OCTOBER 2023

Digital Assets Quarterly

Chart Pack

MarketVector™

Market Wrap-Up

MarketVector™

Macro Economic Influences on Crypto: The Fed raised interest rates by 25 bps in July but didn't in September, influencing the 10-Year Treasury Bond Yield to reach 4.79%, a rate not seen since 2007.

Economic stagnation in the EU contrasted with positive economic signs in the UK, with the lowest inflation level in a year.

Digital assets have displayed remarkable resilience. Over the past four weeks, even as equities trended downward, the majority of digital asset sectors remained in positive territory. Notably, the narrative around AI has been particularly favorable for tokens related to infrastructure applications. Among different classes, DeFi saw substantial growth (+13%), largely driven by AAVE and MKR, which capitalized on yield income from US Treasuries.

The crypto stocks (Coinbase, Galaxy, the miners etc.) were leading up in Q2 and had a horrible Q3. These stocks were indicating institutional demand as they acted as a proxy for crypto exposure for those who can’t buy coins.

Bitcoin isn't behaving like a traditional macro asset. When examining cross-asset correlations, Bitcoin demonstrates an almost zero correlation with other assets.
Within crypto, basically large cap tokens are outperforming the small cap token.

Ethereum's Scaling and L2 Network Development. Ethereum's scaling strategy is being embraced as Layer 2 networks gain traction. Leading Ethereum scaling platforms have seen a triple increase in active users from 2022 to 2023.

Growth of Tokenization and Integration with Traditional Finance: Chainlink demonstrated tokenized carbon credit units' purchase. Prominent players in the crypto space collaborated to form the Tokenized Asset Coalition to advance the concept of tokenizing world assets.

The MarketVector™ Figment Ethereum Staking Reward Reference Rate allows market players to develop products that offer a comprehensive return perspective. Additionally, this rate can serve as the foundation for key derivatives that facilitate risk shifting between those looking to hedge and those aiming to speculate.

Q3 Overview: Dollar & Commodities Emerge as Top Performers.

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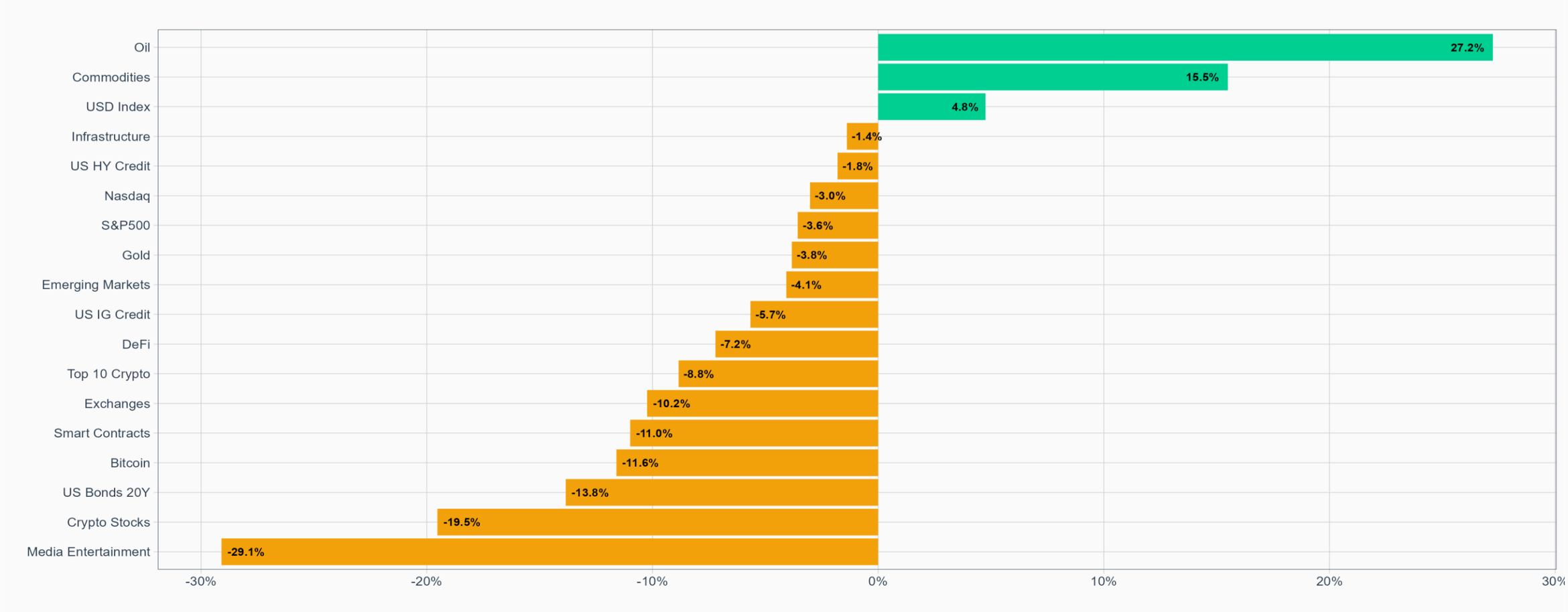
Cross Asset Return: Crypto Sectors and Traditional Asset Classes
Cumulative Return: 2023-06-30 to 2023-09-29



