



WisdomTree Digital Assets

Digital Gold Institute

October 2024





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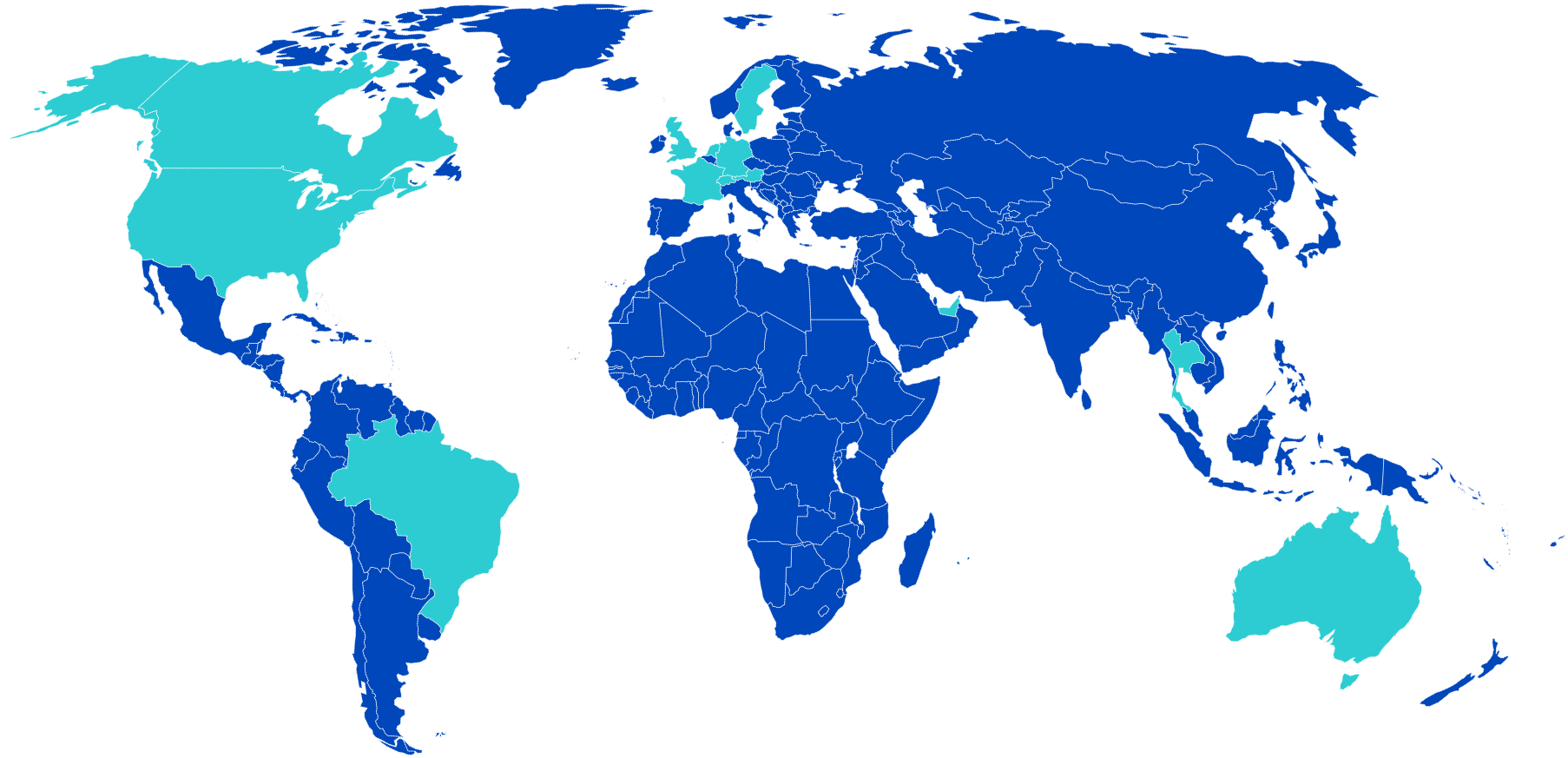
Market Evolution

Institutional adoption of digital assets

Bitcoin Exchange Traded Products (ETPs) are now listed in most developed markets, opening the door to institutions across the globe



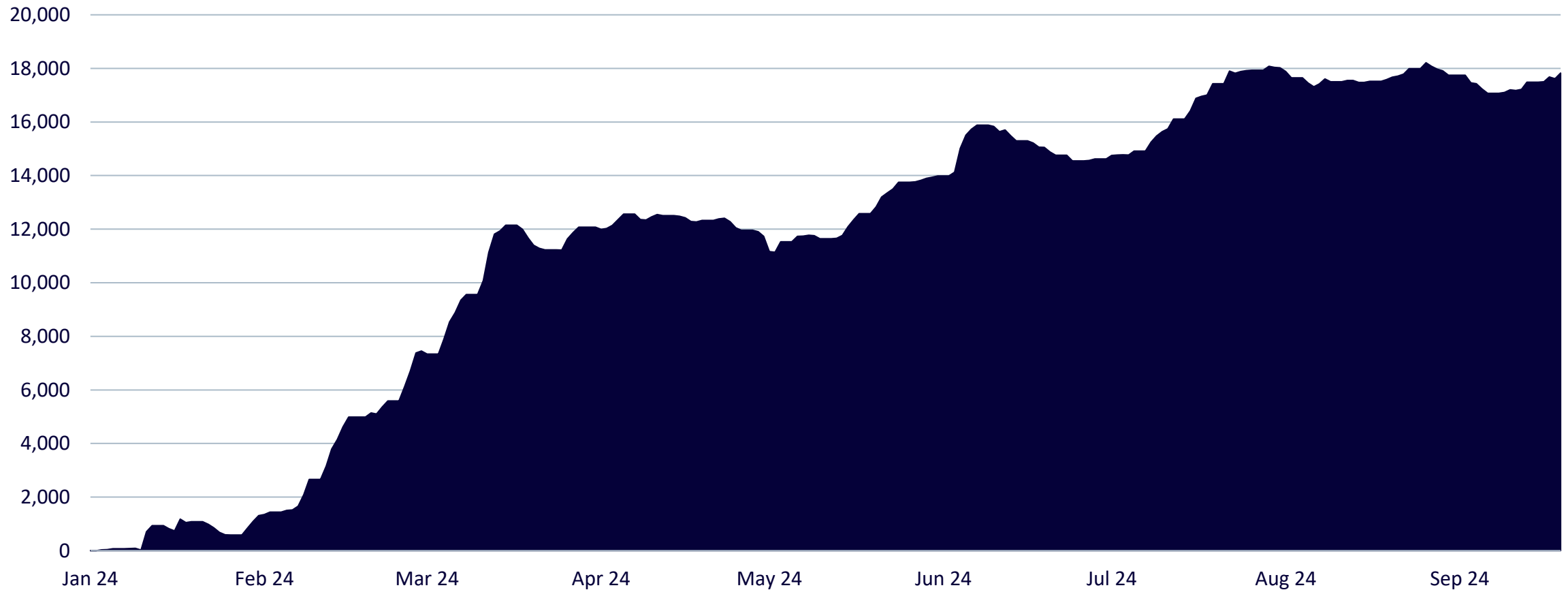
- + **2015:** Sweden
- + **2019:** Switzerland
- + **2020:** Germany, Austria
- + **2021:** Canada, Brazil, France, Netherlands
- + **2022:** UAE
- + **2024**
 - + January: USA
 - + April: Hong Kong
 - + May: UK
 - + June: Australia, Thailand



