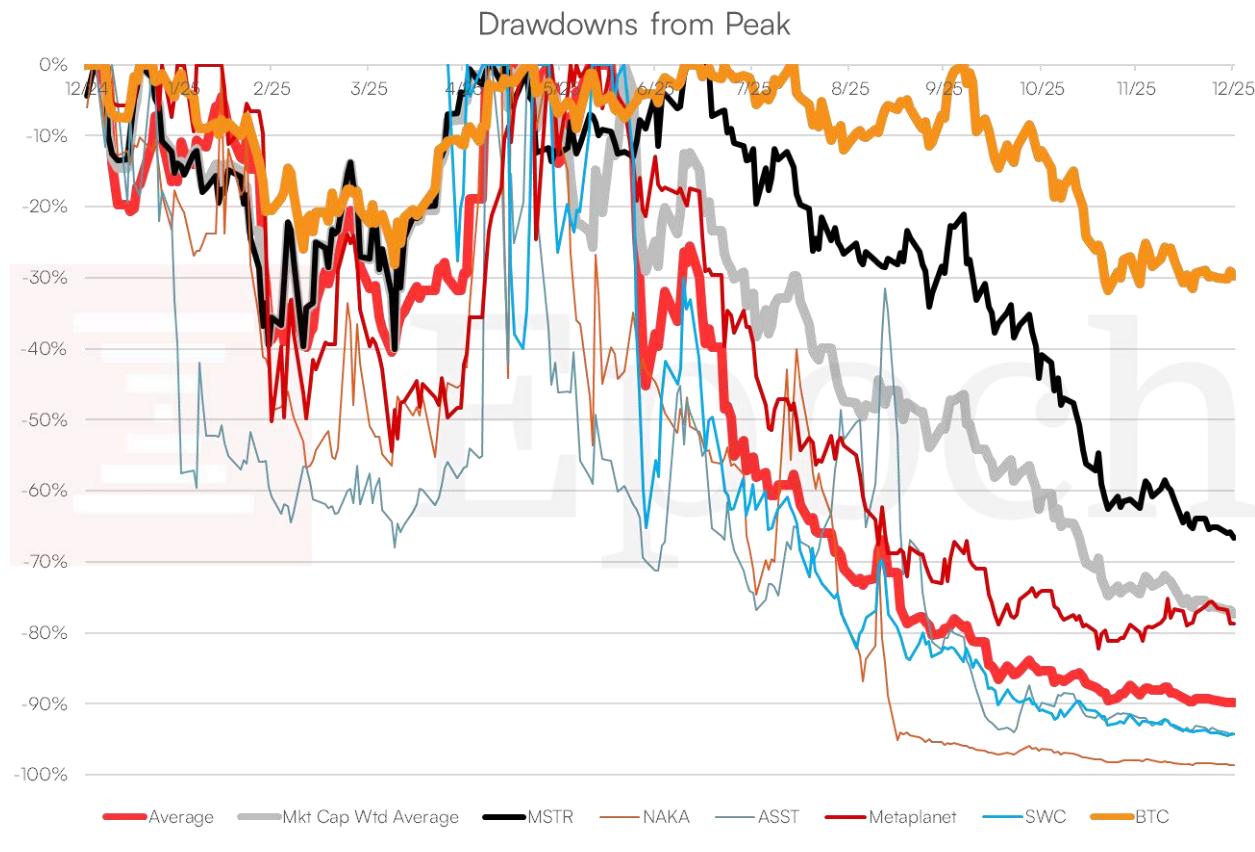
For more perspective, the following chart of drawdowns from the peak shows volatility and the magnitude of the BtcTC crash.

BtcTC volatility is apparent in their relative underperformance during bitcoin declines. Through March 2025, BtcTCs declined as much as twice the magnitude of bitcoin only to reach new highs within 2-3 months. Smarter Web (SWC) dropped 40% in four days and rebounded 143% four days later.

The stocks reversed course mid-year and have yet to sustain an uptrend over the past six months. When bitcoin touched its all-time high in October, many BtcTCs were already down 70% or more. By year-end, three out of the five stocks shown below were down over 90% from their highs. MSTR's drawdown of ~65% is a positive outlier compared to the carnage faced by its peers.

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<sup>67</sup> Averages include Strategy, Metaplanet, Smarter Web, Capital B, Nakamoto, Strive, H100, Bitcoin Group, KULR, Sequans, and Empery Digital.



## 2025 Compared to our Expectations

In our [2024 Bitcoin Ecosystem Report](#), we stressed that late adopters faced greater risk and the bitcoin treasury strategy would create a boom-and-bust cycle.

At the end of 2024, terms on financing started to degrade:

*“Mara’s December 4, 2024 offering raised \$850 million in zero-interest convertible senior notes with a 40% conversion premium.<sup>68</sup> Within two weeks, RIOT issued \$594 million of 0.75% interest convertible senior notes with a 32.5% conversion premium.<sup>69</sup> Though both offerings remain unsecured, like MSTR’s November 2024 notes, the degrading terms compared to MSTR’s 55% conversion premium signal early market deterioration despite still early stages of Bitcoin adoption.”*

*“Terms for new Bitcoin-backed debt remain attractive, but continued market expansion draw non-crypto companies into less favorable arrangements... companies may chase*

<sup>68</sup> MARA press release: <https://ir.mara.com/news-events/press-releases/detail/1384/mara-holdings-inc-completes-850-million-offering-of-zero-coupon-convertible-senior-notes-due-2031>

<sup>69</sup> RIOT press release: <https://www.riotplatforms.com/riot-announces-closing-of-594-4-million-convertible-senior-notes-offering/>

*immediate stock price reactions despite deteriorating terms, [eventually leading to severe declines]"*

Terms on new debt deteriorated mildly through the first half of the year and sharply by year-end. Kindly MD (NAKA), Strategy (MSTR), and Strive (ASST) are good examples.

NAKA's convertible debt terms upon announcing its bitcoin strategy were weak compared to MARA's and RIOT's at year-end 2024. Notably, the conversion price was below NAKA's price at the time, meaning shareholders would likely be diluted.<sup>70</sup> After the BtcTC bubble popped, NAKA refinanced at 8.5% annual interest — a severe deterioration.

Kindly MD, Inc. (NAKA) Debt Terms				
Date	Amount	Key Terms	Notes	Source
12-May-25	\$200m	0% interest (first 2 years) 6% interest (year 3 onward) \$2.80 initial conversion price (with conditions) — <b>\$2.80 was below the stock price</b>	Secured convertible debenture with YA II PN, Ltd.; matures 2028	<a href="#">Link</a>
3-Oct-25	\$203m	8.5% annually	Credit facility from Two Prime; matures Sept 2026	<a href="#">Link</a>

MSTR's preferred stock issuance is perhaps the best example of deteriorating terms.<sup>71</sup> MSTR's convertible notes have highly attractive interest rates for the company and conversion premiums well above the stock price. Its preferred stocks, that it began issuing in February 2025 with STRK, pay dividends of 8%-11%.

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<sup>70</sup> At the time, dilution looked likely because the stock was above the conversion price. The stock later fell far below that price, making dilution unlikely.

<sup>71</sup> The company would contest that preferred stock is not comparable to convertible notes. While we recognize the differences and advantages, dividends on preferred stock are similar to interest expense regardless of how they may be accounted for in SEC filings.

### MicroStrategy Inc. Capital Structure (EOY 2024)

(USD in Millions)			
	Amount (\$m)	Maturity	Rate
Convert 2027	1,050	2/2027	0.000%
Convert 2028	1,010	9/2028	0.625%
Convert 2029	3,000	12/2029	0.000%
Convert 2030	800	3/2030	0.625%
Convert 2031	604	3/2031	0.875%
Convert 2032	800	6/2032	2.250%
<b>Total Unsecured Debt</b>	<b>7,264</b>		<b>0.476%</b>

### Strategy Inc. Capital Structure (EOY 2025)

(USD in Millions)			
	Amount (\$m)	Maturity	Rate
Convert 2028	1,010.0	9/2028	0.625%
Convert 2029	3,000.0	3/2030	0.000%
Convert 2030 A	800.0	3/2030	0.625%
Convert 2030 B	2,000.0	12/2029	0.000%
Convert 2031	604.0	3/2031	0.875%
Convert 2032	800.0	3/2032	2.250%
<b>Total Unsecured Debt</b>	<b>8,214</b>		<b>0.42%</b>
STRF	\$1,284		10%
STRC	\$2,959		11%
STRE	\$909		10%
STRK	\$1,398		8%
STRD	\$1,402		10%
<b>Total Preferreds</b>	<b>7,952</b>		<b>10.0%</b>

Source: Microstrategy Company Filings<sup>72</sup>

While the preferreds provide strategic benefits — capital raise flexibility, no maturity date, financial accounting benefits, and track record to boost credit rating over the long run — shareholders would likely opt for the EOY 2024 structure. Preferred dividends are a drag on common shareholders and partially explain MSTR's decline to 1x mNAV.

Following MSTR's lead, Strive issued perpetual preferred stock in November 2025 with a 12% dividend rate that it later increased to 12.5%.<sup>73</sup> If smaller companies issue preferreds, terms degradation will likely continue.

<sup>72</sup> Strategy site: <https://www.strategy.com/>

<sup>73</sup> Link to source: <https://investors.strive.com/news-events/news-releases/news-details/2025/Strive-Announces-Pricing-of-Upsized-Initial-Public-Offering-of-SATA-Stock/default.aspx>

As BtcTCs replicated the Microstrategy playbook, we predicted it would eventually lead to exuberance.

From last year's report:

*"We expect [the BtcTC] trend to accelerate over the next year as Wall Street extends more credit to the Bitcoin ecosystem. Non-crypto companies may join, driven by shareholder pressures, and management teams pursuing an easy way to boost share prices... Excitement for the bitcoin treasury strategy has begun and exuberance may follow."*

*"While bitcoin corporate finance strategies will bring a novel wave of adoption, we expect them to become the primary driver of the next boom and bust cycle."*

BtcTCs in 2025 played out roughly in line with our expectations — countless BtcTCs emerged across many regions, the market pushed them to exorbitant valuations, and their subsequent crash culminated with some BtcTCs selling bitcoin despite lower prices. However, there were key surprises to our expectations in our 2024 report:

**Lack of Credit Issuance** — we anticipated that credit issuance would continue to scale in line with the unsecured Strategy and the like. This didn't happen and because of this the subsequent declines in price in mNAV possessed no reason for liquidations of bitcoin holdings. Thus, the price of bitcoin was resilient through this episode.

**The Scale of Equity-Fueled Purchases** — The vast majority of BtcTCs funded their bitcoin purchases by selling equity instead of debt, convertible notes, or interest-bearing products as we originally expected. We had not considered just how receptive the market would be to dilutive equity issuance for bitcoin purchases. The market exuberance in mNAV multiples led to equity-fueled bitcoin buying that expanded bitcoin per share without jeopardizing BtcTCs' balance sheets.

As excitement for BtcTCs built, stock prices and mNAVs climbed, giving BtcTCs the opportunity to increase the amount of bitcoin owned per share by selling shares for bitcoin. Management teams took advantage and touted their "bitcoin yield," the growth in bitcoin per share the company achieved. Although BtcTCs grew bitcoin per share, the market expected high bitcoin yield to continue. The market failed to understand the circular logic behind equity-fueled bitcoin yield: high mNAV multiples produce high bitcoin yield, but there is no justification for a high mNAV without high bitcoin yield.

### High-mNAV BtcTCs

When a BtcTC's stock trades at a high multiple (say, 10x the value of its BTC), selling shares to buy more Bitcoin increases the bitcoin each share represents. The higher the multiple, the more accretive the transaction. However, each transaction makes the next one less accretive.

If the stock price can maintain its high multiple, shareholders win — more bitcoin at the same mNAV produces a higher stock price. The issue is that there is little justification for a stock maintaining a high multiple as bitcoin yield declines.

**Example:**

- ABC Company has 1 BTC, trades at 10x mNAV, and has 1mil shares outstanding representing 0.00001 BTC per share.
- BTC price = \$100k, ABC market cap = \$1m, ABC share price = \$10.00.
- ABC sells 1mil shares at \$10 → buys 100 BTC for \$10 million
- ABC now has 110 BTC and 2mil shares → 0.000055 BTC per share
  - BTC per share increased by 450%
- Scenario #1: the stock price increases to maintain high mNAV.
  - To maintain 10x mNAV, the stock price would have to increase by 450% → repeating the process would generate BTC per share growth of 300%. Continued declines in bitcoin yield would justify a lower valuation and stock price.
  - This is an unsustainable trend. A company cannot create value out of thin air by swapping shares for bitcoin.

Stage	Stock Price	mNAV	Shares Sold	BTC Bought	Total BTC	Total Shares	BTC per Share	BTC per Share Increase
Initial	\$10	10.0x	-	-	฿ 10	1,000,000	0.000010	-
Trade #1	\$10	10.0x	1,000,000	฿ 100	฿ 110	2,000,000	0.000055	450%
Post-Trade #1	\$55	10.0x			฿ 110	2,000,000	0.000055	
Trade #2	\$55	10.0x	1,000,000	฿ 550	฿ 660	3,000,000	0.000220	300%
Post-Trade #1	\$220	10.0x			฿ 660	3,000,000	0.000220	
Trade #2	\$220	10.0x	1,000,000	฿ 2,200	฿ 2,860	4,000,000	0.000715	225%

- Scenario #2: the stock price is unchanged.
  - If the stock remains at \$10, mNAV declines to 1.8x → repeating the process would generate BTC per share growth of 27%.
    - Continued declines in bitcoin yield would justify a lower valuation and stock price.

Stage	Stock Price	mNAV	Shares Sold	BTC Bought	Total BTC	Total Shares	BTC per Share	BTC per Share Increase
Initial	\$10	10.0x	-	-	฿ 10	1,000,000	0.000010	-
Trade #1	\$10	10.0x	1,000,000	฿ 100	฿ 110	2,000,000	0.000055	450%
Post-Trade #1	\$10	1.8x			฿ 110	2,000,000	0.000055	
Trade #2	\$10	1.8x	1,000,000	฿ 100	฿ 210	3,000,000	0.000070	27%
Post-Trade #1	\$10	1.4x			฿ 210	3,000,000	0.000070	
Trade #2	\$10	1.4x	1,000,000	฿ 100	฿ 310	4,000,000	0.000078	11%

High-multiple BtcTCs are a house of cards that should eventually fall.<sup>74</sup> Scenario #1 leads rational investors to sell. Scenario #2 could perform in line with bitcoin, but the risk of underperformance does not justify owning it over bitcoin. As mNAVs decline toward 1x,

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<sup>74</sup> Though it is theoretically possible that bitcoin yield could offset mNAV declines and result in a stock price that outperforms bitcoin — in reality, this did not happen.

BtcTCs become more attractive and more likely to outperform bitcoin while losing their ability to grow bitcoin per share — that is, unless they buy bitcoin with debt.

The point is, unless you can fix your cost of capital to acquire bitcoin, you cannot sustainably acquire bitcoin that's accretive to shareholders.

In 2025, BtcTCs filled the role of an “altcoin season” and epitomized a boom-and-bust cycle. The rollercoaster aligned broadly with predictions from our 2024 report, which foresaw deteriorating financing terms, exuberance, and a subsequent crash. With BtcTCs now trading at reasonable or attractive valuations, many could outperform bitcoin if they control operating expenses and differentiate from their peers.

## Our View of BtcTCs

We believe that *pure-play* BtcTCs must differentiate and be financially prudent to earn an mNAV premium; otherwise, they will become commoditized, as seen in the latter half of 2025. “Pure-play BtcTCs” achieve most of their market cap from their bitcoin-related business and seek to accumulate BTC. The notable “pure-plays,” like MSTR and Metaplanet, buy BTC with proceeds from equity sales and debt offerings. Most pure-plays buy BTC exclusively through equity sales (barring minor exceptions — small amounts of debt).

Key advantages can result from (1) credit market access, (2) geography, (3) economies of scale, and (4) yield. These factors should be considered alongside mNAV and expenses.

### 1. Credit Market Access

- BtcTCs that can issue debt or fixed income securities have a significant advantage. Buying bitcoin with debt fixes the cost of capital, so that the acquired bitcoin can now outperform it, and increases bitcoin per share, which creates leverage to bitcoin performance.
- The pure-plays do not have cash-flow positive businesses to fund operations. They require new capital — issuing debt or equity. Credit issuance offers flexibility that avoids selling shares at low valuations or selling bitcoin, which shakes investor confidence.
- MSTR, for example, has \$8.2bn in convertible notes outstanding and \$8.1bn in preferred stock. With over \$60bn in BTC, investors are willing to risk their capital on MSTR’s ability to pay interest/dividends. Leverage and persistent demand for new issuance justify a valuation premium for MSTR.
- As stated in the earlier section on price volatility, the market is mispricing bitcoin’s risk as a form of collateral. Credit instruments, either secured by bitcoin or not, will benefit from this mispricing.

### 2. Economies of Scale

- Scale reduces the negative impact of operating expenses.

- Pure-play BtcTCs are relatively simple and should not be costly to run regardless of their size. Growing the bitcoin stack does not increase operating expenses 1:1. If larger BtcTCs spend less than smaller peers relative to their size, they deserve a higher valuation (all else equal).
    - This would not apply to BtcTCs with an operating business (i.e., MARA).
  - The largest BtcTC in each geography could warrant an mNAV premium to peers due to financing ability, lower liquidation and credit risks, passive flows from inclusion in indexes, and brand recognition.
3. Geography
- Tax law varies by jurisdiction. Taxes on equities can be lower than on self-custody bitcoin.
    - Japan, for example, treats gains on bitcoin as “miscellaneous income” that is taxed at one’s income tax rate rather than a capital gains tax rate, regardless of the holding period. This makes Metaplanet attractive to many Japanese investors, particularly those planning to hold bitcoin exposure for more than one year.
  - Some institutions may be required to invest solely in equities or have diversification quotas (i.e., 40% of the fund must be invested in equities). BtcTCs allow bitcoin exposure via equities.
  - Spot ETFs are not offered in some jurisdictions, making BtcTCs the next best option for Bitcoin exposure.
4. Yield — *true bitcoin yield*
- “True bitcoin yield” where the bitcoin held directly produces income and grows the holders’ bitcoin stack without external financing (e.g., the company sells far out-of-the-money call options).
  - This should not be confused with “Bitcoin Yield” or growth in bitcoin per share that BtcTCs often cite as a performance metric. In 2025, most BtcTCs expanded bitcoin per share by selling shares above 1x mNAV or borrowing funds to buy Bitcoin. While this does increase bitcoin per share, it is net neutral for shareholders in the moment and likely negative longer term. This strategy is either dilutive which creates downward pressure on the stock price towards 1x mNAV or increases leverage which can induce sharper declines during bitcoin’s drawdowns.
  - The “Bitcoin Yield” metric is highly deceptive. Companies whose mNAV multiple is/was high generate outsized “Bitcoin Yield” regardless of fundamentals. High “Bitcoin Yield” is most indicative of an overvalued stock rather than company performance. For example, SmarterWeb’s BTC Yield in Q3 2025 was 309% vs. 2% in Q4.<sup>75</sup> Its stock price was 10x higher at its Q3 peak than in Q4.
  - True bitcoin yield generates tangible earnings that contribute to net income whereas growth in bitcoin per share is driven by investing proceeds from capital raises into bitcoin.

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<sup>75</sup>Link to source: <https://investors.smarterwebcompany.co.uk/analytics-/>

- Metaplanet is the leader in true bitcoin yield. In 2025, its option selling business produced \$57 million in revenue equating to ~2% of its enterprise value.

Without bitcoin yield or an underlying business, a company is only going to bleed cash. The bitcoin on its balance sheet may increase, but unrealized gains don't pay the bills. It either needs to sell a portion or borrow to cover operating expenses.

For pure-play BtcTCs we can examine the implied "fee" that the company charges shareholders. Many investors treat BtcTCs as proxies for bitcoin price exposure like the ETFs. Companies spend on operations while ETFs charge an annual fee. We gathered financial statement data from pure-play BtcTCs to see how their operating income and interest expenses compare to owning the ETFs.

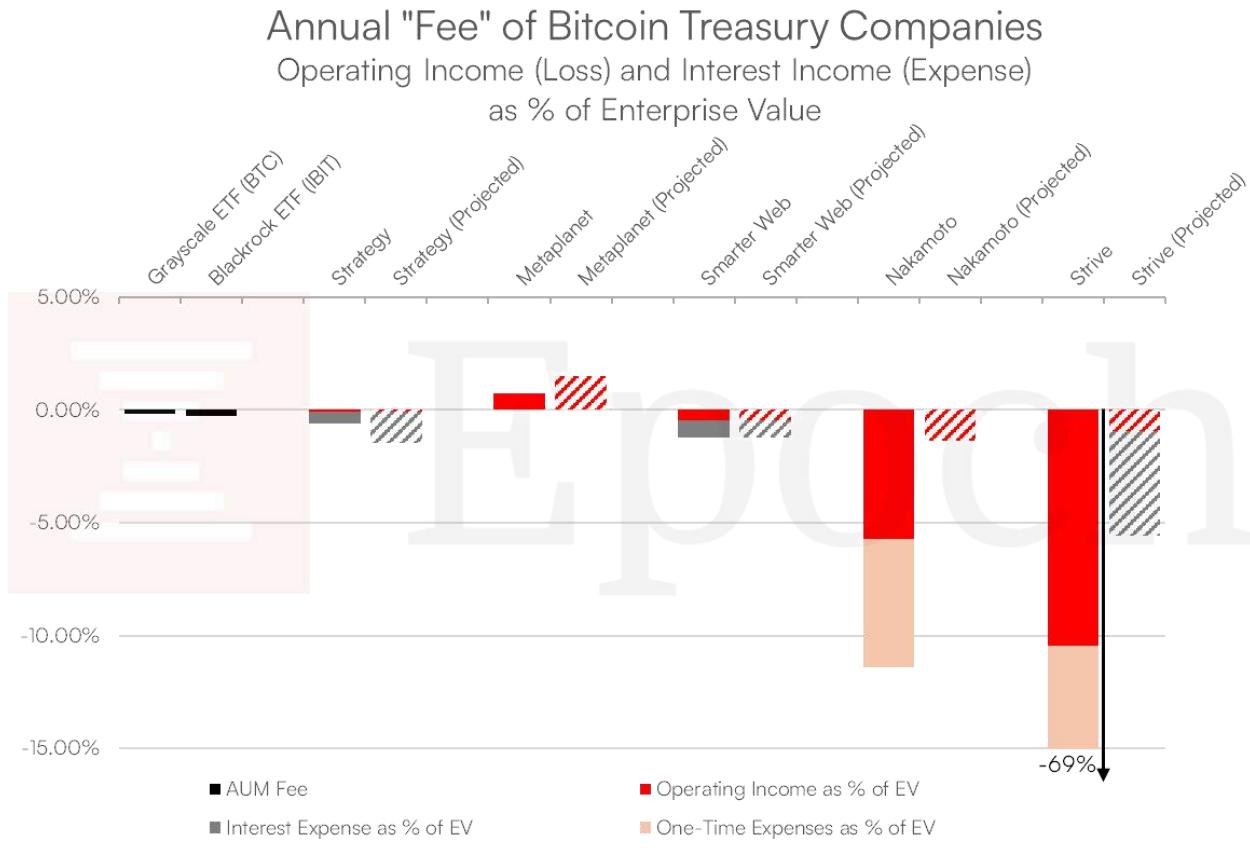
The chart below intends to display annualized recurring expenses as a percentage of enterprise value to simulate the "fee" that BtcTCs take to operate their business. All the BtcTCs shown, except Metaplanet, took a much greater fee than the ETFs in 2025. Projections for 2026 are also weaker, albeit an improvement.

Metaplanet is the clear outlier as the only BtcTC with a positive net fee. Metaplanet generates *true bitcoin yield* which justifies an mNAV above 1x. MSTR, due to its scale, has minimal operating costs under 0.1% of enterprise value but its high-yield preferred stock pushes its fee below -1%.<sup>76</sup>

The *implied fees* below are the greatest deterrent to owning BtcTCs over Bitcoin or the ETFs.

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<sup>76</sup> More on MSTR preferred stock in our MSTR section.



Source: SEC Filings, Company dashboards<sup>77</sup>

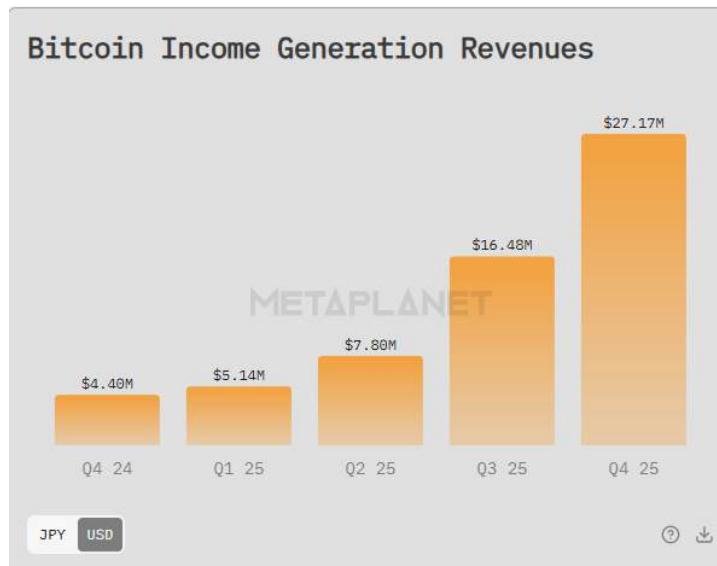
### Chart Callouts:

- Strategy (MSTR)
  - MSTR's operating expenses are very low relative to its size. Its interest expense and preferred dividends
  - For more on MSTR, see our [Strategy \(MSTR\)](#) section.
- Metaplanet is crushing it.
  - It is the only BtcTC that hits all four of our key advantages, which we believe warrants the highest mNAV among pure-play BtcTCs.

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<sup>77</sup> The chart strips out unrealized gains/losses. Enterprise Values are from EOY 2025. Operating income and interest expense from the latest earnings reports are annualized for full year 2025. For MSTR and Metaplanet, it annualizes the first 9 months of 2025 and the first 6 months for Smarter Web. For Nakamoto and Strive, only one quarter of data since the companies' mergers is available so the annualized figures may be skewed. Dividends from preferred stock are included as interest expense. Annualizing 2025 financial results may be misleading because many costs were associated with mergers, so we include 2026 projections for a more normalized run rate. The 2026 projections are estimates that should be taken with caution.

- (1) Credit markets access — it has proven demand for its debt and plans to issue \$150 million of preferred stock paying a 4.9% dividend.<sup>78</sup>
- (2) Scale — with 30k+ BTC, expenses are low relative to the company's size. The stock is included in index funds and Metaplanet has brand recognition.
- (3) Geography — it is the largest BtcTC in Japan, a country that treats equities more favorably than Bitcoin for tax purposes.
- (4) Yield — it generates true bitcoin yield by selling options. In 2025, this strategy produced \$57 million in revenue, equating to ~2% of its EV.



Source: Metaplanet Analytics<sup>79</sup>

- Nakamoto (NAKA)
  - NAKA paid \$5.8m in salaries last quarter. Annually, this would equate to roughly 6% of its enterprise value. We expect expenses to decline relative to the company's size, and suggest that management controls costs if it wants to right the ship.
- Strive (ASST)
  - Strive's expenses were very high in September 2025,<sup>80</sup> but spending should normalize in 2026 as management expects the "operating business to have a single digit million-dollar loss to a single digit million-dollar income." The more significant "fee" for 2026 is preferred dividends, which will comprise ~4.7% of EV, all else equal. If Strive aggressively issues preferred stock, the common stock would become increasingly levered to bitcoin's price.

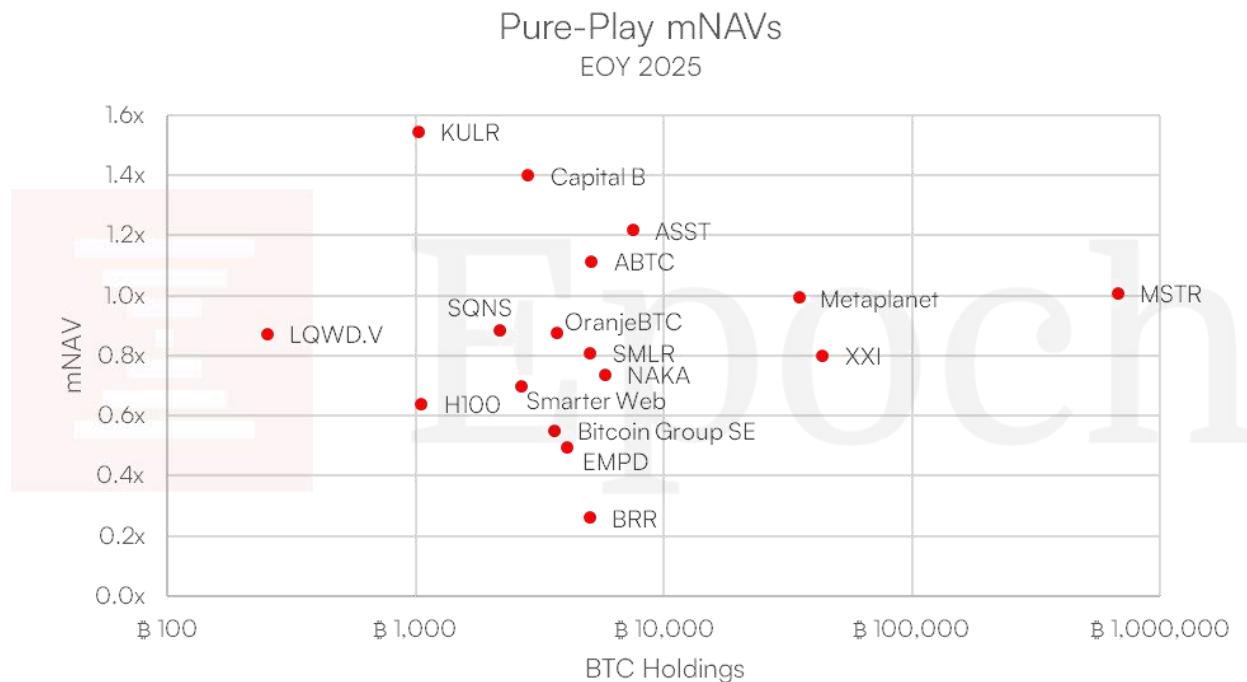
<sup>78</sup>Link to source: <https://bitbo.io/news/metaplanet-bitcoin-preferred-equity/>

<sup>79</sup>Link to source: <https://metaplanet.jp/en/analytics>

<sup>80</sup>In a brief 19 days, Strive paid \$18.7 million in "employee compensation and benefits."

- In September 2025, Strive announced a proposed merger with BtcTC Semler Scientific (SMLR).<sup>81</sup> It was an all-stock transaction that implied a price above 3x mNAV for SMLR. The acquisition was technically accretive to Strive's Bitcoin per share,<sup>82</sup> but Strive was effectively buying bitcoin above \$340k per bitcoin. Compared to buying bitcoin, it was a highly dilutive transaction to common shareholders. The scale helps ASST issue preferred equity, but the merger announcement drove the stock down ~80% in a month.
- ASST has redeeming qualities like its access to credit markets and scale (\$12.8k post-merger). ASST maintains a clean balance sheet, trades at an attractive valuation, and demonstrates strong demand for its credit products. In November, despite the stock's ~90% drawdown from its high, Strive's offering of its preferred stock (SATA) was oversubscribed. SATA pays a 12.5% dividend rate, higher than MSTR's preferreds.
- The stock (and mNAV) could be ripe for a turnaround if the company proves its austerity plans and issues SATA responsibly.

