



# Table of Contents

Introduction.....	1
Portfolio Theory and Crypto Applications.....	1
Evaluating Crypto Performance in Traditional Portfolios.....	8
Broad Market Model Portfolios and Optimization.....	11
Valuation Methodologies and Evolution of Valuation.....	16
Benchmarking.....	22
Considerations for Managing a Dedicated Crypto Portfolio.....	25
Looking Ahead.....	30
Wrapping Up and Recommendations.....	34

## Introduction

Three years ago, we published "[A Comprehensive Analysis Evaluation of Crypto Portfolio Management](#)" report, highlighting the empirical risk-adjusted benefits of bitcoin (BTC) and ethereum (ETH) in traditional portfolios. Since 2023, the crypto landscape has undergone remarkable maturation, prompting a fresh look at how these assets fit into investment portfolios.

Regulatory progress accelerated globally, with the European Union's (EU) MiCA framework fully implemented to provide clarity on stablecoin and exchanges, while the US advanced toward comprehensive legislation with the pending CLARITY Act under a pro-crypto administration, fostering institutional confidence and reducing uncertainty. Market sentiment shifted decidedly positive, driven by record ETF inflows exceeding \$33B and broader adoption. Price action reflected this evolution, with the total crypto market cap reaching all-time highs of over \$4T, marked by sharp rallies and corrections. Volatility has compressed over time as markets stabilized, signaling a transition from speculative frenzy to more predictable dynamics.

Both bitcoin and ethereum reached new all-time highs in 2025, with 30-day volatility compressing over time to levels more akin to traditional assets, reflecting growing maturity and institutional participation. ETH followed a similar pattern, surging to all-time highs but ending with a slightly steeper pullback, often outperforming BTC in recovery phases due to DeFi (decentralized finance) and staking momentum, while its volatility has also trended downward over the period, indicating reduced risk profiles as the ecosystem evolves.

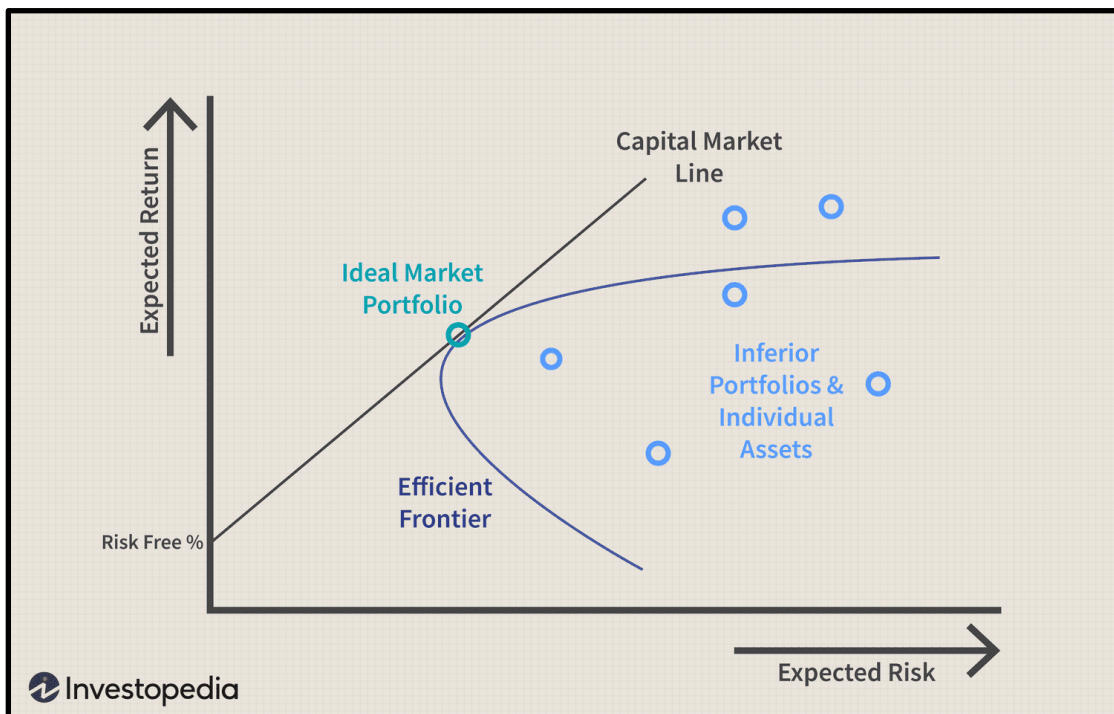
This maturing profile could enable more sophisticated portfolio construction, allowing investors to integrate crypto with greater precision for diversification, inflation hedging, and tactical exposure to innovation cycles. In this update, we review portfolio theory and strategies, valuation methodologies, considerations for crypto portfolio management, and emerging trends germane to the asset class to help asset allocators understand how crypto could fit within their clients' investment portfolios.

## Portfolio Theory and Crypto Applications

Modern Portfolio Theory (MPT) is a ubiquitous quantitative framework for constructing investment portfolios that typically maximize expected returns for a given level of risk. This inherently academic approach to portfolio management assumes investors are rational and risk-averse, seeking to optimize their portfolios through diversification rather than relying solely on individual security selection. While MPT may contrast with the approaches of investing greats such as Stanley Druckenmiller or Warren Buffett, it nevertheless provides a starting point for crafting personalized investment strategies.

In practice, investors utilizing MPT must evaluate assets based on their expected returns (historical mean returns) and risks (standard deviation of returns). The goal is to construct a diversified portfolio with an optimal balance in which incremental risk is

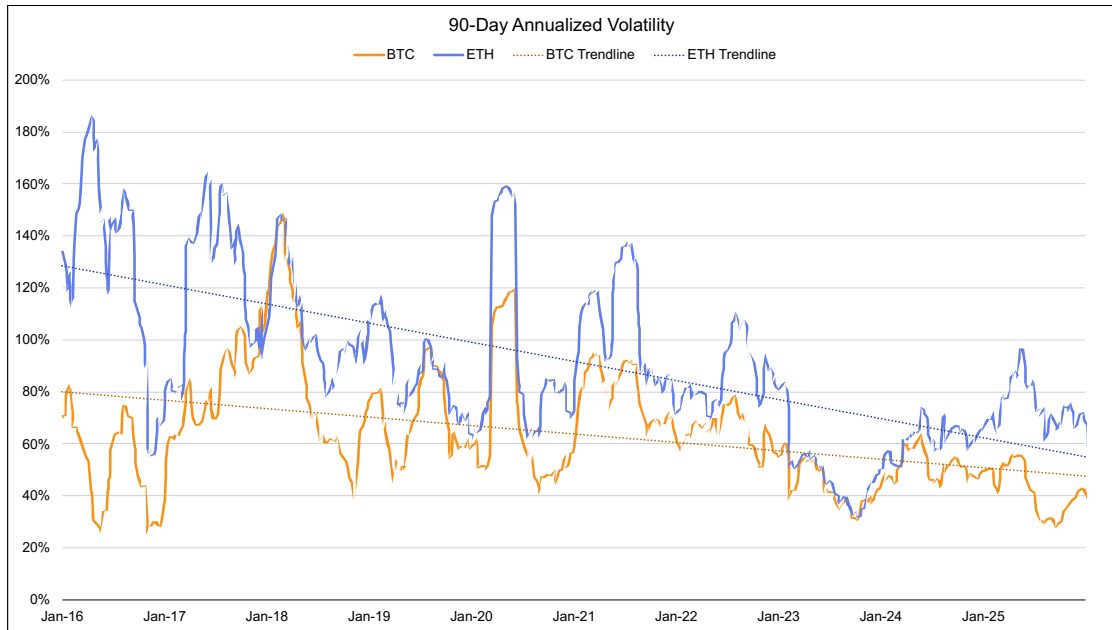
justified by commensurate rewards. Notably, this process overlooks factors like taxes, transaction costs, estate plans, and liquidity.



Historically, the integration of digital assets into portfolios has highlighted another limitation of MPT: its reliance on robust time-series data. However, this shortcoming has begun to wane since the two largest digital assets by market cap, bitcoin and ethereum, now have over 10 years of historical returns, along with declining volatility and more mature correlations. This dynamic provides us with a unique opportunity to more credibly examine their incorporation.

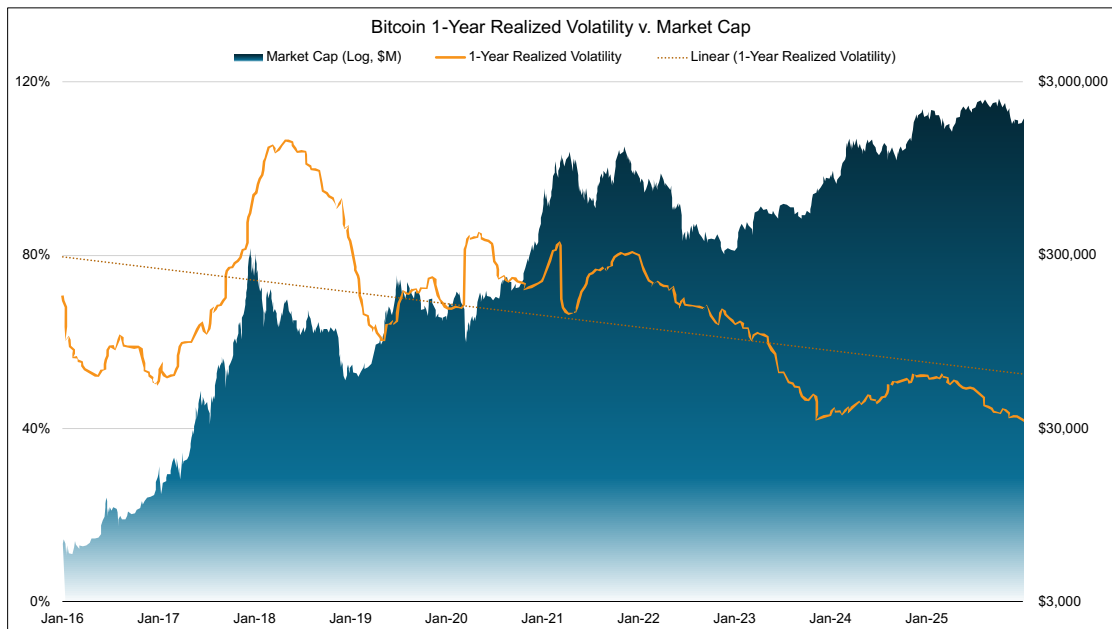
### *The Decline in Volatility*

We'll begin by looking at short-term 90-day volatility for BTC and ETH, which show synchronized spikes during periods of market extremes, trending down to 30-40% for BTC and 60-70% for ETH. ETH maintains a 30% premium, tied to greater innovation versus BTC's store-of-value focus. Parallel trendline declines indicate asset class maturation, with 90-day volatility convergence post-2022 highlighting greater macro alignment. These observations support the integration of digital assets into traditional portfolios, with ETH's innovation edge aligning with more aggressive investment policies and BTC anchoring asset-class exposure amid persistent but moderating risks.