Exchange traded product (ETP) listing approvals have led to nearly \$18 billion of net inflows YTD



Global Crypto ETP Asset Net Flows, YTD (USD Million)



Source: Bloomberg as of 19 September 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

New ETFs and ETPs have brought new investors with it, such as hedge funds, pension funds and asset managers

A list of early institutional adopters cover many styles of investment management

Investment Firm	Market Value (USD)	Percent of Portfolio
MILLENNIUM MANAGEMENT LLC	588,974,558	0.27%
CAPULA MANAGEMENT LTD	253,291,761	2.08%
GOLDMAN SACHS GROUP INC	238,681,207	0.04%
MORGAN STANLEY	187,791,406	0.01%
STATE OF WISCONSIN INVESTMENT BOARD	98,939,461	0.26%
GRAHAM CAPITAL MANAGEMENT, L.P.	94,154,569	2.05%
PINE RIDGE ADVISERS LLC	78,938,293	8.41%
ENVESTNET ASSET MANAGEMENT INC	44,569,592	0.02%
TUDOR INVESTMENT GROUP	29,686,949	0.15%
RENAISSANCE TECHNOLOGIES, LLC	1,063,122	<0.01%

Source: SEC Filings June 30, 2024, accessed via WhaleWisdom.com.

Institutional investors' current crypto ownership remains very small, even if it has recently grown thanks to the “wake-up call” that was the approval and launch of spot bitcoin ETFs in the US.



Pierre Debru

Head of Quantitative Research and Multi Asset Solutions

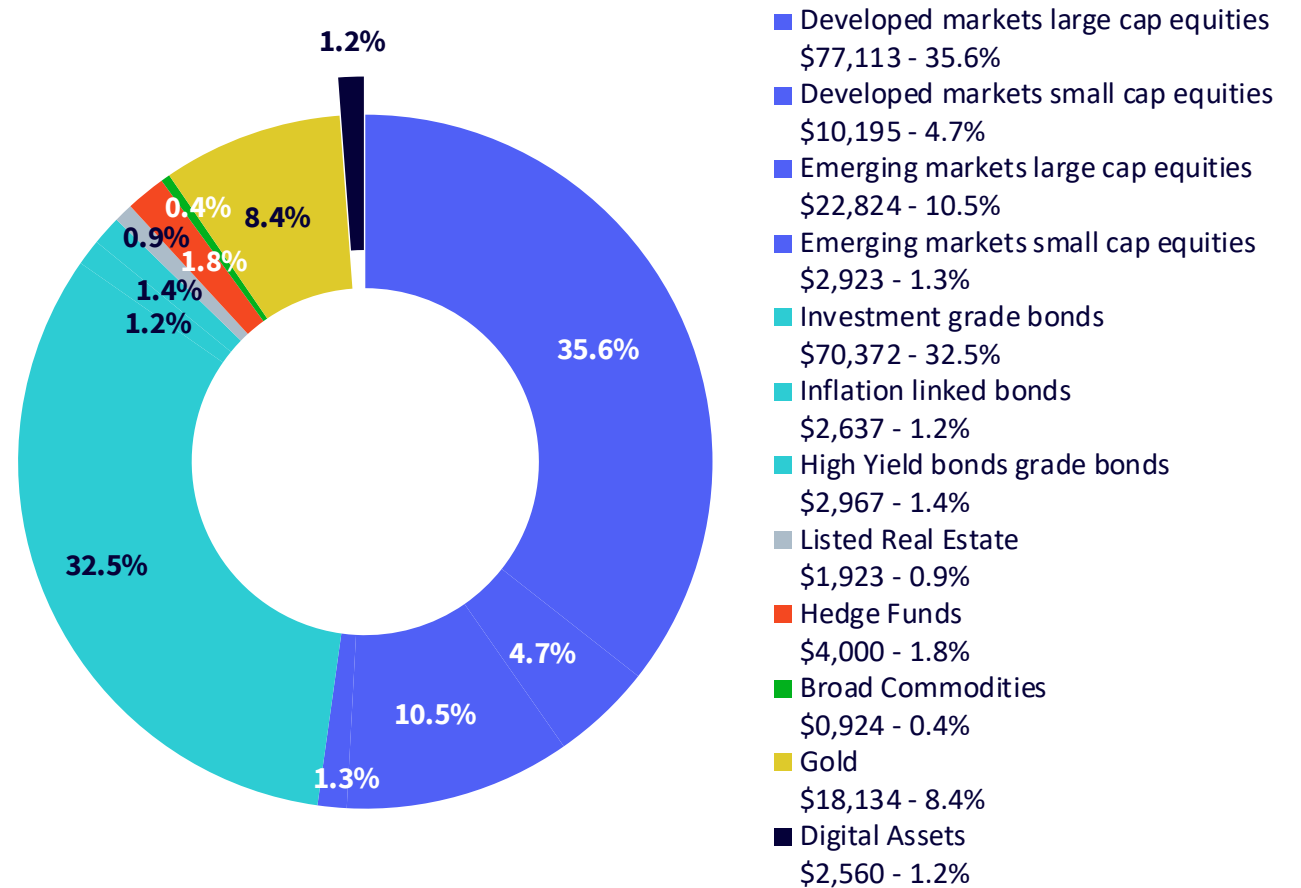
What allocation to Digital Assets for passive investors or investors that “don’t know enough”?



1% for Digital Asset in the Market Portfolio

Market-cap weighted allocation for passive investors would indicate roughly a 1% allocation to a multi-asset portfolio

The Liquid Market Portfolio



Source: Bloomberg, WisdomTree. As of 30 September 2024. Market caps are shown in US Dollars billion.

You cannot invest directly in an index. Historical performance is not an indication of future performance and any investment may go down in value.

Digital Assets have historically had low correlation with other assets



Correlations between Bitcoin and most assets is around or below 20%. Even Commodities are more correlated.

	US Equities	US Small Caps	US All Caps Equities	All Fixed Income	US IG Bonds	US Treasuries	US Corporates	US High Yield	Commodities	Gold	Infrastructure	Legend
Bitcoin	17%	21%	18%	11%	3%	-1%	6%	13%	13%	7%	15%	1.0
US Equities		87%	100%	26%	16%	-8%	37%	75%	37%	12%	75%	0.9
US Small Caps			90%	23%	11%	-12%	31%	73%	38%	10%	69%	0.8
US All Caps Equities				27%	16%	-8%	37%	76%	38%	12%	75%	0.7
All Fixed Income					85%	76%	81%	48%	16%	56%	46%	0.6
US IG Bonds						94%	90%	39%	1%	39%	34%	0.5
US Treasuries							74%	12%	-12%	37%	14%	0.4
US Corporates								65%	12%	39%	50%	0.3
US High Yield									40%	24%	71%	0.2
Commodities										33%	40%	0.1
Gold											29%	-

Source: Bloomberg, WisdomTree. From 31 December 2013 to 30 September 2024. In USD. Based on Weekly Returns

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Bitcoin was the best performing asset in 7 out of the last 10 years

Bitcoin has delivered above market performance and growth consistently



- + The strongest years are usually in the year around the halvings
- + The worst years for Bitcoin have historically been mid-way between two halvings