Despite our criticism of BtcTCs compared to direct bitcoin ownership, BtcTCs look attractive today from an investment standpoint with the majority trading below 1x mNAV.



<sup>81</sup>Link to source: [https://www.sec.gov/Archives/edgar/data/1554859/00010465925091918/tm2526607d1\\_ex99-1.htm](https://www.sec.gov/Archives/edgar/data/1554859/00010465925091918/tm2526607d1_ex99-1.htm)

<sup>82</sup> It was accretive at the time of the announcement because ASST's mNAV was above the mNAV implied by the merger price.

Source: [bitcoinquant.co](https://coinquant.co)

Buying a pure-play BtcTC below 1x mNAV could outperform bitcoin if its balance sheet, operating expenses, and interest payments are reasonable relative to its bitcoin holdings. Aside from natural market forces, there are a few ways a beaten-down BtcTC could return to 1x mNAV:

### 1. Sell BTC, Buy Shares

- When mNAV is below 1x, selling bitcoin to buy shares is accretive to BTC per share. For the same reason that BtcTCs sold shares to fund bitcoin purchases when their stocks soared, they may sell bitcoin to fund share buybacks.
- Investors could also engage in this trading strategy. Buying shares below 1x and shorting bitcoin would generate returns if the BtcTC returns to 1x mNAV. The more volume that flows to this strategy, the more the stock outperforms bitcoin (all else equal).

### 2. Shareholder Influence

- Shareholders may vote to liquidate BtcTCs' bitcoin holdings and company dissolution if mNAVs persist below 1x, as liquidation would return more money than the current share price.
- Activist investors could rapidly accumulate shares and campaign for liquidation to capture the spread. However, the price/book discount would need to persist long enough for shareholders to organize and complete a vote.

### 3. Acquisition

- If the goals of BtcTCs include acquiring as much bitcoin as possible and increasing BTC per share, why not acquire bitcoin at a discount?
- When BtcTCs trade below 1x mNAV, buying shares is like buying bitcoin at a discount. The issue is that the companies could continue burning cash by paying their management teams, operating expenses, interest, etc.
- More than ten BtcTCs are trading below 1x mNAV, losing money, and serving similar roles in the market. Savvy companies or investors could acquire these companies at a discount to 1x mNAV, dissolve the companies and their redundant management teams, and reward shareholders with discounted bitcoin.
- We expect consolidation in the coming years, driven by large BtcTCs (i.e., MSTR or Metaplanet) and private equity firms. Anyone with access to ample funding would be wise to roll up BtcTCs trading under 1x mNAV — it's bitcoin at a discount.

## Strategy (MSTR)

MSTR is the flagship BtcTC and hits three out of our four criteria:

- (1) Credit markets access — there is insatiable demand for its high-yield credit products, and preferred stock is becoming a competitive substitute
- (2) Scale — it is the largest BtcTC by a wide margin, which reduces risks, generates passive flows from indexes, improves brand recognition, and makes operating expenses negligible.
- (3) Geography — it is the largest BtcTC in its geography.
- (4) Yield — MSTR does not generate *true bitcoin yield*.<sup>83</sup>

Overall, we have a favorable view of the company that should justify a premium valuation. However, its preferred stock issuance and management's backtracking on its guidance dampen mNAV upside in the near to medium term.

In [last year's report](#), we did a deep dive discussing MSTR's outperformance, mNAV, capital structure, forecasted bitcoin buying, price/mNAV scenarios, outlined the key risks, and discussed situations in which MSTR could become insolvent. Now that MSTR is known far beyond the Bitcoin community, this section will skip the explanatory content to focus on specific topics.<sup>84</sup>

For as much as we love companies that buy bitcoin at Epoch, we believe that efficient markets are the fundamental driver of civilization, and we're here to expand the information transparency underpinning them. There is no shortage of positive MSTR views, and our goal is to provide balance to the market's perspective here. It is critical of Strategy despite our positive stance on the company overall.

### Changes to MSTR in 2025

- MSTR adopted fair value accounting. Quarterly earnings now fluctuate based on bitcoin price. This changes the financials, but the market adjusts and it not affect the stock price.
- Microstrategy rebrands as "Strategy" to highlight its commitment to accumulating Bitcoin.
- Strategy launches its dashboard to provide transparency on Bitcoin purchases, mNAV, and more. This would become a staple for BtcTCs.
- During 2025, Strategy added \$214k to its balance sheet, nearly a 50% increase y/y. It held \$661k at the end of the year.
- MSTR launched preferred stock paying dividends of 8%-11%.<sup>85</sup>
- MSTR established a USD reserve of \$1.44bn in December (now \$2.25bn) to alleviate concerns about interest and dividend payments.<sup>86</sup>

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<sup>83</sup> As far as we can tell, MSTR does not leverage its bitcoin holdings to generate income.

<sup>84</sup> For those unfamiliar with MSTR, we suggest an introduction from users on Reddit or Youtube. This Reddit post gives a comprehensive introduction on MSTR, though we would caution readers to be skeptical of the post's persuasive language: [https://www.reddit.com/r/MSTR/comments/lm6utlw/the\\_ultimate\\_explanation\\_of\\_strategy/](https://www.reddit.com/r/MSTR/comments/lm6utlw/the_ultimate_explanation_of_strategy/)

<sup>85</sup> 8%-11% are the dividend rates. Some of the preferreds are trading below notional value so their effective yield is higher to new buyers.

<sup>86</sup> Link to source: [https://www.strategy.com/press/strategy-announces-establishment-of-1-44-billion-usd-reserve-and-updates-fy-2025-guidance\\_12-1-2025](https://www.strategy.com/press/strategy-announces-establishment-of-1-44-billion-usd-reserve-and-updates-fy-2025-guidance_12-1-2025)

## MSTR Preferred Stock

MSTR's preferred stocks appeal to a wide range of investors, offering attractive yields that we believe justify the risk.<sup>87</sup> Strong market demand has led STRC and STRF to trade at or above par value while STRK and STRD are below. Market prices align with the capital structure and correlate to bitcoin price with lower volatility — a higher bitcoin price boosts the preferred stock due to a greater margin of safety.

Strategy Inc. Preferred Stock (EOY 2025)			
(USD in Millions)	Amount (\$m)	Rate	Annual Dividends (\$m)
STRF	\$1,284	10%	\$128.4
STRC	\$2,959	11%	\$325.5
STRE	\$909	10%	\$90.9
STRK	\$1,398	8%	\$111.8
STRD	\$1,402	10%	\$140.2
<b>Total Preferreds</b>	<b>\$ 7,952</b>	<b>10.0%</b>	<b>\$ 797</b>

Source: Company Site<sup>88</sup>

However, MSTR's preferred stock is punishing common shareholders. The company quite literally *prefers* its preferred shareholders over the *commoners* (common stock MSTR holders).

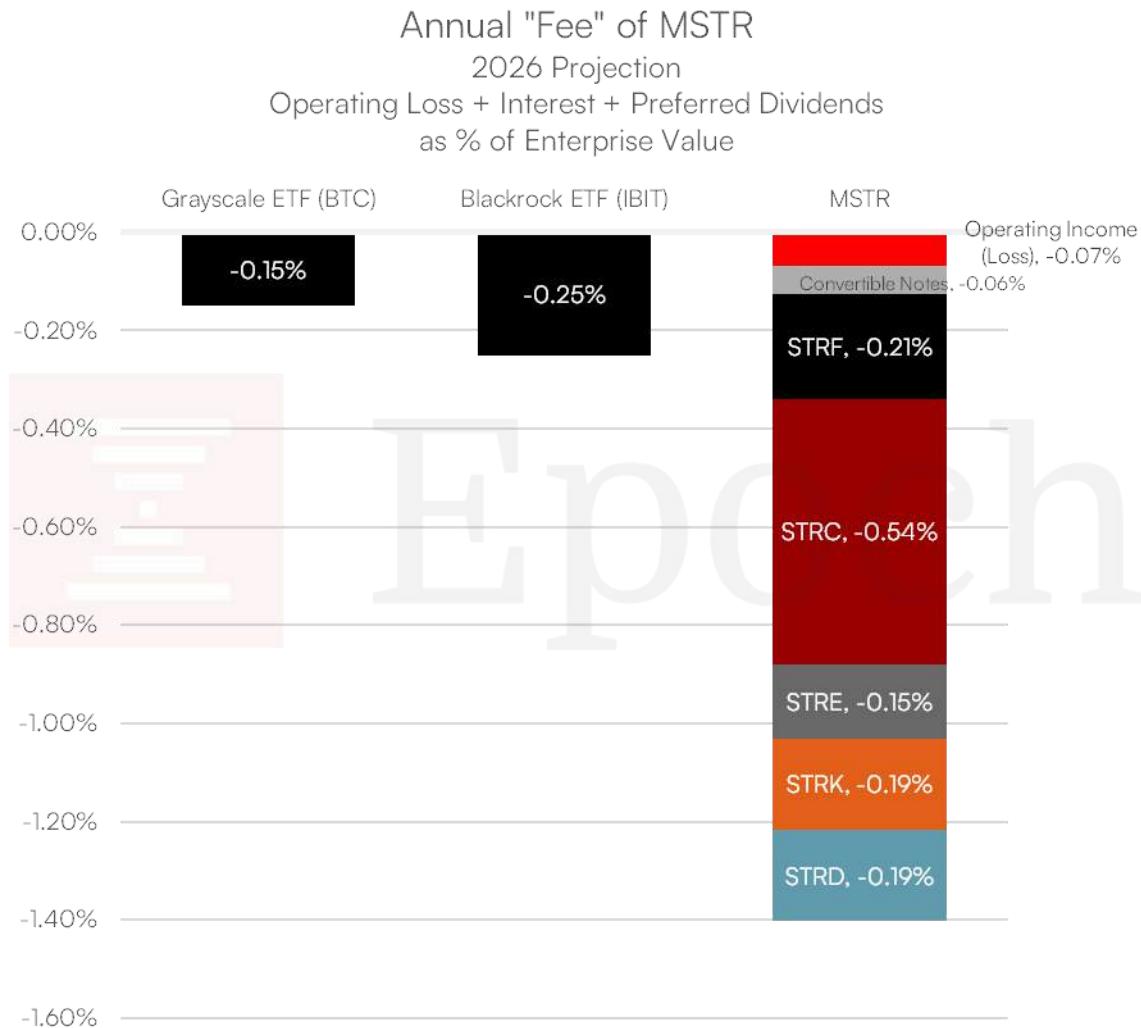
Common shareholders are paying preferred stock dividends of ~\$800m annually and operating expenses, representing ~1.4% of Strategy's enterprise value. As more preferred stock is issued, this *implied fee* will only increase, which could pull capital from MSTR to less expensive bitcoin-related securities (i.e., the ETFs).

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<sup>87</sup> Check out content on Reddit and Youtube to help evaluate risk and toggle with Strategy's credit tool:

<https://www.strategy.com/credit>

<sup>88</sup>Link to source: <https://www.strategy.com/>



We believe MSTR's decision to issue high-yield preferred stock reflects a long-term plan that harms common shareholders in the near term — *short-term pain for long-term gain*. In October 2025, S&P Global assigned MSTR a 'B-' issuer credit rating.<sup>89</sup> Proving its ability to pay interest and dividends could raise MSTR's credit rating and expand its addressable market to institutions that are restricted to investment-grade fixed-income securities. It could then issue debt/preferreds at low rates to buy bitcoin, thus lowering the risk of default, insolvency during bitcoin declines, and burden on common shareholders. Also, bitcoin could go up, significantly reducing these costs on a percentage basis.

In our view, this long-term plan comes at the expense of common shareholders and places a ceiling on the potential for mNAV expansion. We partially attribute MSTR's mNAV decline during 2025 to the increasing *implied fee*. Until Strategy reaps the long-term benefits, we do not foresee a rebound to 2x mNAV.

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<sup>89</sup>Link to source: <https://www.spglobal.com/ratings/en/regulatory/article/-/view/type/HTML/id/3466223>

To be clear, this doesn't mean that common shareholders cannot outperform. If STRC issuance were to increase by 10x in 2026 and bitcoin capital appreciation were to exceed the cost of capital from the STRC issuance, then common shareholders would outperform, all else equal.

## Trust in Management

Shareholders' trust in MSTR management and their adoration for Michael Saylor wavered in 2025; it will take time to restore that trust and for mNAV to regain the associated premium. Last year we noted that "The Michael Saylor Effect (and Trust in Management)" contributed to MSTR's outperformance and mNAV premium. MSTR's equity issuance defies its own guidance from mid-2025. In its Q2 2025 earnings report, MSTR outlined its equity issuance plans based on mNAV:

- **Below 2.5x mNAV:** Strategy will not issue common equity below this threshold except to (1) pay interest on debt obligations and (2) fund preferred equity dividends.
- **2.5x to 4.0x mNAV:** Strategy will opportunistically issue common equity to acquire bitcoin.
- **Above 4.0x mNAV:** Strategy will actively issue common equity to acquire bitcoin.

Source: Strategy Q2 2025 Financial Results<sup>90</sup>

MSTR continued issuing shares while mNAVs declined toward 1x. Most times, MSTR raises cash by issuing equity AND preferred stock. In these instances, it could argue that it was true to its word and BTC purchases were funded by preferred stock issuance. However, there were periods when MSTR acknowledged buying bitcoin with stock sales below 2.5x mNAV, such as August 18-24, 2025, when MSTR traded around 1.6x mNAV.

### BTC Update

On August 25, 2025, Strategy announced updates with respect to its bitcoin holdings:

During Period August 18, 2025 to August 24, 2025			As of August 24, 2025		
BTC Acquired <sup>(1)</sup>	Aggregate Purchase Price (in millions) <sup>(2)</sup>	Average Purchase Price <sup>(2)</sup>	BTC Holdings	Aggregate Purchase Price(in billions) <sup>(2)</sup>	Average Purchase Price <sup>(2)</sup>
3,081	\$ 356.9	\$ 115,829	632,457	\$ 46.50	\$ 73,527

(1) The bitcoin purchases were made using proceeds from the MSTR ATM, STRK ATM and STRF ATM.

(2) Aggregate and average purchase prices are inclusive of fees and expenses.

Source: MSTR Filings<sup>91</sup>

<sup>90</sup>Link to source: [https://www.strategy.com/press/strategy-announces-second-quarter-2025-financial-results\\_07-31-2025](https://www.strategy.com/press/strategy-announces-second-quarter-2025-financial-results_07-31-2025)

<sup>91</sup>Link to source:

[https://assets.contentstack.io/v3/assets/bltf8d808d9b8cebd37/blta457fda90cf3345c/68abb51b7119ea801fdaf56e/for-m-8-k\\_08-25-2025.pdf](https://assets.contentstack.io/v3/assets/bltf8d808d9b8cebd37/blta457fda90cf3345c/68abb51b7119ea801fdaf56e/for-m-8-k_08-25-2025.pdf)

After one quarter, MSTR edited this section:

- **Below 2.5x mNAV:** Strategy will tactically issue common equity below this threshold to (1) pay interest on debt obligations, (2) fund preferred equity dividends and (3) when otherwise deemed advantageous to the company.
- **2.5x to 4.0x mNAV:** Strategy will opportunistically issue common equity to acquire bitcoin.
- **Above 4.0x mNAV:** Strategy will actively issue common equity to acquire bitcoin.

Source: Strategy Q3 2025 Financial Results<sup>92</sup>

MSTR's reputation has taken a significant hit from low-mNAV equity issuance which contributed to its mNAV decline and led to its USD reserve. The company established a USD reserve to alleviate concerns about interest and dividend payments. While a USD reserve contradicts bitcoin philosophy, it allows MSTR to strategically issue shares when mNAV is high and avoid destructive dilution when mNAV is below 1x.

The USD reserve aligns with the “*short-term pain for long-term gain*” outlined in the last section. The USD reserve loses to inflation in the short-term. Long-term it could assuage concerns of credit rating agencies, increase MSTR’s rating, and open MSTR’s credit products to a large pool of new capital at much lower interest rates.

### MSTR Conclusions:

- MSTR as a company has done a significant amount of great things for the industry by proliferating a message that resonates with large scale capital providers. They have driven significant demand for bitcoin, whether directly or indirectly, and this is very based.
- Despite our criticisms, MSTR is well capitalized and able to weather a bitcoin decline.
- The preferred stocks are an attractive investment for fixed income investors.
  - Cautious investors can hedge downside risk with put options and still outperform investment-grade yield.
- The preferreds could punish common shareholders during periods of weak bitcoin performance and could benefit them from the alternative.
- MSTR’s mNAV may be limited by the *implied fee* being paid by common shareholders. As the company issues more preferreds, the implied fee will increase, all else equal. The implied fee could also decline as the price of bitcoin rises, all else equal.
- Shareholder trust in management may have declined when it sold shares below 2.5x mNAV to buy bitcoin despite explicitly stating a few months prior that it would not.

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<sup>92</sup>Link to source: [https://www.strategy.com/press/strategy-announces-third-quarter-2025-financial-results\\_10-30-2025](https://www.strategy.com/press/strategy-announces-third-quarter-2025-financial-results_10-30-2025)

MSTR would benefit from the following:

- Acquisitions of BtcTCs materially below 1x mNAV could be accretive to shareholders.
- Developing an asset management function to generate billions in revenue, pay dividends/interest with it, and improve their credit rating.<sup>93</sup>

## Summary

- Bitcoin treasury companies (BtcTCs) experienced a pronounced boom-and-bust cycle in 2025, broadly validating our expectations of exuberant valuations, deteriorating financing terms, and severe drawdowns, while largely sparing Bitcoin itself due to limited forced selling.
- Most BtcTCs funded Bitcoin purchases through dilutive equity issuance rather than debt, enabling rapid growth in Bitcoin per share during periods of high mNAV but creating an unsustainable, circular dynamic that ultimately drove mNAVs back toward or below 1x.
- BtcTCs provide niche advantages over direct Bitcoin ownership—such as access via equity markets, leverage, options strategies, and jurisdictional tax benefits—but expose investors to significant idiosyncratic risks including dilution, leverage, operating costs, and management decisions.
- Sustained mNAV premiums are justified only for BtcTCs with durable advantages in credit market access, scale, favorable geography, and the ability to generate true Bitcoin yield.
- High-mNAV BtcTC models reliant on equity-funded Bitcoin purchases are structurally unstable, as declining Bitcoin yield erodes the rationale for premium valuations and increases the likelihood of underperformance versus direct Bitcoin ownership.
- With many BtcTCs now trading at or below 1x mNAV, select companies may outperform Bitcoin through balance sheet discipline, cost control, or consolidation, making current valuations more attractive despite the sector's inherent structural risks.

## Bitcoin as Dilution Protection for Start Ups

At Epoch, we've seen a considerable uptick in start-ups using bitcoin as a balance sheet asset. Epoch's model helps our portfolio companies determine economic considerations when

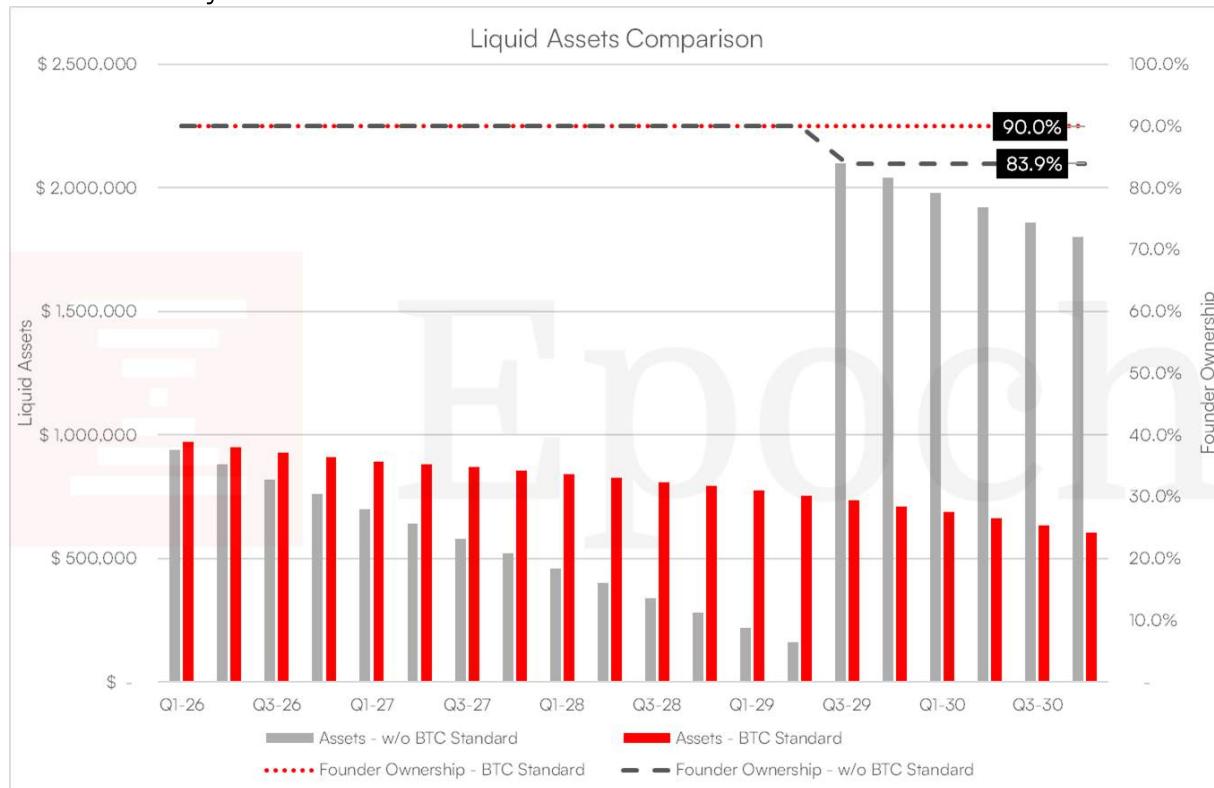
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<sup>93</sup> Under current IBIT options prices, selling calls 40% above the current price for May 2026 expiration would generate ~4.4% annualize yield. For MSTR, this equates to ~\$2.9bn in annual revenue. Over \$2bn would be left over to reinvest in bitcoin after paying interest and dividends. It would also allow for more preferred issuance without hurting common shareholders.

Earning true bitcoin yield could nullify our prior criticisms. The preferreds would not be punishing common shareholders and mNAV would be poised to expand.

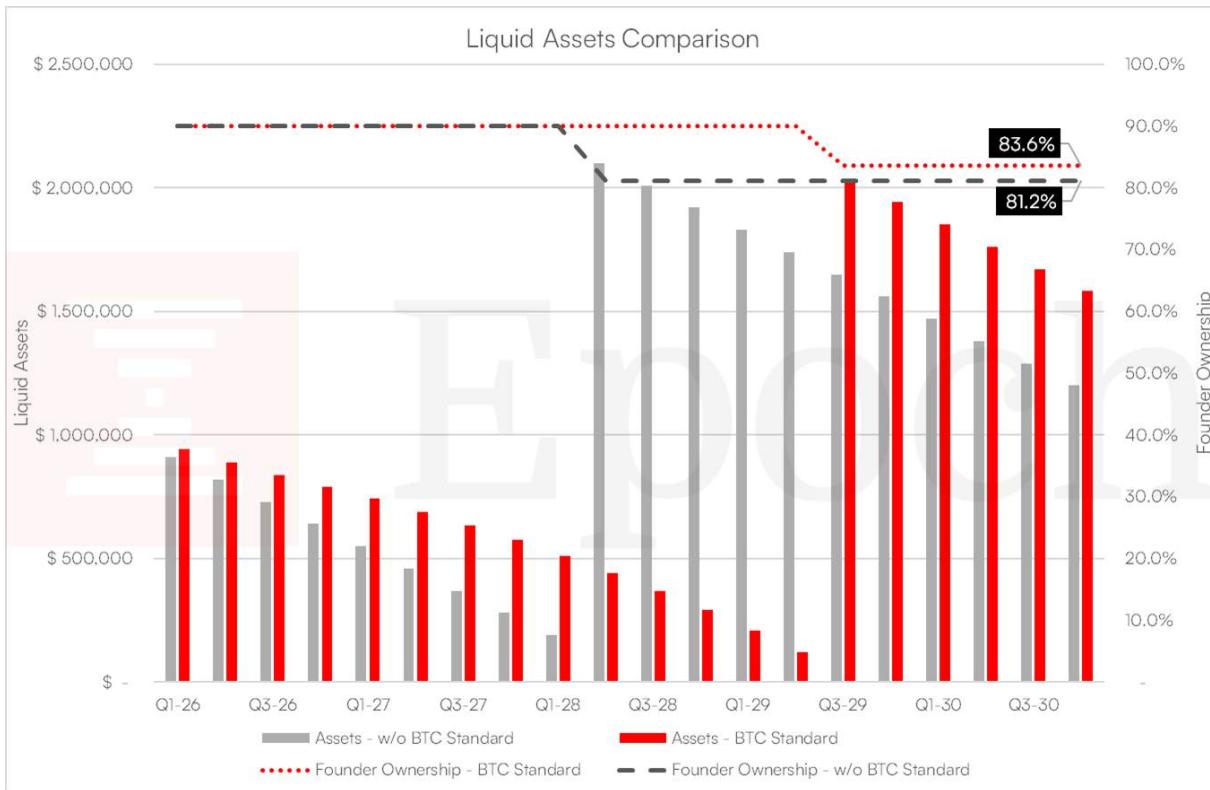
exploring bitcoin treasury allocations. The following analysis compares how a startup can be affected by holding Bitcoin on its balance sheet compared to a USD treasury allocation.

- (1) Consider a startup that raised \$1 million for 10% equity, and is burning \$20,000 per month. If this startup allocated 50% of its cash to Bitcoin and bitcoin's price increased annually by 30%,<sup>94</sup> the company would eliminate fundraising needs over the next five-year period. This strategy reduces the hassles of fundraising, while allowing shareholders to keep more of their equity, which would extend runway toward profitability and self-sustainability.

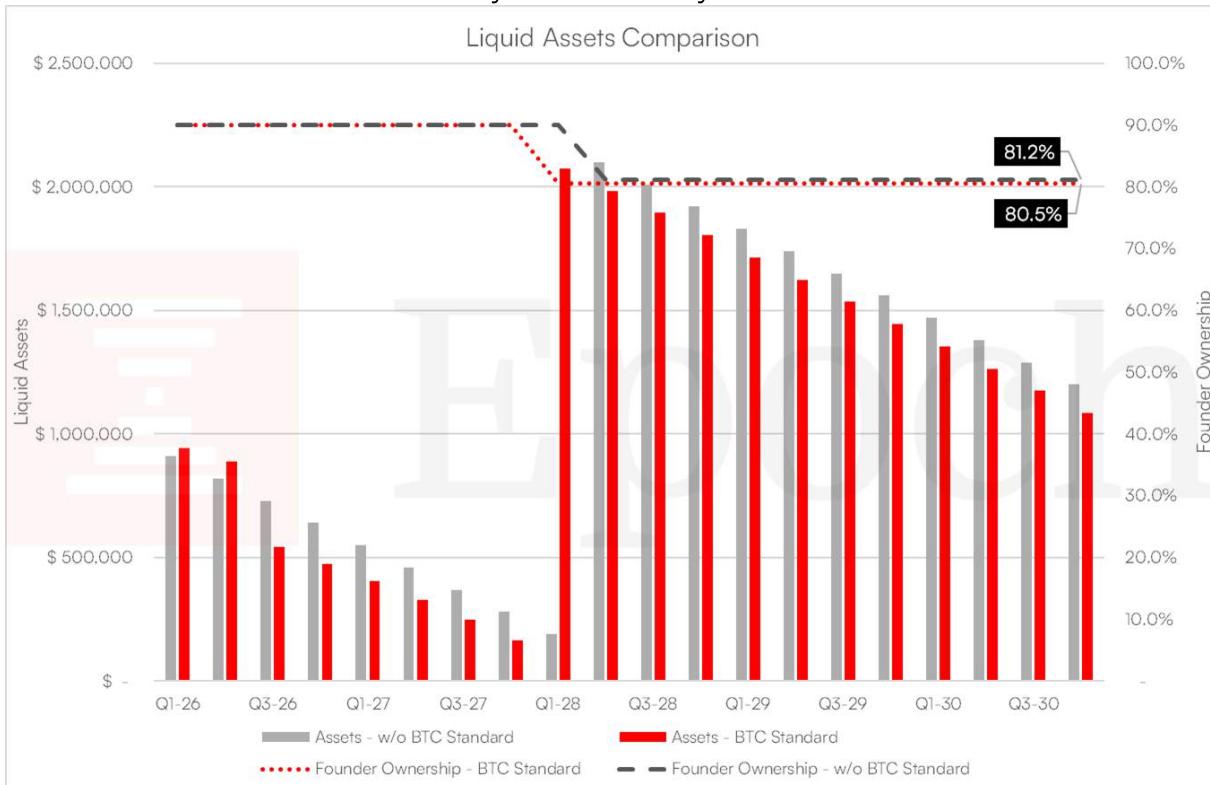


- (2) Consider the same company, but with a higher burn rate: \$30,000. With bitcoin on its balance sheet, the startup would still need to fundraise, but it could delay the round by at least one year — when comparing with a dollar-only scenario. This extended runway could boost its valuation and limit equity dilution.

<sup>94</sup> The historical CAGR of bitcoin is much higher than this: [https://casebitcoin.com/charts#sharpe\\_chart](https://casebitcoin.com/charts#sharpe_chart)



- (3) Even with Bitcoin's well-documented price cyclicity, downside risk remains manageable. With a 40% price decline in 2026, the company would need a fundraiser three months earlier and effectively dilute itself only 0.7% more.



Applying historical bitcoin price performance to each of these scenarios, a Bitcoin allocation strategy would materially benefit the company's financial position. Even with conservative growth assumptions, a bitcoin allocation can meaningfully impact short term financial marginal considerations.

While price volatility requires active solvency management, under extreme scenarios Bitcoin serves as collateral for short-term liquidity through borrowing. Given multiple volatility management options, along with Bitcoin's asymmetric return profile, start-up founders should consider allocating a proportion of idle funds to Bitcoin.