Source: MarketVector Indexes™ ("MarketVector"), Yahoo Finance. Indexes used MVBTC, MVDA10, MVCEX, MVDF, MVIAP, MVME, MVSC. Traditional returns based on ETF returns from DAPP, GLD, TLT, GSG, QQQ, SPY, EEM, UUP, USO, LQD, HYG.

Digital Asset Returns: Bitcoin & Ethereum's Consistent High Ranks

MarketVector™

Q4-2020	Q1-2021	Q2-2021	Q3-2021	Q4-2021	Q1-2022	Q2-2022	Q3-2022	Q4-2022	Q1-2023	Q2-2023	Q3-2023
Bitcoin 163.2%	Small-Cap 361.2%	Ethereum 14.2%	Smart Contract Platforms 71.2%	Media & Entertainment 62.0%	Bitcoin -3.7%	Exchanges -53.3%	Infrastructure Applications 34.8%	Ethereum -11.7%	Bitcoin 72.0%	Bitcoin 6.9%	Infrastructure Applications -2.8%
Ethereum 103.1%	Infrastructure Applications 347.7%	Smart Contract Platforms -9.0%	Small-Cap 45.3%	Exchanges 43.2%	Top 10 -11.2%	Bitcoin -58.2%	Ethereum 31.6%	Bitcoin -16.1%	Small-Cap 67.3%	Ethereum 3.7%	Decentralized Finance -7.2%
Top 10 93.1%	Mid-Cap 300.1%	Top 10 -14.8%	Mid-Cap 41.8%	Ethereum 25.6%	Ethereum -12.7%	Top 10 -64.3%	Exchanges 29.0%	Top 10 -17.9%	Infrastructure Applications 58.7%	Top 10 -5.5%	Top 10 -8.8%
Smart Contract Platforms 73.0%	Smart Contract Platforms 256.6%	Exchanges -14.9%	Ethereum 41.5%	Mid-Cap 14.9%	Smart Contract Platforms -12.9%	Mid-Cap -64.5%	Decentralized Finance 21.1%	Exchanges -19.1%	Smart Contract Platforms 53.6%	Smart Contract Platforms -11.1%	Exchanges -10.2%
Mid-Cap 40.9%	Top 10 174.2%	Mid-Cap -19.4%	Top 10 37.2%	Infrastructure Applications 13.6%	Mid-Cap -15.3%	Decentralized Finance -67.2%	Mid-Cap 19.7%	Infrastructure Applications -23.4%	Ethereum 53.1%	Mid-Cap -16.6%	Smart Contract Platforms -10.8%
Small-Cap 37.2%	Ethereum 153.8%	Small-Cap -29.3%	Exchanges 35.1%	Small-Cap 12.9%	Exchanges -15.8%	Small-Cap -67.8%	Smart Contract Platforms 18.2%	Smart Contract Platforms -28.8%	Top 10 52.3%	Decentralized Finance -17.1%	Bitcoin -11.6%
			Bitcoin 25.8%	Top 10 12.4%	Small-Cap -20.0%	Ethereum -68.4%	Top 10 15.8%	Decentralized Finance -30.4%	Decentralized Finance 42.4%	Infrastructure Applications -20.3%	Ethereum -12.2%
				Bitcoin 10.5%	Infrastructure Applications -27.4%	Infrastructure Applications -71.0%	Small-Cap 6.1%	Small-Cap -33.5%	Media & Entertainment 41.4%	Exchanges -23.1%	Mid-Cap -15.3%
				Smart Contract Platforms 9.9%	Decentralized Finance -28.4%	Smart Contract Platforms -71.7%	Media & Entertainment 5.8%	Mid-Cap -39.6%	Mid-Cap 32.0%	Small-Cap -25.3%	Small-Cap -18.6%
				Decentralized Finance -9.0%	Media & Entertainment -32.3%	Media & Entertainment -76.9%	Bitcoin 3.1%	Media & Entertainment -49.5%	Exchanges 29.5%	Media & Entertainment -37.8%	Media & Entertainment -29.8%