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
REITS (15.9%)	Bitcoin (36.2%)	Bitcoin (120.3%)	Bitcoin (1403.2%)	Treasuries (-0.4%)	Bitcoin (94.8%)	Bitcoin (305.1%)	Bitcoin (59.8%)	Commodities (16.1%)	Bitcoin (152.9%)
Infrastructure (7.4%)	REITS (0.1%)	High Yield (14.3%)	Equities (24.0%)	Gold (-0.9%)	Equities (26.6%)	Gold (24.6%)	REITS (27.2%)	Gold (0.4%)	Equities (22.2%)
Equities (4.2%)	Small Caps (-1.0%)	Commodities (11.8%)	Small Caps (23.8%)	IG Bonds (-1.2%)	Small Caps (24.7%)	Small Caps (16.3%)	Commodities (27.1%)	Infrastructure (-4.7%)	Small Caps (16.8%)
Corporates (2.9%)	Equities (-2.4%)	Small Caps (11.6%)	Gold (12.7%)	Corporates (-3.2%)	REITS (23.1%)	Equities (16.3%)	Equities (18.5%)	High Yield (-12.7%)	Gold (14.6%)
Small Caps (1.8%)	High Yield (-2.7%)	Gold (8.1%)	REITS (11.4%)	High Yield (-4.1%)	Infrastructure (21.6%)	Corporates (10.0%)	Small Caps (16.1%)	IG Bonds (-16.2%)	High Yield (14.0%)
IG Bonds (0.6%)	IG Bonds (-3.2%)	Infrastructure (8.0%)	High Yield (10.4%)	REITS (-4.7%)	Gold (18.4%)	Treasuries (9.5%)	Infrastructure (6.3%)	Corporates (-17.0%)	REITS (10.9%)
Gold (0.1%)	Treasuries (-3.3%)	Equities (7.9%)	Infrastructure (9.8%)	Infrastructure (-5.3%)	High Yield (12.6%)	IG Bonds (9.2%)	High Yield (1.0%)	Treasuries (-17.5%)	Corporates (9.2%)
High Yield (0.0%)	Corporates (-3.6%)	REITS (5.0%)	Corporates (8.9%)	Equities (-9.4%)	Corporates (10.7%)	High Yield (7.0%)	Corporates (-3.2%)	Equities (-18.4%)	IG Bonds (5.7%)
Treasuries (-0.8%)	Infrastructure (-6.2%)	Corporates (3.7%)	IG Bonds (7.4%)	Commodities (-11.2%)	Commodities (7.7%)	Infrastructure (0.1%)	Gold (-4.3%)	Small Caps (-18.7%)	Treasuries (4.2%)
Commodities (-17.0%)	Gold (-12.1%)	IG Bonds (2.1%)	Treasuries (7.3%)	Small Caps (-14.4%)	IG Bonds (6.8%)	Commodities (-3.1%)	IG Bonds (-4.7%)	REITS (-24.4%)	Infrastructure (3.4%)
Bitcoin (-57.5%)	Commodities (-24.7%)	Treasuries (1.7%)	Commodities (1.7%)	Bitcoin (-74.3%)	Treasuries (5.6%)	REITS (-8.2%)	Treasuries (-6.6%)	Bitcoin (-64.2%)	Commodities (-7.9%)

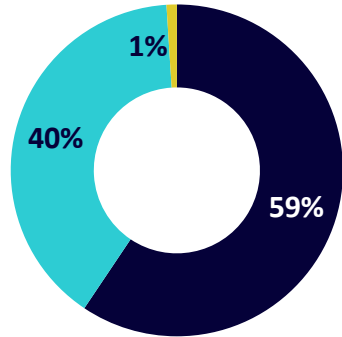
Source: Bloomberg, WisdomTree. From 31 December 2013 to 31 August 2024. In USD.

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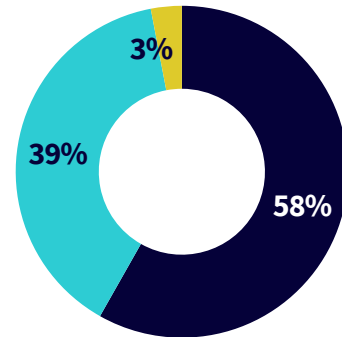
Historical analysis indicates small allocations, regularly rebalanced, improved the risk return profile of a traditional 60/40 portfolio



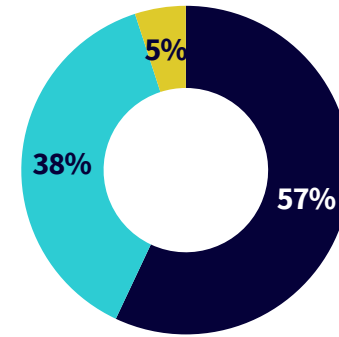
1% Bitcoin Portfolio



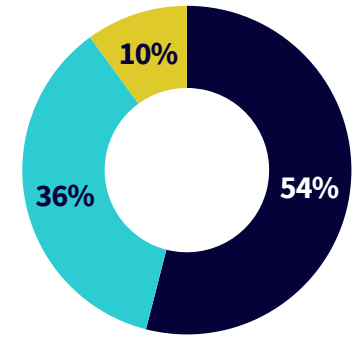
3% Bitcoin Portfolio



5% Bitcoin Portfolio



10% Bitcoin Portfolio



■ MSCI AC World ■ Bloomberg Multiverse ■ Bitcoin

Metric	60/40 Global Portfolio	1% Bitcoin Portfolio	3% Bitcoin Portfolio	5% Bitcoin Portfolio	10% Bitcoin Portfolio
Annualised Return	5.74%	6.39%	7.68%	8.97%	12.13%
Volatility	8.84%	8.91%	9.19%	9.67%	11.47%
Sharpe Ratio	0.48	0.55	0.67	0.77	0.93
Beta to MSCI AC World	69%	71%	73%	75%	80%
Max Drawdown	-24.4%	-24.9%	-26.1%	-27.3%	-30.2%

Source: Bloomberg, WisdomTree. The weighting scheme is constant mix, starting on 31 December 2013, with a monthly rebalance frequency. Currency is USD. Simulations include portfolios with 1% to 10% switched from the 60/40 to bitcoin, based on historical prices from 31 December 2013 to 30 August 2024. The 60/40 Global Portfolio is composed of 60% MSCI AC World and 40% Bloomberg Multiverse. You cannot invest directly into an index. Historical performance is not an indication of future performance, and any investment may go down in value.

Drawing conclusions from a multi-faceted approach



Summary of Results

- + Even conservative investors with small risk tolerance could benefit from a small (1%) allocation to bitcoin as the added volatility and relative drawdown remain very small.
- + Looking forward, even assuming conservative behaviour for cryptocurrencies*, the most optimal multi-asset portfolios would include bitcoin. The optimal allocation for a balanced portfolio would hover around 5%.
- + Despite its high volatility and thanks to its low correlation, a 1.5% allocation to bitcoin would only represent 3% of the risk in a balanced portfolio that includes equities, fixed income, and a small proportion of commodities.

*Conservative behaviour for cryptocurrencies: positive return but well below what we experienced historically, similar volatility and correlation. Historical performance is not an indication of future performance and any investment may go down in value.