# Bitcoin Business Models



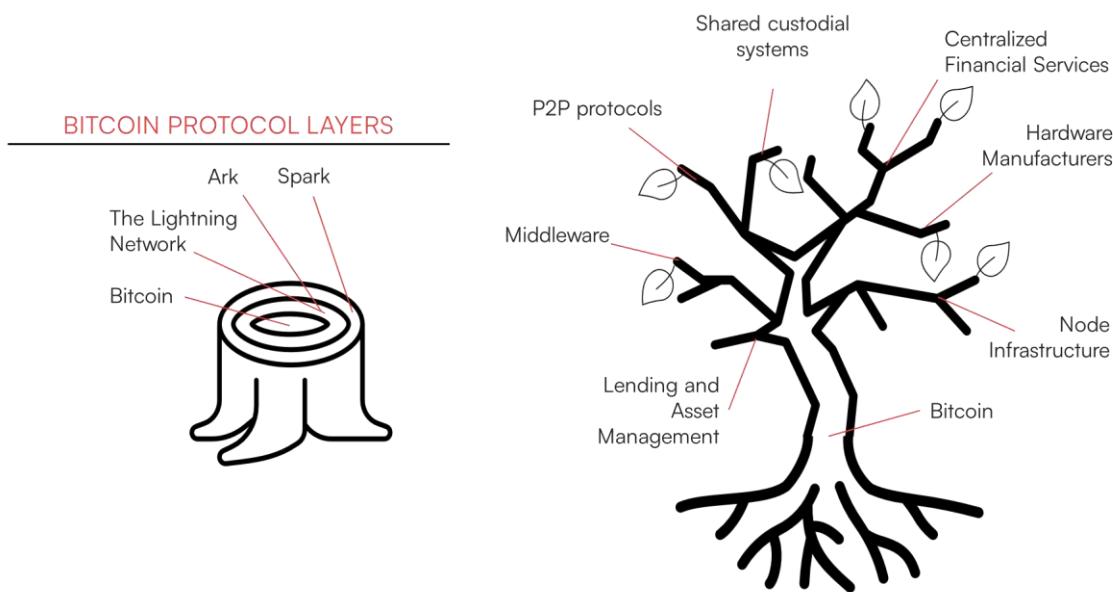
## Introduction

Bitcoin adoption is driven directly or indirectly by individuals interacting with the network. Direct interaction requires a moderate to significant understanding of open-source software. Typically, users with lower levels of technical acumen use products and services made by for-profit businesses.

Large-scale bitcoin businesses include many publicly listed companies, and there is an evolving space for early-stage businesses seeking to meet new consumer, business, and institutional demand for bitcoin. We view the Bitcoin ecosystem as analogous to a large tree:

### THE BITCOIN ECOSYSTEM

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Imagine a Bitcoin business or project as a branch, with product-market fit serving as sunlight. To continue growing, the branch must continuously search for sunlight. When a branch absorbs sunlight, it strengthens the tree trunk, and a trunk that discovers water nourishes all branches — benefiting not just the existing ecosystem, but all potential growth.

Some branches may grow, only to perish as faster-growing branches block their sunlight. Others might grow rapidly but unsustainably, only to fall off during a storm. Branches with access to adoption today may branch off in a completely different direction tomorrow, but they would never have gotten there without the initial sunlight. Most importantly, without branches, the trunk will not grow.

From the investors' perspective, our tree analogy reveals ample opportunity to invest in promising “branches” of the Bitcoin ecosystem, while capturing the potential of one of the

fastest-growing “trunks” in financial history. Branches grow faster than trunks, and without them, trunks wither and die.

The goals of this section are:

- 1) Define the Bitcoin ecosystem
- 2) Highlight recent changes within each sector of the ecosystem
- 3) Highlight emerging business models
- 4) Identify ecosystem pain points and calls to action

## The Bitcoin Ecosystem Taxonomy

The Bitcoin ecosystem spans multiple industries, making precise categorization for businesses interacting with Bitcoin increasingly complex. Much like most modern companies are now “internet companies” in some form, we expect Bitcoin to follow a similar adoption pattern.

But to live is to risk it all, and with that in mind, we’ve attempted to define the categories of the bitcoin ecosystem while recognizing that many firms operate in other industries and defy clean categorization. For each category, we’ve developed a three-part test to determine if a business is included in a particular category:

- 1) **Bitcoin-only companies:** companies exclusively centered around Bitcoin.
- 2) **Bitcoin-focused companies:** if not (1), companies focused on bitcoin, but that also provide broader crypto or non-crypto products and services.
- 3) **Bitcoin-enabling companies:** if not (2), companies that have Bitcoin support.

The taxonomy below defines Bitcoin businesses by their functional characteristics or primary source of demand. The examples included are illustrative, yet not exhaustive, highlighting key distinctions within the ecosystem.

The Bitcoin Ecosystem		
Type	Description	Examples
<b>Protocol Nodes</b>		
PoW Miners	Transaction ordering and block creation for the Bitcoin blockchain	Riot, Marathon, Core Scientific, CleanSpark, Iren, Gridless, Barefoot
Validators	Validate that transactions follow protocol rules	Babylon, Stacks, Alpen Bridge Operators
Sequencers	Order validated transactions for L1 commitment batches	Citreya, Alpen, Lightspark Operator
Functionaries	Signers of bridge and block transactions for sidechain protocols	Liquid, Rootstock
Mints/Guardians	Signers of bridge and block transactions for federated eCash protocols	Fedimint, Cashu
<b>Protocol Middleware</b>		
Node Operators	Businesses that professionally manage node infrastructure	Lightspark, Breez, Voltage, Ark Labs, Citreya, IBEX
Mining Pools	Software for hashrate aggregation and profit distribution	F2Pool, Ocean, Foundry, Antpool, Braiins
Relays	Data storage and relay for adjacent protocols that interact with bitcoin	RSK relays, Mixing Relays
Bridges	Software that locks BTC on bitcoin to back tokens on other protocols	BitVM, Multisig, Nomic MBTC, Brigo WBTC, Threshold TBTC
Oracles	Software that calls external data and puts it onchain	Lava oracles, Atomic Finance oracles
Developer Tooling	Platforms providing standardized developer tooling across protocols	Joltz, Galoy, Spiral, Breez, Voltage, BDK, LDK
<b>Native Applications and Platforms</b>		
P2P Payments	P2P payment protocol	Bitcoin
P2P Lending	Lending without giving full custody to a centralized intermediary	Debifi, Atomic Finance, Hodl Hodl, Firefish
P2P Exchange	Exchange without giving full custody to a centralized intermediary	Hodl Hodl, Bisq, Noones Buy Bitcoin, Robosats, Sidepit
P2P Markets	Derivative markets without giving full custody to a centralized intermediary	LN Markets, Blockspaces, Magma, Kaleidoswap, Peach Bitcoin
Real World Assets	Tokenization of tangible or intangible assets	Ducat, Liquid, Taproot assets
Digital Assets	Non-btc assets that are represented or traded using the bitcoin protocol	Taproot assets, Runes, Ordinals, RGB, Simple Proof
Staking	Lending BTC to add additional economic security to PoS protocols	Botanix, Babylon, Merlin, Sovryn
Mixing	Protocols that obscure connections amongst pseudonymous wallets	Coinjoin, Wasabi, Joinstr
Explorers	Tracks and organizes protocol activity for applications	Ordiscan, mempool.space
Wallet	UI for sending/receives bitcoin transactions and other financial functions	Bitcoin Core, Phoenix, Blink, Wasabi, Muun, Blitz, Fedi
<b>Consumer Financial Services</b>		
Exchange	Exchanges for fiat currency to bitcoin with centralized custody	Cash App, River Financial, Swan, Coincorner, BullBitcoin, Strike, Relai
Lending	Custodial lending platforms	Lend, Nexo, Lava Finance
Markets	Custodial orderbook for alternative markets (eg, hashrate derivatives)	Luxor, Roxom, LN Markets
Onramps/Offramps	API infrastructure between banks and applications	Bringin, Aureo
eCommerce Payments	Sending and receive bitcoin payments for businesses	Zaprite, Flash, Opennode
Point of Sale Payments	Sending and receive PoS bitcoin payments for businesses	Square, BTCPay, Musgel, Opago, Tando
Treasury Management Solutions	Enables bitcoin transactions and position management	Castle
Personal Finance Solutions	Cards, rewards, vouchers, and other consumer financial solutions	Fold, Azteco, BitRefill, Oshi
Remittances	Applications and infrastructure for international remittance payments	Strike, Crobo, NeutronPay, Osmo, Guap
Wealth Management	Comprehensive wealth management services for bitcoin	Bespoke, Sound Advisory, Basilic, Bitcoin Financial Advisors Network
Tax	Applications for tax accounting of bitcoin	Coinledger, Koinly, TokenTax, Taxbit
Life Insurance	Bitcoin denominated life insurance fund	Meanwhile
Shared Custody Solutions	Collaborative custodial solutions using multisignature technology	Unchained, Casa, Theya
Home Equity Bitcoin Lines	Platforms/lenders converting home equity to bitcoin exposure	Horizon, Sovana, Battery Finance
<b>Institutional Financial Services</b>		
Prime Brokerage	Offer an array of financial services investment and risk management strategies	NYDIG, Galaxy Digital
Custody	Digital asset custodial providers to financial institutions	Bitgo, River Financial, Fidelity, Gemini, Anchorage, BNY Mellon, Magnolia
Lending	Institutional grade lending (exclusive from prime brokerage)	Cantor Fitzgerald, NYDIG, Galaxy, Unchained
Asset Management	Managers of institutional bitcoin financial products	BlackRock, Bitwise, Van Eck, Valkyrie, Melanion Digital
Banking	Regulated banks with digital asset custody	Custodia, BNY Mellon
Custodial Insurance	Pure bitcoin custodial risk insurance and custody solutions	Anchorwatch
Analytics	Data analytics companies for L1 and L2 focus	Glassnode, Amboss, Hoseki, Perception
Sovereign Services	Technologies and financial services targeted at sovereign nations	Stokr, Jan3
<b>Physical Infrastructure</b>		
Mining Hardware	Manufacturers of PoW mining servers	Proto, Bitmain, Bitdeer, Bifury, Canaan, MicroBT
Mining Infrastructure	Mining operations specialized infrastructure providers	Giga Energy, Upstream Data
Heat Reuse Infrastructure	Leveraging bitcoin miners for heat applications	21Energy, Heatbit, Canaan, Sunbit, Exergy
Node Hardware	Bitcoin node specific hardware and network infrastructure	Start9, Umbrel, Nodl, MyNode
Wallet Hardware	Cold storage wallet hardware	Coldcard, Bitbox, Trezor, Ledger, Seed Signer, Bitkey, Foundation Devices
Satellite	Satellite infrastructure for bitcoin network remote access	Blockstream
ATM Hardware	Cash on/off ramping for bitcoin	Guap, General Bytes, BitAccess, Bitstop, Bytefederal
<b>The Bitcoin Economy</b>		
Media	Media channels, production, platforms, and outlets focused on bitcoin	What Bitcoin Did, Coin Stories, TFTC, Fountain, Bitcoin Magazine
Bitcoin Balance Sheet Companies	Companies with bitcoin treasury exposure as a core function	Tahini's, MSTR, Metaplanet, Nakamoto, Oranje, Steak and Shake
Gaming/Gambling	Bitcoin games and gambling applications	THNDR, Bitcasino, bustabit
Social	Bitcoin focused social applications	Geyser, Orange Pill App, Primal, Damus

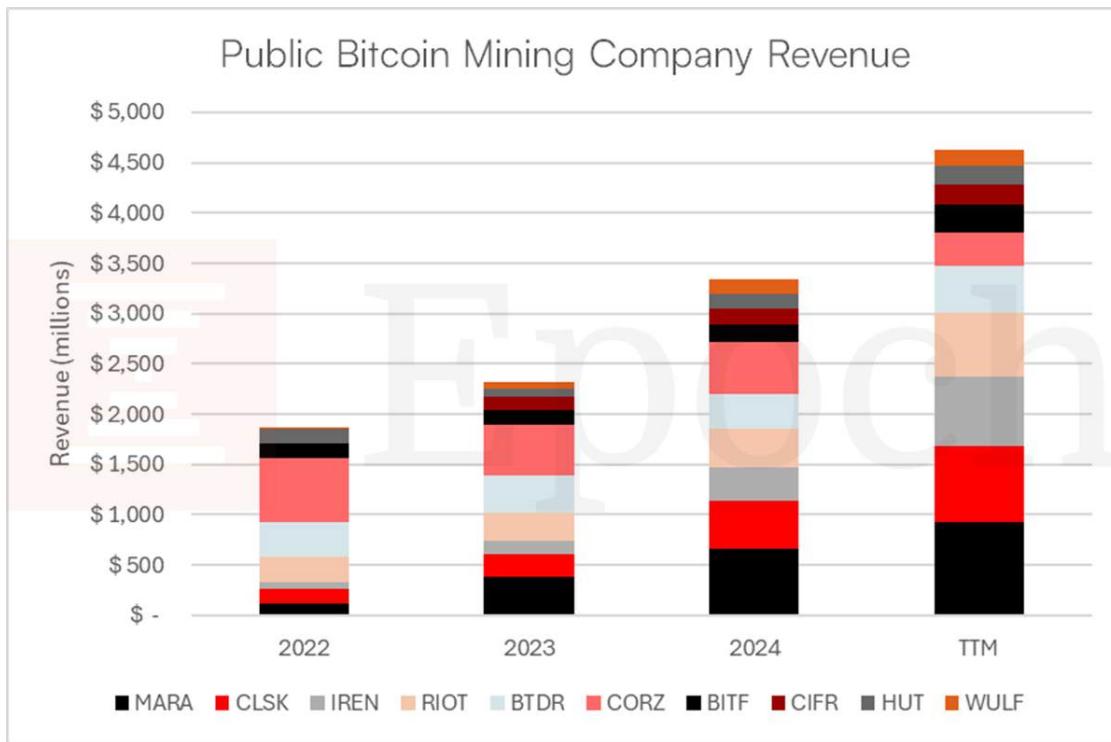
To avoid overwhelming readers with details, we define broad Bitcoin business categories and highlight some key business model considerations. We encourage readers to explore each category's specific constituents.

## Protocol Nodes

The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Protocol Nodes</b>			
PoW Miners	Transaction ordering and block creation for the Bitcoin blockchain	Riot, Marathon, Core Scientific, CleanSpark, Iren, Gridless, Barefoot	
Validators	Validate that transactions follow protocol rules	Babylon, Stacks, Alpen Bridge Operators	
Sequencers	Order validated transactions for L1 commitment batches	Citrea, Alpen, Lightspark Operator	
Functionaries	Signers of bridge and block transactions for sidechain protocols	Liquid, Rootstock	
Mints/Guardians	Signers of bridge and block transactions for federated eCash protocols	Fedimint, Cashu	

The fundamental architecture underlying the entire Bitcoin ecosystem is the network layer, comprising various nodes that interact with the Bitcoin protocol either directly or indirectly via integrated protocols. Functionally, nodes provide transaction ordering, block creation, and validation. Distinctions amongst various node types are defined by the functions they serve and the protocols they interact with.

Businesses that own or operate nodes for different purposes can extract revenue from block rewards and fees. The most significant revenue model within this category is bitcoin mining, which many have scaled into multi-billion-dollar, publicly traded businesses. We'll discuss the intersection of bitcoin mining and AI computing in a later section below.



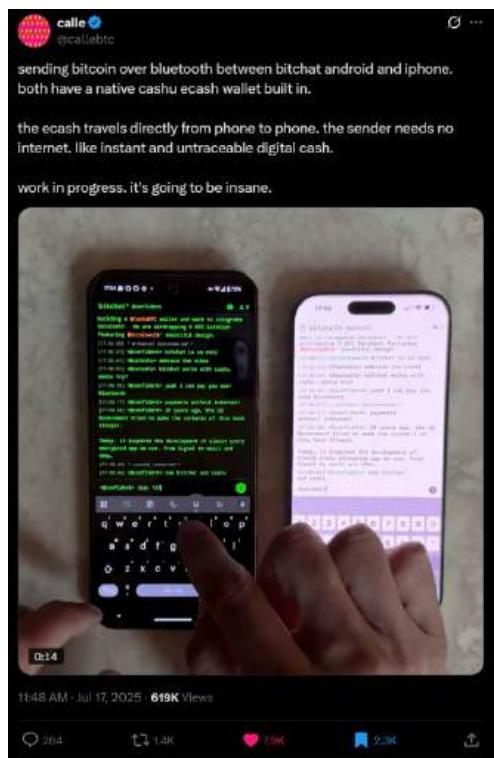
Source: sec.gov

Sequencers perform a similar function as bitcoin miners (transaction ordering) but for integrated protocols with bitcoin using proof-of-stake consensus algorithms, primarily associated with Rollups. Just as mining companies operate bitcoin miners, integrated protocol companies run sequencers. It is still early days for rollups atop bitcoin (most are currently in testnet), but to get a sense of the market size, Coinbase runs a sequencer for the Base protocol, which, as of this

writing, generated \$8M in revenue over the past 30 days.<sup>95</sup> Rollup operators such as Citrea and Alpen Labs remain in the testnet for now.<sup>96</sup>

Last and certainly not least, ecash mints made significant progress this year. Fedi launched its federation setup service<sup>97</sup> and there are now roughly 32 public Cashu mints.<sup>98</sup> ECash mints are inherently challenging to track. They're effectively custodially addresses that issue a private token with nearly instant settlement and no blockchain redeemable in bitcoin from the mint.<sup>99</sup>

We view eCash technology as a medium for free banking to emerge atop Bitcoin and, in the near term, protect users from human rights abuse. This year, Jack Dorsey vibe-coded the app Bitchat, which leverages Bluetooth mesh networks to communicate P2P across devices rather than relying on the internet. Calle integrated Cashu into this for P2P payments.<sup>100</sup>



<sup>95</sup> Source: <https://defillama.com/revenue/chains>

<sup>96</sup> Sequencers are effectively a type of validator which can pursue similar revenue models downstream from protocol activity. Notably, protocols will attempt to bootstrap activity on the network by subsidizing fees and often this is associated with token issuance and inflationary economics. We do not view this as a sustainable business model but don't view subsidizing adoption of a network as any less moral than marketing spends for customer acquisition. However, non-transparent inflationary token economics that leverage false marketing narratives to do so is pervasive in the broader crypto industry and as similar protocols emerge atop bitcoin, we are skeptical of protocols that pursue inflationary token subsidy strategies for stimulating demand. A best practice for protocols, in our view, is to raise capital, convert a proportion of it into bitcoin, and to use that capital to bootstrap protocol network effects.

<sup>97</sup> Source: <https://www.fedi.xyz/federationsetupservice>

<sup>98</sup> Source: <https://cashumints.space/discover>

<sup>99</sup> We've written extensively about the potential of this technology and its trust tradeoffs: <https://epochvc.io/pdf/Banks-without-Bankers-Eric-Yakes-2023.pdf>

<sup>100</sup> Check out the video here: <https://x.com/callebtc/status/1945903479693705607>

Within two months of launch, Bitchat saw massive spikes in adoption following social protests in Madagascar and 50,000 downloads during the Nepal protests on September 8<sup>th</sup> alone.<sup>101</sup> With hundreds of thousands of downloads, P2P tech is changing the landscape of social coordination, and we're witnessing the power of private P2P money at its advent.

## Protocol Middleware

The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Protocol Middleware</b>			
Node Operators	Businesses that professionally manage node infrastructure	Lightspark, Breez, Voltage, Ark Labs, Citrea, IBEX	
Mining Pools	Software for hashrate aggregation and profit distribution	F2Pool, Ocean, Foundry, Antpool, Braiins	
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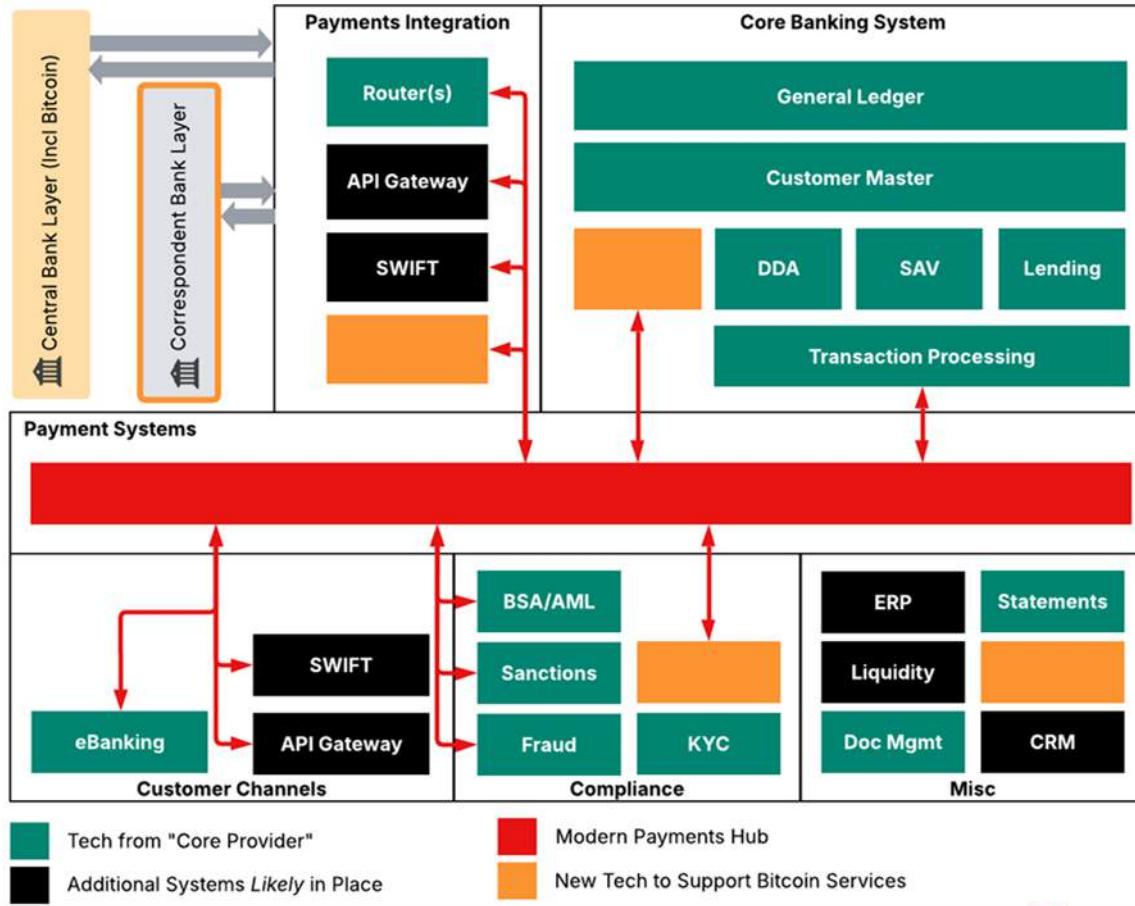
Middleware can be broadly defined as software that connects to other software, enabling integration across systems. We distinguish middleware categories by the protocols they interact with and their functional roles.

Notably, while still in its infancy, we anticipate the market for developer tooling will expand as Bitcoin integrates across protocols. In light of the repeal of SAB 121 under the Trump administration this year and the impending subsequent bank adoption of bitcoin, Epoch wrote a deep dive into bank adoption with the former CTO of Silvergate Bank.<sup>102</sup> We anticipate middleware in this category to expand following this graphic:

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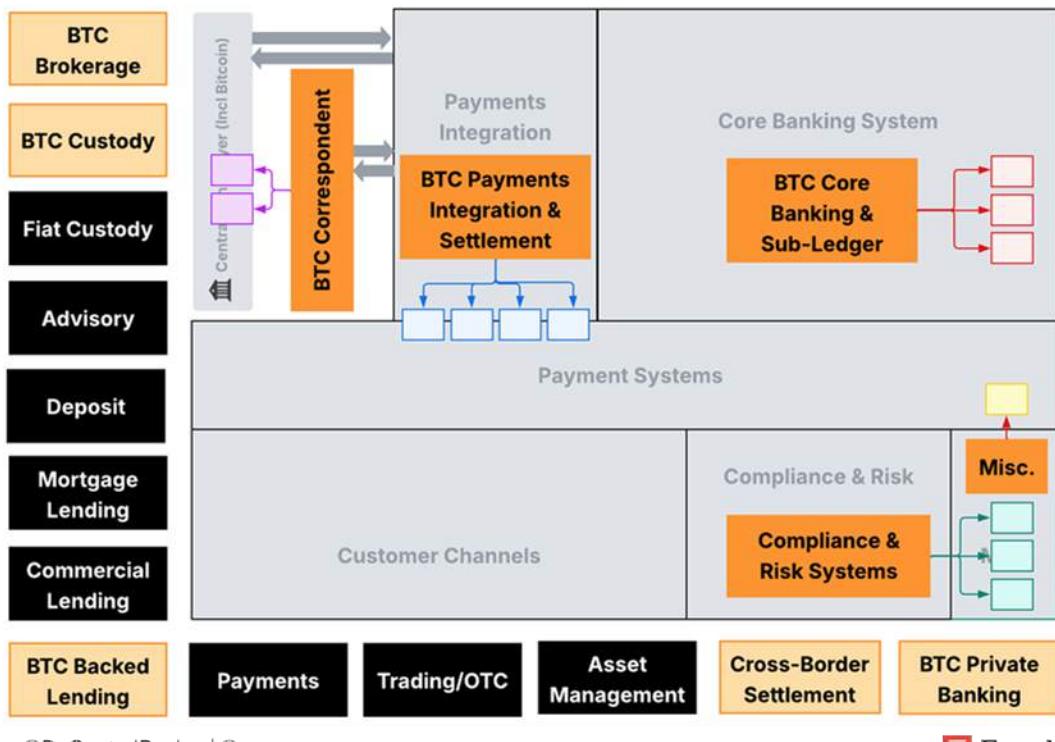
<sup>101</sup> Source: <https://www.digit.in/features/apps/what-is-bitchat-jack-dorsey-app-getting-popular-in-nepal-unrest.html>

<sup>102</sup> Epoch Bitcoin banking report linked here: <https://epochhvc.io/pdf/The-Future-of-Banking-with-Bitcoin-2025.pdf>



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 Epoch



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 Epoch

The bitcoin company Galoy is the perfect example of infrastructure and middleware for this category:

 Galoy Inc.	<p>Galoy provides open-source banking infrastructure purpose-built for both Bitcoin-native institutions and Banks, enabling them to offer financial services without relying on traditional banking core service providers. Their “Banking-as-a-Service” stack includes modules for account management, multisig custody, and real-time payment processing via Lightning Network integration.</p> <p>At the heart of the platform is a native double-entry ledger that can track both Bitcoin and fiat balances, supporting use cases such as merchant payments, remittances, and banking. Galoy's programmable controls enable advanced features such as time-locked funds, withdrawal permissions, and real-time balance conversions.</p> <p>The platform is designed for modular deployment, making it suitable for both fintech startups and established banks.</p>
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Among the various components of middleware, mining pools have achieved the most significant scale. Precise numbers aren't available, but a back-of-the-envelope estimate suggests the annualized revenue for mining pools is currently around \$300M. The largest mining pool foundry

holds ~30% of the hashrate, so we can estimate that this pool generates close to \$100M in revenue annually.<sup>103</sup>

Mining Pool Annual Revenue Estimate*	
Blocks per year	52,560
Block subsidy	฿ 3.125000
Fees as % of total	10.0%
Block reward	฿ 3.437500
Bitcoin Price	\$ 100,000
<b>USD Block Reward</b>	<b>\$ 18,067,500,000</b>
Blocks mined via pools	80.0%
Mining pool Fee	2.0%
<b>Mining Pool revenue</b>	<b>\$ 289,080,000</b>

\*assumptions as of December 2025

Lastly, node service providers are another model gaining material traction. Multiple early-stage businesses have emerged, explicitly focused on Lightning Network services. Lightspark launched its own Statechain Spark and has had a banner year, making some of the most material progress of any protocol in the bitcoin ecosystem. Most notably, LightSpark is used by SoFi and Nubank — two of the largest global neobanks — to enable their users to settle cross-border payments in bitcoin (without even knowing it).

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<sup>103</sup> Source: <https://hashrateindex.com/hashrate/pools>

Date	Development	Details & Impact
May 29	Spark Mainnet Launch	Spark, Lightsparks L2 protocol, goes live on the Bitcoin mainnet after the testnet phase. Enables self-custodial, instant BTC & stablecoin transfers via statechains.
Aug 14	Tether Integration	Tether adds Spark to Wallet Developer Kit (WDK): Lightning + non-custodial stablecoins on Bitcoin. Pivotal for USDT on L2.
Aug 19	SoFi Partnership	SoFi (11M users) launches remittances via Lightspark: USD → BTC → fiat (e.g., Mexico). Real-world volume starts.
Aug	Xverse Integration	Xverse (1.6M users) adds Spark: Instant BTC DeFi + stablecoins.
Sep 16	Google AP2 Protocol	Lightspark joins 60+ orgs: Spark enables AI-driven real-time settlements.
Oct 14	Acquires Striga	Buys EU e-money license firm: Compliant fiat ramps + regulated ops across Europe. Enterprise gateway unlocked.
Oct 17	Shakepay Partnership	Canada's Shakepay adds Bitcoin payments via Lightspark—North America expansion.
Oct 22	Lightspark Grid Launch	One API for global fiat/BTC/stablecoin: 65+ countries, 14K banks, 6B people. "Commands for money". Self-custodial rewards/payouts live.
Oct 23	Nubank Pilot Launch	Nubank (100M+ users in LatAm) begins pilot using Lightspark Grid + Spark for instant cross-border payments in Brazil, Mexico, and Colombia.

While still in its early stages, the model is gaining traction, and we discuss LightSpark in more depth in a later section.

## Native Applications and Platforms

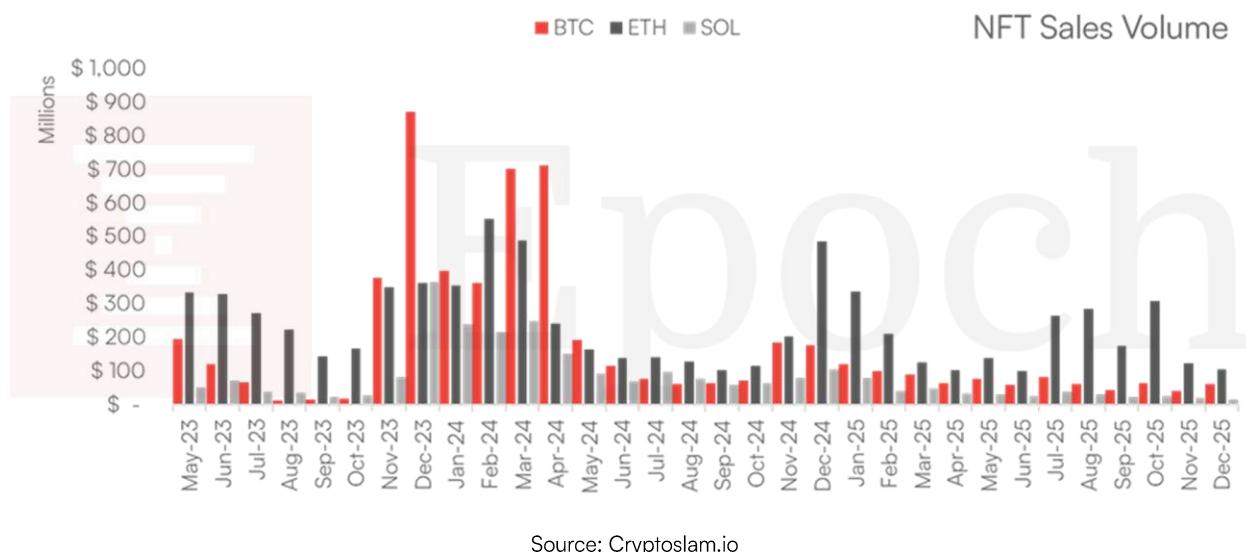
The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Native Applications and Platforms</b>			
P2P Payments	P2P payment protocol	Bitcoin	
P2P Lending	Lending without giving full custody to a centralized intermediary	Debiti, Atomic Finance, Hodl Hodl, Firefish	
P2P Exchange	Exchange without giving full custody to a centralized intermediary	Hodl Hodl, Bisq, Noones Buy Bitcoin, Robosats, Sidepit	
P2P Markets	Derivative markets without giving full custody to a centralized intermediary	LN Markets, Blockspaces, Magma, Kaleidoswap, Peach Bitcoin	
Real World Assets	Tokenization of tangible or intangible assets	Ducat, Liquid, Taproot assets	
Digital Assets	Non-btc assets that are represented or traded using the bitcoin protocol	Taproot assets, Runes, Ordinals, RGB, Simple Proof	
Staking	Lending BTC to add additional economic security to PoS protocols	Botanix, Babylon, Merlin, Sovryn	
Mixing	Protocols that obscure connections amongst pseudonymous wallets	Coinjoin, Wasabi, Joinstr	
Explorers	Tracks and organizes protocol activity for applications	Ordscan, mempool.space	
Wallet	UI for sending/receives bitcoin transactions and other financial functions	Bitcoin Core, Phoenix, Blink, Wasabi, Muun, Blitz, Fedi	

Native applications and platforms represent the most ambiguous category, blurring the lines between Bitcoin-specific and general consumer/institutional applications. Here, we focus on businesses with core operations tied to Bitcoin and integrated protocols.