Source: MarketVector. Returns are ending on December 30, 2022. Index returns are the equal-weighted returns of underlying Thematic indexes on page 6.

Bitcoin's Staying Power: Dominance Holds Steady over 50%

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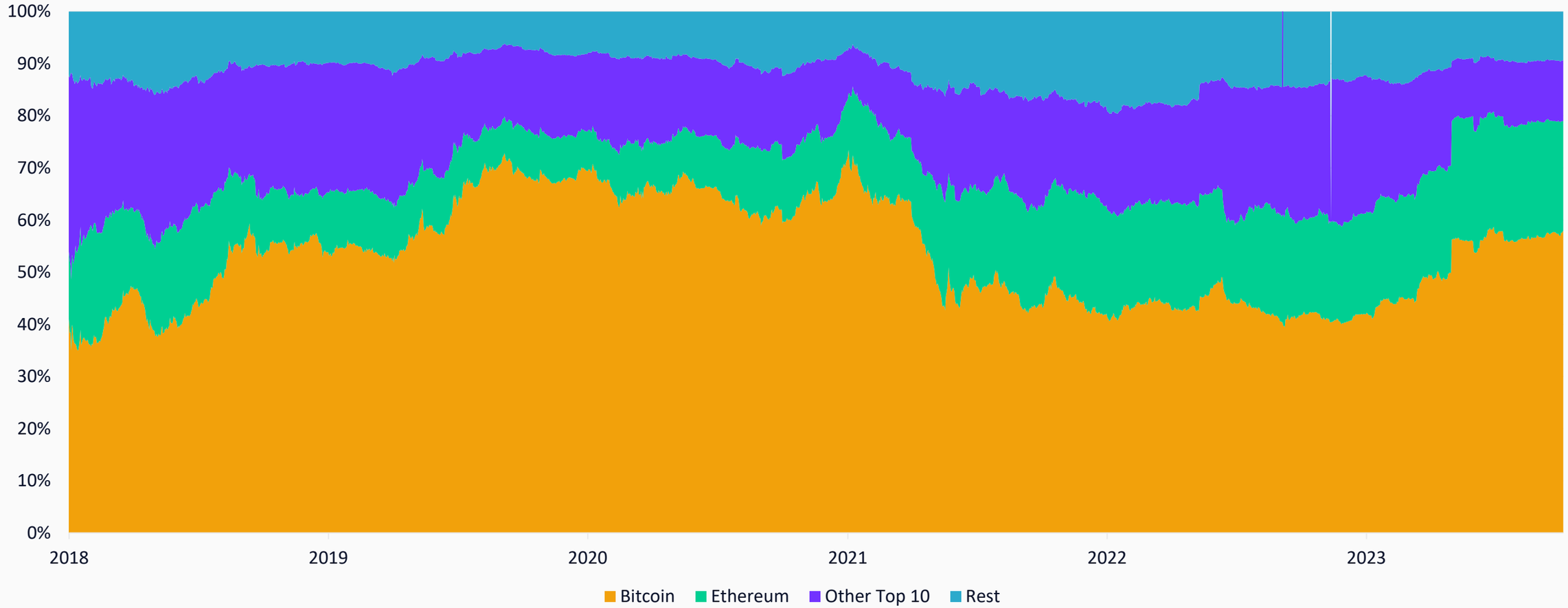
Market Cap Dominance