	Conservative Portfolio	Balanced Portfolio	Aggressive Portfolio
Bootstrapping Method	~1% Allocation resulting in 1% relative max drawdown with 99% confidence	~3% Allocation resulting in 2.5% relative max drawdown with 99% confidence	~5% Allocation resulting in 5% relative max drawdown with 99% confidence
Markowitz Mean-Variance Method	~1% Optimal weight in mid scenario for 5% Target Vol portfolio	~5% Optimal weight in mid scenario for 10% Target Vol portfolio	~8% Optimal weight in mid scenario for 15% Target Vol portfolio
Risk Contribution Method	~0.7% 1% risk contribution allocation to crypto	~1.5% 3% risk contribution allocation to crypto	~2.5% 5% risk contribution allocation to crypto

[For more information, visit the blog: The Role of Bitcoin in a Portfolio.](#)

In Summary



Market Maturity and Regulatory Evolution

- + Digital assets are not new as they have **over 15 years track record**
- + Digital assets are not small as their total market cap is more than **USD 2 trillion**
- + Digital asset regulatory environment has progressed with most developed market exchanges offering access

Passive Investment is No Longer Zero

- + Investors seeking neutral, market exposure should have **approximately 1%** of their multi-asset portfolios invested in digital assets
- + Not having any exposure to digital assets means active underweight which typically requires a clear investment thesis

Good Fit for Multi-Asset Portfolios

- + **Correlations** between digital assets and most traditional assets are **around or below 20%**
- + While digital assets have relatively high volatility, they are an excellent diversifier for multi-asset portfolios
- + Multiple quantitative frameworks support inclusion due to the potential benefits to the risk/return profile of a portfolio

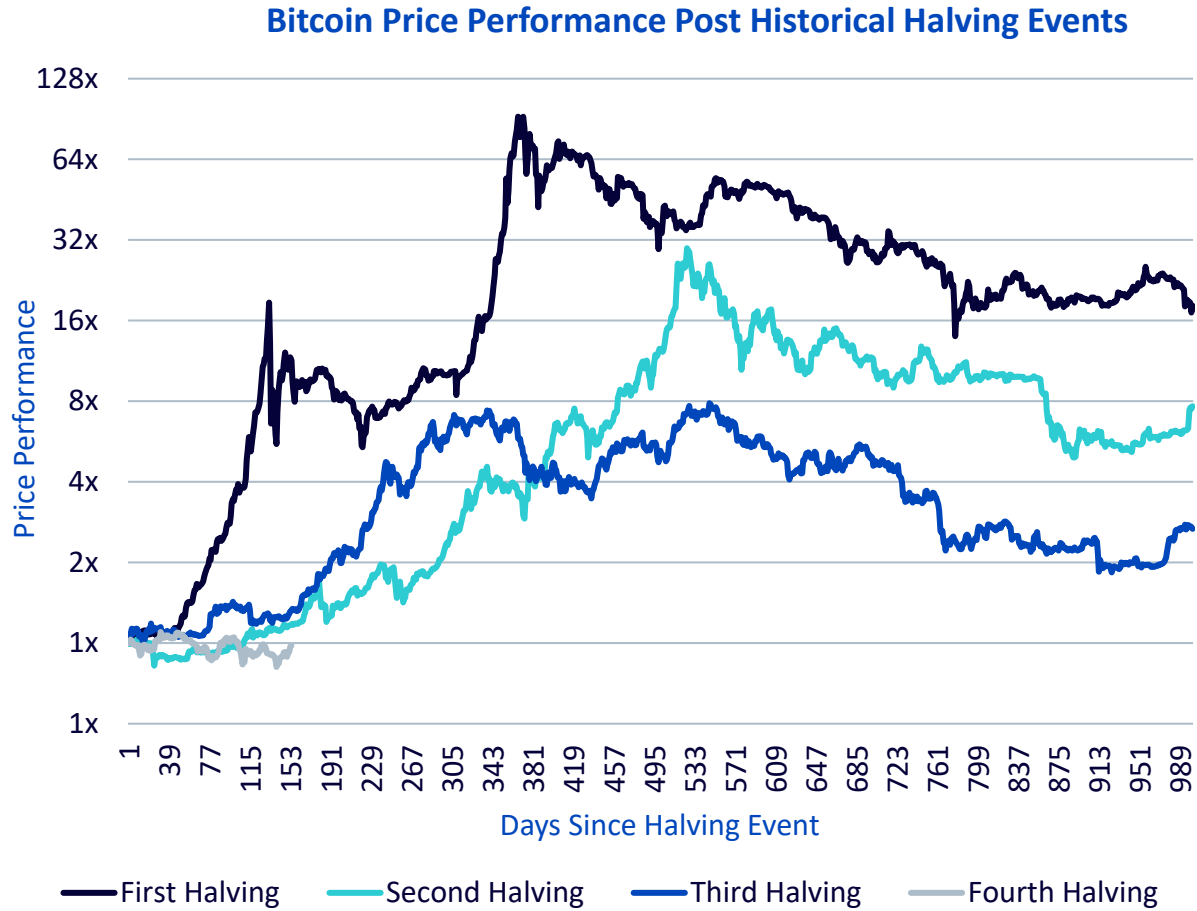
Source: WisdomTree. As of 30 September 2024.



Current Market Dynamics

Where we are and what is ahead

The bitcoin halving took place on April 20th 2024, tightening supply via reduced issuance



Event	Date	Block	Block Reward	Mined in Period	% Mined
Launch	Jan-09		50	10,500,000	
Halving 1	Nov-12	210,000	25	5,250,000	75%
Halving 2	Jul-16	420,000	12.5	2,625,000	88%
Halving 3	May-20	630,000	6.25	1,312,500	94%
Halving 4	April 2024	840,000	3.13	656,250	97%
Halving 5	Estimated 2028	1,050,000	1.56	328,125	98%
Halving 6	Estimated 2032	1,260,000	0.78	164,063	99%

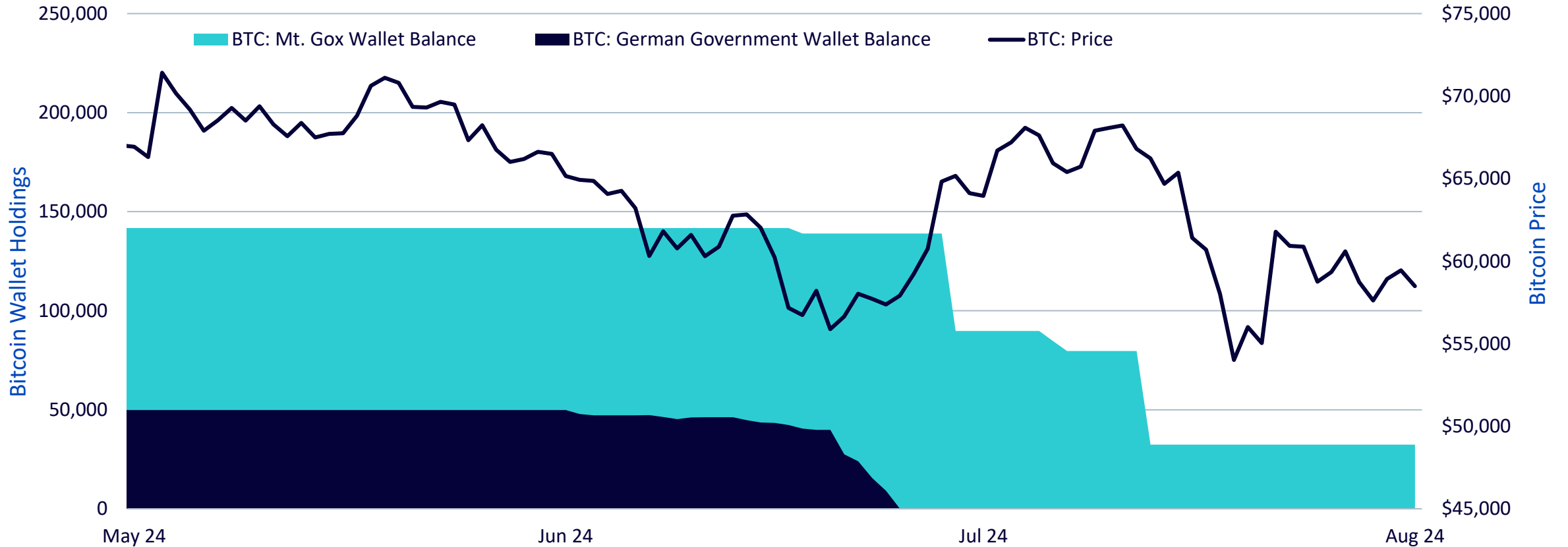
Source: Glassnode as of 20 September 2024.