2025 had several notable developments within this category:

- **Lava Finance:** raised capital on the idea of creating a self-custodial lending product and launched a line of credit product charging 5% annual interest with a 2% capital charge. Significant controversy emerged online because the company is not a self-custodial DLC product, may have serious security flaws, and could cause regulatory issues.<sup>104</sup>
- **Botanix**, a bitcoin protocol for decentralized applications, launched its mainnet this year, peaking at \$28M in TVL.<sup>105</sup> Bitcoin owners can lock their Bitcoin into a smart contract within this protocol and stake it for a staking yield. The yield is generated by fees paid to the protocol by transactions executed by the various applications using it.
- **Firefish:** a P2P self-custodial lending platform grew materially this year, self-reporting 3,000 BTC in collateral locked on the platform from 25,000+ users.<sup>106</sup>
- **Citreia:** a layer two ZK Rollup created the first BitVM bridge on bitcoin testnet enabling programmable settlement from Citrea onto bitcoin. Significant attention and controversy emerged around Citrea's use of OP\_RETURN at the center of the cross hairs in the Core vs. Knots bitcoin implementation debates.<sup>107</sup>

In this report, last year, when discussing the sustainability of NFTs on Bitcoin and the surge in demand at that time, it was driven by marketing narratives. A year later, and NFT volumes are on life support across Bitcoin, Ethereum, and Solana:



Source: Cryptoslam.io

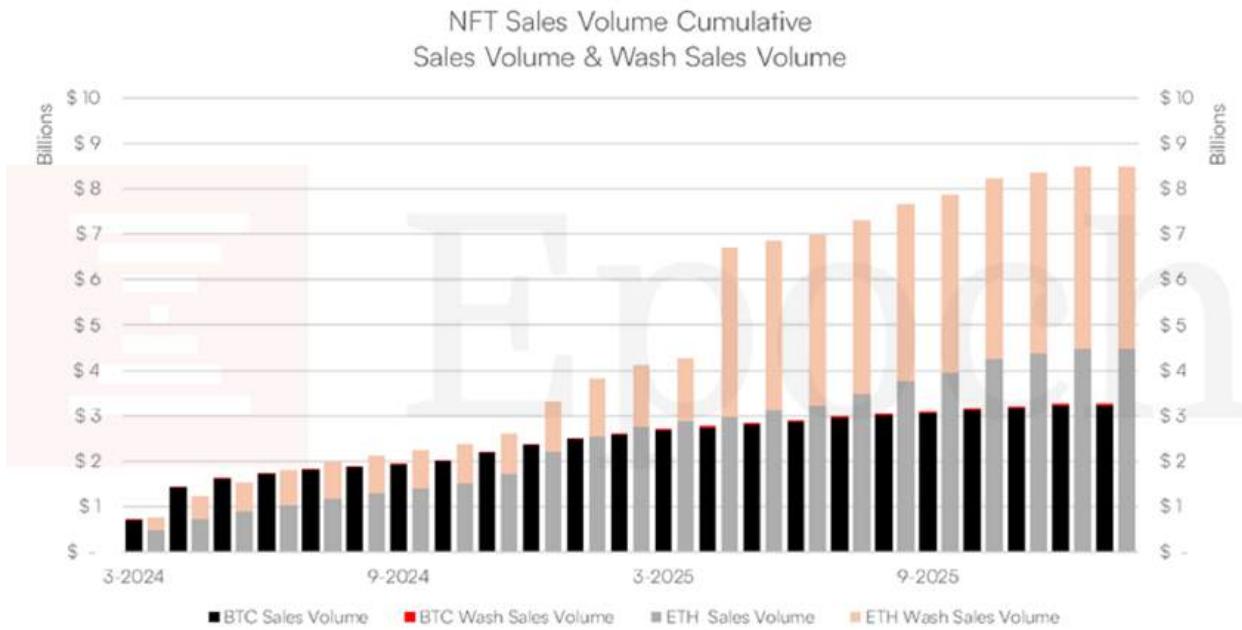
Further, whatever amount remains of NFT volumes in the Ethereum ecosystem is primarily wash trading:

<sup>104</sup> You can read more about this here: <https://x.com/Zone21BTC/status/1986064534251942002?s=20>

<sup>105</sup> Source: <https://defillama.com/protocol/botanix-stbtc>

<sup>106</sup> Source: <https://firefish.io/>

<sup>107</sup> Citrea is launching its mainnet in early 2026



## Consumer Financial Services

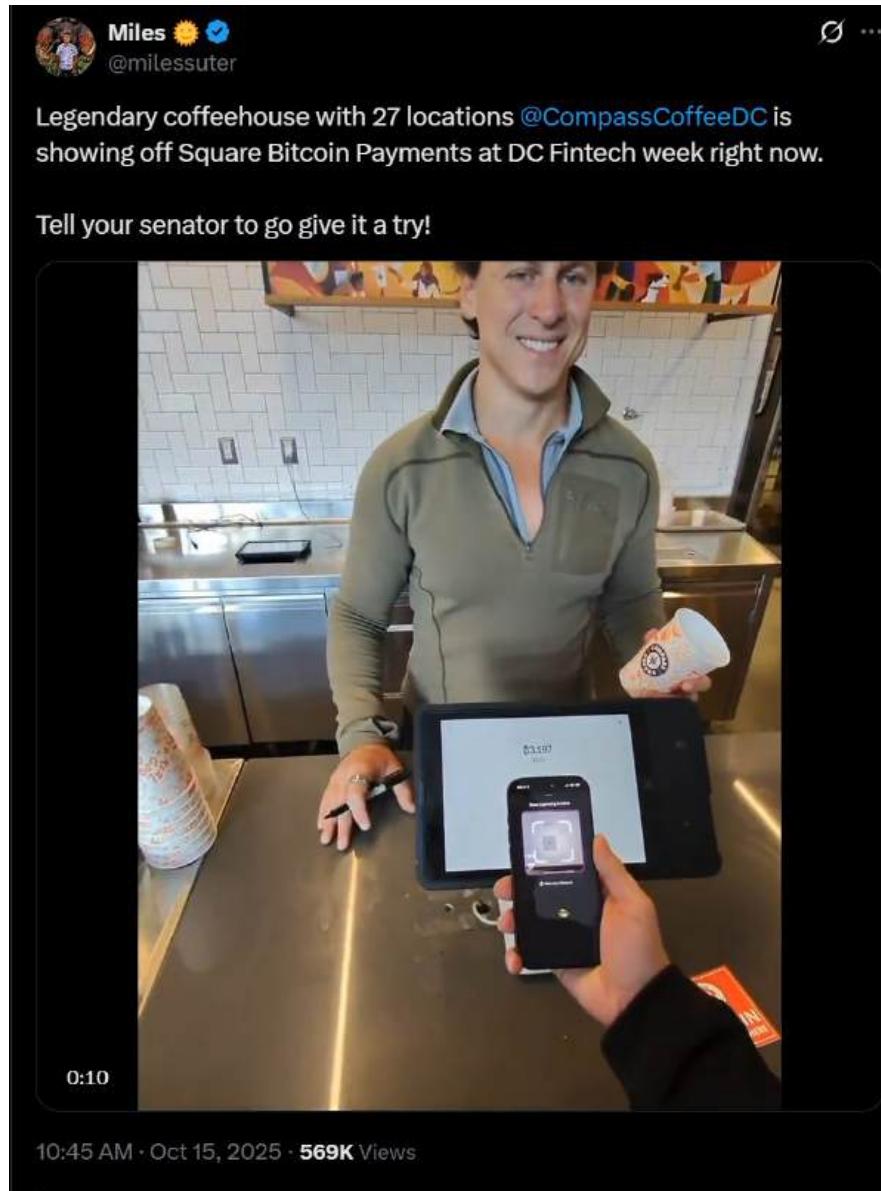
The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Consumer Financial Services</b>			
Exchange	Exchanges for fiat currency to bitcoin with centralized custody	Cash App, River Financial, Swan, Coincorner, BullBitcoin, Strike, Relai	
Lending	Custodial lending platforms	Ledn, Nexo, Lava Finance	
Markets	Custodial orderbook for alternative markets (eg, hashrate derivatives)	Luxor, Roxom, LN Markets	
Onramps/Oframps	API infrastructure between banks and applications	Bringin, Aureo	
eCommerce Payments	Sending and receive bitcoin payments for businesses	Zaprife, Flash, Opennode	
Point of Sale Payments	Sending and receive PoS bitcoin payments for businesses	Square, BTCPay, Musket, Opago, Tando	
Treasury Management Solutions	Enables bitcoin transactions and position management	Castle	
Personal Finance Solutions	Cards, rewards, vouchers, and other consumer financial solutions	Fold, Azteco, BitRefill, Oshi	
Remittances	Applications and infrastructure for international remittance payments	Strike, Crobo, NeutronPay, Osmo, Guap	
Wealth Management	Comprehensive wealth management services for bitcoin	Bespoke, Sound Advisory, Basilic, Bitcoin Financial Advisors Network	
Tax	Applications for tax accounting of bitcoin	Coinledger, Koinly, TokenTax, Taxbit	
Life Insurance	Bitcoin denominated life insurance fund	Meanwhile	
Shared Custody Solutions	Collaborative custodial solutions using multisignature technology	Unchained, Casa, Theya	
Home Equity Bitcoin Lines	Platforms/lenders converting home equity to bitcoin exposure	Horizon, Sovana, Battery Finance	

Consumer financial services have achieved the most significant adoption in the Bitcoin ecosystem. Unlike native applications, these services abstract network interaction complexities, creating a user experience that drives market penetration.

Most businesses in this category share a strategic focus on Bitcoin-only services, anticipating that as Bitcoin gains market share, cryptocurrency diversification will become less critical. Strategically, their thesis is that a Bitcoin-specific product suite will increasingly appeal to the average consumer.

Many businesses have expanded their focus to include support for stablecoins. By supporting both types of cryptocurrencies, they can be the primary drivers of demand, relegating the remainder of the market to others — a strategy following the Pareto rule for consumer preferences.

Far and away the most significant news this year for consumer applications was Square adding bitcoin payments to its sales terminals.<sup>108</sup>



This is arguably the biggest thing to happen for bitcoin merchant adoption in history. We expect merchants to prefer bitcoin payments because they are cheaper to accept than credit cards — ~2.5% vs. 0%.<sup>109</sup> Further, bitcoin payments don't allow chargebacks, so don't be surprised when

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<sup>108</sup> Check out the video: <https://x.com/millessuter/status/1978502623540936938>

<sup>109</sup> Link to source: <https://squareup.com/us/en/press/square-bitcoin>

your local coffee shop asks you to pay in bitcoin. As this report went to press, a Carrefour grocery store announced it will provide a 20% discount on bitcoin payments.<sup>110</sup>

Payment processors are typically either consumer application-focused or merchant acquirer-focused, and Square's competitive advantage is that it is the only company in the US that owns both sides of the transaction via Cash App and Square terminals. This enables the company to provide loyalty incentives and target merchant adoption in regions leveraging their heatmap of users:



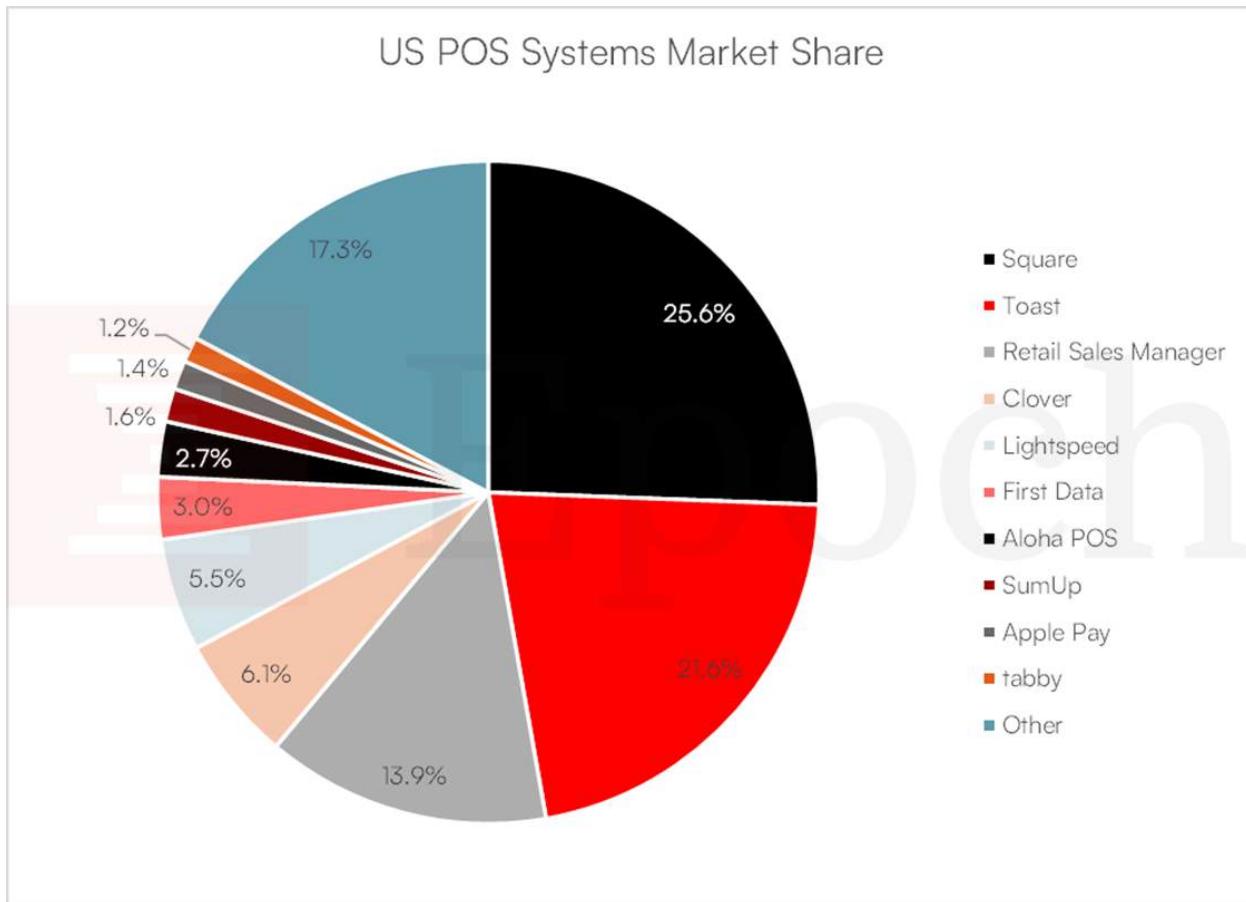
Source: Block Investor Day Presentation 2025<sup>111</sup>

This also provides an additional market opportunity for bitcoin businesses looking to address the highly fragmented set of POS providers interested in the Square playbook. Epoch's portfolio company [Castle](#) is doing just that — acting as middleware that connects the long tail of the fragmented POS market to bitcoin.

<sup>110</sup>

Link to source: <https://journalducoin.com/bitcoin/bitcoin-second-magasin-carrefour-accepte-bitcoin-lightning-network-rouen/>

<sup>111</sup>Link to source: <https://investors.block.xyz/overview/default.aspx>



Source: 6sense

## Institutional Financial Services

The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Physical Infrastructure</b>			
Mining Hardware	Manufacturers of PoW mining servers	Proto, Bitmain, Bitdeer, Bitfury, Canaan, MicroBT	
Mining Infrastructure	Mining operations specialized infrastructure providers	Giga Energy, Upstream Data	
Heat Reuse Infrastructure	Leveraging bitcoin miners for heat applications	2iEnergy, Heatbit, Canaan, Sunbit, Exergy	
Node Hardware	Bitcoin node specific hardware and network infrastructure	Start9, Umbrel, Nodl, MyNode	
Wallet Hardware	Cold storage wallet hardware	Coldcard, Bitbox, Trezor, Ledger, Seed Signer, Bitkey, Foundation Devices	
Satellite	Satellite infrastructure for bitcoin network remote access	Blockstream	
ATM Hardware	Cash on/off ramping for bitcoin	Guap, General Bytes, BitAccess, Bitstop, Bytefederal	

Like consumer financial services, institutional-grade businesses often offer overlapping financial services. For example, industry prime brokers like NYDIG and Galaxy Digital offer comprehensive capital markets and asset management services, fulfilling institutional demands across Bitcoin and broader cryptocurrency markets.

Prime Brokerage is now dominated by NYDIG and Galaxy Digital, particularly after the 2022 Genesis market collapse. To get a sense of scale, Galaxy Digital earned nearly \$240 million in net income from \$10.5 billion in AUM during the first three quarters of 2025.<sup>112</sup>

Custodial services represent a specialized niche with firms like River Financial and Unchained focusing exclusively on Bitcoin custody. This domain requires industry-specific knowledge that traditional financial firms typically avoid. The fee-based model becomes attractive at scale, as it grows with Bitcoin's capital appreciation. Magnolia Financial is another emerging start-up focused solely on bitcoin custodial services that interact with the layered ecosystem.<sup>113</sup>

Traditional financial institutions increasingly compete in brokerage, lending, asset management, and banking through robust balance sheets and regulatory advantages. In our report last year, we highlighted the significance of Cantor Fitzgerald's \$2 billion collateralized bitcoin lending program.<sup>114</sup> We discussed that these firms lack the technological agility of Bitcoin-focused firms, and we view specialized technology providers as potential acquisition targets for traditional financial firms that seek to expand their niche.

SAB 121 greatly hindered the growth of crypto custody services. It likely contributed directly to the centralization of Bitcoin ETF custody with Coinbase, a non-bank financial institution, or "fintech," serving the Bitcoin space since 2012.<sup>115</sup> SAB 121 was rescinded in early 2025, and banks are once again signaling their intent to enter the bitcoin and crypto custody space.<sup>116</sup>

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<sup>112</sup> Galaxy investor SEC 10-Q: <https://investor.galaxy.com/sec-filings/sec-filing/10-q/0001859392-25-000082>

<sup>113</sup> Magnolia is an Epoch portfolio company which you can learn more about here: <https://magnolia.financial/>

<sup>114</sup> Source: <https://decrypt.co/293359/cantor-fitgerald-plans-2-billion-bitcoin-lending-program-via-tether-report>

<sup>115</sup> In 2025, everything changed when SAB 121 which required banks to record custodied crypto assets as liabilities on their balance sheet. This unique treatment for crypto asset custody, as compared to other custody services, made provisioning of crypto custody services challenging for banks from a capital perspective.

<sup>116</sup> In May 2024, a Bill with significant bi-partisan support passed in both the House and Senate to repeal SAB 121. This Bill was ultimately vetoed by President Biden. SAB 121 was later rescinded by the SEC in early 2025.

Bank	Year	Implementation	Description
U.S. Bank	Jul 13	Outsourced	Partnered with NYDIG as its qualified sub-custodian, leveraging its expertise in regulatory compliance.
State Street	Jul 13	Outsourced	Collaborated with Lukka for data services, Gemini for custody, and New York for regulatory compliance.
BNY Mellon	Jul 14	Outsourced	Collaborated with Fireblocks and Chainalysis to develop a custodial platform for Bitcoin and Ether.
Standard Chartered	2023 & 2025	Joint Venture	Partnered with Northern Trust to launch Zodia Custody, allowing Standard Chartered to offer custody without direct balance sheet exposure in Europe. In 2025, services were expanded into the U.S.
Deutsche Bank	Jul 17	Joint Venture	Plans to launch institutional-grade Bitcoin and crypto custody services in 2026, developed in partnership with Bitpanda's technology unit and Swiss custodian Taurus SA.
SoFi	Jul 17	TBD	Announced plans to reenter crypto with custody and staking services slated to launch in late 2025.

The most significant announcement this year from banks entering this space is Erebor. This Thiel-backed bank intends to focus on the early-stage tech industry (including bitcoin and cryptocurrency).<sup>117</sup> We think many of these banks will get distracted by stablecoin use cases, even though the trillion-dollar opportunity over the next decade lies in bitcoin. We'll discuss this more in our emerging business models section.

## Physical Infrastructure

The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>Physical Infrastructure</b>			
Mining Hardware	Manufacturers of PoW mining servers	Proto, Bitmain, Bitdeer, Bitfury, Canaan, MicroBT	
Mining Infrastructure	Mining operations specialized infrastructure providers	Giga Energy, Upstream Data	
Heat Reuse Infrastructure	Leveraging bitcoin miners for heat applications	2IEnergy, Heatbit, Canaan, Sunbit, Exergy	
Node Hardware	Bitcoin node specific hardware and network infrastructure	Start9, Umbrel, Nodl, MyNode	
Wallet Hardware	Cold storage wallet hardware	Colddcard, Bitbox, Trezor, Ledger, Seed Signer, Bitkey, Foundation Devices	
Satellite	Satellite infrastructure for bitcoin network remote access	Blockstream	
ATM Hardware	Cash on/off ramping for bitcoin	Guap, General Bytes, BitAccess, Bitstop, Bytefederal	

Mining hardware is one of the earliest and most profitable sectors. Bitmain leads the category with estimated profits in the billions.<sup>118</sup> Jack Dorsey's Block entered the hardware manufacturing space in 2024 with a 3nm ASIC chip while offering open-source code to enhance

<sup>117</sup> You can read more on this here: <https://www.reuters.com/business/tech-billionaires-led-by-palmer-luckey-launch-new-bank-rival-svb-ft-reports-2025-07-02/>

<sup>118</sup> Bitmain profit estimate from 2018: <https://www.cnbc.com/2018/02/23/secretive-chinese-bitcoin-mining-company-may-have-made-as-much-money-as-nvidia-last-year.html>

decentralization, transparency, and resilience at the Bitcoin mining layer. Despite this, the supply remains heavily centralized, though market dynamics suggest a gradual reduction of concentration.

The mining hardware industry primarily focuses on increasing power density and operational reliability. Given the substantial capital and operating expenses of bitcoin mining sites, denser ASICs can improve economies of scale. Reducing the machine count while maintaining hashrate lowers real estate, installation, and maintenance costs.

Proto launched a step change in ASIC design this year.<sup>119</sup> The Rig, a modular ASIC that enables on-rack repairs, represents a new paradigm for ASIC mining built on the open-source software stack, Proto Fleet. The oligopolistic nature of the industry has hindered innovation and open standards for some time, and Proto took the risk that the first user-designed product built on open standards would be the shift that captures material market share.

Further, US manufacturing of Proto rigs is a significant competitive advantage. Tariff wars have shifted capex towards the US for all major Chinese mining manufacturers. However, Proto building this supply chain from the ground up could remain a significant geopolitical hedge for mining companies' supply chains.



The Rig

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<sup>119</sup> Proto is a subsidiary of Block, Inc.: <https://proto.xyz/products/rig#overview>

For consumer hardware, the most significant announcement this year is that Ledger is eyeing an IPO in New York in 2026.<sup>120</sup> Ledger stated it holds over \$100B of bitcoin for its customers — the fact that they know this is a problem. There's a variety of bitcoin-focused self-custody solutions listed above. We implore you to consider whether you're using a Ledger product.

Generally, we see consumer hardware manufacturers either expanding bitcoin-specific functionality, expanding cryptocurrency support, or broadening security device offerings to achieve greater scale. As Bitcoin adoption grows, a focused approach to its functionality and security models may drive greater market penetration.

## The Bitcoin Economy

The Bitcoin Ecosystem			Epoch
Type	Description	Examples	
<b>The Bitcoin Economy</b>			
Media	Media channels, production, platforms, and outlets focused on bitcoin	What Bitcoin Did, Coin Stories, TFTC, Fountain, Bitcoin Magazine	
Bitcoin Balance Sheet Companies	Companies with bitcoin treasury exposure as a core function	Tahini's, MSTR, Metaplanet, Nakamoto, Oranje, Steak and Shake	
Gaming/Gambling	Bitcoin games and gambling applications	THNDR, Bitcasino, bustabit	
Social	Bitcoin focused social applications	Geyser, Orange Pill App, Primal, Damus	

The Bitcoin economy is a catchall term for businesses that rely on Bitcoin to succeed. The two dominant models are media companies and firms using Bitcoin as a primary reserve asset.

Bitcoin media companies generate revenue through podcasts, social media, YouTube channels, and events or conferences. BTC Inc. is a salient example, reporting over \$100 million in revenue.<sup>121</sup> Built in 2012, BTC Inc. operates primary social media channels, some of the most significant industry events, and an online publishing house, Bitcoin Magazine. As explored in our adoption section, mainstream media coverage of Bitcoin continues growing, suggesting this sector will expand across industries as adoption spreads.

The most significant news this year was the rise and fall of treasury companies, which we've addressed in its own section. Aside from the incumbents, BTC Inc. and Nakamoto Treasury Company likely received the most publicity among the new treasury companies.

Steak and Shake had a banner year, driven by bitcoin adoption as a treasury reserve and as a payment method. Using Bitcoin for payments and as a reserve asset attracts outsized media attention while also improving financial performance in a way not possible with any other asset. This year, Steak and Shake launched bitcoin payments via its POS at all locations, as well as a bitcoin reserve, partnering with the bitcoin company Fold. As of Q3 2025, same-store sales were up 15% following the bitcoin adoption announcement, and every consumer company should

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<sup>120</sup> Full article here: [https://www.ft.com/content/098d43f1-4889-4790-b47c-4392663f949e?accessToken=zwAGQyjPi-X4kc8JjUPxSIIhkNOOfEOSZj-Ung.MEQCIDxEOUh\\_1NeEVzTiZqOWAHRlkwSuVgCaxvi55r3b73jYAiBfHvl3wSK\\_TpfALFQaHlpwCXxG31-3pm2oPxoKZHjzkw&sharetype=gift&token=233e5d31-0d7a-4606-9928-3da003bb5b83](https://www.ft.com/content/098d43f1-4889-4790-b47c-4392663f949e?accessToken=zwAGQyjPi-X4kc8JjUPxSIIhkNOOfEOSZj-Ung.MEQCIDxEOUh_1NeEVzTiZqOWAHRlkwSuVgCaxvi55r3b73jYAiBfHvl3wSK_TpfALFQaHlpwCXxG31-3pm2oPxoKZHjzkw&sharetype=gift&token=233e5d31-0d7a-4606-9928-3da003bb5b83)

<sup>121</sup> BTC Inc. website: <https://b.tc/>

implement this marketing playbook.<sup>122</sup> Most importantly, you can now buy Bitcoin-branded fast food burgers, and the world is a better place because of it.



Lastly, a special shout-out to our very own Danny Knowles for the relaunch of the What Bitcoin Did podcast this year. Danny is absolutely crushing it, has single-handedly brought back Bitcoin Twitter, and Epoch is a proud investor in the media company.<sup>123</sup>

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<sup>122</sup> You can read more here: <https://bitcoinmagazine.com/business/steak-n-shake-launches-bitcoin-reserve>

<sup>123</sup> We miss you Pete



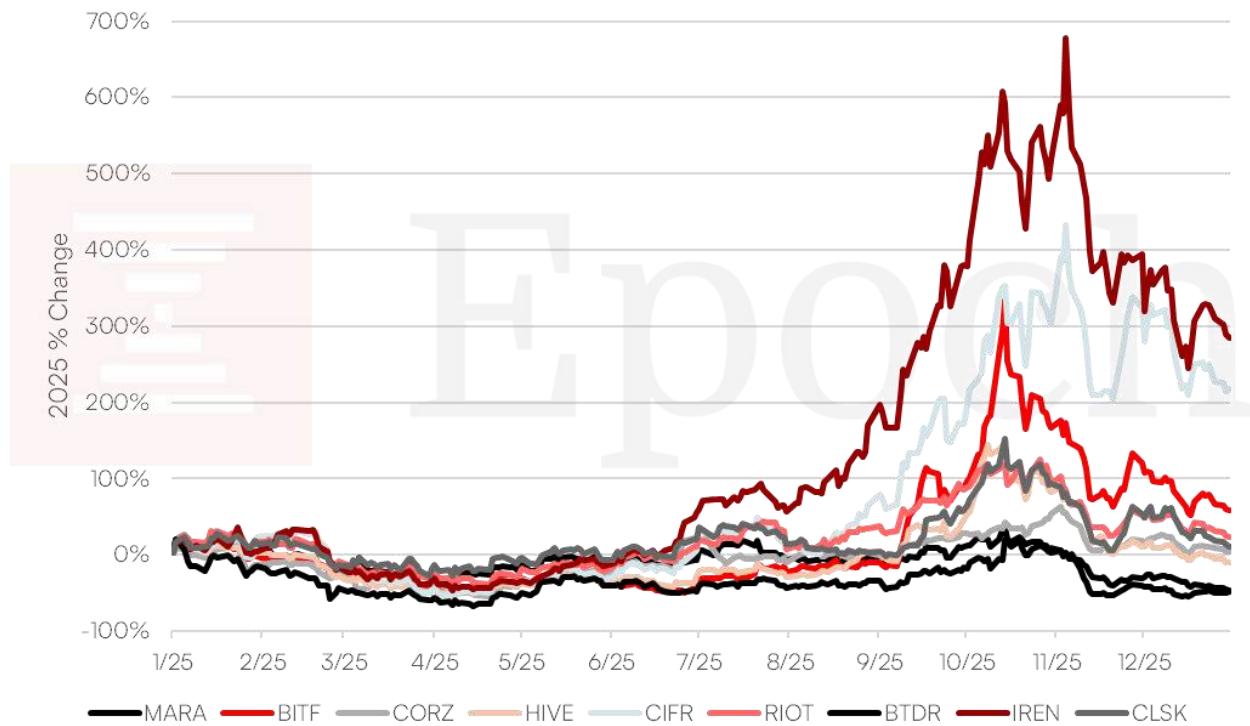
## Emerging Business Models

Having established the key categories of the Bitcoin ecosystem, we'll now examine a few emerging business models. These models are already established, and we see significant growth potential in the near- to medium-term.

### AI and Bitcoin Mining

2025 was a banner year for bitcoin mining, despite relatively stagnant bitcoin price performance:

## 2025 Stock Price Performance Bitcoin Miners



Bitcoin capital appreciation and the rise of AI compute demand were the primary drivers behind this. Few large-scale public miners have pivoted to AI compute at all, and of those that have, it currently accounts for only a small share of their revenue. However, valuation multiples for companies that have announced the largest expectations for future compute partnerships have expanded the most, with Iren and Cipher trading at 22x and 33x TTM revenue, respectively.