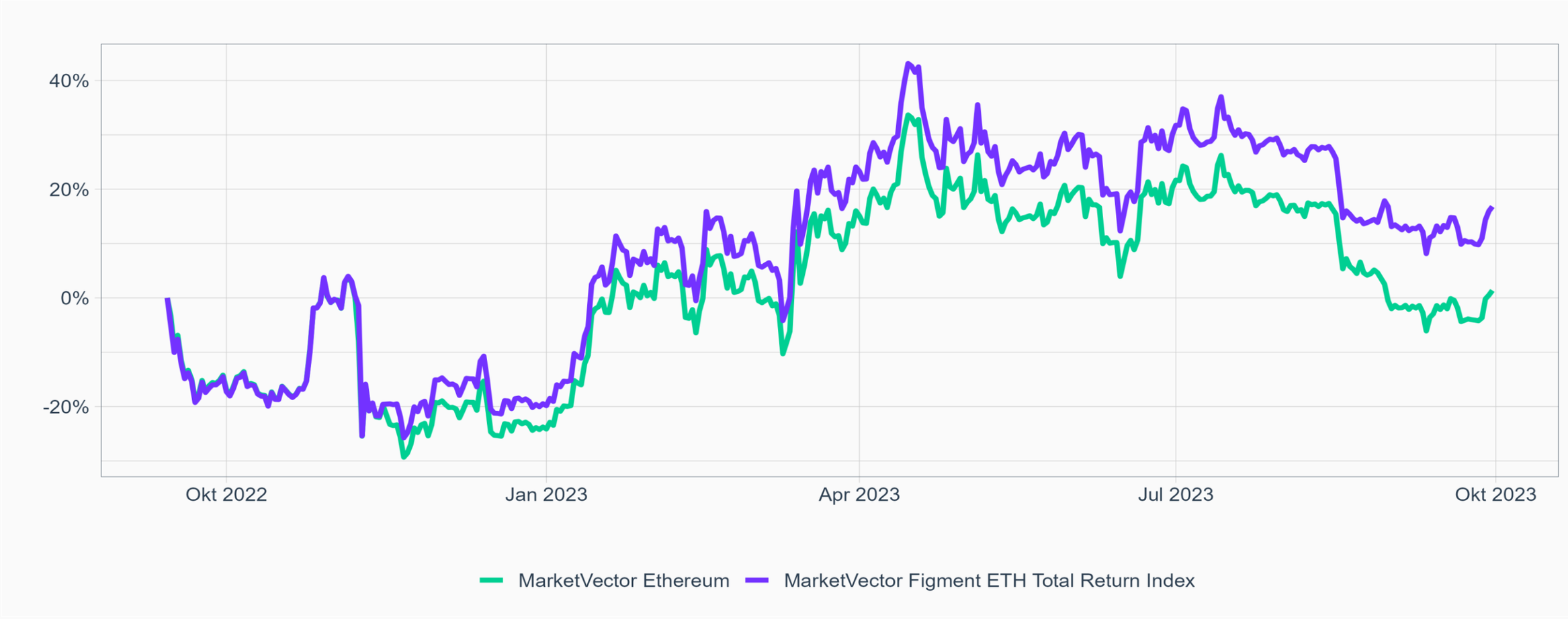


Source: MarketVector. Based on MVDA Index.