Historical performance is not an indication of future performance and any investment may go down in value. Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.

The summer's volatility was largely driven by the repayment of recovered Bitcoin from the 2013 Mt. Gox exchange to its creditors



Mt. Gox Confiscated Bitcoin Redistribution vs. Bitcoin Price



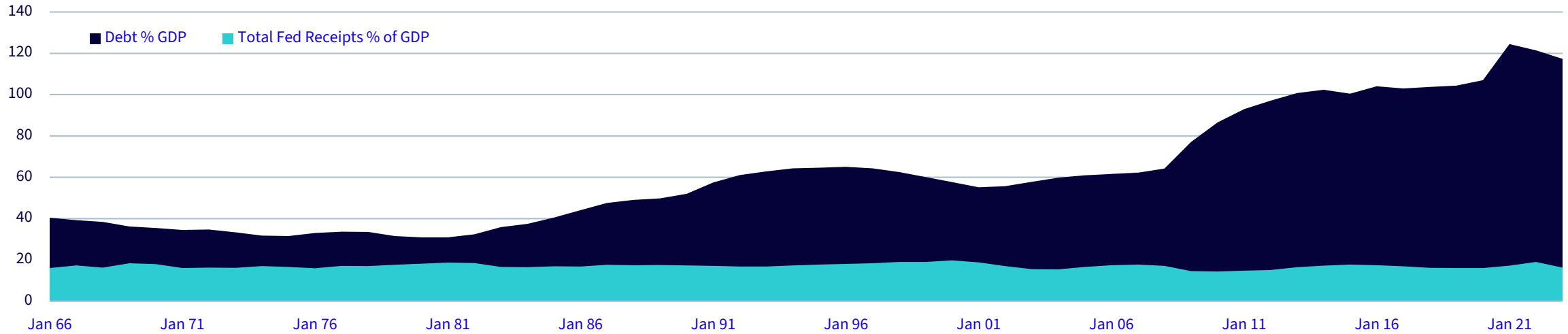
Source: Glassnode as of 18 August 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

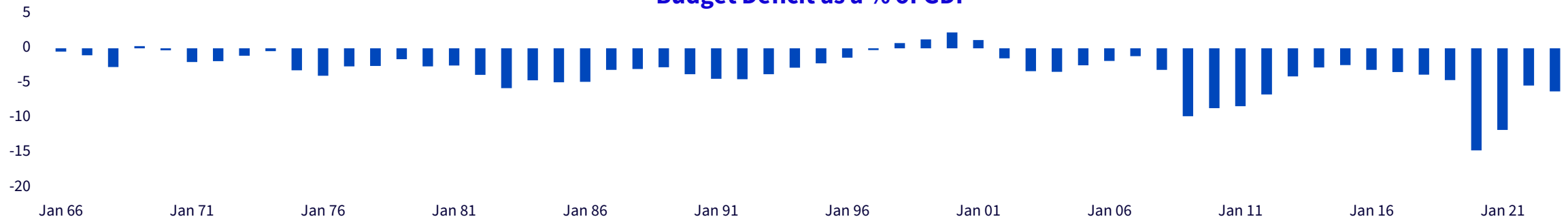
Sustained deficit spending supports the thesis for bitcoin, even amidst the volatility that comes in an election year for the USA



US Government Income and Borrowing as a % of GDP, and Subsequent Deficit



Budget Deficit as a % of GDP

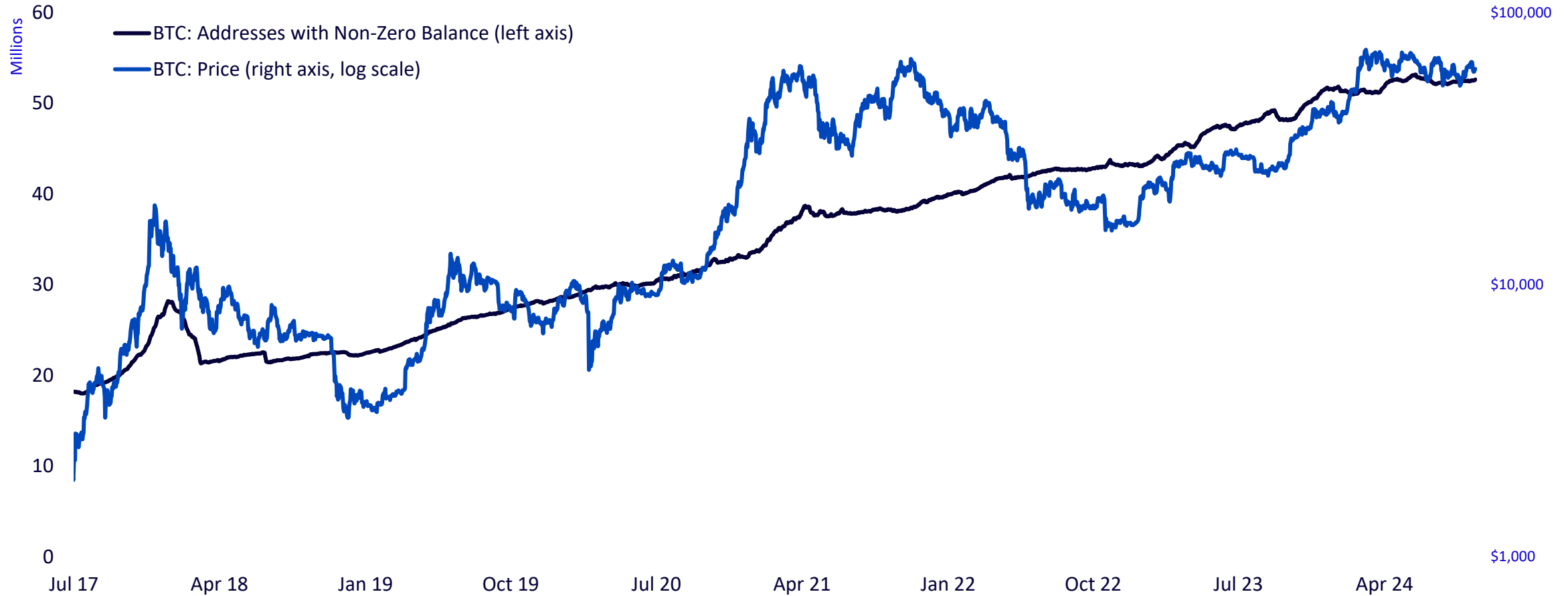


Source: Federal Reserve Bank of St. Louis, as of August 2024.
Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.