NAME	TICKER	EH/S	BTC Production	BTC HELD	J/TH	MARKET CAP 2025 (\$Bn)	TTM REVENUE (\$m)	AI % of Revenue	MC/Rev
			per EH/s (Monthly)						
Marathon	MARA	60.4	฿ 12.2	฿ 53,250	19	\$ 3.88 bn	\$ 919 m	-	4.2x
CleanSpark	CLSK	50.0	฿ 13.2	฿ 13,099	16	\$ 3.16 bn	\$ 766 m	-	4.1x
Iren	IREN	50.0	฿ 15.2	฿ 0	15	\$ 15.08 bn	\$ 685 m	3.0%	22.0x
Bitdeer	BTDR	60.3	฿ 11.5	฿ 2,000	20	\$ 2.71 bn	\$ 464 m	1.1%	5.8x
Riot	RIOT	38.5	฿ 13.2	฿ 18,005	20	\$ 5.70 bn	\$ 637 m	-	8.9x
Cipher	CIFR	23.6	฿ 10.6	฿ 1,500	17	\$ 6.77 bn	\$ 206 m	-	32.8x
Hut 8	HUT	1.8	฿ 3.0	฿ 13,696	16	\$ 6.40 bn	\$ 178 m	-	36.0x
Core Scientific	CORZ	19.1	฿ 13.7	฿ 2,116	24.5*	\$ 5.18 bn	\$ 334 m	18.4%	15.5x
Bitfarms	BITF	14.8	฿ 14.0	฿ 1,827	19	\$ 1.70 bn	\$ 271 m	-	6.3x
Terawulf	WULF	11.6	฿ 15.0	฿ 15	18	\$ 5.46 bn	\$ 168 m	-	32.6x

\*Jan 2025 data

Expectations for future AI compute operations are driving significant differences in earnings expectations across miners. Neither hashrate efficiency nor bitcoin held on the balance sheet appears to drive a premium in valuation multiples.

Given the large but uncertain expectations for AI infrastructure buildout and the massive valuation premiums, we believe the market prices Iren and Cipher the highest among the peer group, given the credibility of their pivots. At the same time, Core Scientific maintains risk in the outcome of its acquisition by CoreWeave — still demanding a premium but not nearly as significant as those on Iren and Cipher.

Thus, the primary business model trend in bitcoin mining has shifted towards AI computing. Some industry analysts have positioned the dual nature of operations as synergistic, but we don't believe this is the case.

Bitcoin miners are repurposing operations because they hold a capex advantage, making it cheaper to repurpose their existing mining operations for AI compute than for hyperscalers to build greenfield operations. AI compute has wider margins but more initial capex than bitcoin mining, and sites that require less capex have an advantage in capturing these margins on a shorter time horizon.

So, the reality is that miners are pivoting towards AI rather than finding operating synergies with existing mining operations. We expect this trend to continue because AI and Bitcoin infrastructure must be purpose-built for the type of computation, and building infrastructure for both on the same energy would be capital-inefficient.

Although retrofitting mining operations for AI can make sense for some miners in the short term, in the long term, it will be the source of energy that drives which form of computing makes the most sense. Bitcoin mining is much less sensitive to uptime demands, whereas AI infrastructure must be overbuilt to support contractually defined guarantees. For example, a bitcoin miner needs to minimize the cost of its energy, but doesn't have to mine at all times - only when the energy is produced should it mine. Therefore, energy curtailment or stranded off-grid sources are optimal for bitcoin mining, while consistent, cheap on-grid energy sources are optimal for AI compute.

Considering this, we expect that over the next decade, miners with energy assets will pivot to more expensive on-grid energy assets for AI compute, while bitcoin mining build-outs will be economically rational for stranded and more variable sources, such as pure-play wind and solar. Many significant public mining assets are leveraging energy sources that could soon be obsolete for bitcoin, with rapid hashrate growth making the pivot to AI only more desirable. As hashrate grows, energy sources suitable only for bitcoin mining will become increasingly desirable and the only viable options for economically rational mining operations. The market for stranded energy bitcoin mining is just beginning.

## Bitcoin Bank Lending

The repeal of SAB 121 opened the door for bank adoption in the US. Banking lending against bitcoin collateralized loans is an obvious growth vector, which we discussed in our report from 2024:

*“We expect substantial growth, primarily in convertibles, with investment-grade and loans markets emerging as banks enter the space.*

*Market expansion, however, brings key risks. Collateral rehypothecation poses a primary risk to sustainability (as witnessed in the 2022 crash). We also foresee greater market exuberance, which will drive the replication of MicroStrategy’s success, pushing the risk curve further down as competition intensifies.*

*Despite the inherent cyclical nature in growth and leverage, Bitcoin’s superior qualities as collateral make the market ready for further material growth in the sector. In particular, technology businesses with exposure to growth in the lending market — even if they are not direct lenders themselves — could remain an attractive business model. These companies can capture loan origination volumes and transferability fees while maintaining relatively stable revenue when compared to direct lending. We value middleware technologies and platforms within the lending space that can reduce rehypothecation risks.*

*Notably, the repeal of SAB 121 in the US will spark a new competitive dynamic of traditional banks entering this market. We will produce a detailed report on the impact of this phenomenon on the industry in the coming months.”<sup>124</sup>*

Historically, bank lending has included:

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<sup>124</sup> Link to our 2024 report: <https://epochhvc.io/pdf/Epoch-Bitcoin-Ecosystem-Report-2024.pdf>

Institution	Role in Bitcoin Lending	Service Provider	Details
Fidelity Digital Assets	Facilitated bitcoin collateral loans	BlockFi	In 2020, Fidelity partnered with BlockFi to offer cash loans collateralized by bitcoin, with Fidelity providing custody. Clients could borrow up to 60% of the value of their bitcoin.
U.S. Bank	Custody supporting potential lending	NYDIG	Offers Bitcoin custody since 2021, which could enable lending, but no direct lending services have been confirmed.
BNY Mellon	Custody supporting potential lending	Fireblocks, Chainalysis	Launched digital asset custody in 2022, potentially supporting bitcoin collateral for loans, but no direct lending.
Silvergate	Facilitated Bitcoin collateral loans	Bitstamp, Fidelity	Launched the SEN leverage program in January 2020, which allowed customers to borrow USD against bitcoin held with approved custodians. Silvergate's bitcoin-backed loan book grew to \$1.5 billion at its peak, and the company experienced zero credit losses on this product.
SoFi	Facilitated bitcoin collateral loans	TBD	In June 2025, SoFi announced plans for bitcoin-backed lending, allowing members to borrow against their bitcoin holdings, with services to launch within 6 to 24 months, supported by their national banking charter and potential partnership with NYDIG.

SoFi was the first mover after the SAB-121 repeal this year, but has yet to launch a product or service formally. In our view, Bitcoin as a collateral asset is completely mispriced, and we anticipate a flood of bank announcements in 2026. The first bank to make bitcoin lending a fundamental pillar of its business will outperform its peers, given the potential to significantly increase its net interest margin (NIM). Market NIM is roughly 2-3%, and we wouldn't be surprised to see a bank achieve a 5% NIM from significant bitcoin lending exposure.

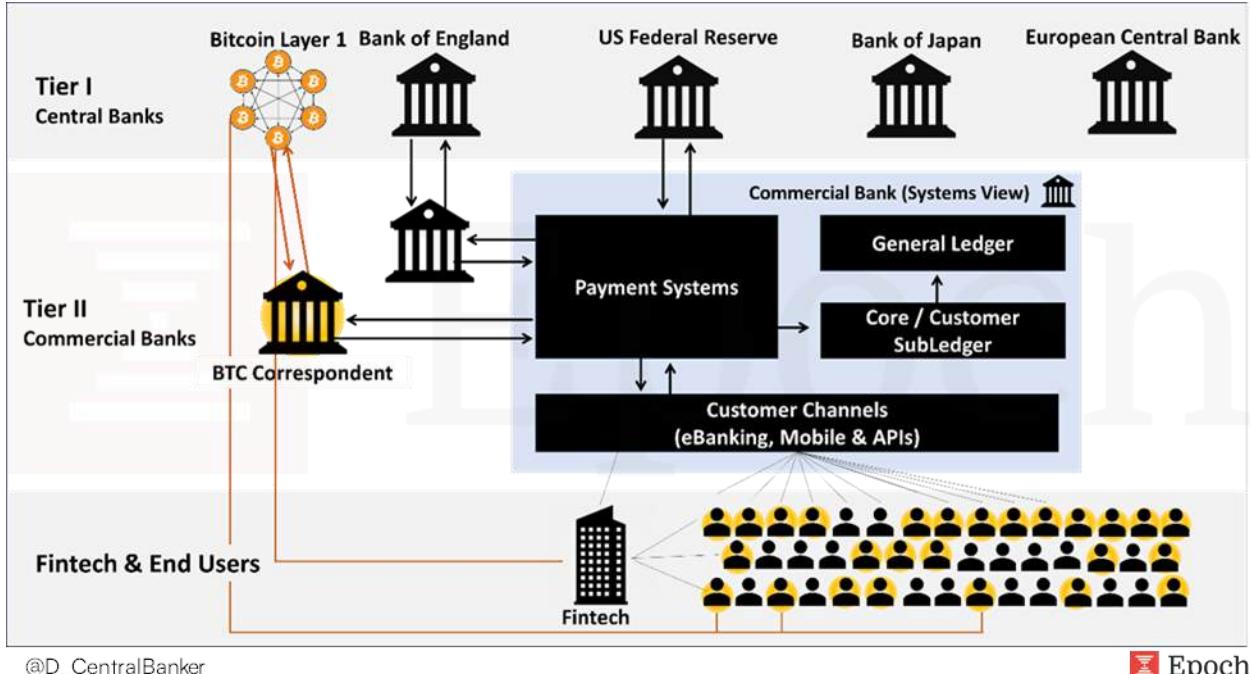
## Bitcoin Correspondent Banking

Further drawing on this expectation of bank adoption is the rise of bitcoin correspondent banking. Epoch's seminal 2025 report on this is the playbook for executing a correspondent model.<sup>125</sup>

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<sup>125</sup> Link to the report: <https://epochvc.io/pdf/The-Future-of-Banking-with-Bitcoin-2025.pdf>

*“The future state doesn’t look revolutionary; it looks familiar. Banks already use correspondent institutions to access foreign central bank ledgers. Adding a Bitcoin correspondent bank, as shown in [the image] below, fits neatly within that model. No reinvention of the banking stack is needed. The commercial bank plumbing remains largely intact.”<sup>126</sup>*



*“What’s different in this near-term state is the nature and role of the reserve asset. Bitcoin offers the same operational finality as Fedwire, with settlement throughput that mirrors it (roughly 200 million transactions per year). But unlike traditional central bank reserves, Bitcoin is globally accessible, politically neutral, and programmatically finite. It is base money, free of counterparty risk.*

*Just as commercial banks today hold reserves at the Fed, Bank of Japan, or European Central Bank (ECB), they will, at some point, hold reserves on the Bitcoin ledger. The entry point is likely not radically different than connecting to a foreign central bank today; it’s simply leveraging a designated correspondent. From there, Bitcoin can be integrated into treasury operations, custody infrastructure, and payment rails.*

*Bitcoin can (and is) being built independently of the current system, with its own native architecture, rules, and global settlement network. At the same time, it is increasingly being integrated into the existing financial infrastructure as collateral, as a settlement rail, and as a reserve asset. In fact, Bitcoin’s ability to operate both outside and within the existing economic system makes it uniquely positioned. Bitcoin is the only asset that can serve as a sovereign, censorship-resistant base layer while also integrating with the legacy stack as tier I base*

<sup>126</sup> Link to the report: <https://epochvc.io/pdf/The-Future-of-Banking-with-Bitcoin-2025.pdf>

*money. This dual capability, both standalone and interoperable, is what makes Bitcoin the apex predator of reserve assets. No other form of money has these properties.*

*While Bitcoin will continue to operate as a neutral asset independent of the existing banking system, we see a near-term path where Bitcoin will also be integrated into it, something we've begun to call deCentral Banking.*<sup>127</sup>

We expect this business model to emerge at scale in 2026.

## Lightspark

LightSpark announced partnerships with SoFi and Nubank this year. These preeminent neobanks adopting a bitcoin-native architecture were a substantial development for the ecosystem, and it is worth substantiating why. Lightspark has primarily two flagship product offerings:

- 1) **Grid:** connects tradfi to bitcoin through Lightning (and Spark), compliance, and connectivity. Akin to a correspondent banking network on Lightning, Grid enables institutions to use UMA (universal money addresses) to comply with regulations such as the Travel Rule. Sofi and Nubank use this product.
- 2) **Spark:** built for new institutions that don't operate on the same set of primitives that older tradfi institutions operate on. It's an alternative to Lightning for Bitcoin companies that don't want to handle the regulatory considerations of custodial Lightning.

The value proposition for Grid is simple: Bitcoin and Lightning are superior to legacy financial rails, and every tradfi institution would be on them if there were a way to have compliance and connectivity at the product level. Grid supplies that compliance aspect, and connectivity grows as more adopt Grid or compatible alternatives going forward.

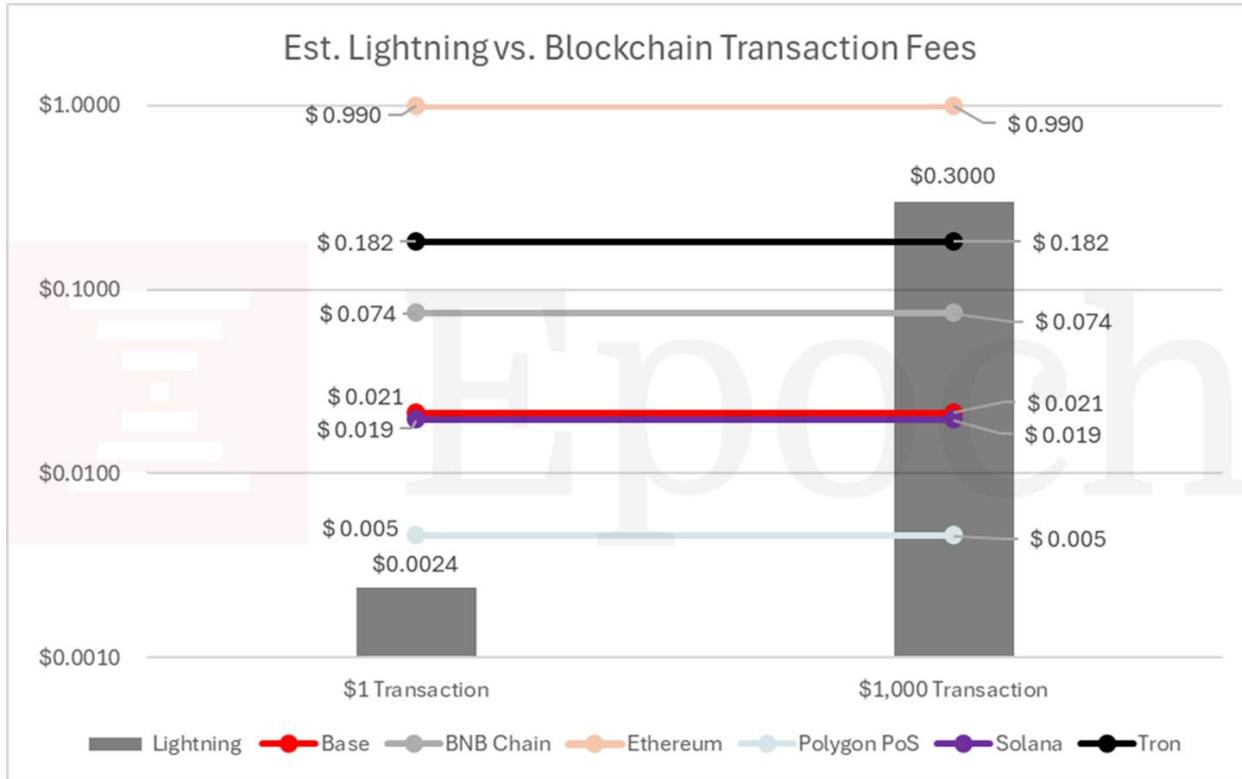
Spark has been controversial in the lightning community, and we looked into it. For lightning to provide a similar UX to Spark, you have to make it custodial and then have to pursue regulatory licensing to get the app out the door. Custodial lightning is a significantly more reliable way to operate lightning-compatible services, and for businesses that live and die by reliability, this aspect is paramount. Operationally, Spark doesn't require you to run a node, open channels, or maintain liquidity, and holds two primary benefits over custodial lightning:

- **Forward fee transparency:** forward transparency of fees on Lightning doesn't exist, and if you want to provide a great UX, the user should know beforehand how much the fees are going to cost.
- **Offline receive transactions:** Spark solves offline receive transactions for mobile — acting as a last-mile solution, which Lightning is not. Spark removes these issues with lightning out of the box, with similar trust trade-offs (arguably better) to those of custodial lightning.

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<sup>127</sup> Link to the report: <https://epochvc.io/pdf/The-Future-of-Banking-with-Bitcoin-2025.pdf>

Lightning is excellent and the future of low-value, high-volume, trust-minimized payments. This is why Lightspark uses the technology in their Grid product:



Source: Artemis, Fidelity Digital Assets<sup>128</sup>

Spark charges fees to enter and exit the chain, but it is zero cost once you're on Spark. For now, they plan to charge small fees for internal transactions, but since there are no liquidity constraints or on-chain interactions, fees would likely be lower than those on Lightning.<sup>129</sup> Lightning is needed as the settlement connectivity layer because many more people and companies today use Lightning than Spark. Spark complements lightning, provides downstream demand for lightning through connectivity, and, in our view, is superior to some corporate blockchain or crypto rail for settlement. Spark doesn't have a shitcoin and is simply competing on developer experience for users.

Lightspark received criticism from the lightning community in 2025 that we think is worth addressing:

- Spark is a walled garden with monopolistic tendencies: Spark is fully open source, but SSP (Spark Service Provider) software isn't open source yet. This is similar to closed-source LSP (Lightning Service Provider) implementations using open-source Lightning. The current operators for the LightSpark implementation of the Spark protocol are

<sup>128</sup> See *The Lightning Network: Expanding Bitcoin Use Cases* by Daniel Gray in partnership with Voltage

<sup>129</sup> The Lightspark team has plans to eventually charge on-chain fees for Spark in the range of 1 cent to prevent DDoS attacks

influenced by Lightspark today, but this can expand and change in the future - we're aware of at least one other party that is in the process of becoming an operator.

- Lightspark isn't contributing to the protocol with Spark: meeting users where they're at to get more people settling on bitcoin is precisely how bitcoin will grow in adoption. We view this competition as good for Bitcoin, while also being competitive and synergistic with Lightning. These are all characteristics that create aligned incentives to strengthen the ecosystem.

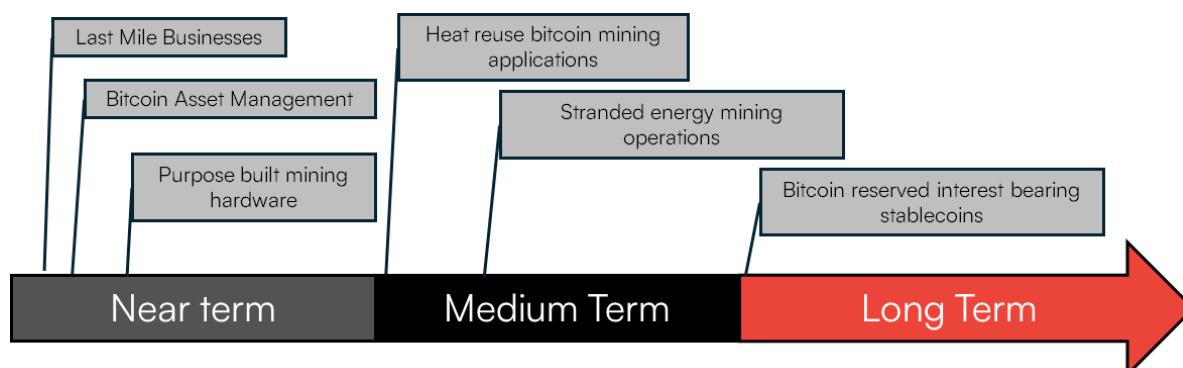
One of the issues Lightning had was unnecessary bureaucracy early in its lifecycle. The spec was proposed too early before being put to scale, and there were too many competing implementations. Releasing a spec too early creates competing standards that then have to be socially converged upon — costing significant effort, time, and attention. The Lightspark team learned from this. If Spark opened up on day one, there would be many competing token standards that people would be debating for years.

Today, you're dependent on Lightspark to build within the ecosystem, but the team has been gradually opening and expanding it. For example, if you want to use USDB to BTC swaps on Flashnet, you're probably going to have to use the Spark implementation because (1) there isn't an alternative yet today, but (2) even if there was, it is not clear to what extent the rest of the tech on Spark is dependent upon it.

The Lightspark strategy has learned from Bitcoin's history. It is filling a need that many Bitcoin companies have had plenty of time to address, prioritizing user experience, developer experience, and compliance. It has trust tradeoffs to accomplish this. If you don't like it, outcompete them.

## What Epoch is Looking For

From what we've seen at Epoch in 2025, there are a few ideas that we find interesting for founders to consider or pursue:



- **Last mile businesses:** digital assets in general have a problem with addressing the last mile that integrates with traditional systems or the physical world. For any given vertical, most of the competition avoids the last mile, and it's often an ideal niche to address that acts as a moat as you move up market into the competition. [Guap](#) is a good example of this for remittance payments in cash markets, and [Five Bells](#) for institutional settlement.
- **Bitcoin asset management:** as more institutions hold a bitcoin balance, there is a natural demand for asset management. Earning a bitcoin yield will be economically rational and, for bitcoin treasury companies in particular, a necessary form of differentiation. As new bitcoin layers emerge and expand, offering novel yield-generation opportunities, an ideal confluence of market variables opens the playing field for businesses to support this function.
- **Purpose-built mining hardware:** as bitcoin mining hardware is applied to various industry verticals, we expect a need for purpose-built hardware in the supply chain. Proto's Rig miner's move towards a modular structure is a good example of this, and open-sourcing the firmware is a key component for the industry. Optimizing hardware designs (e.g., in heat-reuse applications) could drive superior products, UX, and cost efficiencies.
- **Heat reuse bitcoin mining applications:** waste heat is everywhere, and bitcoin miners should be the vehicle for its production. Space heaters, water heaters, hot tubs, and the like are all various applications people are experimenting with. The challenge is that applications often exist in a new industry vertical and, within that vertical, require significant development of the supply chain and distribution channels to deliver such products. Heat reuse applications that address sector-specific challenges are worth exploring.
- **Stranded energy mining operations:** AI compute will attract large-scale miners for the foreseeable future. As the bitcoin hashrate continues to expand rapidly, marginal production costs will continue to rise due to difficulty adjustments. Thus, as competition increases, we anticipate a world in which the only economically rational energy for bitcoin mining will be stranded, off-grid sources. The tradeoff for these models is scalability. Identifying, developing, and ultimately owning the most scalable stranded resources will be a particularly profitable business in the medium- to long-term.
- **Bitcoin reserves interest-bearing stablecoins:** Strategy's STRC preferred product shouldn't exist in a brokerage account. Representing the same economics with a digital signature makes it tradeable, and we expect to be the most competitive interest-bearing "stablecoin" in the medium term. This product will need to exist offshore for now, with the passage of the GENIUS Act in 2025.

We conclude this section by outlining desirable characteristics in Bitcoin businesses — and where we expect them to emerge. While there are many desirable characteristics, our focus is on

the specific features of Bitcoin businesses that are attractive to us. Ideal Bitcoin business models would possess the following:

- **Protocol Exposure.** Bitcoin-native protocols are built to capture growing network effects. Though Bitcoin's architecture is still nascent, we expect this to evolve rapidly in the near to medium term. Founders who can anticipate this change and model their business around emerging protocols face risks. Still, if they find the right timing and align with them, they can achieve a competitive advantage.
- **Bitcoin Price Exposure.** We seek businesses that grow their balance sheets and revenues alongside Bitcoin's price appreciation. While many capital allocators view this as risky, it aligns with Epoch's thesis. However, exposure to Bitcoin's volatility demands conservative cash balance forecasting and active management.
- **Adoption Exposure.** We value exposure to broad adoption metrics, including ownership growth, user expansion, transaction volume increases, and lending. Lending is an excellent example, as it provides exposure to bitcoin prices alongside exposure to bitcoin as collateral. Generally speaking, we prioritize businesses exposed to Bitcoin as a store of value (rather than a medium of exchange or unit of account), which we expect to drive near-term growth.
- **Legacy infrastructure integration.** We are interested in Bitcoin businesses that are competing directly with legacy financial services. Success requires matching incumbent capabilities while adding distinctive Bitcoin features. Zaprite is a prime example, enabling standard payment and accounting functionality with native Bitcoin support.
- **Build for problems, align with ideology.** We're idealists, seeking alignment between problem-solving and ideology. However, though Bitcoin culture draws ideological founders, and we share those convictions, businesses must address concrete consumer needs. The ideal is a combination of passionate conviction with practical problem-solving.

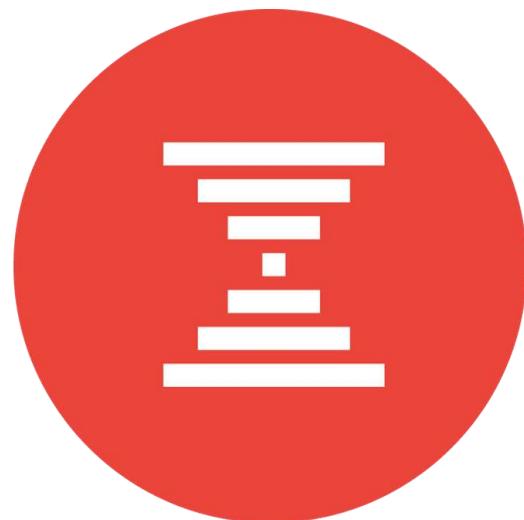
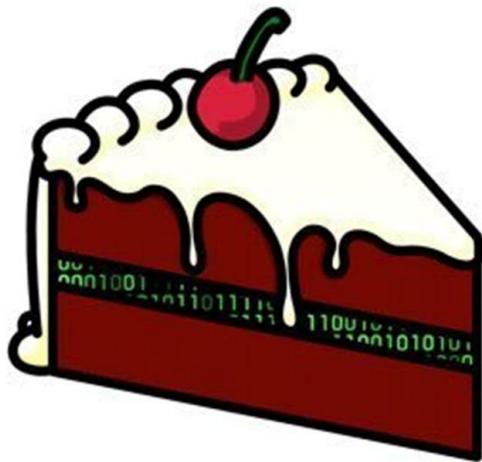
## Summary

- The Bitcoin ecosystem is best understood as a multi-layered, interconnected system in which adoption-driven businesses ("branches") reinforce the growth and resilience of the Bitcoin network ("trunk"), creating faster-moving investment opportunities alongside a structurally expanding base layer.
- As Bitcoin adoption broadens, ecosystem categorization is increasingly complex, prompting a functional taxonomy that distinguishes bitcoin-only, bitcoin-focused, and bitcoin-enabling companies across protocol, middleware, application, and service layers.
- Protocol and middleware layers are seeing expanding monetization through mining, rollups, sequencers, node services, and developer tooling, with Lightning- and

statechain-based infrastructure (notably Lightspark) emerging as critical bridges between Bitcoin-native rails and regulated financial institutions.

- Consumer financial services represent the most mature adoption vector, driven by abstraction of technical complexity and accelerated by major payment integrations, positioning bitcoin payments as a structurally cheaper and more competitive alternative to legacy card networks.
- Institutional financial services are consolidating around specialized prime brokerage, custody, and lending models, with the repeal of SAB 121 catalyzing renewed bank entry, increased competition, and the groundwork for bitcoin-native lending and correspondent banking.
- Physical infrastructure and mining are undergoing structural change, with hardware innovation, supply-chain geopolitics, and a decisive shift toward AI compute economics reshaping miner strategies and long-term energy allocation.
- Emerging business models—including AI-linked mining, bitcoin-collateralized bank lending, correspondent banking, and compliance-oriented settlement layers—highlight Bitcoin's dual role as both a sovereign monetary network and an increasingly integrated component of legacy financial systems.

# Bitcoin Protocols



This section discusses Bitcoin protocols — the technical side of Bitcoin. The author, Red Sheehan, is currently on the Taproot Wizards team. He has extensive experience coding and researching Bitcoin and other cryptocurrencies.

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## Bitcoin Protocols

Bitcoin saw a “Cambrian explosion” of so-called Layer 2 projects in the first half of 2024, driven by renewed interest in Ordinals, BitVM-style constructions, and the idea of moving existing L2 architectures onto Bitcoin. Much of that initial wave turned out to be fragile: many projects were effectively proprietary VMs secured by multisigs with no credible path to decentralization, and a meaningful portion have since gone quiet or disappeared.

By the end of 2025, the picture is more sober. A small number of teams are still shipping and operating networks that plausibly qualify as “Bitcoin L2s” in a technical sense. The rest of the 2024 cohort either rebranded, pivoted away from Bitcoin, or failed to attract users, liquidity, or developer mindshare.

A few concrete developments defined 2025:

- Two new Bitcoin L2s went live on mainnet in 2025: Spark (a Lightning-compatible payments L2) and Arkade, the first substantial mainnet implementation of the Ark protocol. Citrea’s testnet launched and is expected to go to mainnet soon.
- BitVM research advanced into a third-generation design, and Glock was introduced as a new garbled-circuit locking primitive.
- Coinbase’s wrapped BTC asset (cbBTC) expanded significantly, growing by over 50,000 BTC to more than 72,000 BTC outstanding across Ethereum, Base, and Solana.
- Spot Bitcoin ETFs added roughly 250,000 BTC in new inflows, led primarily by BlackRock’s IBIT.

Alongside these, work on Lightning, metaproocols, and other asset layers continued, with mostly underwhelming market reception. But relative to 2024’s hype, 2025 was more about consolidation: fewer technically serious projects advanced, while many “L2s in name only” faded.

“Bitcoin scaling” is one phrase covering two distinct goals:

- **Technical scaling** — extending Bitcoin’s security model into external environments. This is “scaling Bitcoin the network.”
- **Economic scaling** — increasing the reach and variety of ways to gain exposure to BTC as an asset (bridges, wrapped BTC on other chains, ETFs, BTC-denominated DeFi). This is “scaling BTC the asset.”

Confusion in the “Bitcoin L2” conversation stems from conflating these motivations. Technical scaling is primarily about developing infrastructure. Economic scaling is more product-focused, where UX dominates.

## What it means for the market

Bitcoin L2s are, ultimately, infrastructure. In a typical Bitcoin product stack, you have:

- BTC at one end — the monetary asset and trust anchor.
- User-facing products at the other — wallets, exchanges, games, consumer apps.
- Infrastructure in the middle — L2s, bridges, custody rails.

The ends own the relationship with the user and the asset. The middle does the most complex technical work while competing on latency, fees, uptime, and integration support. Over time, that middle segment tends to get commoditized: more operators show up, features converge, and everyone is forced into a race to zero.

From an investing point of view, these dynamics are in play:

- BTC captures the “hard money” premium and monetary upside.
- Apps and products capture distribution, brand, and switching costs.
- Most L2s and bridges are fighting to intermediate flow between those two, with thinner and thinner margins unless they become de facto monopolies.

Nothing in the technical discussion that follows changes this basic economic shape. The custody / data availability / operator/ finality framework tells you how safe a given L2 is and who can hurt you; it does not guarantee that the L2 itself will capture durable economics. In most mature markets, the rails end up cheap and interchangeable while value concentrates in the asset and the end-user experience.