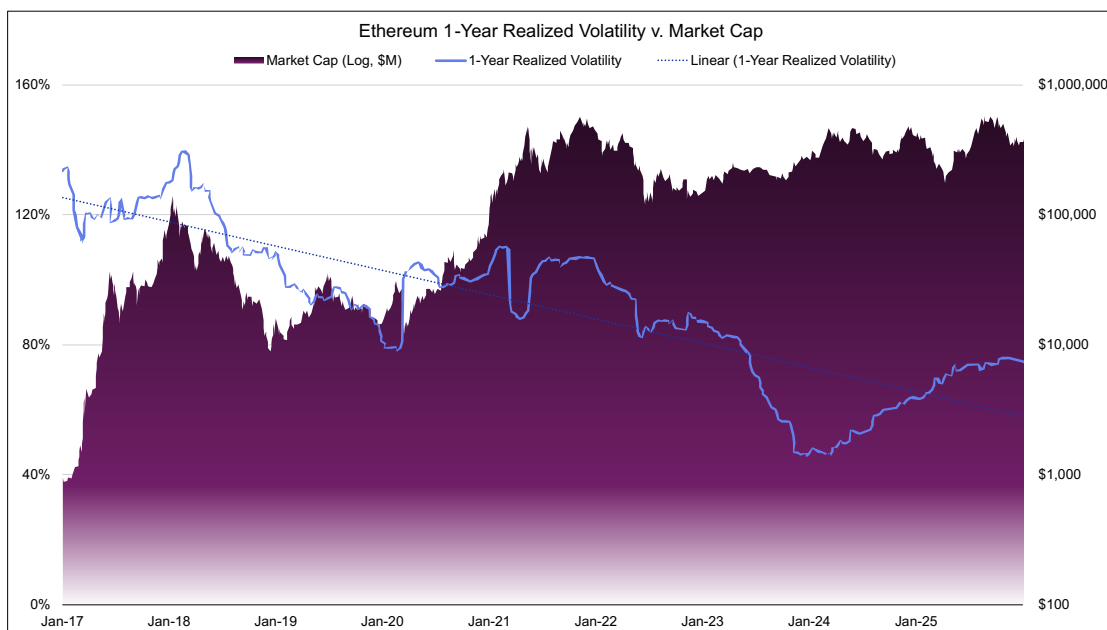
Source: Artemis, Collar Capital, Messari; Date: 01/01/16 – 12/31/25

Next, we break down each asset’s relationship between their market cap and volatility. Bitcoin's market cap has surged exponentially from <\$7B in 2016 to nearly \$2.5T in 2025, driven by network credibility, ubiquity, and institutional adoption. 1-year realized volatility exceeded 100% during the first major cycle but declined to 41% by 2026. The linear decline correlates inversely with market cap growth, signaling maturation and mirroring gold’s historical trends. This compression reduces tail risks for investors, further bolstering BTC's “digital gold” narrative, though sensitivity to macro conditions persists. As we will discuss in detail later, current volatility exceeds equities' volatility by 15-20%, but a narrowing gap suggests evolving stability for portfolio diversification.



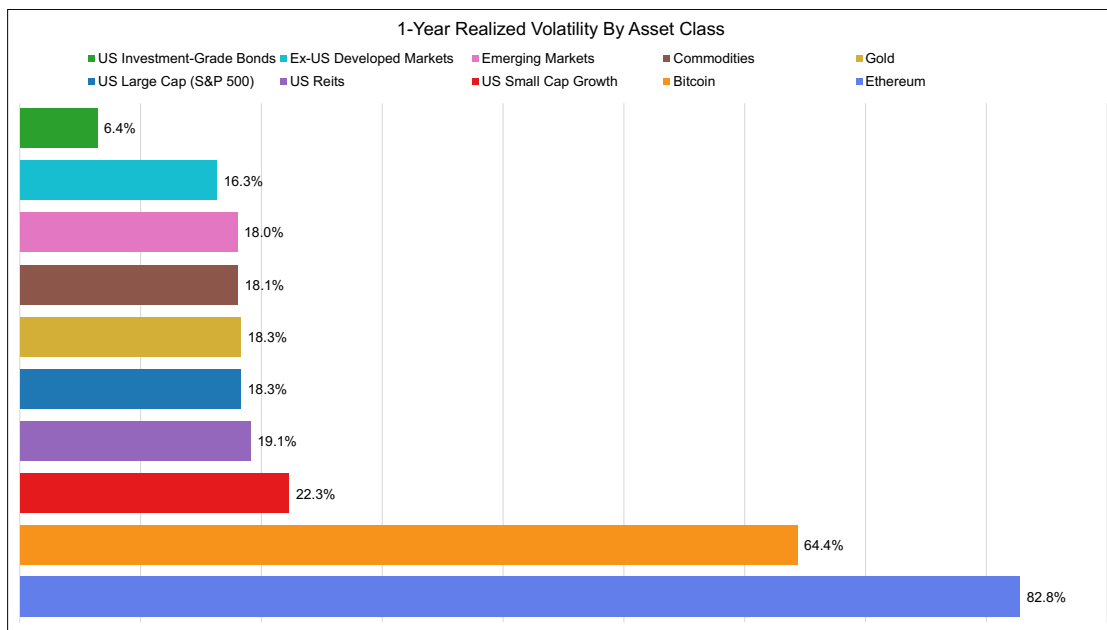
Source: Artemis, Collar Capital; Date: 01/01/16 – 12/31/25

Ethereum's market cap increased from <\$800M in 2017 to >\$550B in 2025, fueled by decentralized finance (DeFi), nonfungible tokens (NFTs), real-world assets (RWAs), network upgrades like The Merge, and institutional adoption. 1-year realized volatility began above 130% amid the 2017-2018 bull market, oscillating with ecosystem narratives and broader crypto swings, before stabilizing at 74% by 2026. A steeper trendline decline than bitcoin's reflects rapid growth from a smaller base, yet the volatility spread remains 20-30% higher due to network innovation and scaling. For investors, this positions ETH as a high-beta complement, with declining volatility enabling larger allocations as adoption scales. Network upgrades like [sharding](#) should further enhance compression.



Source: Artemis, Collar Capital, Messari; Date: 01/01/17 – 12/31/25

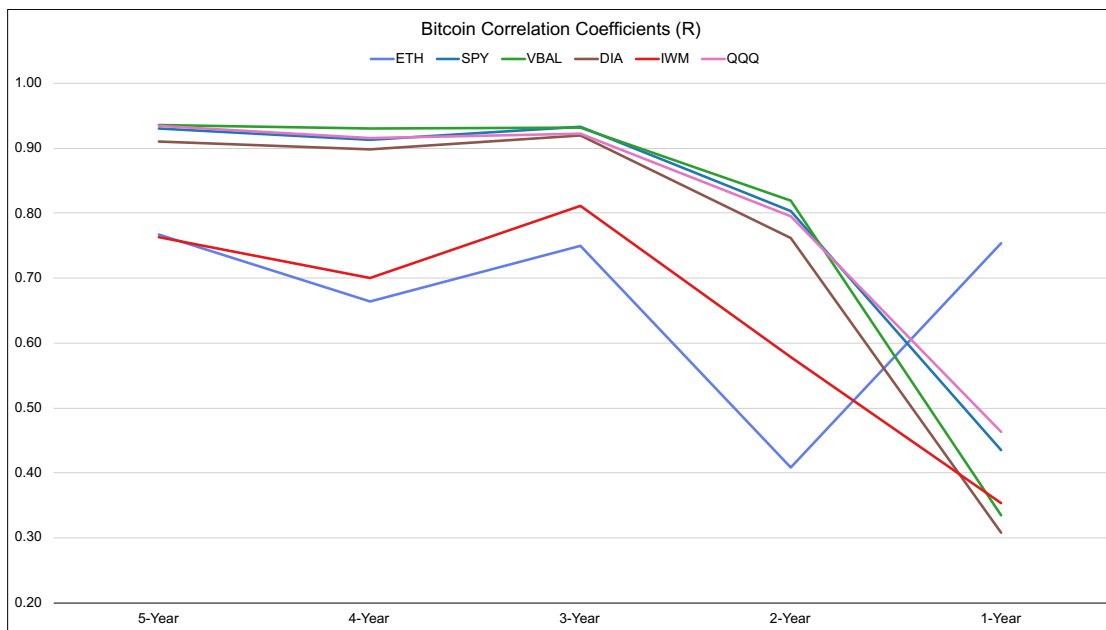
Now zooming out, we order asset classes by their median 1-year realized volatility between 2020 and 2025, from investment-grade bonds at 6.4% to ETH at 82.8%. Safer havens like bonds contrast with the mid-tier cluster: emerging markets, commodities, gold, US large-cap growth, and US REITs. Digital assets as outliers reflect their speculative dynamics, 3-4x equities' volatility, driven by thinner liquidity and unsystematic catalysts like halvings or innovations. While seemingly quite high, bitcoin has exhibited volatility similar to the Magnificent Seven equities, which was previously [illustrated](#) by Fidelity Digital Assets. As we have previously observed, ETH's premium relative to BTC likely stems from its exposure to innovation like DeFi and RWAs.



Source: Artemis, Collar Capital, Messari, Ycharts; Date: 01/20 – 12/25; Note: Median values

### *A Potential Correlation Decoupling*

While an asset’s volatility is a key part of its overall risk profile, so too is its correlation with other assets alongside it in an investment portfolio. We will now briefly look at how BTC relates to other assets in this way. Bitcoin's correlations with key assets—ETH, SPY (S&P 500), VBAL (60/40 portfolio), DIA (Dow), IWM (Russell 2000), QQQ (Nasdaq 100)—decline markedly from longer to shorter horizons, signaling recent decoupling. ETH maintains the strongest relationship, starting near 0.95 and dipping to 0.41, likely capturing the [disparity](#) of success between its ETF and bitcoin’s. Equity proxies like SPY, DIA, and QQQ begin at 0.9 but fall to 0.3-0.4 by the 1-year window, driven by macro headwinds for crypto, including higher-for-longer rates, stagnant global net liquidity, and intermittent risk-off sentiment. VBAL and IWM show similar drops to 0.3-0.35, underscoring BTC's reduced correlation with mixed portfolios and small caps. This trend enhances BTC's diversification appeal for portfolios, though a persistent relationship with ETH warrants prudent allocations between the two. Investors should monitor for re-convergence amid global liquidity events to determine if mid- to long-term correlations will remain intact.



Source: Collar Capital, Ycharts; Date: 01/20 – 12/25

## Portfolio Applications

MPT guides traditional investors to optimize expected returns against defined benchmarks—pension funds targeting absolute hurdles (e.g., 8%), endowments aiming to exceed annual spending rates (e.g., 4%), or balanced mandates mirroring 60/40 equity-bond mixes (e.g., VBAL). These investors traverse the efficient frontier, blending assets to achieve required returns at minimal perceived risk, leveraging historical correlations and volatilities.

Benchmarks can also serve dual purposes: performance yardsticks and passive investment vehicles. For passive strategies, the benchmark and portfolio converge—e.g., SPY replicates the S&P 500. In digital assets, however, the absence of a mature, widely accepted benchmark hinders efficient capital allocation; more on this later. A well-defined benchmark would accelerate institutional flows, mirroring the maturation path of equities and commodities.

Our analysis emphasizes this opportunity. Bitcoin exhibits declining 1-year and 90-day realized volatility and falling correlations with equities, enhancing its potential diversification benefits. Ethereum, with higher but compressing volatility and strong BTC linkage, continues to offer complementary beta. These trends—coupled with median volatilities 3-4x those of most traditional assets—support the construction of benchmarks for digital assets that capture asymmetric upside while mitigating idiosyncratic risks.

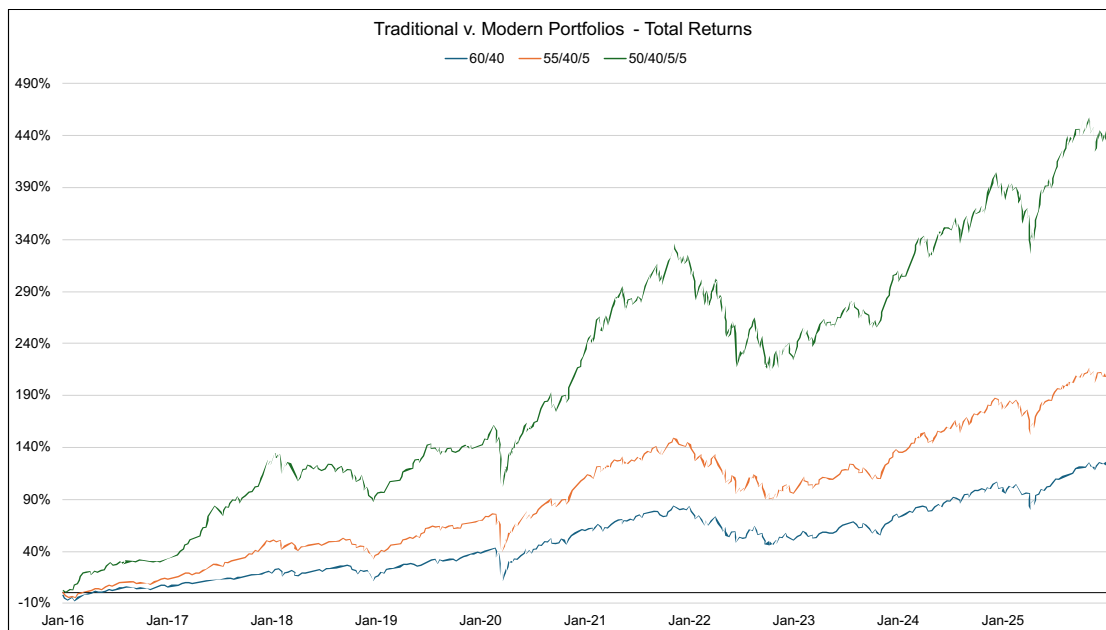
## *Recommendations*

Allocators are advised to apply MPT frameworks to integrate bitcoin and ethereum, capitalizing on more mature return histories, material volatility compression, and horizon-dependent correlation decoupling with traditional assets. The current state of data availability and integrity, coupled with the assistance of commercial AI models, makes this recommendation far more actionable than just a few years ago. If acted upon, allocators should expect to discover compelling yet simple allocation strategies that deliver more asymmetric upside for their clients.