Funded Bitcoin wallets have increased by over 25% since November 2021, despite prices remaining near November 2021 highs



Bitcoin Wallet Addresses with Non-zero Balances vs. Bitcoin Price



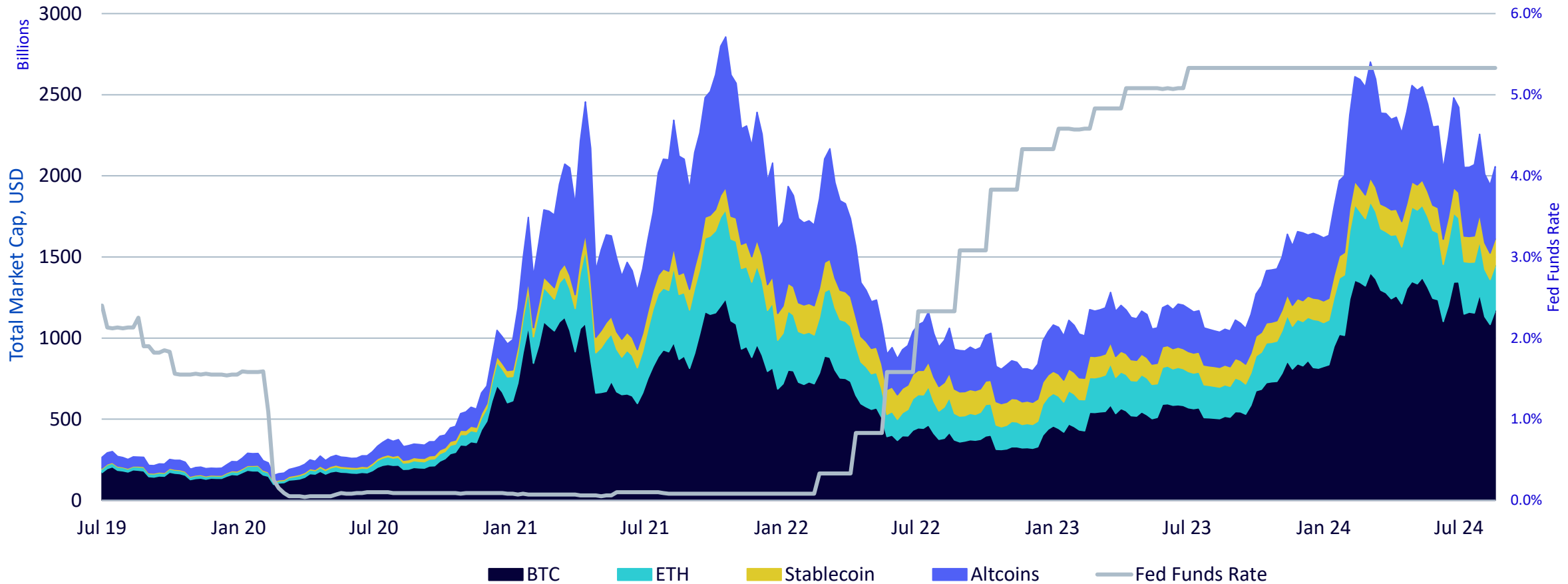
Source: Glassnode, as of October 5, 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

Central bank interest rate cuts on the horizon have historically benefitted digital assets

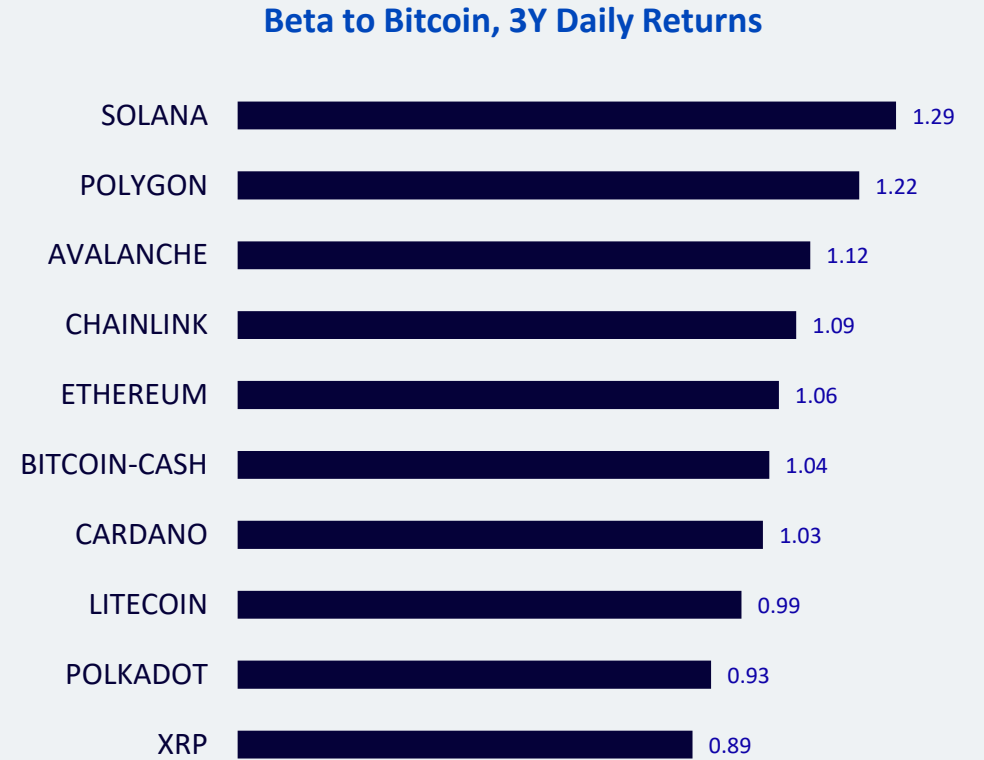
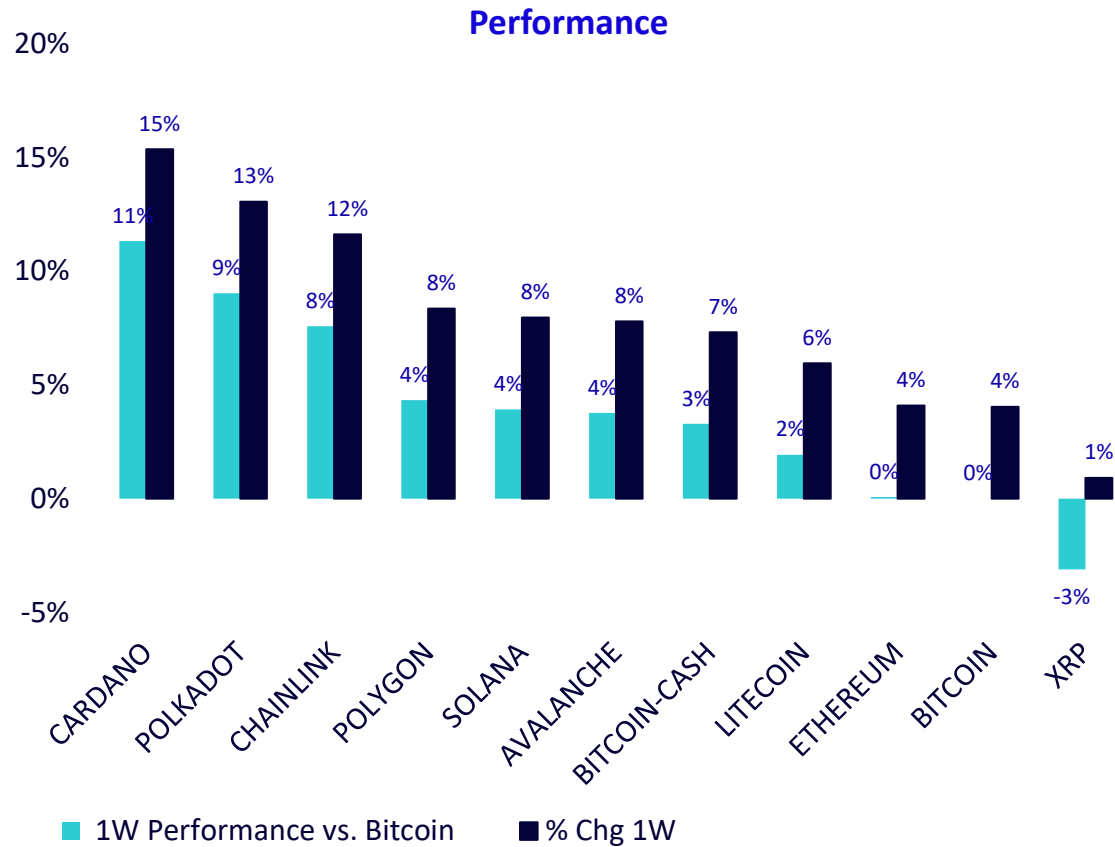