Adoption looks like not even knowing what network the app is built on. Everyone knows about Polymarket, but fewer know that it runs on Polygon PoS chain. You might have the Twitter app on your phone, but I doubt you know which mobile framework it was written in (because *it works*). A successful (Bitcoin) product does not scream and shout about what tech it’s built on. It may not even be vocal about using BTC, the Bitcoin network, or a specific Bitcoin L2.

## How the Technical Scaling Side Evolved

Until recently, “technical scaling” on Bitcoin mostly meant the Lightning Network for throughput and a grab-bag of metaproocol work (Ordinals, BRC-20, Runes, early BitVM demos) for extra functionality. In 2025, that picture shifted: we now have multiple live or near-live systems that extend parts of Bitcoin’s security model off-chain, plus a clearer research roadmap for doing more directly on L1.

Even *within* technical scaling, the motives aren’t uniform:

- **More throughput** — cheaper, faster BTC transfers
- **More functionality** — tokens, stablecoins, and complex apps

To keep this section grounded, we'll use the [Bitcoin Layers](#) framework of BTC Custody, Data Availability, Network Operators, and Finality Guarantees as the lens for comparing systems, rather than marketing labels like "L2" or "sidechain".

## The TLDR

Three concrete developments defined the technical scaling side in 2025:

- **New off-chain systems went live.**
  - Spark (Lightspark) moved from alpha (late 2024) to a production statechain-based payments L2 that's interoperable with Lightning and introduces its own LRC-20 token standard.
  - Arkade (Ark Labs) launched on mainnet as the first substantial implementation of the Ark protocol, using VTXO-style constructions to offer off-chain payments and programmable "virtual UTXOs" without changing Bitcoin consensus.
- **Rollup-style designs advanced.**
  - Citrea (Chainway) [progressed](#) on testnet as a sovereign ZK rollup anchored to Bitcoin, publishing batched transaction data and proofs to L1 while executing a general-purpose EVM environment off-chain.
  - Alpen (Alpen Labs) continued development of its own EVM-based sovereign ZK rollup, though it's expected to launch after Citrea
- **L1 verification research moved forward.**
  - **BitVM3** proposed a markedly cheaper garbled-circuit scheme for verifying arbitrary computation on Bitcoin, with follow-on work stress-testing its security and cost profile
  - **Glock** (Alpen Labs) introduced a "garbled lock" primitive: a way to condition Bitcoin spends on the result of a garbled-circuit computation, intended as a standard building block for future bridges and shared verifiers

In early 2025, Tether announced the issuance of USDT on the Lightning Network via Taproot Assets. Tether's USDT leads all crypto stablecoins in market cap, with a total of [\\$186 billion](#) across several chains. However, it's yet to be seen if Lightning can offer a big enough advantage over Ethereum and Tron (which host a combined 90% of USDT's liquidity) to justify the switching costs and cut into the [claimed](#) 350 million user base. The primary advantage that USDT on Lightning can offer against USDT on other chains is Bitcoin settlement; Bitcoin certainly has better settlement guarantees than Tron, Ethereum L2s, and even Ethereum, but it's still an incremental improvement rather than a paradigm shift, meaning it may only justify switching costs for specific use cases and not the overall stablecoin ecosystem.

Newer metaprotocols like Alkanes have launched but failed to capture the excitement of Runes' initial launch. Since their initial launches, Runes, BRC2Os, and Ordinals have failed to sustain attention, as reflected in the market. Minor improvements to token standards, such as Alkanes, are insufficient fixes for a fundamentally flawed category. The value prop of memecoins on other networks is the threat of utility — the idea that garnering a strong community and financial basis can open a path to launching a successful product. Without significant infrastructure upgrades, bitcoin memecoins will remain trapped under a glass ceiling, unable to evolve from speculative assets into ecosystems or products.

The headline is that technical scaling is no longer synonymous with “Lightning Network”. You now have at least four distinct architectures to think about: channels, statechains, Ark-style VTXO systems, and rollups.

## Framework: Custody, Data, Operators, Finality

To compare these designs, we use the Bitcoin Layers framework, which comprises four independent axes: BTC Custody, Data Availability, Network Operators, and Finality Guarantees (see the methodology at [BitcoinLayers.org](https://BitcoinLayers.org)).

- **Custody** asks who can ultimately steal funds and whether users have a unilateral exit back to L1.
- **Data Availability** asks where the data lives that is needed to reconstruct the L2 state if everything else disappears.
- **Network Operators** asks who actually runs the system — fully P2P, or a sequencer / ASP / operator set.
- **Finality** asks who can revert you to a *previous valid state*, how often that can happen, and how frequently you get a chance to defend yourself.

Custody and finality are often conflated. Custody is “who can take my coins”; finality is “who can roll me back so a payment I thought I received disappears.” For anything more interactive than deposit-and-wait, you need to reason about both.

## Where 2025 Systems Land

**Security assumptions across Bitcoin scaling architectures**  
Comparing finality guarantees, defense mechanisms, and best-case custody models across Lightning, Spark, Ark, and Citrea.

**Bitcoin Layers**

	Lightning	Spark	Ark	Citrea
<b>Scaling Category</b>	State Channel	Statechain	VTXO	Rollup
<b>Finality Attack Vector</b>	Revert to a previous valid state	Revert to a previous valid state	Revert to a previous valid state	Revert to a previous valid state
<b>Finality Exploiter(s)</b>	Counterparty	Counterparty & Operator together	Counterparty & Operator together	Operator
<b>How to Defend (i.e., establish finality)</b>	Close the channel	N/a	Join a round	Publish new block
<b>Finality Defense Mechanism</b>	Optimistic challenge by user or Watchtower	N/a	Triggered by the ASP, users must opt-in	Triggered by the sequencer
<b>Finality Defense Cadence</b>	One-time function	N/a	Weekly rounds	Blocks every ~10 seconds
<b>Custody (best case)</b>	Unilateral exit	Unilateral exit	Unilateral exit	1-of-N

1. Finality risk is about reverting to a prior VALID state.

@redvelvetzip

At a high level:

- **Lightning** retains best-case unilateral exit and local data storage: if a user (or watchtower) keeps their latest state and acts within the timelock, they can always close a channel safely.
- **Spark** aims for similar properties using a statechain: deposits can be unilaterally exited, but once control has changed hands multiple times inside the statechain, safety depends more heavily on correct operator behavior and state hand-off.
- **Ark / Arkade** uses pre-signed transactions and periodic rounds coordinated by Ark Service Providers. In the ideal case, every user holds an exit path, but that guarantee is only as strong as their state management and how reliably ASPs run rounds.
- **Citrea** treats Bitcoin as a settlement and data layer for a ZK rollup. Users bridge into a contract governed by a sequencer/prover set; validity proofs constrain fraud, but practical withdrawals still require at least one honest, functioning operator.

BitVM-style bridges sit behind several of these designs. In theory, they can enforce correct computation on-chain; in practice, all concrete 2025 designs rely on operators fronting liquidity for withdrawals and later reimbursing themselves from the bridge. Non-operators, therefore, do not have pure unilateral exit—they depend on at least one honest and sufficiently capitalized operator.

## Finality in Practice

Finality is potentially the most misunderstood dimension of L2s. The above finality chart (“Who can steal your BTC by reverting to an old state?”) compares Lightning, Spark, Ark, and Citrea along three questions:

- Who can attempt to revert you to a previous valid state?
- What mechanism defends you (channel close, watchtower challenge, opt-in rounds, L1 batch commitments)?
- How frequently do you get a defense opportunity (one-off timelock window, weekly rounds, every L1 batch, etc.)?

The main takeaway is that **most marketing focuses on custody, but real user risk often lies in finality behavior**. Two systems can both claim “unilateral exit” in the happy path while giving users very different odds of catching a rollback in time.

## L1 Primitives and the Road Ahead

Onchain also moved the underlying tooling forward in 2025. BitVM3 and Glock showed that garbled-circuit verification on Bitcoin is no longer purely theoretical, and covenant opcodes such as OP\_CHECKTEMPLATEVERIFY, OP\_CHECKSIGFROMSTACK, OP\_TXHASH, and OP\_CAT continue to be discussed as ways to enable more robust exits, vaults, congestion control, and cheaper L2 verification.

One concrete example: OP\_CHECKSIGFROMSTACK would allow challenges in BitVM-style systems to verify a single signature over a state transition instead of revealing and checking thousands of individual bits, turning linear on-chain verification costs into effectively constant size. That kind of primitive is where most serious technical scaling research is now converging.

## Economic Scaling

Economic scaling is, and has been, a zoo.

On one side, you have institutional wrappers onboarding new capital to spot BTC (ETFs). On the other, you have crypto-native wrappers and synthetics (cbBTC, UBTC, etc.) dominating leverage and DeFi. Most “Bitcoin L2” economic experiments in the middle are still looking for real demand.

## ETFs: BTC as a Financial Product

The largest scaling story of 2025 wasn’t a technical improvement; it was Tradfi adoption. Economic adoption is being led by Tradfi, not Lightning or crypto. BlackRock’s iShares Bitcoin Trust (IBIT) led ETF AUM growth with nearly 250,000 BTC added.

For institutional players and retail unconvinced by crypto's UX, this is the real "Bitcoin L2": settlement is still on Bitcoin, but everything else (custody, margining, liquidity, accounting) runs on TradFi rails. Any Bitcoin-native economic experiment is now competing with a familiar, regulated, benchmark BTC wrapper that already has scale and liquidity.

## Wrapped BTC in Crypto: cbBTC, WBTC, and uBTC

On the crypto side, wrapped BTC kept consolidating into a few winners:

- cbBTC (Coinbase's wrapped BTC) is the clearest new entrant: Coinbase mints cbBTC 1:1 against BTC held in custody and treats it as the BTC primitive on Ethereum, Base, and Solana. Importantly, this wrapper does not have significant supply or volume on any bitcoin "L2s" such as Rootstock or Stacks. [cbBTC's supply](#) increased from 17,460 to 77,512 BTC in 2025.
- uBTC (Unit uBTC's wrapped BTC on Hyperliquid) is used as the [BTC unit](#) of account on Hyperliquid's perps exchange; it trades against a considerable share of on-chain BTC leverage flow. Hyperliquid's BTC perpetuals volume has exceeded \$10 billion daily several times in 2025, even surpassing the combined volume of Coinbase and Bybit.

## Chaumian eCash

eCash mints (e.g., Cashu-style single mints or federated mints like Fedimint) are custodial BTC, just like an ETF share custodial BTC: you do not hold L1 coins, you hold a redeemable claim on reserves managed by an operator (or a federation) — known as a 'note'. The advantage of eCash notes over cbBTC or IBIT is flexibility and privacy.

Users can exchange custody of eCash notes instantly, privately, and cheaply because transactions happen off-chain (i.e., not on Bitcoin or any other blockchain) and don't rely on any other existing financial infrastructure (e.g., the NYSE). Instead of a single global, regulated wrapper optimized for passive exposure, any group with an existing trust network can spin up an eCash mint to serve its needs. Think local communities or gaming economies. The existing trust network is required because an operator is required to mint and burn eCash notes — i.e., bridge in and out from real L1 BTC.

The two most popular standards for eCash mints are Cashu and Fedimint, with the latter using a federation of several mint operators. eCash is not a new infrastructure and did not see significant adoption from builders in 2025, but it is a logical building block for future services due to its flexibility. As far as adoption from **users** goes, this is harder to track; while we haven't seen new foundational primitives pop up, such as Cashu or Fedimint, we still know that BTC lives in various mints, and we're still completely unable to track movement of eCash note activity since it's all off-chain. With so many major financial institutions creating their own custom BTC securities, we may see other institutions want to do the same to control UX, fees, and the distribution of bearer-style BTC within their own ecosystems.

## Bridging and BitVM: Custody is Binary

On the bridging side, 2025 saw new iterations of BitVM and Citrea approach mainnet:

- BitVM-based schemes and BitVM3-style improvements made it cheaper to verify arbitrary computation on Bitcoin, including bridge challenge games.
- Citrea, Alpen, and others positioned themselves as “Bitcoin rollups” that will eventually lean on BitVM-style verification to secure their bridges.

This excites the technologist in me but underwhelms the user in me. This is an incremental custody improvement, not a new category of user experience. From the user’s point of view, BTC bridging has polarized into two acceptable endpoints:

### 1. Endpoint A — Maximum Convenience:

“I don’t want to think about scripts or challenges. Give me something like cbBTC, WBTC, or an ETF share. I’ll let a big custodian and their auditors handle it in exchange for simplicity and a better UX.”

### 2. Endpoint B — Maximum Sovereignty:

“I want a script-enforced, unilateral exit path on Bitcoin L1. If I keep my data, and I’m willing to run a client, nobody can steal from me. I’m willing to sacrifice UX.”

Anything in between those extremes is in danger of having the worst of both worlds:

- Still complicated and illiquid compared to an ETF or cbBTC.
- Still reliant on some committee, operator set, or liquidity provider for practical exit.

BitVM helps move some bridges toward B, but through a binary lens, users still can’t self-custody their coins, which makes it “custodial.”

## “Crypto” vs “Bitcoin Layers”

Trust-minimized BTC bridging does *not* automatically rescue every chain that has ever marketed itself as a “Bitcoin L2.” In fact, the most adoption from the Bitcoin L2 narrative has appeared to be among crypto incumbents: Solana and Base. Ironically, Solana became the “best bitcoin L2” as defi, memecoins, and other crypto narratives already existed there.

Note on statistics: comparisons are imperfect and incomplete, as supply is the “best” standard denominator metric between “off-chain” and “on-chain” BTC adoption. However, the total supply of BTC in Lightning channels is not fully correlated with trading volume, which would be a more representative measure of actual usage. As of the end of 2025, Lightning had a [capacity \(supply\) of ~6,000 BTC](#). Solana had a [supply of wrapped BTC of ~9,000](#), almost up 100% YoY. Since Solana runs its own blockchain, we can see well over \$10 million in daily trading volume from [various pairs](#) (there are tens of these pairs between the 5-10 primary wrapped BTC assets and others such as USD, SOL, etc.), without even getting into standard transfer volumes. We

don't have the luxury of seeing that kind of global data on local state systems such as Lightning, so the best direct comparison is raw supply/capacity of BTC in the systems.

Execution environments that already have real flow and developer ecosystems (Solana, Base, the big EVM L2s) would benefit disproportionately from a self-custodial BTC bridge: they already have somewhere to spend and leverage that BTC. "Bitcoin layers" are not magically made valuable by a better bridge. They still must win on *product, liquidity, and distribution*.

However, the networks mentioned in the "technical scaling" section *do* stand to gain from a self-custodial bridge. As they use Bitcoin for settlement, they would have a technical advantage of not trusting an alternative operator set, which is something an incumbent such as Solana could not pivot to. Self-custodial UX is the moat for Bitcoin's layered technology.

## Developer Experience and Where to Build Products

For product teams, L2s are plumbing. Your job is not to make a chain "win"; it's to pick the least painful coordination layer that lets you ship something users care about. Developer experience here is mostly integration cost, operational friction, and switching costs if you guessed wrong. If you must become an infra team just to get your app online, you're going the hard way.

### Bitcoin-tx-native vs EVM-native vs Alt-VM

On Bitcoin today, there are really two sane families of environments.

Bitcoin-transaction—native systems (Spark, Arkade, Lightning) still consume and emit ordinary Bitcoin transactions or PSBTs. Keys, signing flows, hardware wallets, custody setups, and monitoring all look like Bitcoin L1. If you're already building on Bitcoin scripts and transactions, moving to, e.g., Arkade's VTXO model, is incremental: you replace some on-chain spends with Ark rounds while staying in the same mental and tooling universe. If Arkade disappoints, you can fall back to pure L1 or another Bitcoin-tx-native system without rewriting your entire product.

EVM-native systems (Citrea, Alpen, Rootstock) expose a normal EVM environment: Solidity, ABIs, RPC, existing dev tools, and a large hiring pool. If your product already lives on Base, Arbitrum, Optimism, or other EVM chains, porting to a Bitcoin-anchored EVM rollup is plumbing work: endpoint changes, bridge integration, and some testing. If one rollup or sidechain fails, you can move sideways inside the EVM universe with bounded pain.

Everything outside those two buckets is an alt-VM bet. New language, new compiler, new debugger, new indexers, and a much smaller pool of experienced developers. That isn't just integration friction; it's path dependence. If the novel VM you chose fails to win, the migration path is a rewrite: new codebase, new audits, new infra. For a product team, that's an avoidable existential risk unless the environment gives you capabilities you simply cannot get from Bitcoin-tx or EVM.

### Wallets, Tooling, and Quasi-L2s

Wallets and tooling magnify these choices. Users do not want a new wallet, a new gas token, or a new "I'm on chain X now" mental model to use one app. That's why quasi-L2 designs like Arch

Red Sheehan | [@redvelvetzip](https://twitter.com/redvelvetzip)

and Midl are interesting: the user posts a normal Bitcoin L1 transaction, and richer behavior happens elsewhere; from their perspective, they “just used Bitcoin.”

Inside that model, the split is straightforward. High-frequency DeFi, trading, and gaming flows can afford to act on broadcast L1 transactions and accept some settlement risk in exchange for latency. High-value, low-frequency flows (vaults, savings, settlements) should only act on an L2 once an L1 transaction has a few confirmations.

Below the UX, infra maturity is the real gate. If a stack does not already have reliable explorers, RPCs, stablecoins, oracles, and DEXs, you are volunteering to be that missing infra team. Most product teams cannot simultaneously build a competitive product and an entire base-layer ecosystem and expect to win against apps on mature platforms.

## Heuristics for Builders and Allocators

From the user’s point of view, risk is binary: “this feels safe” or “this feels like gambling.” A 5% or 10% improvement in bridge security, settlement speed, or MEV handling is invisible compared to the visible costs of installing another wallet, funding another gas asset, and seeing no liquidity or history. You only justify that friction for a step-function UX improvement, or for trust and composability guarantees that genuinely do not exist on incumbent stacks. Everything else is interesting research that users will absolutely ignore in favor of chains and wallets that are already “good enough.”

For Bitcoin L2s specifically, the practical implication is narrow. If your main goal is BTC-denominated DeFi, trading, or social products and you do not meaningfully use Bitcoin’s trust model, you are rationally pulled toward large existing execution environments (Solana, Base, major EVM L2s) and, over time, Bitcoin-anchored EVM rollups like Citrea and Alpen. If your main goal is to inherit Bitcoin’s exact custody and finality properties — Spark, Arkade, and quasi-L2s that remain Bitcoin-tx-native are the natural targets, with the explicit tradeoffs of smaller reachable market and slower growth.

For allocators, the underwriting question is simple: how much of this team’s upside depends on this specific piece of infrastructure winning, versus upside that would exist on any Bitcoin-tx-native or EVM-native environment with modest porting cost? Teams building directly on Bitcoin transactions or on EVM are making portable bets. Teams building on bespoke VMs are making existential ones.

In that sense, “no half measures” is a DevEx rule. Align with Bitcoin-txs, align with EVM, or align with a bespoke environment. This decision is also vital to finding dev talent, as there are [~10x more](#) full-time devs working with some version of the EVM than there are with Bitcoin Script (however, today’s combined Bitcoin and crypto developer pool is still fewer than one thousandth of total developers, minimizing the EVM’s “developer moat”). If you choose a novel environment, be honest that you are taking on both infra risk and migration risk, and make sure the upside is large enough to justify it.

## What to Expect in 2026

2024 was the peak of inflated expectations. 2025 was the trough of disillusionment. 2026 looks like the rebound: recent breakthroughs finally turning into usable products—most notably sovereign rollups leaning on BitVM-style constructions (e.g., Citrea) and Bitcoin-native transaction systems maturing into real rails (e.g., Spark).

The economic vs. technical scaling split will remain, but the frontier is now clearer. In the near term, economic scaling incumbents won't be displaced on distribution, liquidity, or UX. The only credible 0→1 that can blur the line between "BTC the asset" and "Bitcoin the network" is extending self-custodial BTC into more expressive environments. Whether that arrives via newer iterations of BitVM bridges, covenants enabled by CTV, or another new opcode, or another unlock, custody — not throughput — remains the step-function.

If that unlock lands, it changes the competitive map. The differentiator shifts from "who has users today" to what your system uses to validate state and enforce exits. Incumbent economic hubs can integrate better wrappers, but they cannot retroactively inherit Bitcoin's state validation. That advantage accrues to systems that genuinely anchor to Bitcoin's security model (e.g., sovereign rollups and Bitcoin-tx-native systems), not to traditional sidechains.

To avoid being a glorified testnet, new networks must build something in ideological or architectural opposition to incumbents to carve out market share; sovereign rollups, statechains, and eCash are doing this now, and building a moat for themselves in a future where true self-custody is extended.

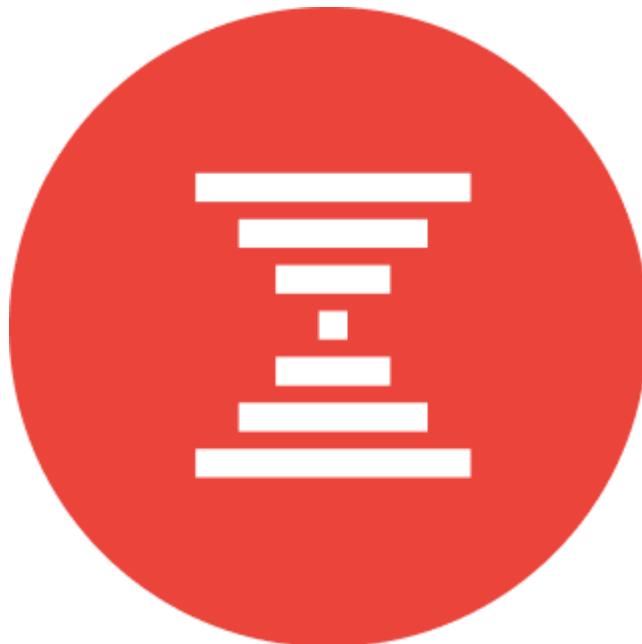
## Summary

- After the speculative surge of 2024, the Bitcoin protocol landscape consolidated in 2025, with most nominal "L2" projects failing to decentralize or attract usage while a small number of technically credible systems continued shipping.
- Technical scaling and economic scaling diverged clearly, with the former focused on extending Bitcoin's security model off-chain and the latter dominated by asset exposure vehicles such as ETFs and wrapped BTC, which captured the majority of capital inflows.
- New technical architectures—including statechains (Spark), Ark-style VTXO systems (Arkade), and sovereign rollups (Citrea, Alpen)—expanded the design space beyond Lightning, while BitVM3 and related primitives advanced the feasibility of on-chain verification.
- Despite technical progress, most Bitcoin L2s face structurally weak economics, as infrastructure layers tend to commoditize over time while durable value concentrates in BTC itself and in user-facing applications with distribution and brand.
- Bridging remains a binary custody problem from the user's perspective, with demand polarizing toward either maximum convenience (ETFs and custodial wrappers) or

maximum sovereignty (script-enforced unilateral exits), leaving intermediate designs at a disadvantage.

- Developer and product outcomes are increasingly determined by execution environment choice, with Bitcoin-transaction-native and EVM-native stacks offering portability and lower existential risk compared to bespoke virtual machines.
- Looking into 2026, the key inflection is not throughput but custody, as extending self-custodial BTC into more expressive environments would materially reshape competitive dynamics in favor of systems genuinely anchored to Bitcoin's security model.

# Bitcoin Regulation



## Reg Wars: A New Hope or The Empire Strikes Back?

### 2025 - A New Hope?

*"If you strike me down I shall become more powerful than you can possibly imagine." -- Obi-Wan Kenobi*

There is no denying that 2025 marked an inflection point in the regulatory environment for Bitcoin and digital assets in the US and around the world. Years of evasive maneuvering by regulators and legislators resulted in a coiled spring that released a flurry of important milestones. It is difficult to succinctly capture the full extent of the regulatory, legislative, judicial, and political change that has occurred across the industry over the past year, but some of the more important highlights include:

1. **Explicit policy changes** and positive guidance from virtually all US Banking regulators (OCC, FDIC, FSOC, and the Fed) that removed implicit or explicit prohibitions against offering bitcoin/digital asset services, and the approval of 5 National Trust Bank Charters to digital asset financial institutions.
2. **Proactive approvals** from the SEC on a number of key issues ranging from accounting treatment of customer bitcoin deposits (SAB121), to digital asset custody rules for broker-dealers (Rule 15c3-3), to in-kind redemption for bitcoin ETFs.
3. **Political activation** of the "crypto lobby" that resulted in the passage of the first major industry legislation (GENIUS) and the introduction of at least half a dozen other bills on a variety of critical topics, including market structure (Clarity Act), tax treatment, CBDCs, the Strategic Bitcoin Reserve, self-custody, and fintech modernization.
4. **Favorable rulings** by federal courts in dismissing or challenging legal theories put forward by regulators/DOJ in a range of enforcement actions and criminal proceedings against industry players like Coinbase, Kraken, Samurai Wallet, and Tornado Cash (although the latter two cases were less decisively positive).
5. **International competition** among financial regulators continued as jurisdictions arrange themselves along a regulatory spectrum that ranges from extremely favorable to innovation (Hong Kong, UAE), to carefully allowing Bitcoin to enter the TradFi sandbox (US, UK, Argentina), to maintaining a more skeptical posture (EU/MiCA). Additionally, an increasing number of smaller jurisdictions responded to pressure to conform with the US-led regime of international financial regulation (El Salvador, Trinidad, Marshall Islands).

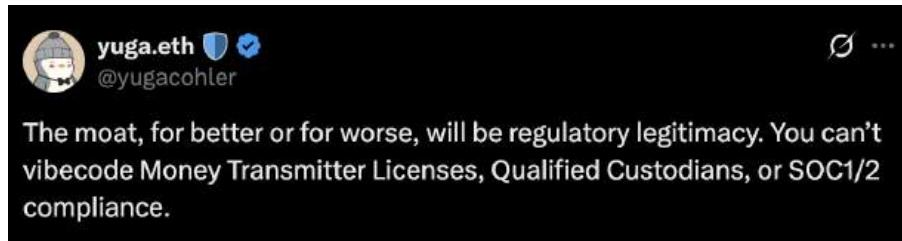
In the immediate term, the upshot of this long-awaited wave of regulatory guidance is somewhat mixed. While nearly all the explicit and implicit prohibitions that limited institutional entry into the digital asset space have been lifted — more specific rulemaking will be needed to help banks and other financial institutions engage with Bitcoin in a way that meets the myriad other compliance requirements they face. Additionally, it remains unclear whether this newly permissive posture will extend fully into DeFi/non-custodial solutions. It is possible that legislative momentum may be used to create new restrictions that seek to funnel activity back into existing systems of intermediation.

These developments will almost certainly mark the beginning of multi-year (or multi-decade) process of reconciling the existing financial system with the fundamental structural opportunities and challenges posed by Bitcoin and digital assets more broadly. While the long-term outcome of the regulatory process is uncertain at this early stage, we believe there are helpful inferences to be drawn for founders building Bitcoin businesses. In this new era:

1. ***Institutional first*** business models are increasingly viable as regulators, accounting rules, and corporate culture are becoming more favorable to idea of integrating bitcoin into the financial mainstream. In particular, products and services that help banks and financial institutions integrate bitcoin and digital assets into their own product portfolios are likely to experience significant demand growth as legacy players race to remain competitive.
2. ***Non-custodial*** business models will continue to have minimal regulatory overhead...for now. Though there haven't been any explicit changes in laws or regulations for businesses that don't control users' funds, the Samurai Wallet and Tornado Cash cases as well as the ongoing market structure debates suggest that compliance costs may be increasing for these businesses in the medium term.
3. ***Play to your strengths.*** The competitive landscape is likely going to change significantly over the next 3-5 years. The silver lining of the era of regulatory uncertainty was that bitcoin/crypto founders did not have to compete directly with legacy financial institutions. While it is true that they lack the agility of a startup, they make up for it in resources. Founders will increasingly need to double down on their ability to out-maneuver large competitors and lean on partnerships as a force multiplier on a bootstrap budget.
4. ***Regulatory engagement*** will become an increasingly productive use of founder time and company resources. Public commentary from regulators like Paul Atkins (SEC), Scott Bessent (Treasury) and Mike Selig (CFTC) in 2025 reflected a genuine effort to understand the opportunities that digital assets create for existing regulatory structures — in stark contrast to the standoffish posture of past administrations.<sup>130</sup> Gone are the days of superficial claims that founders simply need to “come in and register” despite there being no licensing regime in place. Additionally, new legislation and agency rulemaking should eliminate the problems of overlapping jurisdictions and conflicting requirements that characterized the past decade of digital asset regulation. This will create significant opportunities for founders to work collaboratively with their regulators to design solutions that productively balance consumer demand and policy aims. But be warned — we expect legacy players to lean into their experience with regulators to erect new and creative moats to new entrants (after years of mostly being able to ignore them). This will increase both the benefits of proactively engaging with regulators and the costs of failing to do so. In other words...

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<sup>130</sup> The SEC's Approach to Digital Assets: Inside “Project Crypto.”, <https://www.sec.gov/newsroom/speeches-statements/atkins-111225-secs-approach-digital-assets-inside-project-crypto>



## 2025 - The Empire Strikes Back?

*“No longer certain that one ever does win a war, I am.” —Yoda*

Last year, we began the regulatory section with Gandhi's emboldening reminder that “first they ignore you, then they laugh at you, then they fight you, then you win.”<sup>131</sup> Though the magnitude of the progress described above cannot be overstated, 2025 also made clear that victory laps may be premature. Much of the progress of the last year also creates a new class of regulatory threats that could have a far more insidious impact on the future of bitcoin than the feared “bitcoin bans” of yesteryear. Instead of overt attacks by unfriendly regulators, the emerging landscape creates risk through a combination of economic centralization, political patronage and financial surveillance that may significantly hinder Bitcoin’s ability to achieve its potential as a global monetary standard. The combination of these dynamics could probably best be described as the emerging *threat of regulatory capture*.