## **Evaluating Crypto Performance in Traditional Portfolios**

Over the last few years, several investment narratives within the digital asset class (e.g., meme coins, AI, DEXs or decentralized exchanges, etc.) have ebbed and flowed in popularity along with the market caps of their respective ecosystem tokens. Yet today, bitcoin and ethereum have largely remained as the only macro assets. Furthermore, their market positions have unquestionably been entrenched by their level of institutional adoption and the lack of a euphoric cycle top in 2025, particularly for altcoins. Therefore, we saw fit to once again compare the traditional 60/40 portfolio (composed of the iShares Core S&P Total US Stock Market ETF [ITOT] and the Vanguard Total Bond Market Index Fund ETF [BND]) to ones slightly augmented with the additions of BTC and ETH.

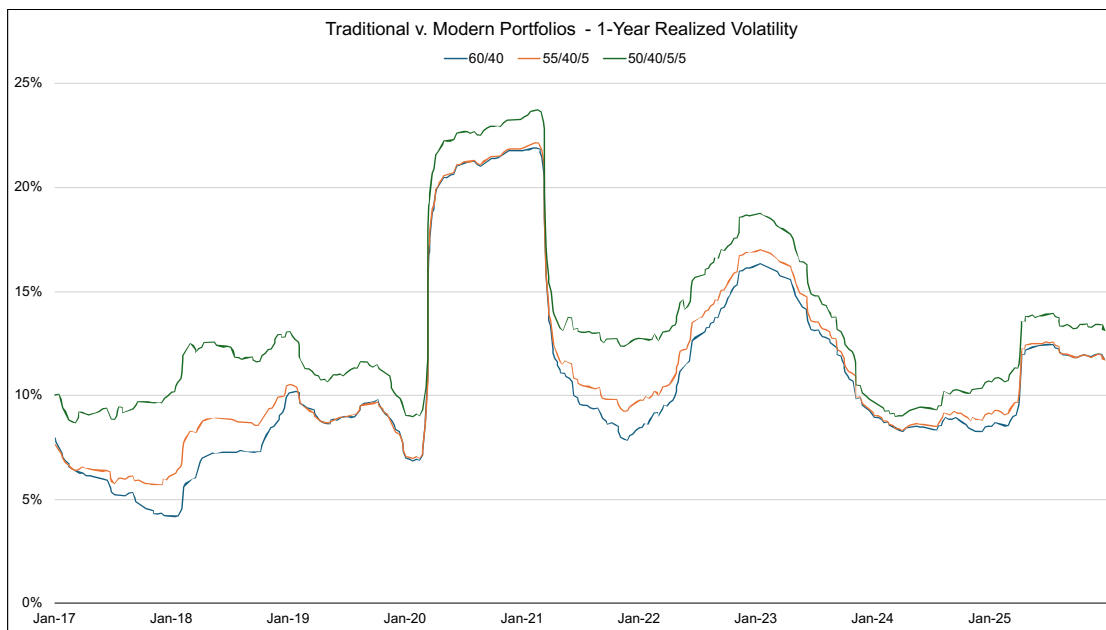
From January 2016 to December 2025, portfolios incorporating modest bitcoin and ethereum allocations dramatically outperformed the traditional 60/40 (60% ITOT/ 40% BND) benchmark. The 60/40 delivered cumulative total returns of 122.48%, reflecting steady but modest equity-bond compounding through multiple market cycles. Adding 5% BTC (55/40/5) lifted cumulative returns to 208.40%, demonstrating a meaningful boost from digital assets' asymmetric upside. The more aggressive variant—50/40/5/5 (5% BTC and 5% ETH)—achieved 435.27%, almost quadrupling the traditional portfolio's outcome.



Source: Artemis, Messari, Ycharts; Date: 01/01/16 – 12/31/25

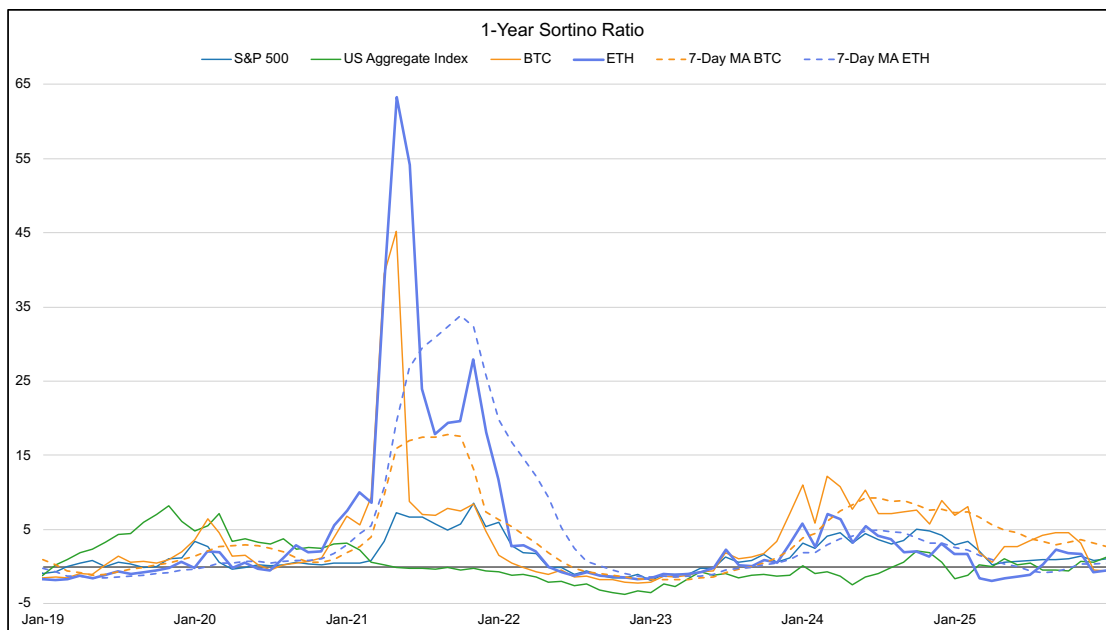
Notably, the total return gaps of the crypto-augmented portfolios start to widen around the release of the BTC and ETH ETFs, suggesting that institutional ETF flows had a material impact on the rate of outperformance. Skeptics may remind us that these observations of outperformance are not a “free lunch.” While we agree, we would add that they are well worth the cost based on the observations in the next two sections.

From January 2017 to December 2025, 1-year realized volatility trends reveal that modest allocations to bitcoin and ethereum introduce marginal incremental risk to a traditional 60/40 portfolio. The 60/40 fluctuates between roughly 5% and 15% across cycles, with notable spikes during the 2020 COVID crash/recovery and the 2022 bear market. Adding 5% bitcoin lifts volatility by 1-2% in most periods, while the 50/40/5/5 variant adds another 1-3%, peaking near 24% during the 2021 bull market before converging toward 13% in recent years. The spread between the 50/40/5/5 portfolio and the other two begins to narrow significantly post-2022. Furthermore, the post-ETF era for BTC and ETH has begun to show more settled and contained volatility relative to prior cycles, further demonstrating the effects of asset maturation and liquidity. These patterns demonstrate that small, strategic crypto exposures enhance returns substantially while keeping the overall risk profile close to traditional balanced mandates—offering compelling evidence for thoughtful inclusion in diversified portfolios seeking aggressive growth without proportional risk.



Source: Artemis, Collar Capital, Messari, Ycharts; Date: 01/01/17 – 12/31/25

To further illustrate these risk-adjusted benefits, we examined the 1-year [Sortino Ratio](#) from June 2018 to December 2025. As a reminder, the Sortino Ratio adjusts the [Sharpe Ratio](#) to consider only downside standard deviation, since the Sharpe Ratio penalizes investments for volatility on both the downside and the upside. Equities and bonds display relatively stable, low-magnitude readings, rarely exceeding 5 and frequently hovering near or below zero during drawdowns. BTC and ETH exhibit far more dynamic behavior, with dramatic spikes during strong asymmetric rallies—ETH reaching 63 in early 2021 and BTC hitting 45—followed by rapid compression in bear markets. Post-2022, both digital assets consistently outperform traditional assets, with BTC exhibiting a more persistent edge versus ETH in recent years (2024–2025). These elevated Sortino Ratios highlight crypto’s ability to deliver outsized upside while maintaining low downside risk during recovery and adoption phases. For investors, modest allocations to BTC can meaningfully enhance risk-adjusted returns.



Source: Artemis, Messari, Ycharts; Date: 06/18 – 12/31

## Recommendations

Investors should consider incorporating modest 5-10% positions in bitcoin and/or ethereum within traditional 60/40 portfolios to capture proven asymmetric upside with only marginal incremental risk. For balanced mandates, a 5-10% allocation to bitcoin would be appropriate. Growth-oriented or more aggressive mandates should complement this with 5-10% exposure to ethereum to harness its higher innovation beta. Annual rebalancing, combined with ongoing monitoring of macroeconomic liquidity and global risk sentiment, will preserve the efficiency of these strategic positions.

## Broad Market Model Portfolios and Optimization

What would an optimized risk-adjusted portfolio (i.e., maximized Sharpe Ratio) look like if analyzing a traditional 60/40 portfolio enhanced with BTC and ETH over the last 10 years or so? Unconstrained optimization analyses for the Sharpe Ratio are more difficult to execute for digital assets than for similar analyses in traditional markets. Historically, this was due to limited data sets and the skewness profile of the assets, which are less of an issue today. Nevertheless, we were able to answer the aforementioned question by conducting one ourselves. Note that the following analysis is reliant on backward-looking data. While it provides guidance on how these assets have performed, the risk and return profiles will certainly change as the asset class matures and should likewise continue to be monitored.

### *Optimal Portfolio Analysis with BTC and ETH*

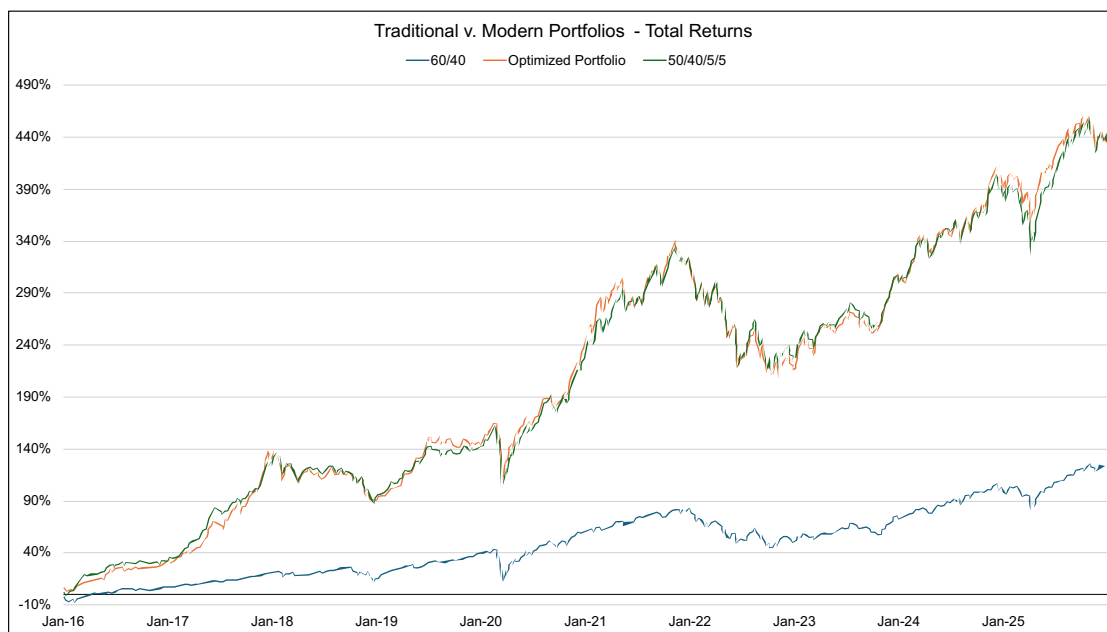
Beyond adding an intuitive weighting (0-5%) of bitcoin and ethereum to a traditional portfolio, portfolio analytics can be used to find the optimal portfolio mix. For this

analysis, we used YCharts' [Portfolio Optimizer](#) to identify an optimal portfolio along the efficient frontier, utilizing the returns, risks, and correlations of these assets since 2015. The portfolio's holdings and select metrics are shown below.