Unlocking Alpha: Integrating Ethereum Staking Rewards to Price Metrics

MarketVector™

Cumulative Return: 2022-09-14 to 2023-09-30

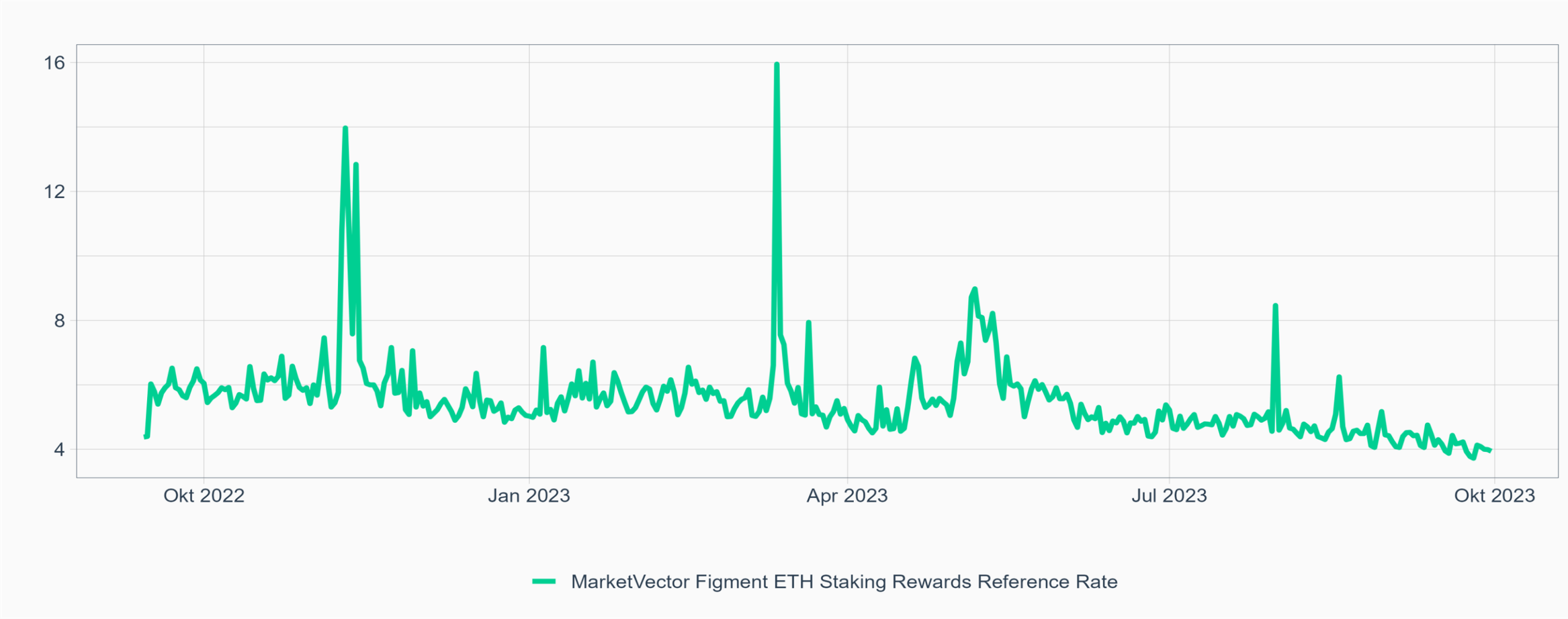


Source: MarketVector. Indexes used: MVETH, MVETHTR

Ethereum's Subtle Indicators: Staking Rewards as a Measure of Block Demand

MarketVector™

ETH Daily Annualized Staking Rewards Rate: 2022-09-14 to 2023-09-30