Total Crypto Market Capitalisation vs. Fed Funds Rate



Source: Coinmarketcap, Bloomberg, as of September 16, 2024.
Historical performance is not an indication of future performance and any investment may go down in value.

Altcoins' high beta to bitcoin led to outperformance the week following the US Federal Reserve interest rate cut



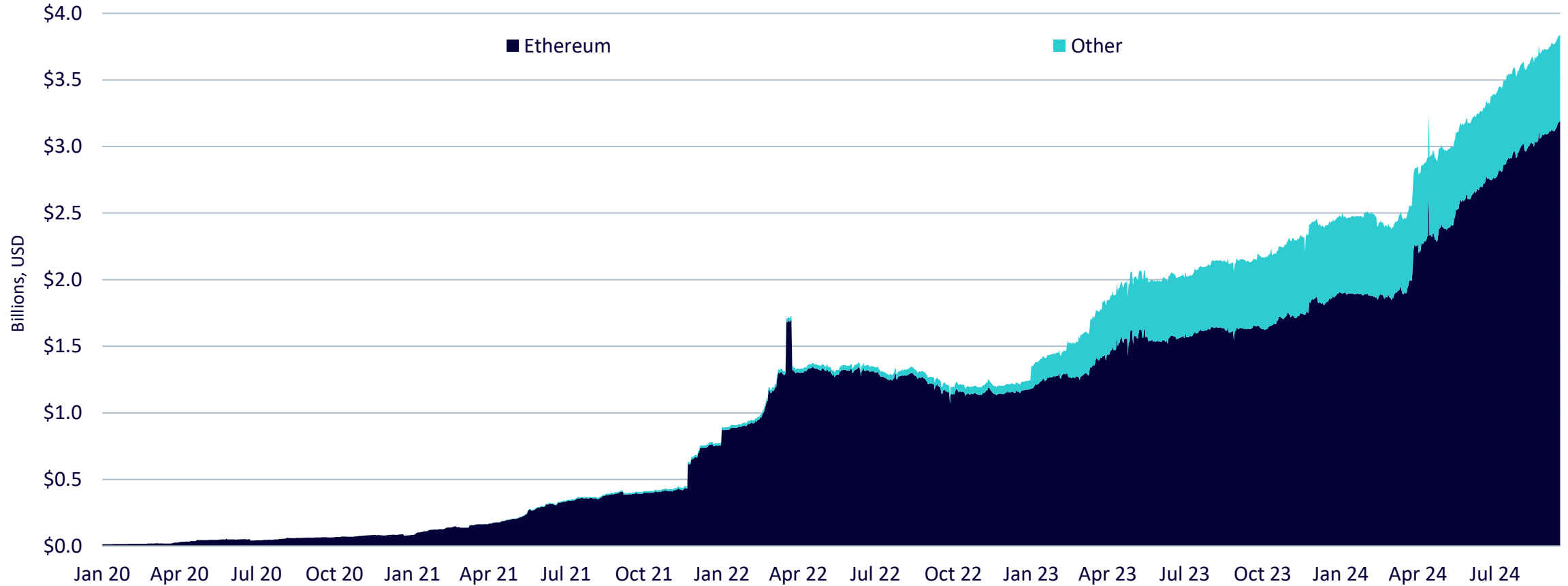
Source: Messari, as of Sept 27, 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

New use cases are emerging for institutions to integrate with blockchains, bringing the convergence of traditional finance with decentralised finance (DeFi)



Tokenised Assets by Blockchain



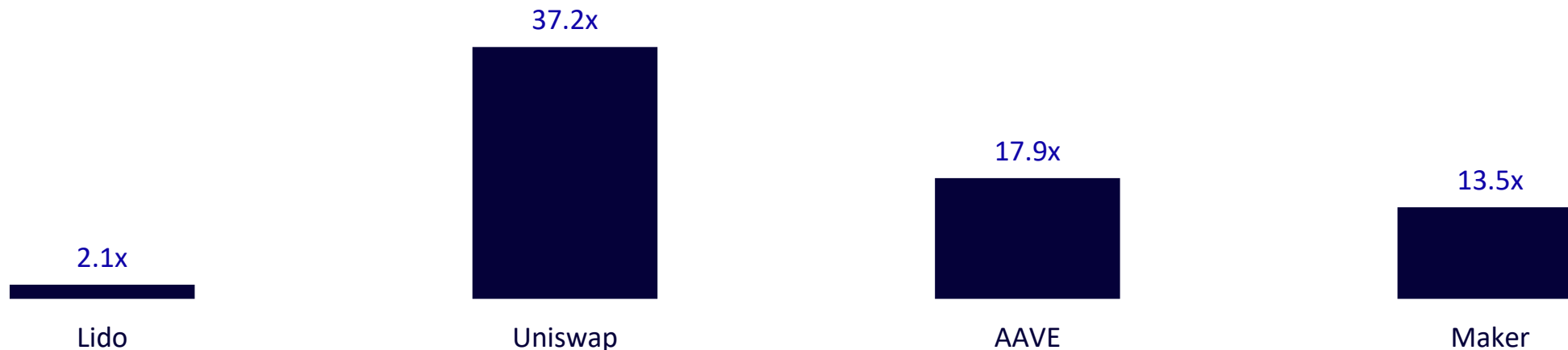
Source: DuneAnalytics as of 12 September 2024.