Optimized Portfolio Overview			
Performance & Risk		Holdings	
<b>Expected Return</b>	13.32%	<b>Asset</b>	<b>Weight</b>
<b>Standard Deviation</b>	12.92%	BND	49.71%
<b>Sharpe Ratio</b>	1.030	ITOT	36.02%
<b>Beta (5Y)</b>	1.098	BTC	12.74%
<b>Max Drawdown</b>	30.40%	ETH	1.53%

Source: Artemis, Messari, Ycharts; Date: 08/07/15 – 12/31/25; Note: The expected return, standard deviation, and Sharpe ratio are backward-looking and calculated using the annualized geometric mean of their available historical return data within the selected timeframe, not the CAPM expected returns.

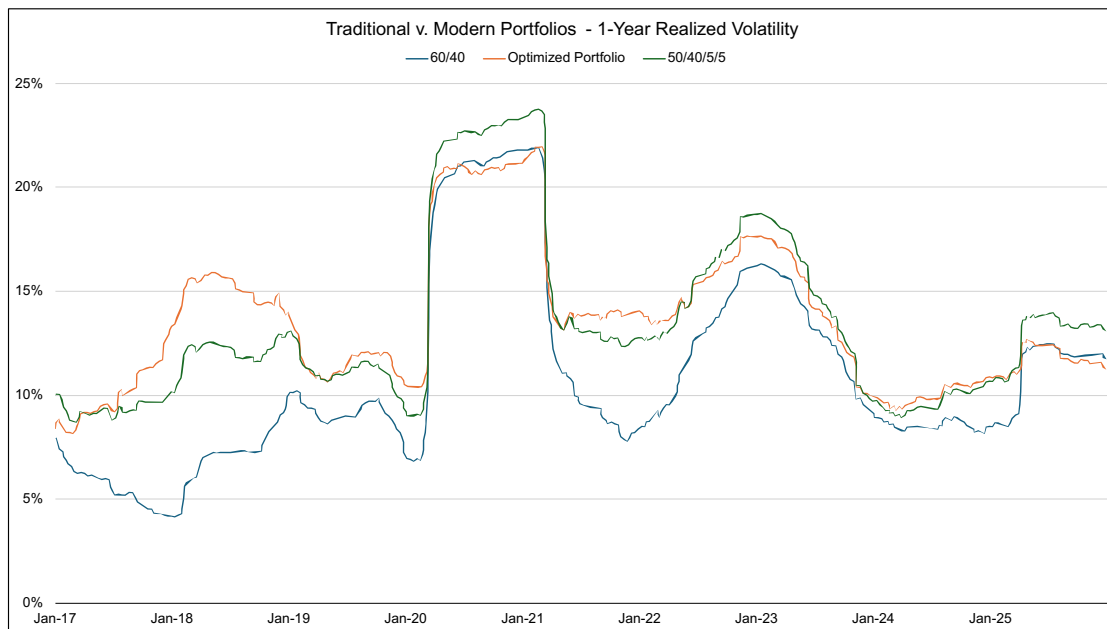
To illustrate the optimized portfolio's efficacy, we compared its cumulative total returns from January 2016 to December 2025 to those of the traditional 60/40 benchmark and its intuitively augmented variant 50/40/5/5, examined earlier in this report. The optimized portfolio delivered 434.84%, which is slightly lower than the 50/40/5/5 portfolio's 435.27%, but still far above the 60/40 portfolio's 122.48%. Thus, even when the principles of MPT are applied, digital assets still enhance returns due to their asymmetric nature. Of course, we also must examine the optimized portfolio's potential trade-offs with regard to risk.



Source: Artemis, Messari, Ycharts; Date: 01/01/16 – 12/31/25

Just like the prior traditional v. modern portfolio comparison, 1-year realized volatility for the 60/40 portfolio fluctuates between roughly 5-15% across cycles, with the 50/40/5/5 portfolio adding another 1-3%. Over the same period, the optimized portfolio exhibits a range of 10-15%, with similarly timed spikes during market extremes, and ends 2025 at

11.3%. However, as the asset class began to be formally adopted by institutions in late 2022, the optimized portfolio’s risk remained materially and reliably at or below the 50/40/5/5 portfolio’s risk levels. Furthermore, since April 2, 2025 (aka [Liberation Day](#)), the optimized portfolio’s risk has trended at or below the 60/40 portfolio’s risk levels, a trend not seen since the beginning of the COVID-19 pandemic. Once again, these risk patterns show that strategic crypto allocations ought to be considered by investors during portfolio construction, whether that process is intuitive or academic.

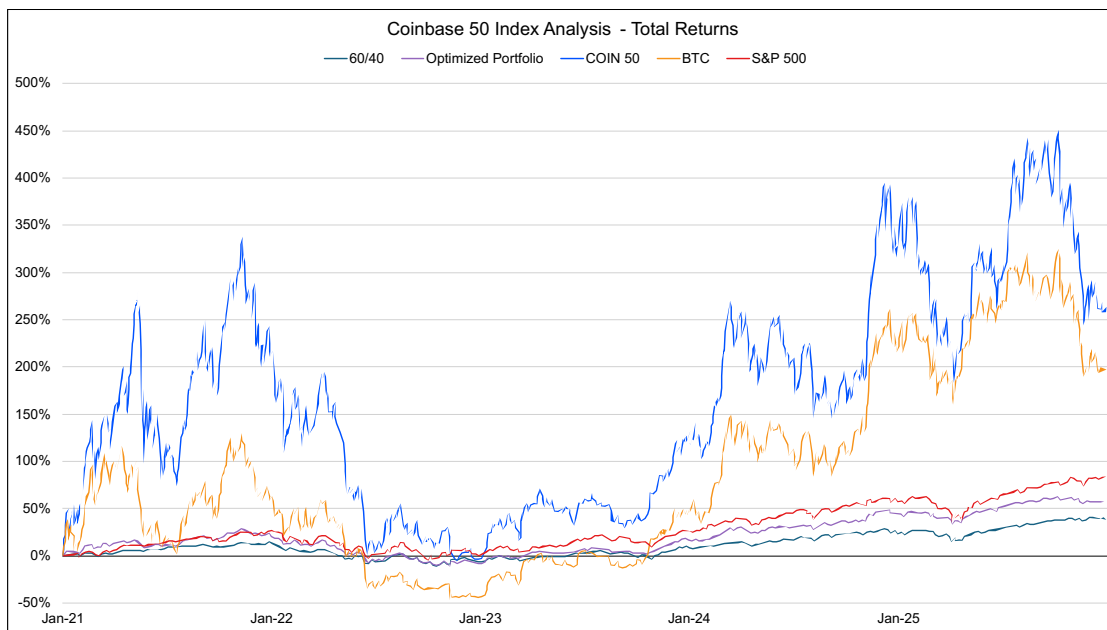


Source: Artemis, Collar Capital, Messari, Ycharts; Date: 01/01/17 – 12/31/25

We believe more investors will allocate to digital assets as their data becomes more widely distributed and understood by the public. The next logical step for investors would be to consider a crypto-specific portfolio.

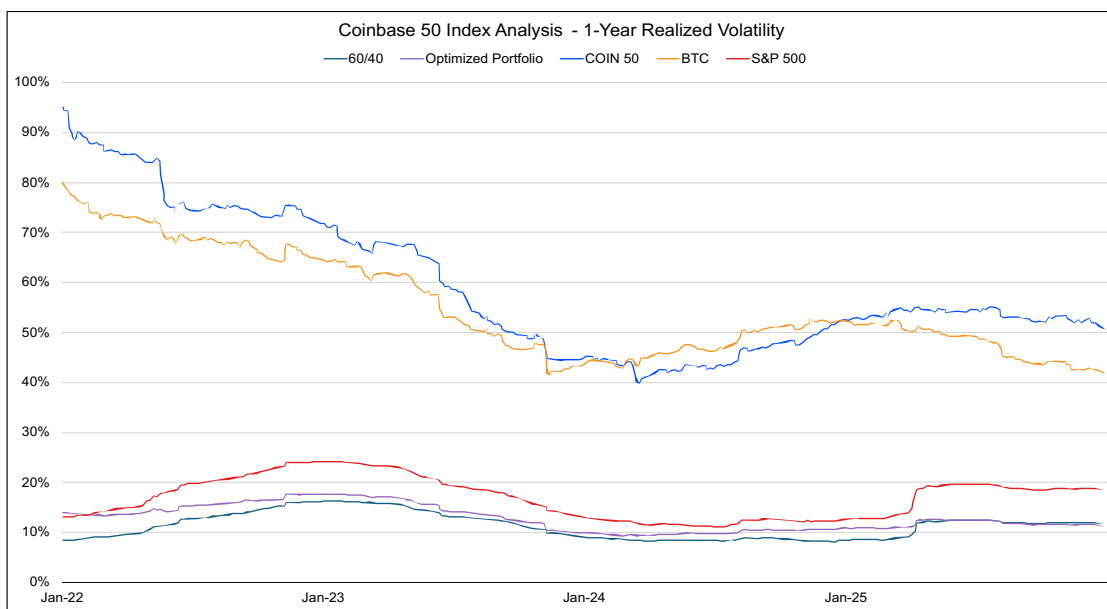
### *Broad Market Model Portfolio Analysis with the Coinbase 50 Index*

For most investors seeking broad crypto exposure, a passive fund approach is preferable to actively managing allocations across individual assets. A market-cap-weighted fund as of January 1, 2023—the approximate start of the prior cycle—would have allocated 68.82% to BTC and 31.18% to ETH (based on [Into The Cryptoverse](#) analyses). While some investors may concentrate solely on these two dominant assets, many pursue broader exposure to capture additional upside across the asset class. We next evaluate an emerging passive investment option that extends beyond simple BTC and ETH allocations, the [Coinbase 50 Index](#) (COIN 50).



Source: Artemis, MarketVector, Messari, Ycharts; Date: 01/01/25 – 012/31/25;  
 Note: COIN 50 was launched on 11/12/2024 thus all prior data was retroactively calculated

According to index administrator [MarketVector](http://MarketVector), the COIN 50 “tracks the performance of the 50 largest and most liquid digital assets by market cap. The index applies a fundamental and market eligibility criteria screen to ensure investability.” Additionally, the holdings’ weights are capped at 50% and rebalanced quarterly. The chart above shows the COIN 50’s performance over the last 5 years relative to bitcoin and the S&P 500, as well as the previously analyzed optimized portfolio and traditional 60/40 benchmark. As of December 31, 2025, the COIN 50 recorded a cumulative total return of 259.73% versus bitcoin’s 198.17% and the S&P 500’s 82.25%. However, the crypto index’s performance did not achieve this without commensurate risk.



Source: Artemis, Collar Capital, MarketVector, Messari, Ycharts; Date: 01/01/22 – 12/31/25

Over the same period, the COIN 50 unsurprisingly showed the greatest risk. It ended 2025 with a 1-year realized volatility of 50.6% versus bitcoin's 41.9% and the S&P 500's 18.6%. The previous two charts demonstrate that the COIN 50 can deliver the desired outcomes of broad digital asset class exposure for investors with a long-term investment horizon and a high tolerance for principal volatility. Time will tell if investors will be capable of surpassing its performance through active management like its large-cap equities counterpart, the S&P 500.