As this new regulatory environment is developed, the process of regulatory capture poses a risk to the long-term health of the bitcoin ecosystem via two possible attack vectors:

1. TradFi companies may use their political power to design regulations that allow bitcoin into the financial system, but only in ways that benefit their existing business models
2. Bitcoin and crypto-native companies that have sufficient scale may seek to collaborate with legacy institutions to create regulations that grant legitimacy to established crypto-native firms, but permanently exclude new entrants through costly compliance regimes or outright bans on more cutting-edge business models

The two most dangerous aspects of this dynamic are:

- (A) Companies that use their political power to influence regulation can create harmful barriers to entry even if they have no intention of doing so
- (B) The process is likely to be framed as a battle between crypto companies and tradfi companies when, in fact, the outcomes are likely to benefit both constituencies at the expense of consumers and entrepreneurs who don’t yet have political influence

While it would be too conspiratorial to suggest that this looming threat is as intentionally designed as its predecessor, this emergent dynamic could fittingly be described as a kind of “*Choke Point 3.0*.” Choke Point 2.0 was implemented by using existing financial choke points to

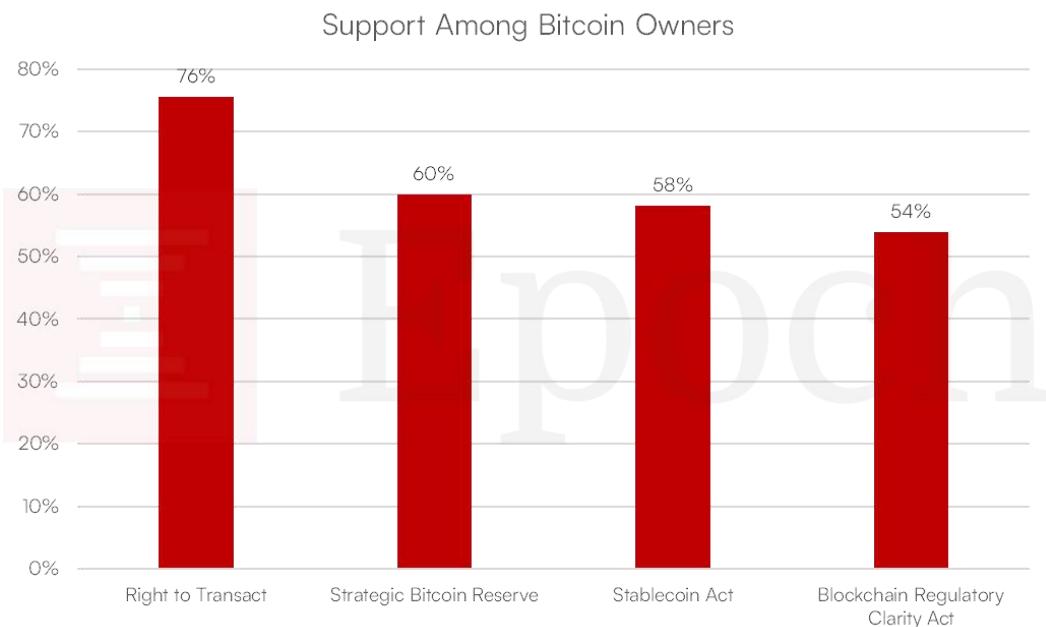
<sup>131</sup> The Bitcoin Ecosystem: 2024 Annual Report, <https://epochvc.io/pdf/Epoch-Bitcoin-Ecosystem-Report-2024.pdf>

exclude crypto companies from the financial system. This next iteration will likely materialize via the incorporation of the largest crypto companies into the existing system in order to exclude competitors that pose a larger threat to the fundamental structure of the system.

## Choke Point 3.0 - These are not the lobbyists you're looking for...

*“Be careful not to choke on your aspirations, director.” —Darth Vader, Rogue One*

To better understand how the dynamic of regulatory capture may have unforeseen negative impacts on Bitcoin, it is helpful to examine a few of the regulatory developments of the past year in a bit more detail. First, it is instructive to examine the legislative priorities of the Trump administration against the preferences of the crypto voters who played an important role in his 2024 reelection bid. The figure below shows the percentage of voters who own bitcoin that support each of the following four issues: (1) legal protections for the right to custody/transact in Bitcoin and other cryptocurrencies, (2) creation of a Strategic Bitcoin Reserve, (3) passage of stablecoin legislation, and (4) passage of the Blockchain Regulatory Clarity Act.



Source: Cygnal Survey of Likely 2026 General Election Voters, June 19-21, 2025 <https://www.cygn.al/wp-content/uploads/2025/06/Cygnal-National-Bitcoin-Policy-Summit-Deck.pdf>

Among bitcoin voters, stablecoin legislation and the Clarity Act receive only a slight majority of support. Protections for the right to transact freely are far more popular at over 75%. These preferences may differ slightly from the broader coalition of “crypto voters” that Trump courted during the election. However, it is still informative to compare these preferences to the efforts in congress over the past year. Although there were proposals to address the two most important

issues to bitcoiners, far more political capital was spent on the passage of the GENIUS Act (Stablecoins) and trying to advance the Blockchain Regulatory Clarity Act.

This deviation between the will of the voters and the will of the largest industry players is an early warning sign of the potential harm from regulatory capture (intentional or otherwise). Digging a bit deeper into the details of the GENIUS Act and the Clarity Act will paint a clearer picture of the challenges this dynamic may present in the future.

## The GENIUS Act

*"The ability to speak does not make you intelligent." — Qui-Gon Jinn*

The GENIUS Act was the first legislative priority of the Trump administration in the crypto industry in 2025, and it represented an important milestone in the history of our industry. The purpose of the bill was to create a federal regulatory framework for payment stablecoins that would provide them with institutional legitimacy without jeopardizing financial stability. The bill had 8 substantive provisions that included<sup>132</sup>:

1. Definition of Payment Stablecoin
2. Permitted Issuers
3. Stablecoin Reserve Requirements
4. Ban on Issuer-Paid Yield
5. Prudential Standards
6. AML Compliance
7. Consumer Protections
8. Foreign Issuers

The most controversial of these provisions during the legislative process was the ban on issuer-paid yield. The purpose of this section was to prohibit stablecoin issuers from paying interest to users solely for holding the stablecoin. The biggest advocates of the ban were the banking lobby who argued that stablecoins were intended to be used as a means of payment and not as an investment product.

While it is true that investment products tend to fall under a different set of regulations than payment systems, the bank lobby had other reasons for advocating for the ban — they didn't want to compete. Stablecoin issuers have extremely low operating expenses and are able to earn relatively high yield on the deposits that they receive in exchange for the stablecoins they issue. As a result, they can offer 3%-5% yield to users — which is significantly higher than the 0.7% yield that the average bank can offer on a checking account.

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<sup>132</sup>Link to source: <https://www.sidley.com/en/insights/newsupdates/2025/07/the-genius-act-a-framework-for-us-stablecoin-issuance>

The debate over this provision was heated, with the banks arguing that high stablecoin yields would result in deposit outflows that could create systemic risk. In response, stablecoin issuers argued that the ban was anticompetitive and protected wall street margins at the expense of main street. Ultimately, the crypto lobby and the bank lobby reached a truce that allowed the bill to pass through congress. The stablecoin issuers agreed to the ban, but the bill technically allowed them to pay commercial fees to 3<sup>rd</sup> party distribution partners like Coinbase and Kraken. It also allowed those 3<sup>rd</sup> parties to pay a yield to users who hold their stablecoins on their platforms.

*"It's a trap!" — Admiral Ackbar*

On the surface, this compromise seems reasonable. And it enabled the passage of the first major piece of US crypto legislation. Another win for democracy. However, a deeper analysis of the resulting economic arrangements suggests that it may have been a Faustian bargain that undermines many of the benefits that stablecoins were intended to deliver.

1. **New choke points:** The main benefit of stablecoins over alternative payment methods is that users can send them directly peer-to-peer without the use of any intermediaries. This allows for near-instant, 24/7, global payments. However, if stablecoin issuers are unable to pay yield directly, users will be incentivized to hold their digital fiat with centralized custodians who are able to they them rewards under the loophole left open the bill. This allows regulators to maintain their preferred level of surveillance and control over user deposits. It also minimizes the competitive pressure on the banks by making stablecoins less convenient as a means of payment (crypto exchanges are not well-integrated into payment networks) and by adding an additional layer of value extraction between the issuer and the end-user (thereby lowering yields).
2. **Meet the new boss, same as the old boss:** Last year, in our Bitcoin Banking Report, we discussed the structure of the 2-tier banking system in the US (see figure below).<sup>133</sup> In this system, the Central Bank pays yield on the deposits it receives from the Tier II Commercial banks, who then go on to share a portion of that yield with their depositors. Sound familiar? The compromise structure in the GENIUS act essentially creates a parallel banking system where stablecoin issuers play the role of Tier I Central Banks and the crypto exchanges play the role of Tier II Commercial Banks. To make matters worse, stablecoin issuers are required to keep their reserves with regulated Tier II banks and are unlikely to have access to Fed Master accounts. The upshot of all this is that the GENIUS act converts a peer-to-peer payment mechanism into a heavily intermediated payment network that sits on top of another heavily intermediate payment network.

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<sup>133</sup> The Future of Bitcoin Banking: 2025 Report, <https://epochvc.io/pdf/The-Future-of-Banking-with-Bitcoin-2025.pdf>

Welcome 2 the future!

Figure 1: ~~Two-Tier Banking System<sup>7</sup>~~



3. **License to chill:** In addition to the yield ban, the act outlines a very small set of permitted, licensed issuer types and makes no allowance for more innovative, algorithmic, or decentralized stablecoin issuance models. Additionally, the act imposes significant anti-money laundering compliance requirements on all issuers. Finally, the fact that the 3<sup>rd</sup> party loophole is the only mechanism for issuers to attract users means that they benefit from an opaque market where the rates they pay to distribution partners are obscured in private agreements, rather than posted directly on chain. The combination of these factors creates steep barriers to entry and limited price competition which protects both the banks and incumbent stablecoin issuers from new entrants.

The provisions of the GENIUS Act, and the process of legislative influence that created the final version of the bill demonstrate the insidious nature of the risk of regulatory capture. Even though both the crypto lobby and the bank lobby fought a bare-knuckle brawl to advance the interests of their respective industries, the result is one where both sides enjoy the benefit of minimal direct competition.

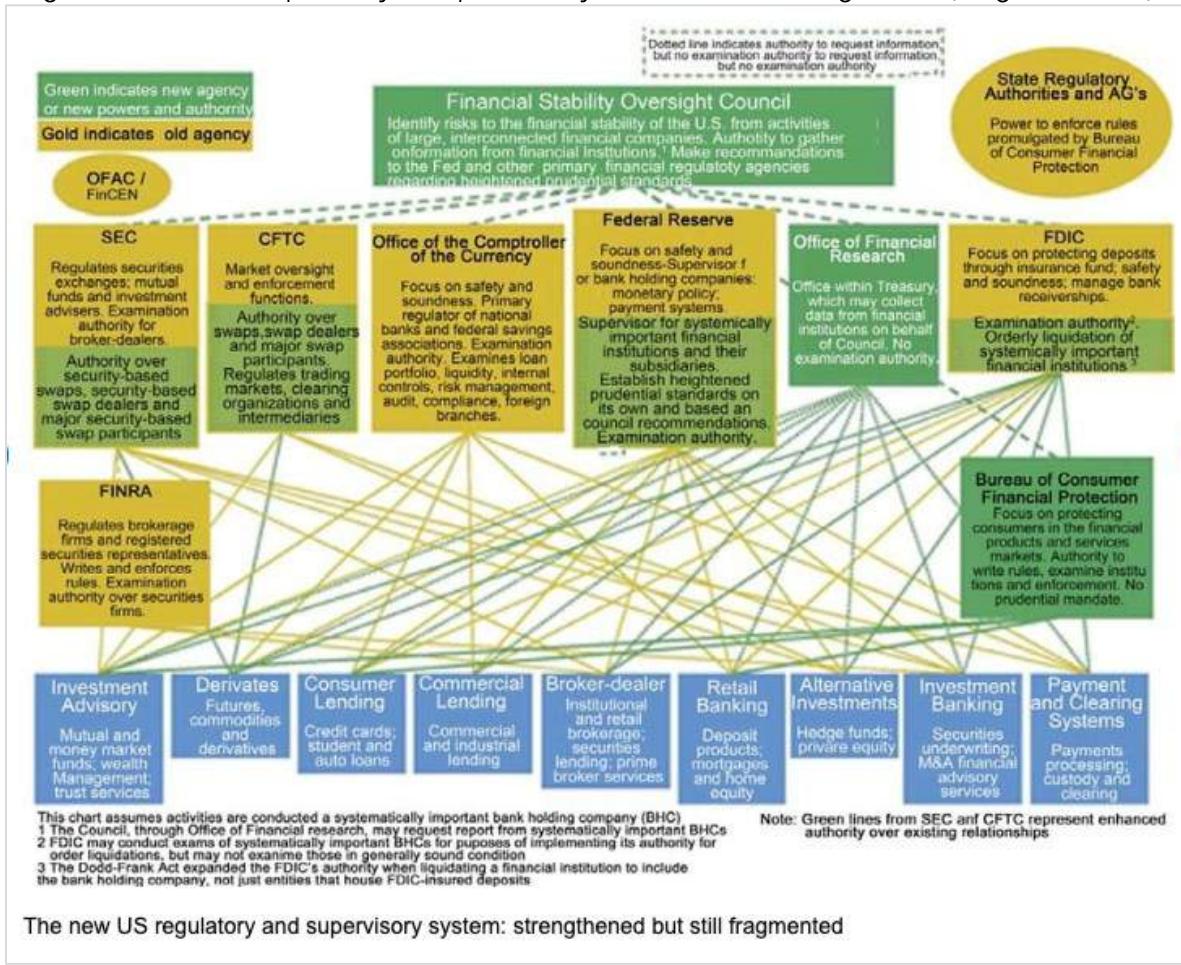
In the months since the GENIUS Act passed, the bank lobby has renewed its fight against stablecoin yield and has been trying to close the 3<sup>rd</sup> party loophole that the bill left open. For the most part, the industry has lined up behind Coinbase and other exchanges to defend their right to pay out rewards to users. Providing users with access to stablecoin rewards seems preferable to the alternative. However, the fact that it remains at the heart of the conversation amid a far more impactful debate about market structure does not instill confidence that our industry will resist the urge to join the dark side.

## Looking Ahead - The Clarity Act

*“Difficult to see; always in motion is the future.” —Yoda*

At the time of this writing, the Clarity Act has not completed its trip through the Senate committee markup process. The last several weeks of 2025 were characterized by a mad dash to resolve open issues and put the bill to a vote before the mid-term elections. However, as things stand today, we find it increasingly unlikely that the market structure bill will pass this year.

In its current form, the bill is a gargantuan legislative effort that spans nearly every corner of the US's government's exceptionally complicated system of financial regulation (diagram below)



Source: [https://www.researchgate.net/figure/The-new-US-regulatory-and-supervisory-system-strengthened-but-still-fragmented\\_fig5\\_22748653](https://www.researchgate.net/figure/The-new-US-regulatory-and-supervisory-system-strengthened-but-still-fragmented_fig5_22748653)

The system is made exponentially more complicated by the fact that much of this structure is replicated at the state level. One way to think about the existing system is that there are three layers of financial regulation with overlapping and complimentary jurisdictions.

1. **Prudential Regulation:** These regulators are primarily concerned with minimizing systemic risk and monitoring/maintaining the health of financial institutions. They primarily regulate banks and credit bureaus. The main regulators in this layer are OCC, FDIC, FSOC, and the Federal Reserve.
2. **Market Integrity:** These regulators govern most of the financial activity that happens outside of the banks and seek to maintain healthy markets for capital formation and trading. They primarily regulate asset issuers, companies seeking access to our markets,

exchanges and trading venues, investment professionals, and other financial intermediaries. The main regulators in this layer are the SEC (securities markets) and the CFTC (commodities markets).

3. **Financial Crimes:** These regulators are responsible for preventing, investigating, and prosecuting financial crimes, fraud, and abuse. Given the scope of their responsibility, they have some degree of jurisdiction over the entire financial system and impose rules for monitoring and enforcement on most financial institutions. The main regulators in this layer are FinCEN, OFAC, DOJ, IRS, CFPB, and the FTC.

For most of the industry's existence, determining where digital asset-related activities fit into this framework has been difficult and unclear. So -the core goal of the Clarity Act is to better define the market for digital assets and determine:

1. What activities require regulation and which ones do not?
2. Which regulators are responsible for those activities?
3. What are the obligations of market participants?
4. How can legacy institutions engage in these markets in a way that meets their other regulatory obligations?
5. Where are existing rules sufficient and where might new ones be needed?

It would be incorrect to think that this piece of legislation is not relevant for bitcoin since it has long been viewed as a commodity by regulators. In reality, this legislation — and the regulations that flow from it — will likely define the extent of bitcoin's role in the broader financial system for the next 50-100 years.

From the perspective of bitcoin's long-term success, the most important aspects of this bill are:

1. Formal recognition that node operators and software developers are not financial intermediaries
2. Enshrining self-custody as a protected right
3. Protecting property rights/digital asset ownership in bankruptcy
4. Framework for federal preemption of state law (particularly w/r/t to state MTLs)
5. Enshrining banks' ability to custody and transact on chain
6. Minimizing DeFi compliance burden (because of its relationship to self-custody)

While the other aspects of the bill are important to the broader financial system — many of them can be worked out without new legislation. In particular, the debate over stablecoin yield is likely to continue to play out via the rulemaking process regardless of the outcome in this bill.<sup>134</sup> Consequently, the vast expenditure of political capital on the topic of stablecoin yield feels like

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<sup>134</sup> The stablecoin yield debate is very similar to the debate over Money Market Funds that took place in the 1980s. In that scenario, Banks and Money Market Funds worked out most of their disagreements via the administrative rulemaking process and did not need new legislation to resolve disagreements. To the extent that legislation was required, it involved removing limitations on banks that made it harder for them to compete — not instituting new limitations on money market funds.

misplaced enthusiasm at best. At worst, it seems like an intentional distraction from the more fundamental issues addressed in the bill.

*"Your focus determines your reality."* — Qui-Gon Jinn

Crafting thoughtful legislation that truly supports innovation and growth in our industry over the long-term should not be done in a rush. And, if the process is monopolized existing power brokers, the resulting regulatory framework will likely protect their interests at the expense of fundamental protections that are more important to long-term success. If the past 10 years of discussing the *Howey* test and orange groves ad nauseum have taught us anything, it's that laws often stick around long past their sell by date — so it's important that we get them right. We are hopeful that 2026 will see more thoughtful deliberation on the core aspects of market structure and less frantic politicking over the issues that predominantly impact the bottom lines of the banks and crypto pubcos. If it means we have to wait another year for market structure legislation — sobeit! Bitcoin will not be killed by another year of regulatory ambiguity — but it's success could be curtailed under the weight of a poorly constructed Clarity. We hope that is not what the future holds.

*"Rebellions are built on hope."* — Jyn Erso

## Summary

- In 2025, global and U.S. Bitcoin regulation reached an inflection point, with banking regulators, the SEC, courts, and legislatures collectively removing key barriers to institutional participation while advancing the first major federal crypto legislation.
- The easing of prohibitions has improved the viability of institution-first Bitcoin business models, but unresolved rulemaking and uncertainty around non-custodial and DeFi activities leave meaningful compliance and strategic risk.
- As regulatory clarity increases, the competitive landscape is shifting toward direct competition between Bitcoin-native firms and legacy financial institutions, elevating the importance of regulatory engagement, partnerships, and strategic differentiation for founders.
- The report identifies regulatory capture as a growing systemic risk, whereby large TradFi firms and scaled crypto incumbents may shape rules that entrench existing business models and exclude new entrants under the guise of legitimacy and consumer protection.
- The GENIUS Act on stablecoins illustrates this risk by granting institutional legitimacy while introducing yield restrictions, new intermediaries, and high compliance barriers that reduce competition and reintroduce centralized choke points.
- A widening gap between bitcoin voter preferences and legislative priorities signals early warning signs that policy outcomes may increasingly reflect incumbent interests rather than those of users and entrepreneurs.

- Looking ahead, unresolved market structure legislation such as the Clarity Act represents both an opportunity and a risk, underscoring that the long-term impact of regulation will depend less on formal acceptance of Bitcoin and more on how power, access, and competition are structured.

## Appendix

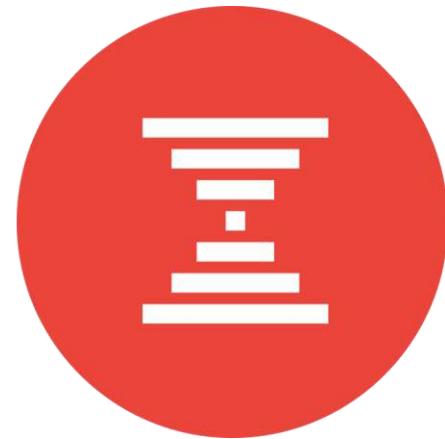
Date	Agency	Type	Title / Issuance	Summary
1/8/2025	CFPB	Proposed Interpretive Rule	Reg E / EFTA — Emerging Digital Payment Mechanisms	Proposed interpretation extending Regulation E consumer protections to certain digital wallets and payment accounts, including some crypto-adjacent products.
1/10/2025	CFPB	Request for Information	Digital Payments, Privacy & Consumer Protection	CFPB sought public input on consumer protection and privacy issues in digital payments, including crypto wallets and stablecoins.
12/8/2025	CFTC	Staff Guidance	Digital Assets as Collateral Pilot Program	Permitted BTC, ETH, and USDC as collateral in certain derivatives contexts; withdrew outdated guidance.
3/28/2025	FDIC	Formal Guidance	Rescission of FIL-16-2022	Eliminated prior notification requirement; clarified FDIC-supervised banks may engage in permissible crypto activities under normal supervision.
4/24/2025	FDIC / Federal Reserve	Joint Guidance Withdrawal	Withdrawal of 2023 Interagency Crypto Statements	Removed prior joint statements that had discouraged or constrained bank crypto activities.
4/24/2025	Federal Reserve	Formal Guidance Withdrawal	Withdrawal of Crypto & Dollar-Token Supervisory Letters	Rescinded prior supervisory letters on crypto and dollar-token activities, normalizing bank supervision.
8/15/2025	Federal Reserve	Supervisory Action	Sunset of Novel Activities Program	Ended special supervisory program for novel activities, including crypto, folding them into standard exams.
4/1/2025	FinCEN	Advisory	Illicit Finance Advisory (includes CVC typologies)	General advisory on illicit finance that includes discussion of virtual currency usage in typologies.
8/4/2025	FinCEN	Formal Notice	FIN-2025-CVC-KIOSK	Warned about crypto ATM/kiosk fraud and outlined compliance expectations for MSBs.
8/28/2025	FinCEN	Advisory	Chinese Money Laundering Networks	Advisory on laundering networks that often leverage crypto rails and OTC brokers.
1/28/2025	FINRA	Formal Guidance	Update on Member Firms' Crypto Asset Activities	Clarified supervisory and compliance expectations for broker-dealers engaging in crypto-related activities.

1/28/2025	FINRA	Annual Oversight Report	2025 Regulatory Oversight Report — Crypto Nexus	Identified crypto exposure as a risk area and outlined examination priorities for FINRA member firms.
5/15/2025	FINRA	Formal Guidance	Crypto Assets Topic Page / Compliance Tools Update	Updated FINRA compliance tools and guidance for member firms with crypto exposure.
6/4/2025	FSOC	Formal Minutes	FSOC Meeting — Digital Assets Agenda Item	FSOC meeting minutes reflecting discussion of digital assets and evolving federal posture.
12/11/2025	FSOC	Annual Report	FSOC 2025 Annual Report	Reframed digital assets and stablecoins as manageable risks under new statutory regime.
3/7/2025	OCC	Interpretive Letter	IL 1183	Reaffirmed bank authority for crypto custody, stablecoin reserve activities, and DLT participation; removed supervisory non-objection requirement.
5/7/2025	OCC	Interpretive Letter	IL 1184	Clarified that banks may buy/sell crypto assets held in custody at customer direction and outsource custody subject to third-party risk management.
11/18/2025	OCC	Interpretive Letter	IL 1186	Provided additional clarification touching crypto transaction facilitation and fee mechanics.
1/23/2025	SEC	Staff Accounting Bulletin	SAB 122	Rescinded SAB 121, eliminating punitive balance-sheet treatment for crypto custody by platforms and banks.
4/4/2025	SEC	Staff Statement	Statement on Stablecoins	Introduced SEC staff framing for covered stablecoins and related disclosure considerations.
4/10/2025	SEC	Staff Statement	Offerings & Registrations in Crypto Asset Markets	Provided disclosure guidance for crypto-related offerings and registration statements.
5/15/2025	SEC	Staff Guidance (FAQs)	Crypto Asset Activities & DLT FAQs	Applied Exchange Act broker-dealer framework, including custody concepts, to crypto and DLT activities.
5/15/2025	SEC	Staff Guidance Withdrawal	Withdrawal of 2019 Joint Custody Statement	Removed restrictive SEC/FINRA staff statement on broker-dealer custody of digital asset securities.
5/29/2025	SEC	Staff Statement	Statement on Certain Protocol Staking Activities	Indicated certain protocol staking activities do not constitute securities transactions under staff view.

7/1/2025	SEC	Staff Statement	Crypto Asset Exchange-Traded Products	Outlined disclosure expectations for crypto ETP issuers and sponsors.
12/17/2025	SEC	Staff Statement	Broker-Dealer Custody of Crypto Asset Securities	Clarified how Exchange Act Rule 15c3-3 possession or control requirements apply to crypto securities.
12/17/2025	SEC	FAQ Update	Crypto Asset Activities & DLT FAQs (Updated)	Updated FAQs to reflect new custody and broker-dealer guidance.
7/18/2025	Treasury	Public Statement	GENIUS Act Signing Statement	Treasury statement framing the new federal stablecoin framework and U.S. dollar competitiveness goals.
8/18/2025	Treasury	Request for Comment	GENIUS Act — Illicit Finance Detection Methods	Solicited input on blockchain analytics, AI, APIs, and digital identity for detecting illicit finance.
9/18/2025	Treasury	ANPRM	GENIUS Act Implementation	Advance notice of proposed rulemaking on stablecoin framework implementation.
7/30/2025	Treasury / TBAC	Formal Report	TBAC Report to the Secretary	Discussed GENIUS Act reserve composition requirements and implications for Treasury markets.

# Bitcoin Venture Capital

# Cantilever



The final section of this report is an overview of the Bitcoin venture investing which we, Epoch, chose to have the Cantilever Advisors contribute independently as we ourselves are a venture firm. They did an exceptional job and were very thorough, enjoy.

[Cantilever Advisors](#) is an independent Bitcoin-native capital allocator and investment platform providing direct and fund-of-funds investments in the bitcoin venture capital ecosystem.

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## Introduction

As entrepreneurs continue to build infrastructure to support the emergence of a parallel financial system on top of the Bitcoin protocol, it is rational to expect capital to follow and provide early- and growth-stage support for these companies. While small compared to traditional or crypto VC assets under management (AUM), the growth of Bitcoin VC over the last five years has been unmistakable and should persist in parallel with global Bitcoin adoption. This report provides a succinct overview of the Bitcoin VC market, along with forward-looking statements on what to expect from the category in the coming years.

Nothing in the following should be construed as investment advice or a solicitation to engage in investment transactions.

## Definitions

- **Bitcoin Company:** A company whose reason to exist is to reduce the friction of Bitcoin (the asset) adoption and/or increase the utility of the Bitcoin network. About 225 companies that fit this definition have received venture funding to date. 90% of these companies were founded and funded post-2021. Not included in this data set are Bitcoin Treasury Companies, which we have segmented into a stand-alone category.
- **Bitcoin VC Fund:** A venture fund whose exclusive focus is investing in Bitcoin Companies. As of writing, this comprises ~15 venture firms and ~20 funds across the Bitcoin VC ecosystem. Similar to funded Bitcoin VC companies, most of these firms emerged after 2021. Please note that these metrics do not include funding for Bitcoin Treasury Co. Less than 10% of BTC VC funds have participated in capitalizing the Bitcoin Treasury sector.

Bitcoin VC Funds	
Ten31	<a href="https://www.ten31.vc/">https://www.ten31.vc/</a>
Ego Death	<a href="https://egodeath.capital/">https://egodeath.capital/</a>
Axiom	<a href="https://www.axiombtc.capital/">https://www.axiombtc.capital/</a>
Epoch	<a href="https://epochvc.io/">https://epochvc.io/</a>
Cantilever	<a href="https://www.cantileveradvisors.co/">https://www.cantileveradvisors.co/</a>
Hivemind	<a href="https://www.hivemind.vc/">https://www.hivemind.vc/</a>
Timechain	<a href="https://timechain.concentric.vc/">https://timechain.concentric.vc/</a>
UTXO	<a href="https://www.utxo.management/">https://www.utxo.management/</a>
Sats Ventures	<a href="https://www.satsventures.com/">https://www.satsventures.com/</a>
Fulgur	<a href="https://fulgur.ventures/">https://fulgur.ventures/</a>
Plan B	<a href="https://planbvc.fund/">https://planbvc.fund/</a>
Lightning Ventures	<a href="https://ltnq.ventures/">https://ltnq.ventures/</a>
Recursive	<a href="https://www.rcrsrv.xyz/">https://www.rcrsrv.xyz/</a>
Trammel Ventures	<a href="https://tvp.fund/">https://tvp.fund/</a>
Bitcoin Opportunity Fund	<a href="https://www.bitcoinopportunity.fund/">https://www.bitcoinopportunity.fund/</a>

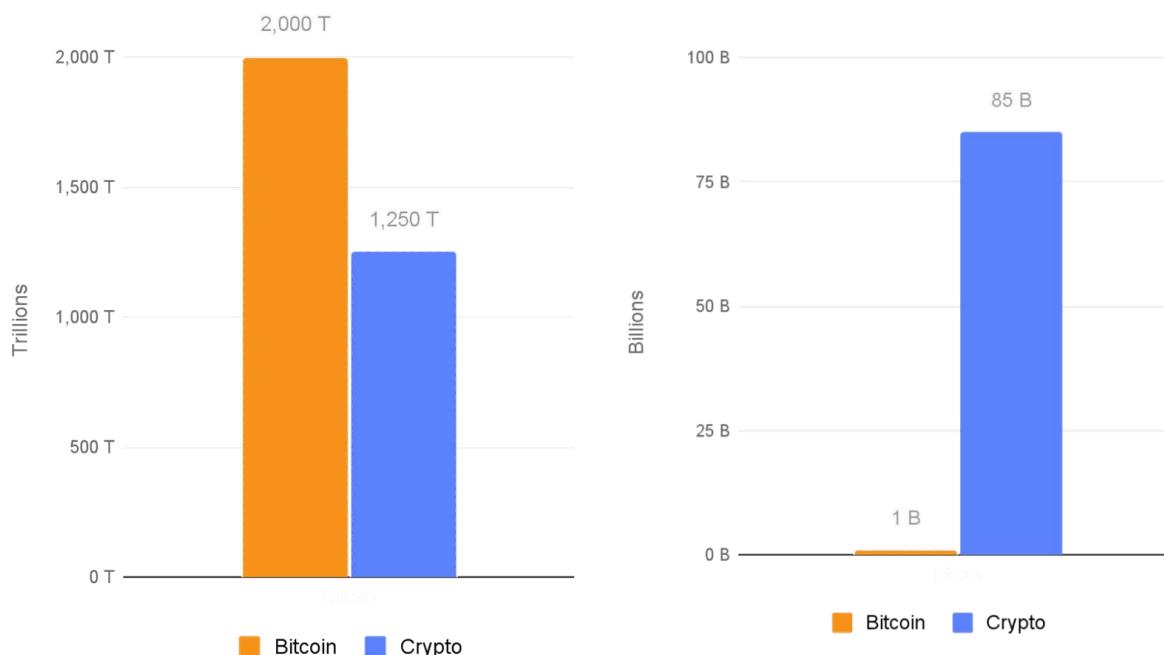
## Bitcoin VC History

Bitcoin companies emerged soon after Bitcoin's launch, but the dedicated venture ecosystem is a more recent phenomenon. The Taproot upgrade to the Bitcoin protocol reduced the friction for the emergence of scaling protocols, such as the Lightning Network, to interoperate with Bitcoin. This, in turn, attracted entrepreneurs to build products directly on Bitcoin that were not possible before. In fact, the emergence of Ethereum in 2015 spawned the broader digital asset space as a response to the technical inflexibility of Bitcoin Core. Taproot removed much of this inflexibility, resulting in an initial wave of pioneering entrepreneurs aspiring to contribute to the build-out of the infrastructure of a parallel financial system built on the Bitcoin protocol ("digital gold" + permissionless value transfer).