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Ethereum hosts the largest and most established decentralised finance (DeFi) platforms, offering services to users for fees



DeFi Project Market Cap / Fee Ratios



	Lido	Uniswap	AAVE	Maker
Category	Liquid Staking	Exchange	Lending	Collateralised Debt
TVL (Billion USD)	\$22.50	\$3.55	\$16.10	\$3.89
Fees 30d (Million USD)	\$34.90	\$8.69	\$9.75	\$8.70
Market Cap/Fees	2.1x	37.2x	17.9x	13.5x

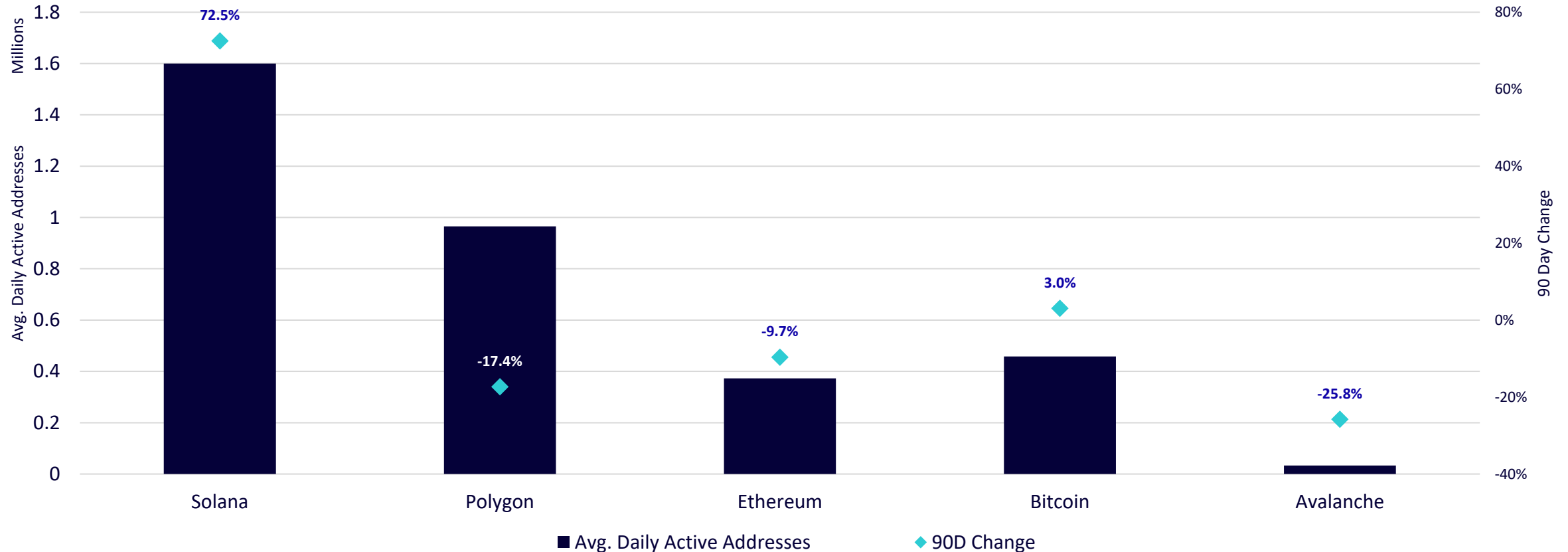
Source: DefiLlama, Coinmarketcap as of 12 September 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

Ethereum's competition is growing; Solana has seen significant growth over the past 90 days and is surpassing a million active addresses per day



Average Daily Active Addresses by Blockchain



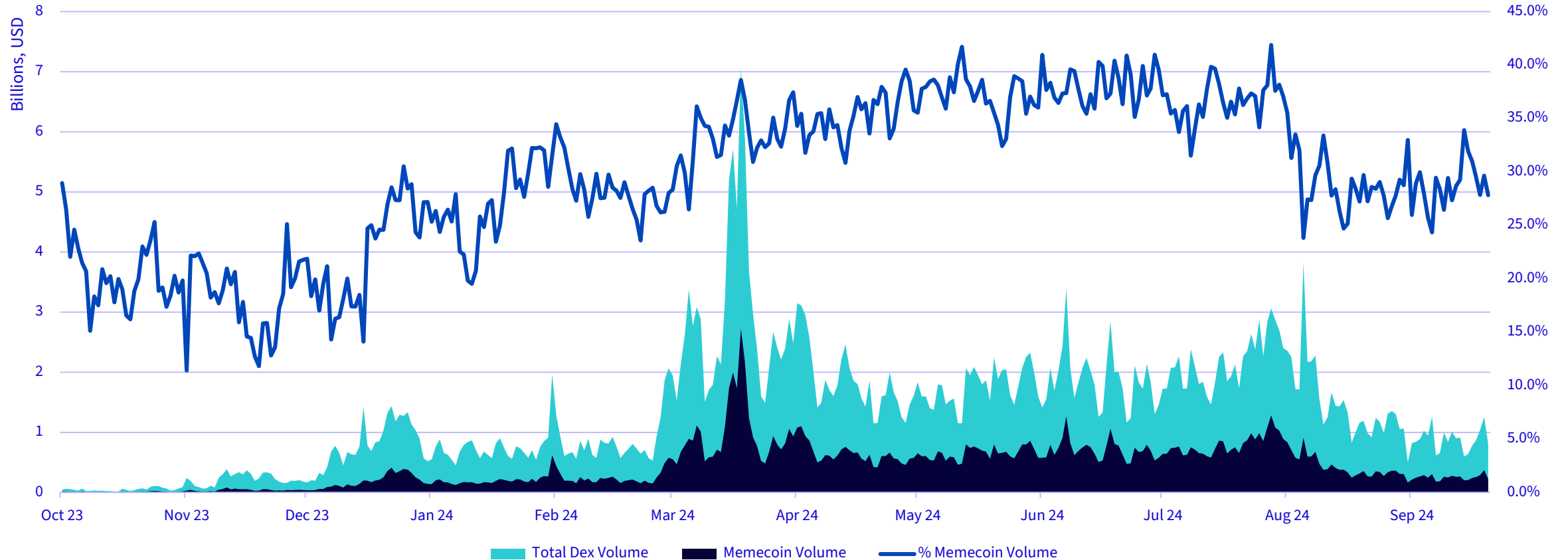
Source: Messari as of 19 September 2024.

Historical performance is not an indication of future performance and any investment may go down in value.

Memecoin related trading has been a key driver of Solana growth YTD



Solana Daily Decentralized Exchange (DEX) Volume



Source: DuneAnalytics. 20 September 2024.

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Appendix

Asset Map

Short Name	Long Name	Bloomberg Ticker
Digital Assets	MarketVector Digital Assets 100	MVDA
Bitcoin	Bitcoin	XBTUSD
Equities	MSCI All Country World net TR	NDUEACWF
Small Caps	MSCI All Country World Small Cap net TR	M1WDSC
All Fixed Income	Bloomberg Multiverse TR GBP Hedged	LF93TRUU
IG Bonds	Bloomberg Global Aggregate TR GBP Hedged	LEGATRUU
Treasuries	Bloomberg Global Aggregate Treasuries TR GBP Hedged	LGTRTRUU
Corporates	Bloomberg Global Aggregate Corporates TR GBP Hedged	LGDRTRUU
High Yield	Bloomberg Global High Yield TR GBP Hedged	LG30TRUU
Commodities	Bloomberg Commodity TR	BCOMTR
Gold	LBMA Gold Price PM USD	GOLDLNPM
Infrastructure	MSCI World Infrastructure net TR	M1WO0INF
REITS	FTSE EPRA NARIET Developed TR	RUGL

Important information



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