## *Recommendations*

The optimized portfolio example further demonstrates the necessity of our earlier recommendations. For passive digital asset exposure, whether as a portfolio allocation or a standalone investment portfolio, the Coinbase 50 Index offers a broad, superior alternative to bitcoin. The COIN 50 should remain on allocators' radars as the asset class matures and its distribution widens beyond decentralized exchanges (DEXs).

## **Valuation Methodologies and Evolution of Valuation**

One of the most consistently used arguments by investors against allocating to digital assets is that there are no traditional methods to determine their value or that they have no intrinsic value. For example, Hargreaves Lansdown, the largest retail investment platform in the U.K., which has about \$225B in assets under management, [recently stated](#):

*The HL investment view is that Bitcoin is not an asset class, and we do not think cryptocurrency has characteristics that mean it should be included in portfolios for growth or income and shouldn't be relied upon to help clients meet their financial goals. Performance assumptions are not possible to analyze for crypto, and unlike other alternative asset classes it has no intrinsic value. (Fortune, 2025)*

This perspective, while understandable from a traditional valuation lens, reflects a narrow application of cash-flow-based or dividend-discount frameworks that do not fully capture the unique properties of digitally scarce, decentralized assets. Digital assets derive value from network effects, programmable scarcity (e.g., BTC's 21M supply cap), censorship resistance, and growing institutional adoption as a non-sovereign store of value—attributes increasingly analogous to “digital gold” rather than conventional income-producing securities. As investors reevaluate these characteristics amid maturing infrastructure and regulatory clarity, the “no intrinsic value” critique is giving way to more nuanced frameworks that emphasize tangible inputs, network value, relative adoption, and token buybacks amid persistent fiat debasement. This section examines enduring and emerging valuation approaches that challenge legacy objections, positioning digital assets as a legitimate and increasingly allocable asset class for forward-looking investors.

## Fundamental Methodologies

### Bitcoin's Energy Value & Electrical Cost

Bitcoin's [Energy Value](#) and [Electrical Cost models](#) remain among the most reliable fundamental valuation frameworks for the asset, as they anchor prices to verifiable, physics-based inputs rather than purely speculative or curve-fitted assumptions. Additionally, having BTC's price tied to energy factors will continue to grow in relevance as similar thought processes unfold across [academia](#) and [Wall Street](#) related to artificial intelligence.

The Energy Value model equates bitcoin's fair value to the raw Joules expended in mining, adjusted for supply growth dynamics and a fixed fiat-to-energy conversion factor. This yields an intrinsic estimate with a historical 0.80 r-squared correlation to price, exhibiting clear mean reversion: deviations from Energy Value trigger balancing market forces, while zero energy input implies zero value—a logical floor absent in models like stock-to-flow, which can extrapolate to infinity.



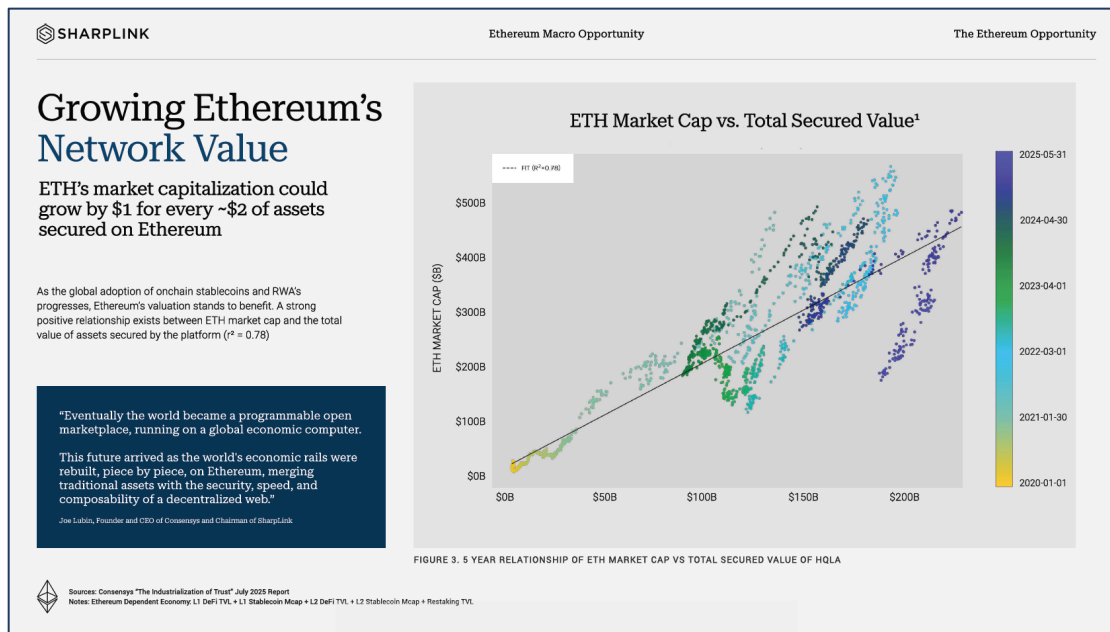
Source: Capriole Investments; Date: 11/19/15 – 02/16/26; Note: BTC closing price (orange), BTC Energy Value (white with red moving average), BTC Electrical Cost (blue)

In contrast, the Electrical Cost focuses on the US Dollar-denominated electricity expense to mine one bitcoin, typically 60% of total miner costs (with the remainder covering hardware, operations, etc.). Derived from network electricity consumption estimates (e.g., [CBECI](#)) and average utility rates, it establishes a [dynamic price floor](#): bitcoin rarely sustains trades below this level, as unprofitable miners capitulate, reducing hash rate and selling pressure until equilibrium is restored.

To distinguish the two models, Energy Value provides a comprehensive fair-value equilibrium tied to thermodynamic effort and scarcity, serving as a central tendency for mid- to long-term valuation. Whereas Electrical Cost offers a stricter, near-term price floor based on miners' marginal operational viability. Both outperform scarcity models by reflecting real-world mining economics, halving-induced cost amplification, and efficiency gains (e.g., renewable energy), delivering more accurate, data-driven insights for investors.

## Ethereum's Total Secured Value

Ethereum's [Total Secured Value](#) (TSV)—encompassing DeFi Total Value Locked (TVL), stablecoin market cap, and restaking TVL—has emerged as the asset's most compelling fundamental valuation metric (similar to a concept [devised](#) by one of our former Messari colleagues in 2022). [Created](#) by [Consensys](#), this framework posits that ETH's price is driven by aggregate security demand from all network participants, including applications, infrastructure, and users, as ecosystem growth necessitates heightened protection against attacks.



Source: Sharplink [SBET] investor presentation dated 07/31/25

Unlike flawed alternatives—stock-to-flow's supply fixation or [MV=PQ](#)'s currency lens, which falter by ignoring demand—TSV captures real economic activity and non-commercial utility. The model's empirical backing is robust: a 0.78 r-squared correlation links ETH's market cap to TSV, implying \$1 in ETH market cap appreciation per ~\$2 in secured assets, as on-chain adoption continues with 60% stablecoin market share, 83% RWA market share, and 72% DeFi TVL. TSV's data-driven tie to security offers investors a logical and consistent point of reference amid ETH's volatility.

## Relative Methodologies

### Bitcoin market cap v. gold market cap

In the recent wake of gold's euphoric top and bitcoin's lack of one, many gold advocates and bitcoin skeptics have been quick to point out the disparity between each assets' market performance. Unfortunately for them, the assets continue to share [multiple commonalities](#) amid waning institutional trust, rising sovereign debt, and geopolitical uncertainty. Hence, why a relative valuation of each asset's share of existing stores of



In practice, the valuation method might go something like this: The general expectation for the [stablecoin market cap](#) amongst the [US Treasury](#), DATs, [Etherealize](#), and [financial institutions](#) is 10% of the US M2 money supply or \$2T by 2028-2030; a \$2T stablecoin market cap implies a ~6.5x increase as of this report; a 3.25-6.50x multiple would then be applied to the current price of ETH. We recognize that this method is speculative too, yet its relationship to the Total Secured Value method and verifiable capital flows makes it one to watch as ETH matures.

### Token Buybacks

Token buybacks are an important strategy in which projects use treasury funds or operational revenue to buy back and often permanently retire (or burn) their native tokens. By decreasing the circulating supply of an asset, this approach is similar to traditional corporate share repurchase programs in stock markets — primarily aimed at making tokens scarcer and promoting long-term price growth.

For institutional and sophisticated retail investors constructing diversified digital asset portfolios, buyback programs serve as a meaningful indicator of financial discipline and stakeholder alignment. When a protocol demonstrates consistent, revenue-backed repurchase activity, it signals operational maturity and a commitment to returning value to token holders — attributes that merit serious consideration in any rigorous investment framework.

In mature protocols with established, recurring revenue streams, buyback programs serve as a reliable mechanism for distributing value. A decentralized exchange that systematically allocates a defined percentage of trading fee revenue toward token repurchases not only counteracts the inflationary pressures inherent in vesting schedules and liquidity mining rewards, but also efficiently redistributes economic surplus among remaining token holders.

Within a portfolio context, this dynamic introduces a stabilizing element, particularly in allocations oriented toward utility-driven digital assets. Over time, consistent buyback execution can transform otherwise speculative holdings into positions with embedded return characteristics — functioning, in effect, as a form of implicit yield. When integrated alongside foundational crypto assets such as bitcoin or ethereum, buyback-enabled tokens may contribute meaningfully to risk-adjusted performance and reduce overall portfolio volatility.

From an MPT perspective, tokens with active buyback programs offer a differentiated return profile relative to purely speculative assets. Their capacity for supply reduction introduces a systematic demand-side catalyst that is less correlated with broader market sentiment cycles, providing portfolio managers with an additional diversification lever.

Despite their potential benefits, token buyback programs introduce a set of risks that portfolio managers must evaluate with equal rigor. Chief among these is the opportunity cost associated with capital reallocation. Diverting treasury resources toward token repurchases necessarily reduces the capital available for product development, protocol innovation, and ecosystem expansion — all of which are critical drivers of competitive advantage in the rapidly evolving digital asset landscape.

Projects that prioritize buybacks during periods of elevated revenue — typically coinciding with bullish market conditions — risk acquiring tokens at inflated valuations, thereby diminishing the program's long-term impact and eroding treasury efficiency. In such scenarios, what may appear as constructive price support in the near term can mask underlying stagnation, ultimately underperforming reinvestment strategies focused on sustainable growth.

It is equally important to recognize that buyback programs do not create intrinsic value in isolation. For tokens lacking robust utility, meaningful user adoption, or sustainable demand drivers, supply reduction alone is unlikely to produce durable price appreciation. In speculative market environments, aggressive buyback activity may temporarily amplify token prices through perceived scarcity, only to reverse sharply once sentiment normalizes. Portfolio allocators should therefore avoid conflating buyback activity with fundamental strength — the two are related but distinct considerations.

Ultimately, token buybacks are most effective as a portfolio tool when evaluated alongside a comprehensive set of fundamental indicators: on-chain activity levels, user growth trajectories, revenue sustainability, competitive positioning, and regulatory compliance posture. When treated as one component of a broader value-creation framework rather than a standalone investment thesis, buyback-enabled tokens can contribute meaningfully to portfolio resilience, scarcity-driven return potential, and long-term holder alignment.

## *Recommendations*

Investors should move on from outdated valuation critiques by adopting digitally native valuation frameworks that reflect network effects, programmable scarcity, and tangible economic utility. The frameworks we outlined above meet this description, are statistically significant, and are actionable. Just like with traditional assets, valuation models and methods for digital assets cannot be the sole determinant of whether or not an asset is attractively valued. So, it is important to consider other fundamental, technical, and on-chain analyses to develop an informed opinion.

## **Benchmarking**

A benchmark acts as a key standard for assessing portfolio performance, allowing investors to compare returns, evaluate risk-adjusted results, and make better allocation choices. Industry best practices follow CFA Institute standards. They define an effective

benchmark as one that must have several essential qualities to be reliable, fair, and useful. These include being set in advance to avoid hindsight bias, relevant by aligning with the investment strategy or mandate, measurable as quantifiable and verifiable, clear with simple rules for creation and rebalancing, representative by reflecting the investable universe, transparent with a documented methodology and audit trail, investable through actual holdings or derivatives, and comprehensive by covering the full scope without unnecessary exclusions. These standards and related guidance stress honest presentation and comparability. They help prevent manipulation and build investor trust.