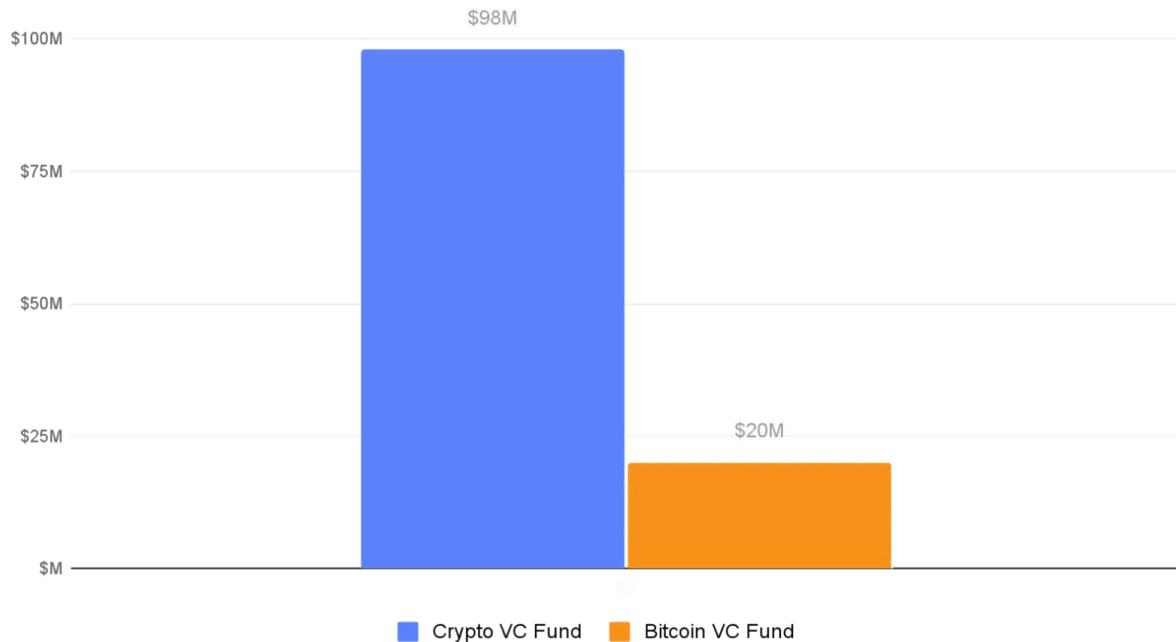
### Bitcoin vs. Crypto

Since its inception in 2008, Bitcoin has grown from a nascent asset to one with a total market capitalization of approximately \$2 trillion. Despite Bitcoin's significant market dominance in the broader digital asset space, the Bitcoin VC market has remained underfunded relative to its crypto counterparts. As of this writing, it is estimated that over \$85B has been raised in Crypto VC Funds (Galaxy Digital VC report). Contrast that with Bitcoin VCs having collectively raised less than \$1B to date (Cantilever). The average fund size in crypto VC is approximately \$98MM; in Bitcoin VC, it is ~\$20MM. (Galaxy Digital, Cantilever)

### Asymmetric Opportunity in Bitcoin VC

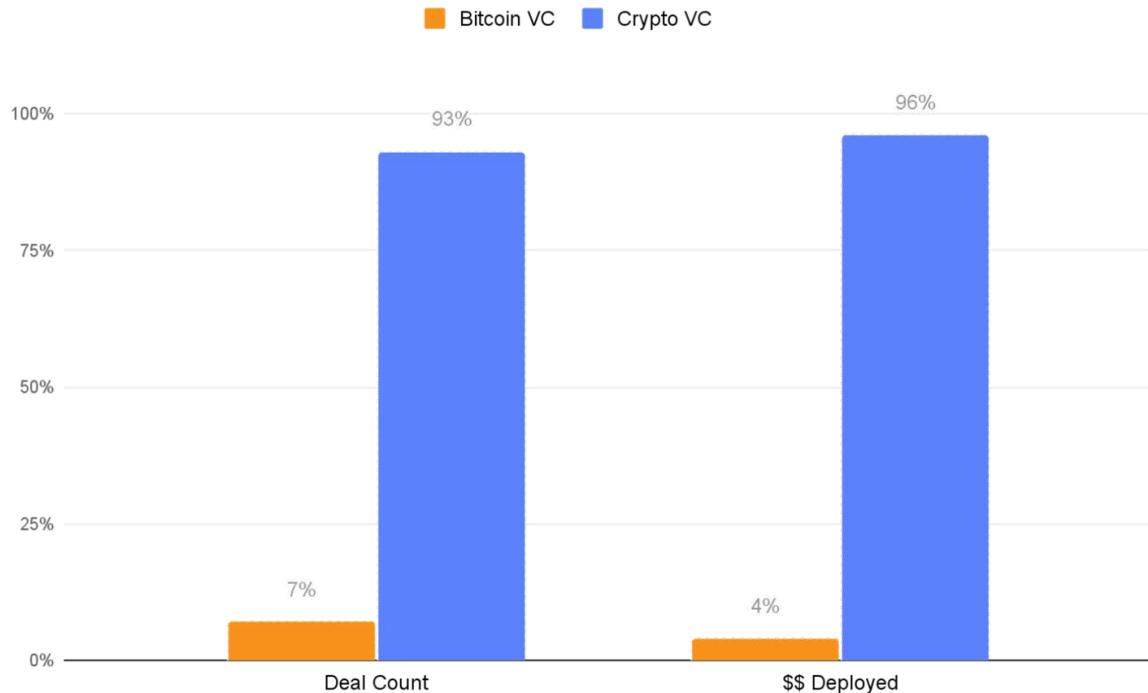


### Average Fund Size



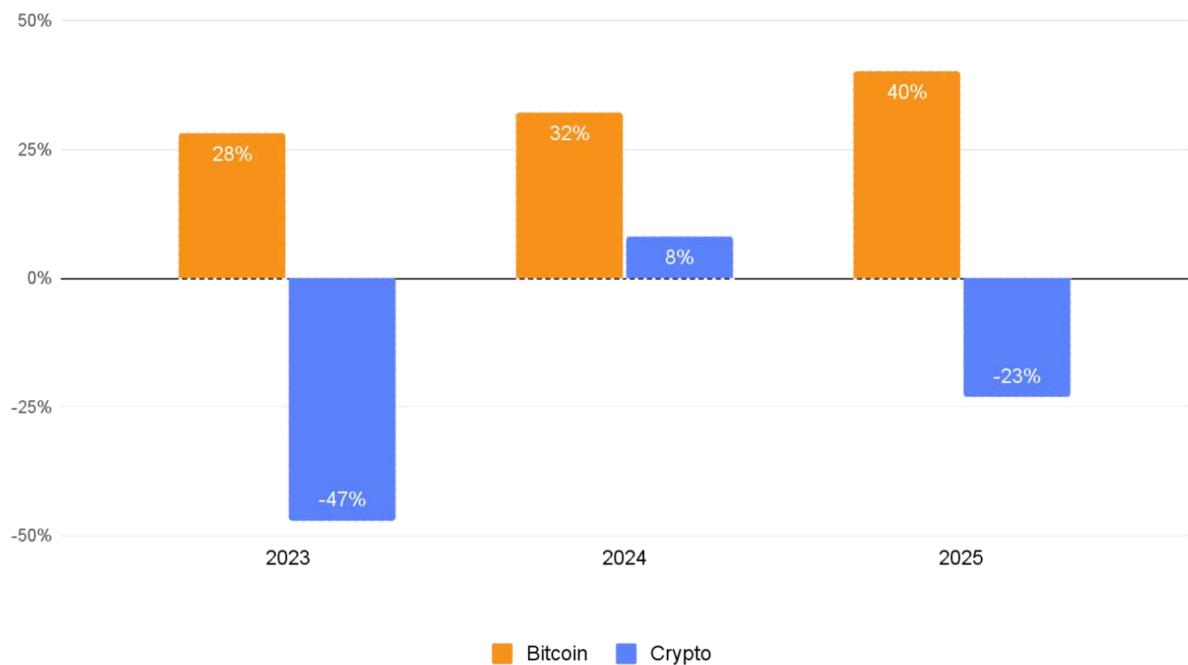
Over the last 12 months, Bitcoin Companies accounted for approximately 7% of venture deal count and roughly 4% of total venture investment, despite Bitcoin accounting for well over 50% of the total crypto market cap.

## Bitcoin VC vs Crypto VC



As discussed earlier, the pretense of crypto's emergence sheds some logic behind this seemingly irrational capital dislocation. That being said, it is reasonable to expect venture capital allocation to continue to balance across Bitcoin and Crypto over time. This trend is already evident in the data: Bitcoin deal count has increased by approximately 40% YoY, compared with ~28% and ~32% YoY growth in 2023 and 2024, respectively. Meanwhile, observed crypto VC activity remains well below the highs seen in 2021 and 2022 (Galaxy Digital, Cantilever).

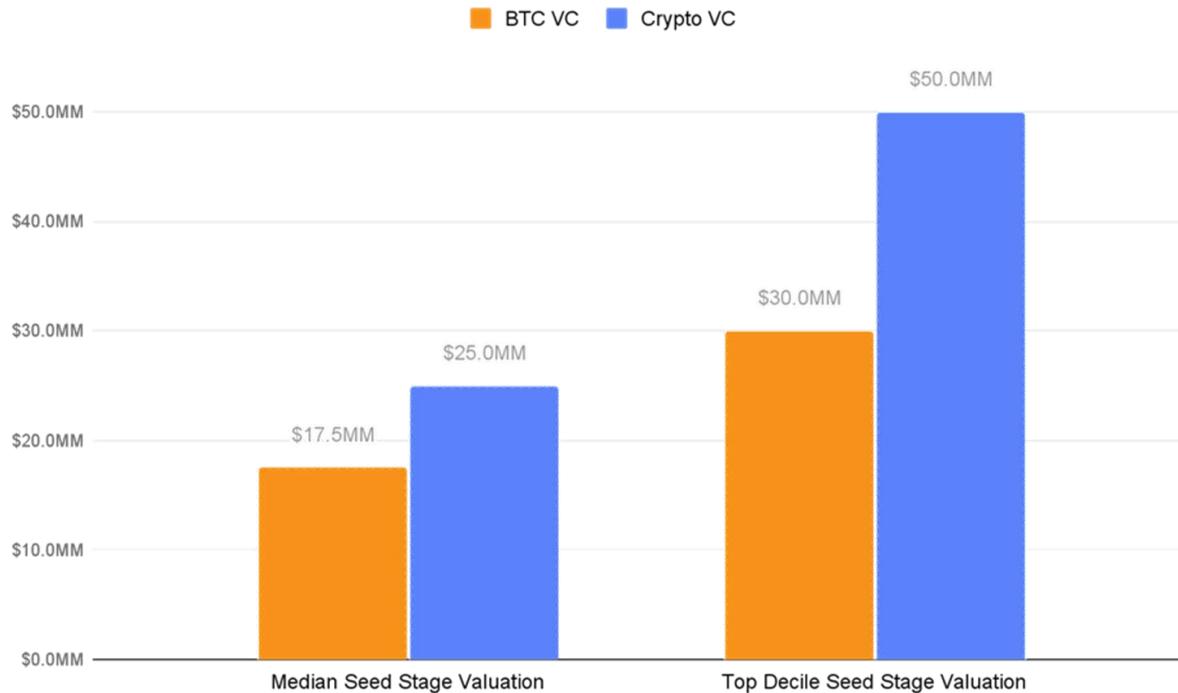
## BTC vs Crypto Deal Count



Functionally, Bitcoin VC operates similarly to traditional VC. Bitcoin VC investment typically involves long-term illiquid equity investments. Contrast that with crypto VC in which the capital formation approach is oriented more commonly around liquid “tokens” enabling a theoretically quicker cycle to VC liquidity- frequently before a crypto protocol has shipped product/generates meaningful revenue. As the crypto VC market has matured, anecdotal observation suggests the ability to “pump and dump” tokens for quick returns has significantly (though not entirely) dried up, leaving crypto VC struggling to deliver meaningful LP distributions- a similar struggle is being seen in traditional VC.

Given the relative capital supply/demand dynamics between crypto and Bitcoin VC, valuation comparison across crypto and Bitcoin VC also merits discussion. Based on anecdotal observations and Cantilever engagement in the Bitcoin and crypto VC allocator space, the median seed-stage crypto VC deal valuation is \$25MM, with top-decile opportunities commanding \$50MM+. Contrast that with the median Bitcoin VC seed-stage valuation of \$15-20MM, rising to \$30MM for top-decile deals.

## Seed Valuations & Top-Decile Opportunities: Bitcoin VC vs. Crypto VC

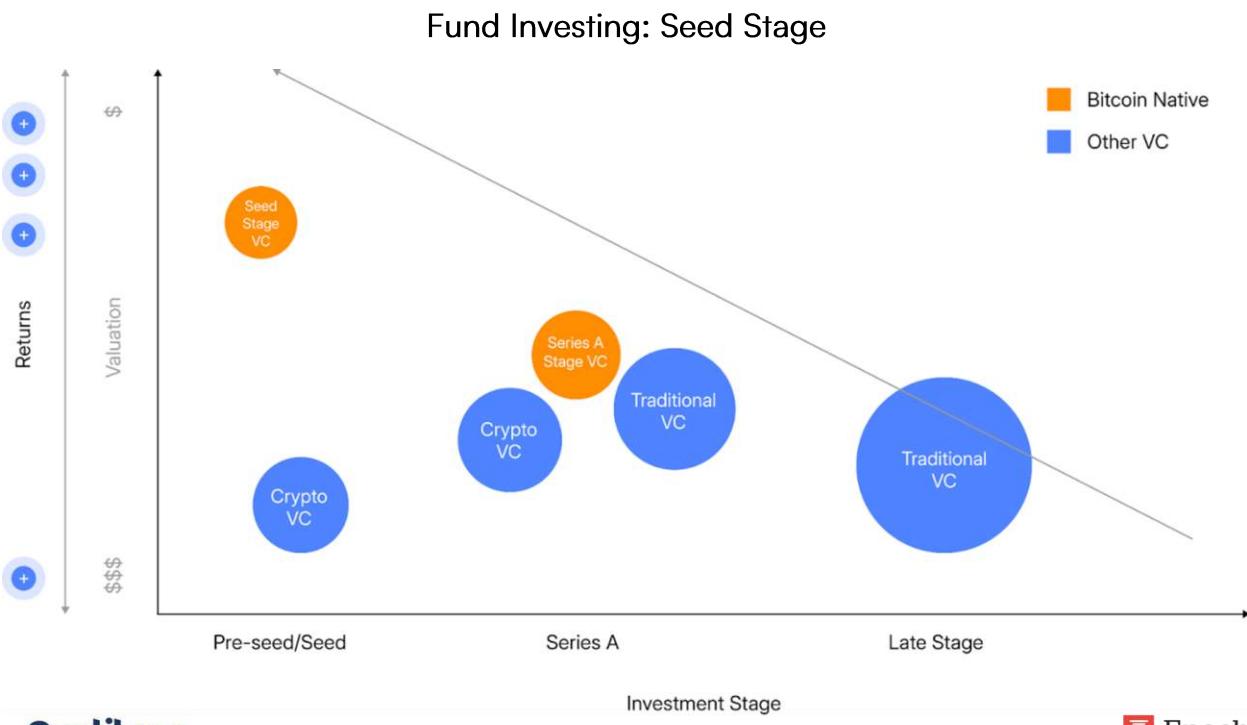


## State of the Bitcoin VC Market

To date, ~200 Bitcoin companies have been funded. Given the overall maturity of the space, most of the companies financed have been pre-seed or seed-stage. Bitcoin VCs have and continue to be uniquely suited to win investment mandates at the early stages due to a combination of their ability to (i) source proprietary deal flow, (ii) underwrite Bitcoin technology risk when compared to traditional and crypto VC managers, and (iii) provide vertical-specific strategic relationships and knowledge. Furthermore, having founder <> investor alignment is most important in the early days of company formation, further supporting sustainable access for Bitcoin VCs in top-tier deals. Often, bitcoin founders don't want token-mercenary VCs on their cap table because of the short-term incentives they bring.

An increasing number of Bitcoin Companies are finding product-market fit, generating millions of dollars in revenue, achieving break-even/profitable operations, and attracting early-stage growth financing from both Bitcoin VCs and Crypto/Traditional Venture Funds. At this stage, Bitcoin VCs with sufficient AUM, as well as well-funded traditional and crypto VC funds, can underwrite growth-stage venture risk. Investment from traditional/crypto VC in Bitcoin Companies has come almost exclusively in companies that have found some level of product-market fit and related revenue traction. While BTC VCs maintain some edge relative to Crypto/Traditional Venture

Funds at the growth stage, they face greater competition, which in turn creates a valuation premium, potentially muting future returns.



- (a) The analysis assumes potential returns based on inverse valuation.
- (b) Size of bubble = AUM.
- (c) Key takeaway 1: seed stage BTC VCs have a sustainable edge
- (d) Key takeaway 2: Series A-focused BTC VCs face competition, creating a valuation premium.

Notable Bitcoin Company Growth Financings:

- Unchained: [\\$60MM Series B](#) led by Valor Equity Partners
- River: [\\$35MM Series B](#) led by Kingsway (participation from Peter Thiel, Valor)
- Meanwhile: [\\$82MM financing](#) co-led by Bain Capital Crypto and Haun Ventures.
- Lava: [\\$17.5MM round](#) led by Khosla and Founders Fund
- Relai: [\\$12MM Series A](#) led by Ego Death Capital
- Strike: [\\$80MM Series B](#) led by Ten31
- Lightspark: [\\$175MM Series A](#) led by a16z

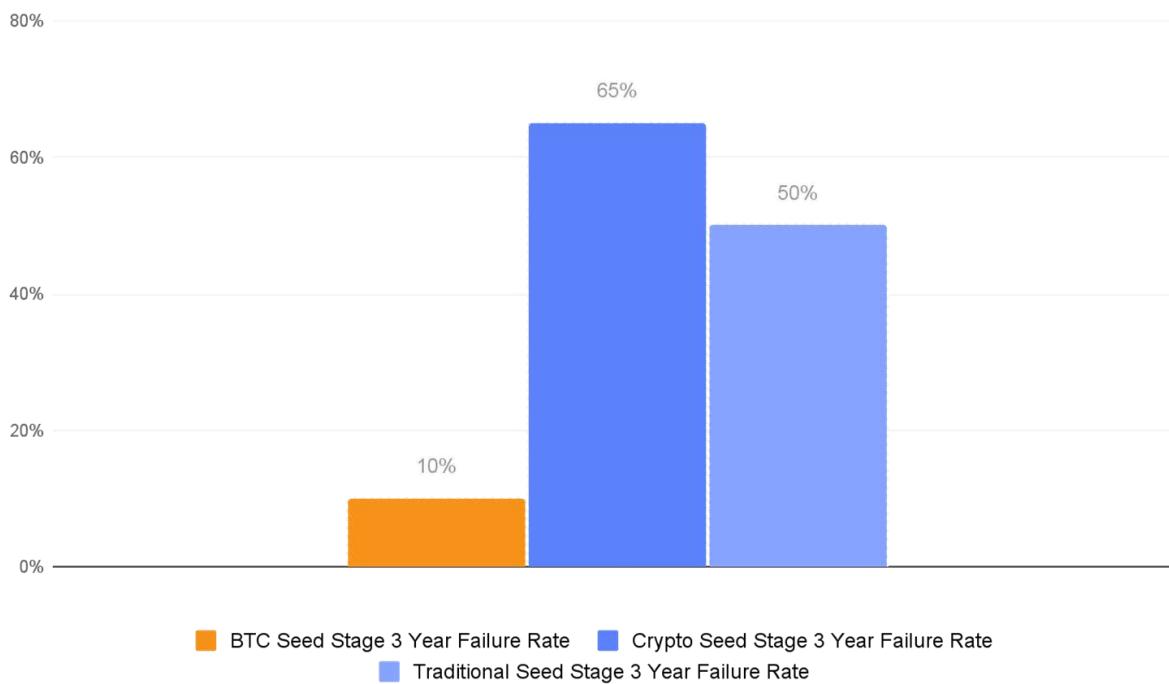
Finally, early Bitcoin VC investment portfolios are beginning to yield liquidity events through a mix of public market and M&A channels. Notable public listings for venture-funded Bitcoin Companies include Fold and Griid (which was subsequently acquired by CleanSpark, a publicly traded Bitcoin miner). With regulatory clarity paving the way for traditional finance participation and the rise of Bitcoin Treasury Companies, it is reasonable to expect an increase in the velocity of exits through public markets and M&A.

It is also worth noting the resilience of Bitcoin companies compared to traditional and crypto VCs. It is estimated that of the ~200 Bitcoin Companies that have been venture funded since 2021, less than 10% have outright failed to date. Furthermore, it is commonplace to see Bitcoin Companies operate at/near cash flow break-even much earlier in a company's life. We believe bitcoin companies maintain relatively lower failure rates (>50%) when compared to Crypto and Traditional VC due to three primary factors:

1. Limited Capital Availability
2. Leveraging Bitcoin as a reserve asset
3. CEOs use bitcoin as their hurdle rate in capital allocation decisions

Bitcoin venture investments are in their infancy (most began in 2021), and the lower failure rate is undoubtedly affected by this to some degree. However, there is a significant cultural difference maintained by bitcoin founders, who reject the Silicon Valley mantra of “move fast and break things” and instead focus on longer-term strategies aligned with “move slow and build things.” There are tradeoffs to this model, of course — fewer failures may lead to fewer asymmetric outcomes. For venture investors, the return outcome of this strategy on a portfolio-wide basis remains to be seen.

### Three-Year Seed Failure Rates: Bitcoin vs. Crypto vs. Traditional



## Venture Sectors

A simplistic way to visualize how capital has been invested into Bitcoin Companies is to categorize capital flows into companies focused on advancing:

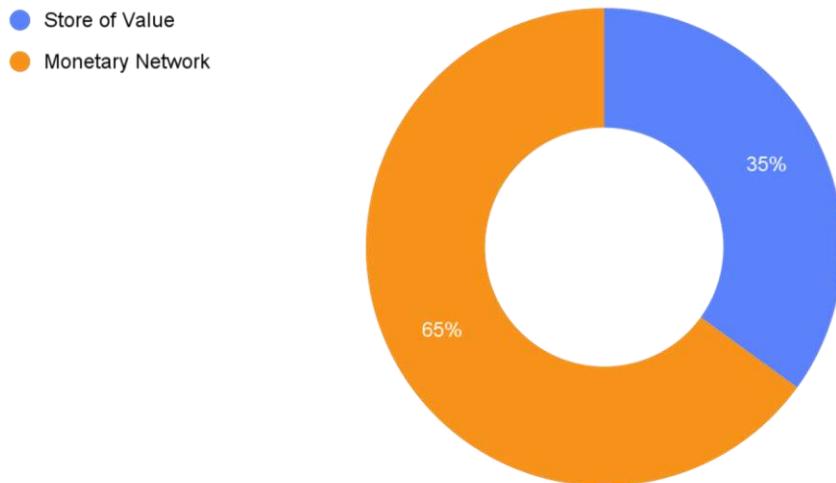
- Bitcoin, the asset as an emergent Store of Value
- Bitcoin the network, enabling permissionless transfer of value.

To date, the majority (65-75%) of VC capital invested has been in companies focused on advancing bitcoin as an asset (note: this does NOT include capital invested in Bitcoin Treasury Companies). These companies' primary objective is to reduce the friction of bitcoin (the asset) adoption at a global scale. Types of businesses in the asset/store of value category include, but are not limited to: centralized exchanges, custodians, bitcoin lending platforms, bitcoin cross-collateralization with traditional forms of collateral (i.e., real estate), and mining infrastructure/technology. This makes sense as the prevailing understanding of Bitcoin in the broader market today is Bitcoin as “digital gold”. As such, most of the companies that have achieved bona fide product-market fit and scaled sustainable revenue reside in this category.

Conversely, investment in companies unlocking the functionality of Bitcoin’s network totals 25-35% of total venture investment. Types of businesses that fit in this category include “bitcoin

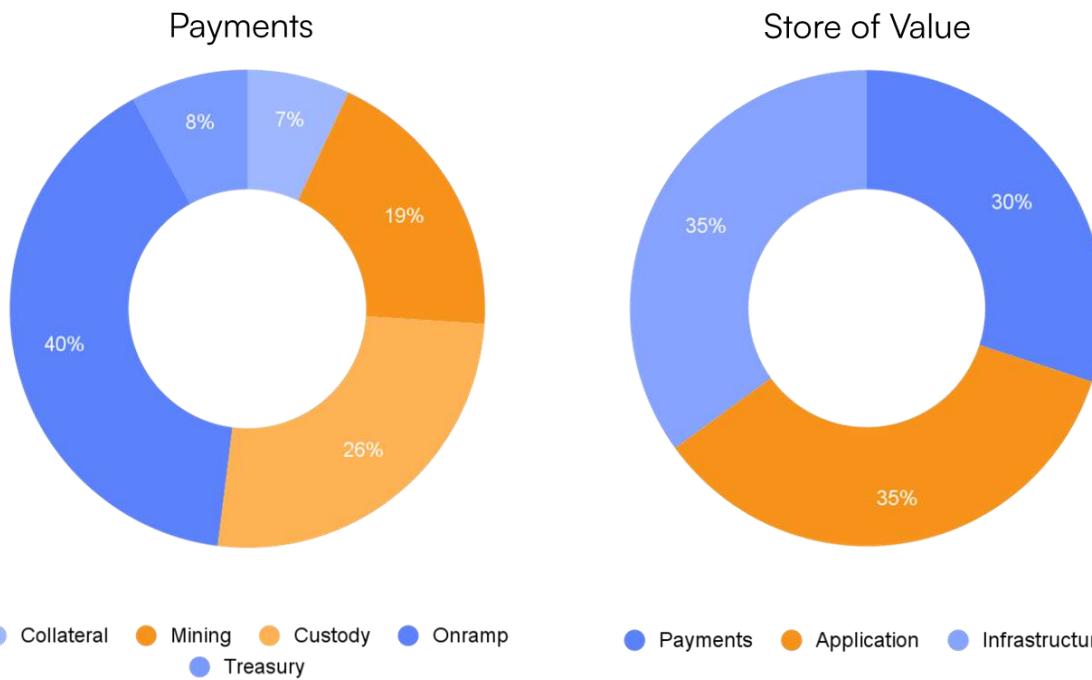
fintech”, payments, consumer applications, and scaling infrastructure. Scaled product-market fit in this category is not as mature as in the Store of Value category; however, some of these companies are finding early traction in developing economies/financial systems with less developed financial markets.

### BTC Venture Dollars deployed by Category



- Store of Value:  
Companies building products leveraging Bitcoin's store of value characteristics- “digital gold”.
- Payments:  
Tools and applications built for using Bitcoin as a global value transfer network.

### BTC Venture Dollars Deployed by Category (Continued)



## Outlook and Trends to Monitor

### Traditional & Crypto VC participation in Bitcoin VC

As mentioned, it is becoming commonplace for traditional and crypto VCs to invest in Bitcoin Companies. However, the velocity and magnitude of these investments has historically correlated closely with Bitcoin bull market cycles. It will be interesting to see how persistent this “cross-over” investment remains across market conditions. In addition, tracking crypto/traditional VC participation in earlier stages (pre-seed, seed deals) as well as valuation trends across all investment stages should traditional and crypto VC participation remain sustained.

### Capital Allocation between BTC and Crypto

As noted previously, in aggregate, crypto VC funds have raised ~85x as much capital as Bitcoin VCs. As Bitcoin continues to emerge as a consensus allocation across all types of investment portfolios and simultaneously maintains considerable market dominance relative to the broader crypto ecosystem, it is reasonable to expect the rate of growth in entrepreneurial activity to continue to tilt in favor of Bitcoin-oriented company formation. Should this occur, the delta

between crypto and Bitcoin VC AUM will likely close considerably in the coming years. That said, the broader cryptocurrency market has attracted significantly more investment capital than Bitcoin due to the shorter time to liquidity. Venture capitalists in the crypto space typically make equity investments that entitle them to stakes in subsequent tokens associated with the project, which they can then sell to retail investors. As long as this mechanism exists, it is reasonable to expect the gap between the assets under management (AUM) in the broader crypto market and Bitcoin to persist.

## BTC VC Capital Formation

The emergence of Bitcoin VC over the last 5 years has come despite significant headwinds for much of this time. Much of the new firm formation observed in Bitcoin VC occurred between 2022 and 2024, a period when the Bitcoin/crypto space faced significant headwinds. The combination of the 2022 Bitcoin/crypto bear market in the wake of several headline crypto meltdowns (Luna, Three Arrows Capital, Celsius, Voyager, BlockFi, FTX) and the heavy-handed regulatory crackdown in the United States and other major capital markets makes the emergence of the Bitcoin VC ecosystem even more noteworthy. Many of the 15 Bitcoin VC firms operating today were founded and raised their first capital in 2022 and 2023. Favorable shifts in regulatory stance, combined with intense Bitcoin price action, are driving higher rates of company formation. To meet the capital needs of early-stage businesses, it is reasonable to expect continued formation of new Bitcoin VC firms. It would not be a surprise to see new Bitcoin VC firms being founded by traditional VC investors that have come to understand the potential of the Bitcoin protocol and are looking to bring their VC investing expertise to bear in Bitcoin VC.

## Exits

With the Bitcoin VC space being less than 5 years old, it is promising to see green shoots of exits happening already. As the initial cohort of funded companies continues to mature, alongside a favorable regulatory backdrop and increased market acceptance of Bitcoin, stablecoins, and other digital asset applications, it is reasonable to expect increased exit activity for Bitcoin Companies through both acquisitions and public markets. There is no shortage of headlines suggesting that legacy banks, fintech companies, and large asset management platforms are making a concerted push to be relevant in the digitization of financial markets and infrastructure. Based on anecdotal conversation, board meetings of traditional finance players are increasingly discussing how these companies will make their move into the Bitcoin and digital asset space. One of the first questions these companies will ask is: Do we build or do we buy? Given that Bitcoin represents a novel technology stack relative to antiquated financial technology, several traditional finance companies are expected to acquire companies to accelerate time-to-market. Furthermore, should a meaningful number of Bitcoin Treasury companies trade through a complete market cycle, they also become logical acquirers of complementary Bitcoin technology as they look to operationalize their Bitcoin treasuries.

## Summary

- Bitcoin-focused venture capital has grown steadily over the past five years alongside Bitcoin adoption but remains significantly undercapitalized relative to crypto VC despite Bitcoin's dominant share of digital asset market value.
- The Bitcoin VC ecosystem is young and specialized, with most funds and companies founded after 2021, smaller average fund sizes, and a strong concentration in pre-seed and seed-stage investments.
- Bitcoin VC differs structurally from crypto VC by emphasizing long-term, illiquid equity investment rather than token-based liquidity, resulting in lower valuations, reduced speculative dynamics, and potentially more disciplined capital allocation.
- Bitcoin VCs maintain a durable competitive advantage at the earliest stages due to proprietary deal sourcing, technical underwriting expertise, and cultural alignment with founders, while competition from traditional and crypto VCs intensifies at the growth stage and compresses returns.
- Bitcoin companies exhibit comparatively low early failure rates and faster paths to cash-flow sustainability, reflecting constrained capital availability, conservative operating cultures, and the use of bitcoin as a financial and strategic benchmark.
- Venture capital deployment has been skewed toward companies advancing Bitcoin as a store of value rather than as a payments or application network, with the latter category showing earlier-stage traction and longer timelines to product-market fit.
- Looking ahead, improving regulatory clarity, increased participation from traditional financial institutions, and growing acquisition appetite are expected to accelerate company formation, VC fund creation, and exit activity through both M&A and public markets.

# Acknowledgments

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See you next year

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