The rationale for these criteria is rooted in the need for benchmarks to facilitate objective analysis in volatile markets like crypto. In these markets, hype, speculation, and rapid innovation can distort perceptions. A good benchmark mitigates survivorship bias by including delisted assets if appropriate. It also controls concentration risks and provides a neutral reference point for alpha generation. In crypto specifically, where assets lack traditional fundamentals like earnings, benchmarks help contextualize performance against broader market movements. They aid diversification and risk management. Poor benchmarks, high fees, opaque screening, or heavy tilts toward dominant assets like bitcoin can mislead investors. They inflate perceived outperformance or hide systemic risks. Below, we evaluate the current suite of potential available benchmarks for an allocator.

### *Evaluation of Existing Crypto Indices as Benchmarks*

Established crypto indices have matured over the past few years. They provide broad exposure to the digital asset market while capturing its inherent volatility. We evaluate three prominent ones: the Bloomberg Galaxy Crypto Index (BGCI), the Bitwise 10 Large Cap Crypto Index (Bitwise 10), and the MVIS CryptoCompare Digital Assets 100 Index (MVDA). These indices are market-cap-weighted, focus on liquid, large-cap assets, and are tracked through exchange-traded products (ETPs) or funds. Performance data from 2018 to 2025 reflects cycles of boom and bust. These include the 2018 crash, 2021 bull run, 2022 bear market, and partial recoveries in 2023-2024, followed by 2025's moderation. We compare them against bitcoin, ethereum, and the total crypto market cap to highlight diversification benefits or lack thereof.

Performance (rounded to nearest %)										
Index/Asset	2018	2019	2020	2021	2022	2023	2024	2025	Annual Vol.	Avg. Sharpe
<b>BGCI</b>	-80	50-60	150	200	-70	150	120	-19	55-65	1.0
<b>Bitwise 10</b>	-80	48	851	-37	-86	331	161	-2	60-70	1.1
<b>MVDA</b>	-80	130	400	200	-70	130	110	30	50-60	0.9
<b>BTC</b>	-73	92	303	60	-64	155	121	-6	60-70	1.2
<b>ETH</b>	-82	-3	469	399	-67	90	46	-11	70-80	1.0
<b>Total Market Cap</b>	-80	90	200	300	-70	100	120	-10	55-65	0.9

The BGCI, which tracks a basket of the largest cryptocurrencies capped at 30% for any single asset, showed varied performance. In 2018, it fell around -80%, closely tracking

BTC's -74% and the market cap's -80% drop, but outperforming ETH's -82% fall. It rebounded modestly in 2019 with +50-60%, lagging behind BTC's +92.2% but aligning with market cap growth of +90%. Strong gains followed in 2020 and 2021. The 2022 downturn hit -70%, similar to BTC/ETH/market. Recoveries in 2023 (+150-160%) and 2024 (+120-140%) beat the market's +100-120% but trailed BTC/ETH in upswings. In 2025, it declined by 19%, outperforming ETH's 11% decline but underperforming BTC's 6.3% decline and the market's 10.4% decline. Average annualized volatility was 55-65%, with Sharpe ratios of 0.8-1.2 over the period, indicating moderate efficiency.

The Bitwise 10 focuses on the top 10 coins by market cap with similar capping, often amplifying BTC/ETH moves due to concentration. It dropped -80% in 2018, matching the market but slightly better than ETH. In 2019, +48%, underperforming all benchmarks. It surged +851% in 2020 (outpacing market +200% but lagging ETH +469%), -37% in 2021 (vs. BTC +60%, market +300%), -86% in 2022 (worse than market -70%), +331% in 2023 (+155% BTC, +91% ETH, +100% market), +161% in 2024 (+121% BTC, +46% ETH, +120% market), and -2.6% in 2025 (better than ETH/market but worse than BTC). This index benefited from altcoin rallies but suffered deeper drawdowns, with volatility of 60-70% and Sharpe ratios of 0.9-1.3.

The MVDA, a broader 100-asset index, offers more diversification but typically lags in bull markets. From inception (backtested to 2014), but for 2018-2025: -80-85% in 2018 (similar to peers), +130-140% in 2019 (better than Bitwise, close to market), +400-500% in 2020 (strong but below ETH), +200-300% in 2021, -70% in 2022, +130-140% in 2023, +110-130% in 2024, and +30-40% in 2025 (underperforming all but providing stability vs. ETH's decline). It tracks market cap closely, with lower volatility (50-60%) and Sharpe ratios of 0.7-1.0.

Overall, these indices underperformed BTC/ETH in bull years (2020-2021, 2023-2024) due to the drag of altcoins, but provided buffers in bear years (2018, 2022, 2025), with correlations to market cap exceeding 0.9.

A handful of new indices have launched, aiming to address issues with the existing set. The most prominent is COIN 50. The COIN 50, launched by Coinbase in late 2024, tracks the top 50 liquid assets excluding stable/privacy coins, market-cap weighted with a 50% BTC cap. Since launch, it rose +100-150% within 2024, and +40-50% in 2025 (better than ETH/market but lagging BTC slightly). Compared to BTC (+121% 2024, -6.3% 2025), ETH (+46% 2024, -11% 2025), and the market (+120% 2024, -10.4% 2025), it offers balanced exposure with volatility of 45-55% and Sharpe ratios of 1.3-1.6. This new index addresses gaps in traditional ones by integrating off-chain assets (RWAs) or expanding coverage (COIN 50).

### *Shortcomings of Existing Benchmarks*

While crypto indices democratize access, they face significant criticisms regarding fees, allocation methodologies, concentration, and screening processes. Management fees for index-tracking products like ETPs/ETFs range from 0.20-2.50%. These are often

higher than stock indices at 0.05-0.20% due to custody, rebalancing, and regulatory costs. For instance, BITW (Bitwise 10) charges 2.5%, creating a substantial fee drag. Allocation to these benchmarks is predominantly market-cap-weighted. This leads to top-heaviness. BGCI and Bitwise 10 often allocate 60-80% to BTC/ETH. This amplifies systemic risks during BTC drawdowns like 2025's 20-30% corrections. Alternatives like equal-weighting, rare in crypto, could mitigate this but increase rebalancing costs and liquidity issues for smaller caps. Concentration exacerbates this effect. With BTC dominance at 50-60%, indices mirror BTC performance with correlations >0.9. This offers little true diversification.

Screening processes vary but often lack rigor. Liquidity thresholds like MVDA's \$1M average daily volume exclude illiquid assets. However, inconsistent security checks and lack of uniform audits invite rug-pull risks. RWAs introduce complexity due to off-chain verification requirements. COIN 50's exchange-listing screen biases toward Coinbase-eligible tokens. This potentially overlooks emerging assets. Overall, these flaws, high fees, skewed allocations, concentrations, and opaque screening, undermine benchmarks' accountability.

## *Recommendations*

As you can see from our analysis above, crypto benchmarks are still significantly lacking compared to those for other financial assets. The COIN 50 is a nice progression for benchmarking, but with the highly volatile and emergent nature of long-tail crypto assets, there are still several challenges that make it a non-perfect proxy for investors. Our recommendation for now is to benchmark crypto funds compared to two main benchmarks: 1) BTC as the primary benchmark, and 2) a blended mix of ETH/SOL/BNB.

## **Considerations for Managing a Dedicated Crypto Portfolio**

Managing a dedicated crypto allocation requires a fundamentally different toolkit than traditional asset management. The asset class operates 24/7 across fragmented global venues, exhibits volatility 3-4x that of equities, and follows market cycles with no direct analog in traditional finance. Yet the post-ETF institutional era has introduced a new structure: liquidity has deepened in large caps, factor-based frameworks have gained empirical validation, and sector rotation patterns have become more discernible—if also more compressed.

This section examines the core considerations for investors managing meaningful crypto exposure. We address rebalancing frequency trade-offs, finding that annual rebalancing delivers the highest Sharpe ratio, while buy-and-hold captures the maximum absolute returns at the cost of drawdown severity. We then explore style and factor analysis, adapting Fama-French frameworks to crypto's unique characteristics—including momentum effects that operate on weekly rather than monthly horizons, and "intangible value" as a crypto-native factor. Finally, we assess tactical allocation dynamics in a market where traditional alt seasons have given way to rapid sector

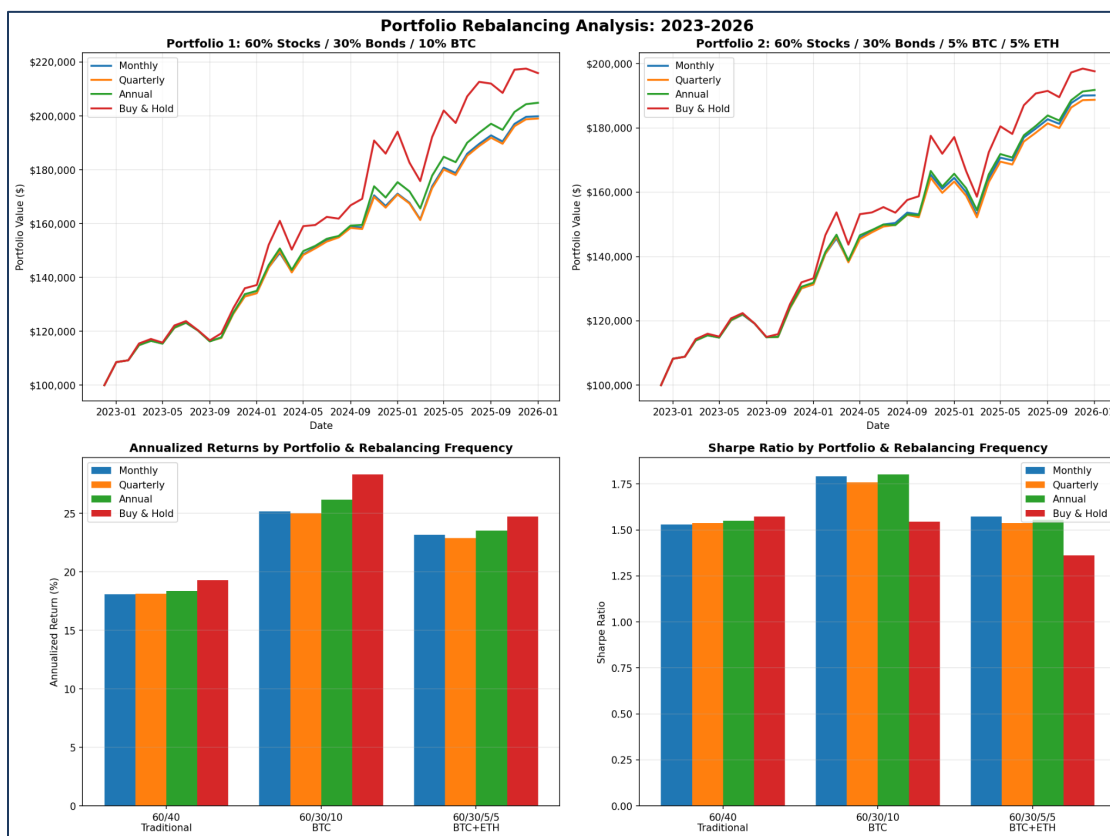
rotations and ETF capital absorption has structurally altered liquidity distribution across the market-cap spectrum.

The goal is not to impose traditional portfolio theory onto an unconventional asset class, but to identify which established principles translate—and where crypto demands bespoke approaches.

## Rebalancing

Considering when to rebalance a crypto portfolio is very challenging given the sharp swings in this asset class. From our prior analysis, we found that longer holding periods (i.e., buy-and-hold) were more beneficial than in other asset classes. We took a fresh look at the optimal rebalancing strategy over the past 3 years. Once again, Buy & Hold delivered the highest absolute returns, but rebalancing delivered superior risk-adjusted performance.

The 2023-2024 crypto bull run rewarded concentration. By not rebalancing, portfolios allowed their BTC allocation to drift upward (potentially reaching 15-20% of the portfolio by late 2024), capturing more upside. Rebalancing systematically trimmed winners—great for risk management, but costly in a trending market.



Source: Varys Capital Analysis

- Rebalancing reduces volatility by 3-4% and cuts max drawdown nearly in half (5.5% vs 9.5% for the 60/30/10 portfolio)
- Annual rebalancing hits the sweet spot for this period—best Sharpe ratio (1.80) with minimal transaction costs
- Pure BTC outperformed BTC+ETH by ~18%. ETH's relative weakness in 2024-2025 was a significant drag
- Both crypto portfolios crushed 60/40 Traditional (72% return) by 25-44%, even with rebalancing

For investors prioritizing risk-adjusted returns and sleeping well at night, quarterly or annual rebalancing is optimal. For those with high conviction in continued crypto outperformance and tolerance for drawdowns, a drift-tolerant approach (annual rebalance or wider bands) captures more upside while maintaining some discipline.

### Style Analysis

Traditional equity factor models (Fama-French, Carhart) have been successfully adapted to cryptocurrency markets. Academic research demonstrates that modified factor approaches explain significant cross-sectional return variation in digital assets.

### The Crypto Three-Factor Model

[Liu et al. \(2022\)](#) established that a three-factor model comprising market, size, and momentum factors explains the cross-section of cryptocurrency returns. Using 1,827 coins with market capitalization over \$1M from 2014-2020, they documented:

Factor	Portfolio Construction	Factor Effect
<b>Market (CMKT)</b>	Value-weighted return of all coins	Positive, drives bulk of returns
<b>Size (CSMB)</b>	Small minus big market cap	Significant positive premium
<b>Momentum (CMOM)</b>	Winners minus losers (1-4 weeks)	Short term positive premium

A [2024 study](#) using Fama-MacBeth regression across 31 cryptocurrencies (2017-2023) confirmed the predictive power of momentum and value factors, noting that weekly rebalancing accommodates crypto's continuous 24/7 trading and high volatility characteristics.

Momentum is a particularly important factor for crypto and is segmented by time horizon.

- Short-term (1-4 weeks): Strong time-series momentum with significant positive payoffs
- Medium-term (2-12 months): Mixed results; [Grobys and Sapkota \(2019\)](#) found insignificant payoffs at longer horizons

## Thematic/Sector Classification

The crypto market has developed distinct sector classifications that enable thematic investing approaches. Sectors within crypto are often evolving, so it is quite challenging to perform any sort of time-series analysis. Below are samples of some sectors that have begun to ossify.

Sector	Description	Representative Tokens
<b>Layer 1 Infrastructure</b>	L1 blockchains and smart contracts	ETH, SOL, AVAX, NEAR, SUI, TON
<b>DeFi</b>	Lending, trading, yield protocols	AAVE, UNI, LDO, GMX, DYDX
<b>AI &amp; Compute</b>	Decentralized AI, computing, data markets	FET, TAO, RNDR, GRT, OCEAN
<b>RWAs</b>	Tokenized treasuries, credit, commodities	ONDO, MKR, POLYX, CFG
<b>Layer 2 Scaling</b>	Ethereum rollups and scaling solutions	ARB, OP, BASE ecosystem tokens
<b>Oracles &amp; Infra.</b>	Data feeds, cross-chain messaging	LINK, PYTH, API3

2025 sector performance varied dramatically: RWA tokens returned an average of +185.8% (CoinGecko research), while memecoins lost 31.6% and AI agent tokens declined 50.2%. This dispersion highlights the importance of sector allocation decisions.

Several thematic crypto indices have emerged for sector-focused allocation:

- **DeFi Pulse Index (DPI):** DAO-governed, passive rebalancing of leading ethereum DeFi protocols (AAVE, UNI, COMP, SNX, LRC)
- **AI Index:** Tracks high-conviction AI tokens (FET, AGIX, GRT, TAO) with weekly AI-powered rebalancing
- **RWA Index:** Includes top-performing tokenization projects with liquidity and regulatory traction (MKR, ONDO, POLYX)
- **Grayscale CoinDesk Crypto 5 ETF (GDLC):** Market-cap weighted basket of top 5 crypto assets

## *Tactical Asset Allocation*

The 2023-2025 market cycle story has been the lack of a traditional “altcoin” season, which has occurred in every other crypto bull market. The majority of allocators tilted their portfolios heavily to alts as bitcoin continued to make new highs. There are some structural reasons why going full risk-on into alts really hasn’t worked for this cycle:

- **ETF Capital Absorption:** Spot bitcoin ETFs attracted \$87B+ in net inflows since January 2024. ETF buyers are long-term holders, withdrawing daily liquidity that previously rotated into altcoins. BlackRock’s IBIT alone holds \$75B+ AUM
- **Institutional Quality Filter:** Traditional finance allocators concentrate on BTC/ETH, reinforcing a flight-to-quality narrative. Bitcoin dominance has remained elevated at 54-60%, compared to 38% at previous alt season peaks
- **Shortened Hype Cycles:** In past cycles, themes like DeFi or NFTs sustained market attention for months. Today, trends catch fire for days/weeks before rotating. This rapid rotation prevents sustained altcoin outperformance

- **Macro Sensitivity:** Quantitative tightening, global net liquidity, and elevated interest rates have suppressed risk appetite. Capital preservation dominates over speculation
- **Supply Dilution:** Over 36,000 altcoins compete for capital. The 2017-2018 era had fewer than 2,000. Dilution fragments the rising tide that once lifted all boats

We believe that, going forward, the winners will continue to dominate with smaller and smaller rallies for long-tail assets. These assets are better suited to venture portfolios than to traditional ones. Our recommended approach for tactical asset allocation based on our market observations is as follows:

- **Maintain a Core-Satellite Structure:** Maintain 70-80% in BTC/ETH core (policy-aligned, ETF-accessible), with 20-30% tactical allocation to sector rotations
- **Consider venture for exposure to long tail assets:** Retain a Venture Fund or Fund of Funds for exposure to high upside but highly volatile names
- **Monitor Bitcoin dominance:** Below 55% signals potential rotation. Above 60% favors BTC concentration
- **Track ETH/BTC Ratio:** Historically leads alt rotations. A breakout signals capital moving down the risk curve
- **Analyze major regulatory news:** For example, ETF approval odds, major political shifts, or clarity on items that reduce the risk of the asset class

### *Liquidity and Market Depth Analysis*

The post-2023 period has witnessed profound structural changes in crypto market microstructure, driven by ETF introductions, institutional infrastructure buildout, and evolving 24/7 trading dynamics. Unlike traditional markets with fixed hours, crypto operates continuously. Research analyzing 2020-2025 data reveals distinct temporal patterns with strategic implications. We found a few key takeaways:

- **There is a clear weekend Momentum Premium:** 7-day momentum strategies yield returns 50-150% higher on weekends than on weekdays across all major cryptocurrencies. BTC Weekend Return is almost double that of weekdays
- **Volumes are higher on weekdays:** ~65% weekdays, ~35% weekends; Highest concentration during 3-4 PM UTC
- **Lowest Volatility during Monday AM:** Monday 8-10 AM UTC (pre-US market open)
- **Bot dominance:** Algorithmic trading dominates thin hours, creating erratic price swings. Manual trading during off-hours carries a higher slippage risk

### *Recommendations*

We recommend investors maintain a core allocation of 70-80% in BTC/ETH, as structural factors like ETF capital absorption, supply dilution across 36,000+ altcoins, and institutional flight-to-quality have kept Bitcoin dominance elevated and suppressed the traditional altcoin rotation seen in prior cycles. For tactical satellite exposure (20-

30%), focus on sector allocation rather than broad alt bets — RWA tokens returned +186% in 2025 while memecoins and AI agents declined sharply, making sector selection the primary alpha driver. Use a venture fund or a fund-of-funds vehicle for long-tail crypto assets, as shortened hype cycles and fragmented liquidity make them better suited to illiquid, high-conviction portfolios than to liquid trading books. Monitor Bitcoin dominance (below 55% signals a rotation opportunity) and the ETH/BTC ratio as leading indicators for shifting capital down the risk curve.

## Looking Ahead

The regulatory, structural, and technological landscape surrounding digital assets is evolving across multiple concurrent time scales. For a fund deploying into blockchain-native venture and liquid positions, the ability to anticipate second- and third-order effects of policy shifts, platform convergence, and cryptographic threats is essential to both capital preservation and alpha generation. This section maps the key considerations across three time horizons and outlines their implications for portfolio construction, risk management, and strategic positioning.

### *Near-Term Horizon (0-18 Months): Regulatory Regime Change*

The United States is amid the most consequential period of crypto-specific legislation in its history. The passage of the GENIUS Act in July 2025 and the advancement of the CLARITY Act through the House mark a structural shift from regulation by enforcement to regulation by statute. For portfolio managers, this period demands close attention to how each legislative instrument creates new addressable markets, reshapes competitive dynamics, and introduces compliance obligations that will separate institutional-grade projects from those that cannot scale.

#### The GENIUS Act and the Stablecoin Opportunity

The Guiding and Establishing National Innovation for US Stablecoins (GENIUS) Act, signed into law on July 18, 2025, is the first comprehensive federal framework for payment stablecoins. Its core provisions require one-to-one reserve backing with qualified assets (US dollars, short-term Treasuries), mandate regular third-party audits, and establish a dual federal-state supervisory regime. Payment stablecoins issued by permitted issuers are explicitly carved out of the securities and commodities definitions, granting regulatory clarity that did not previously exist.

The portfolio implications are direct and significant. The GENIUS Act effectively opens the door for banks, credit unions, and licensed non-bank issuers to enter the stablecoin market. Major banks, including JPMorgan, Goldman Sachs, and Bank of America, have publicly explored issuing proprietary stablecoins. This creates both competitive risk for incumbent stablecoin issuers and a significant expansion of the total addressable market for stablecoin infrastructure providers, which includes wallet providers, compliance-as-a-service platforms, reserve management systems, and on/off-ramp

technology. Portfolio companies operating in any of these verticals stand to benefit from a dramatic increase in institutional demand for stablecoin infrastructure.

Critically, the GENIUS Act prohibits payment stablecoin issuers from offering interest or yield directly to holders. This is a deliberate design choice to distinguish stablecoins from bank deposits (which carry FDIC insurance). However, tokenized deposits, which are explicitly preserved under the Act, can pay yield. This creates an arbitrage opportunity between stablecoin utility and tokenized deposit yields, driving product innovation and likely producing investable opportunities at the intersection of DeFi and traditional banking.

### The CLARITY Act and the End of Regulation-by-Enforcement

The Digital Asset Market Clarity Act passed the House in July 2025 with bipartisan support and is now the subject of active Senate negotiation. As of February 2026, the Senate Banking Committee and Senate Agriculture Committee have each produced discussion drafts, with the Agriculture Committee's Digital Commodity Intermediaries Act advancing to markup in late January 2026. The primary sticking point is stablecoin yield payments. The banking lobby is strongly against any interest payments.

The core architecture of the CLARITY Act assigns the CFTC exclusive jurisdiction over digital commodity spot markets, while maintaining the SEC's authority over investment contract assets. The practical effect is to create a pathway for tokens that have achieved sufficient decentralization to be regulated as commodities rather than securities.

The CLARITY Act's passage (or meaningful Senate advancement) would represent the single largest catalyst for institutional capital flows into the sector. It resolves the jurisdictional ambiguity that has prevented regulated financial institutions from engaging with digital assets at scale. Tokens that currently trade in legal gray zones would receive clear classification, unlocking compliant custody, trading, and lending services. The bill's expedited registration provisions for digital commodity exchanges, brokers, and dealers would also lower barriers to new regulated venues, expanding the competitive landscape.

The open question is DeFi. The current drafts leave the treatment of decentralized protocols and non-controlling developers in flux. The DeFi Education Fund has publicly warned that the industry may oppose the legislation if developer protections are inadequate. Portfolio companies with exposure to DeFi infrastructure should be stress-tested against both outcomes: one in which DeFi protocols are exempt from intermediary regulation and one in which they face new compliance requirements.

### *Medium-Term Horizon (18-60 Months): Crypto-Finance Integration*

The medium-term trajectory is defined by the convergence of traditional financial services and crypto-native infrastructure. This convergence is proceeding on two

parallel tracks: tokenization of traditional assets and the transformation of crypto exchanges into full-service financial platforms. Together, these trends point toward a future in which the distinction between “crypto” and “finance” dissolves entirely.

### The Tokenization Wave

Real-world asset tokenization has moved from proof-of-concept to production. BlackRock’s BUIDL fund (tokenized US Treasuries on Ethereum) surpassed \$1B in AUM within months of launch. Franklin Templeton, Hamilton Lane, Apollo, and KKR have all brought tokenized products to market. Corda announced in December 2025 that it would launch on Solana in H1 2026 as a yield vault platform for institutional investors. The market for tokenized RWAs has exceeded \$30B and is growing rapidly.

The portfolio implications span the full tokenization stack. On the infrastructure side, this includes smart contract platforms optimized for compliant asset issuance (e.g., Ethereum, Polygon, Avalanche subnets), oracle networks providing verified off-chain data (e.g., Chainlink), and custodians capable of holding both the tokenized representation and the underlying asset. On the application side, it includes secondary trading venues for tokenized securities, fractional ownership platforms, automated compliance engines (KYC/AML at the token level), and cross-chain settlement infrastructure.

The most investable thesis within tokenization is that it does not merely digitize existing products but creates entirely new products that are impossible without blockchain rails. Fractional real estate ownership at \$100 minimums, programmable bonds that automatically reinvest coupon payments, or 24/7 tradeable private credit instruments represent product categories that could not exist in the pre-blockchain financial system. Portfolio companies positioned at this product innovation layer, rather than simply tokenizing existing instruments, will capture the most durable value.

### The “Everything Exchange” Convergence

The most consequential structural shift in the medium term is the transformation of crypto-native exchanges into diversified financial services platforms. Coinbase, Kraken, Gemini, Bullish, and Robinhood are each pursuing variants of the same thesis: that the exchange model, once proven with crypto, can expand into equities, options, derivatives, lending, staking, custody, payments, and tokenized assets to become a one-stop financial platform.

This convergence has two critical implications for a portfolio. First, it creates platform risk for portfolio companies that depend on exchange distribution. A company building a trading analytics tool or yield aggregator risks Coinbase or Kraken building the feature natively. Second, it creates an infrastructure opportunity. As exchanges expand into new asset classes and product verticals, they need modular infrastructure: compliance engines, risk management systems, cross-chain settlement, identity verification, and

market data feeds. Portfolio companies operating at the infrastructure layer benefit from every exchange's expansion.

The end state of the “everything exchange” thesis is a platform that allows a user to buy bitcoin, earn yield on stablecoins, trade tokenized equities, take out a crypto-collateralized loan, and stake their ETH, all within a single interface and a single margin account. This is not speculation; it is the stated product roadmap of multiple publicly traded companies. The medium-term question is whether this consolidation produces two or three dominant platforms (the “Amazon/Google” outcome) or whether interoperability protocols allow a broader competitive landscape (the “open web” outcome). The answer determines whether a portfolio should concentrate on platform plays or infrastructure plays.

### *Long-Term Horizon (5-15+ Years): The Quantum Question*

Quantum computing represents the only identified existential threat to the cryptographic foundations of blockchain technology. Bitcoin and most blockchain networks rely on elliptic curve cryptography (ECC), specifically the Elliptic Curve Digital Signature Algorithm (ECDSA), to secure wallets and authorize transactions. A sufficiently powerful quantum computer running Shor's algorithm could derive private keys from publicly exposed public keys, enabling an attacker to spend funds from any address whose public key is visible on-chain.

Critically, not all bitcoin is equally vulnerable. Addresses that have never spent funds (and therefore have not revealed their public key) are protected by hash functions, which are significantly more resistant to quantum attack. [A Chaincode Labs study](#) estimated that 20–50% of circulating bitcoin addresses are potentially vulnerable due to reused or exposed public keys. CoinShares, in a [February 2026 report](#), narrowed this estimate to approximately 1.6M BTC (roughly 8% of supply) sitting in legacy Pay-to-Public-Key (P2PK) addresses, though only about 10,200 BTC is concentrated enough to produce meaningful market disruption if compromised.

Grover's algorithm, which targets hash functions like SHA-256, provides a quadratic speedup but does not break them outright. Its practical impact would be to reduce SHA-256's 256-bit security to approximately 128 bits, which would remain computationally infeasible to crack with any foreseeable technology.

The consensus among researchers and practitioners is that the quantum threat to blockchain is real but distant. Breaking Bitcoin's current cryptography would require a fault-tolerant quantum computer with millions of stable, error-corrected qubits. The most advanced machine today is Google's Willow at 105 qubits. Google and IBM have public roadmaps targeting 1M physical qubits by the early 2030s, but engineering delays and the distinction between physical qubits and logical (error-corrected) qubits suggest that machines capable of cryptographic attacks are unlikely before the mid-2030s at the earliest.

Source	Estimated Timeline
<b>Adam Back (Blockstream)</b>	20–40 years
<b>Grayscale</b>	Not before 2030; “red herring” for 2026
<b>CoinShares</b>	100,000x current capability needed; 10+ years
<b>Google/IBM Roadmaps</b>	1M physical qubits by early 2030s
<b>DARPA Quantum Initiative</b>	Meaningful threats may emerge in 2030s

Even if Cryptographically Relevant Quantum Computers (CRQC) are a decade or more away, the “harvest now, decrypt later” attack vector is already active. Adversaries, including state actors, are collecting encrypted data and exposing public keys today with the intent to decrypt them once quantum capability arrives. For blockchain, this means that public keys already visible on-chain represent a pre-staged target set. The implication is that address hygiene (avoiding key reuse, migrating to quantum-resistant address types as they become available) is not a future concern but a present one.

NIST finalized post-quantum cryptographic standards in 2024, including lattice-based signature schemes (ML-DSA) and hash-based schemes (SLH-DSA) that are resistant to known quantum attacks. The challenge for blockchain networks is implementation. Unlike centralized systems, where a bank can mandate a cryptographic upgrade through a coordinated software update, Bitcoin’s decentralized governance requires consensus across thousands of node operators, miners, and users. Post-quantum signature schemes also produce significantly larger signatures and keys than ECDSA, creating scalability challenges for networks already constrained by block size limits. In July 2025, cryptography experts outlined a concrete plan to replace Bitcoin’s current signature systems with quantum-resistant alternatives. Several projects, including [Qastle](#), have announced plans to bring post-quantum security to wallet infrastructure using quantum-generated randomness and PQC encryption. Ethereum and other programmable chains offer greater flexibility to implement PQC via smart contract upgrades. The migration will be gradual, messy, and multi-year, but it is feasible.

## Wrapping Up and Recommendations

The crypto asset class has matured considerably since our original analysis. With over a decade of price history for bitcoin and ethereum, compressed volatility approaching traditional asset levels, and more than \$33B in ETF inflows validating institutional demand, the case for portfolio inclusion has strengthened materially.

Our updated analysis confirms that modest allocations of 1-5% continue to improve risk-adjusted returns in traditional portfolios, while more aggressive allocators may find justification for higher weightings depending on their risk tolerance and investment horizon. Benchmarking remains a work in progress—existing indices suffer from concentration risk, high fees, and opaque methodologies—but newer offerings like the COIN 50 represent meaningful improvements. For now, we recommend evaluating crypto managers against bitcoin as the primary benchmark, supplemented by a blended basket of ETH, SOL, and BNB for broader market exposure.

Looking ahead, allocators should monitor several evolving dynamics: the regulatory landscape post-CLARITY Act implementation and the expansion of tokenized real-world assets. Risks around quantum computing, geopolitical factors like state-level strategic bitcoin reserves, and continued scrutiny of mining infrastructure also warrant attention. What's clear is that crypto is no longer a speculative sideshow—it's an increasingly institutionalized asset class that demands rigorous portfolio treatment. For wealth managers and allocators willing to do the work, the opportunity to enhance diversification and capture asymmetric upside remains compelling.

## **About Varys Capital**

[Varys Capital](#) is a global, multi-strategy digital asset fund focused on empowering innovative startups in technology and emerging industries. Varys has been investing in crypto off its balance sheet since 2017. Varys Capital's Fund I is led by the office of Qatari royal Sheikh Nayef Bin Eid Al Thani. The firm's key value add for projects is our deep access and relationships in the Middle East.

*Tom Dunleavy, CFA, CAIA*

Tom Dunleavy, CFA, CAIA, is Head of Venture at Varys Capital. Mr. Dunleavy brings a distinguished career spanning both traditional finance and digital assets. His career began in investment management at industry leader, State Street, followed by a leadership role at a top-three institutional investment consultant, Meketa Investment Group. At Meketa, Tom was responsible for building and managing institutional investment portfolios, ranging from \$100 million to \$8 billion. He also sat on the firm's five-person macroeconomic committee, voting on tactical positioning for the firm's \$1T+ in assets. After Meketa, he served as a Senior Analyst on Messari's Enterprise Research team, writing over 40 research reports for venture and hedge fund clients. His insights have been featured in Bloomberg, Yahoo Finance, Forbes, and more. He is an established industry voice, speaking at both conferences and directly to lawmakers in Washington to help advance digital assets.

## **About Collar Capital Management**

[Collar Capital Management](#) is a registered investment advisory firm specializing in private portfolio management with a focus on providing signature service for individuals, trusts, and family offices. Its clients' portfolios gain direct access to both publicly traded securities and digital assets.

*Chris Collar*

Chris Collar is a Senior Research Analyst and Financial Advisor at Collar Capital Management. Mr. Collar has over 10 years of professional experience leading teams and advising executive leaders in the financial sector, blockchain technology industry, the US Army, the federal government, and higher education. Prior to joining Collar Capital, he was a Private Equity Associate at St. Cloud Capital, an Enterprise Research Analyst at Messari, and an Investment Banking Associate at SVB Securities. Before joining the private sector, he was an Armor Officer in the US Army, tactically leading

armor, reconnaissance, and infantry platoons while also advising and supporting Commanding Generals. He has a Master's of Business Administration and a Master's of Science in Finance from Boston College, as well as a Bachelor's of Science in Economics from the United States Military Academy at West Point.

## Disclaimer

*This report is provided for informational and educational purposes only and does not constitute investment advice, a recommendation to buy, sell, or hold any securities or digital assets (including bitcoin, ethereum, or any other cryptocurrency), financial product, or service, nor is it an offer to sell or a solicitation of an offer to buy any such assets. The information contained herein is based on publicly available data, historical performance, market observations, and third-party sources believed to be reliable as of the date of publication (March 2026), but no representation or warranty, express or implied, is made as to its accuracy, completeness, timeliness, or fitness for any particular purpose.*

*Cryptocurrencies and digital assets are highly volatile and speculative investments. Their prices can fluctuate dramatically, potentially resulting in the loss of some or all of the invested capital. Past performance is not indicative of future results, and historical data (including volatility compression, ETF inflows, market capitalization figures, and asset correlations) may not predict future outcomes. Investing in crypto assets involves significant risks, including but not limited to market risk, liquidity risk, regulatory risk (including changes in laws or enforcement actions), technological risk (e.g., hacks, protocol failures, or network disruptions), counterparty risk, and geopolitical or macroeconomic factors. These risks may be greater than those in traditional asset classes.*

*The views and opinions expressed in this Report are those of the author(s) and do not necessarily reflect the views of any affiliated entities, sponsors, or third parties. The Report discusses theoretical applications of Modern Portfolio Theory (MPT) and other frameworks to crypto assets, but actual portfolio construction should involve personalized analysis, professional financial advice, and consideration of individual risk tolerance, investment objectives, tax implications, and legal/regulatory constraints. Readers should consult qualified financial, legal, and tax professionals before making any investment decisions.*

*This Report may contain forward-looking statements based on current expectations and assumptions, which are subject to risks and uncertainties that could cause actual results to differ materially. No part of this Report should be construed as a guarantee of performance or outcome.*

*The author(s) and any associated entities disclaim all liability for any direct, indirect, incidental, consequential, or special damages arising from the use of, reliance on, or inability to use the information in this Report. This material is not intended for distribution to, or use by, any person or entity in any jurisdiction where such distribution or use would be contrary to applicable law or regulation.*

*By accessing or using this Report, you acknowledge that you have read, understood, and agree to be bound by this Disclaimer.*