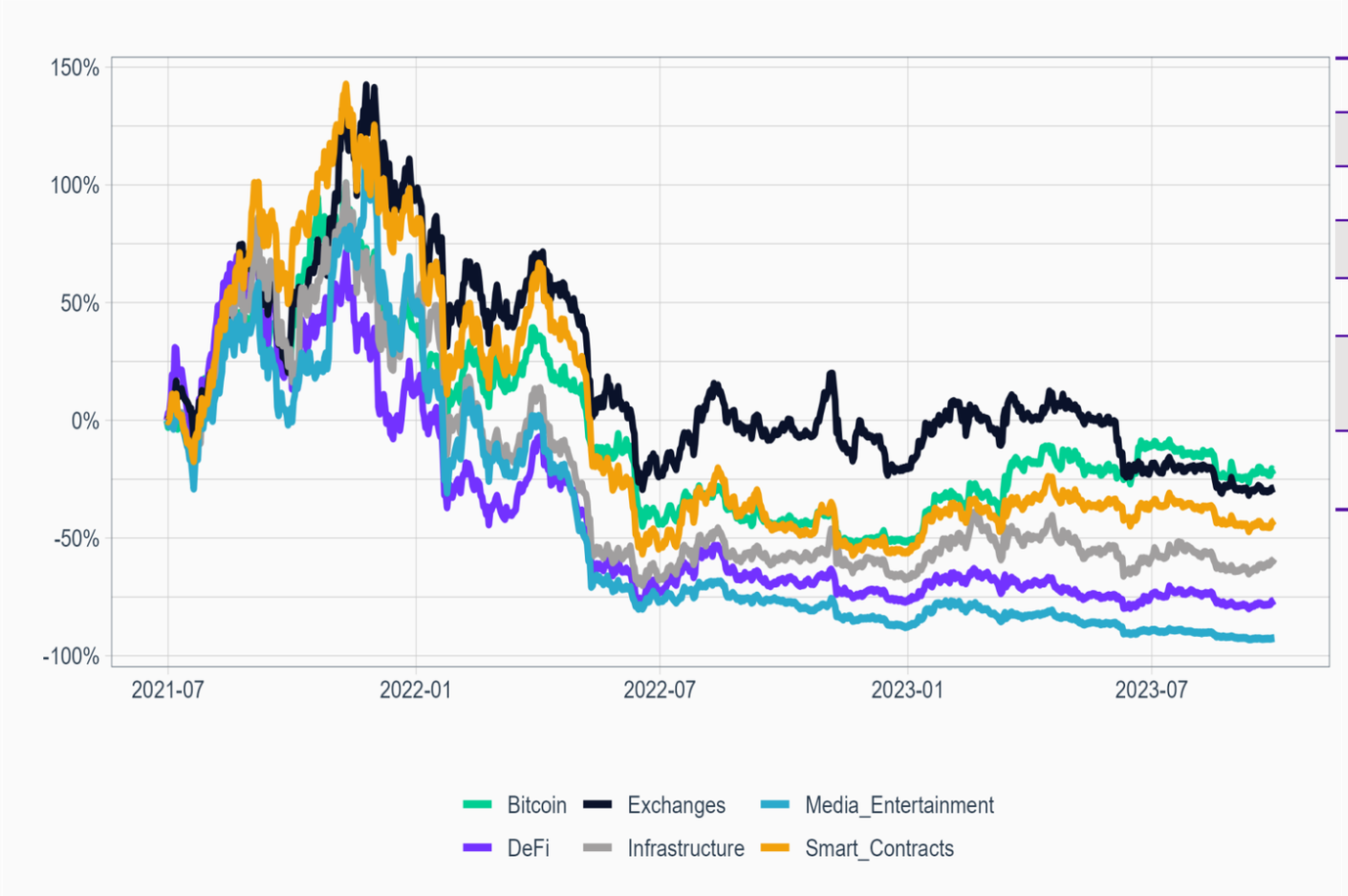


Source: MarketVector. Indexes used: MVBTC = Bitcoin, MVCEX = Exchanges, MVDF = DeFi, MVIAP = Infrastructure, MVME = Media Entertainment, MVSC = Smart Contracts.

From DeFi to NFTs: The Widening Gap in Crypto Sector Performances

MarketVector™

Cumulative Return: 2021-06-30 to 2023-09-30



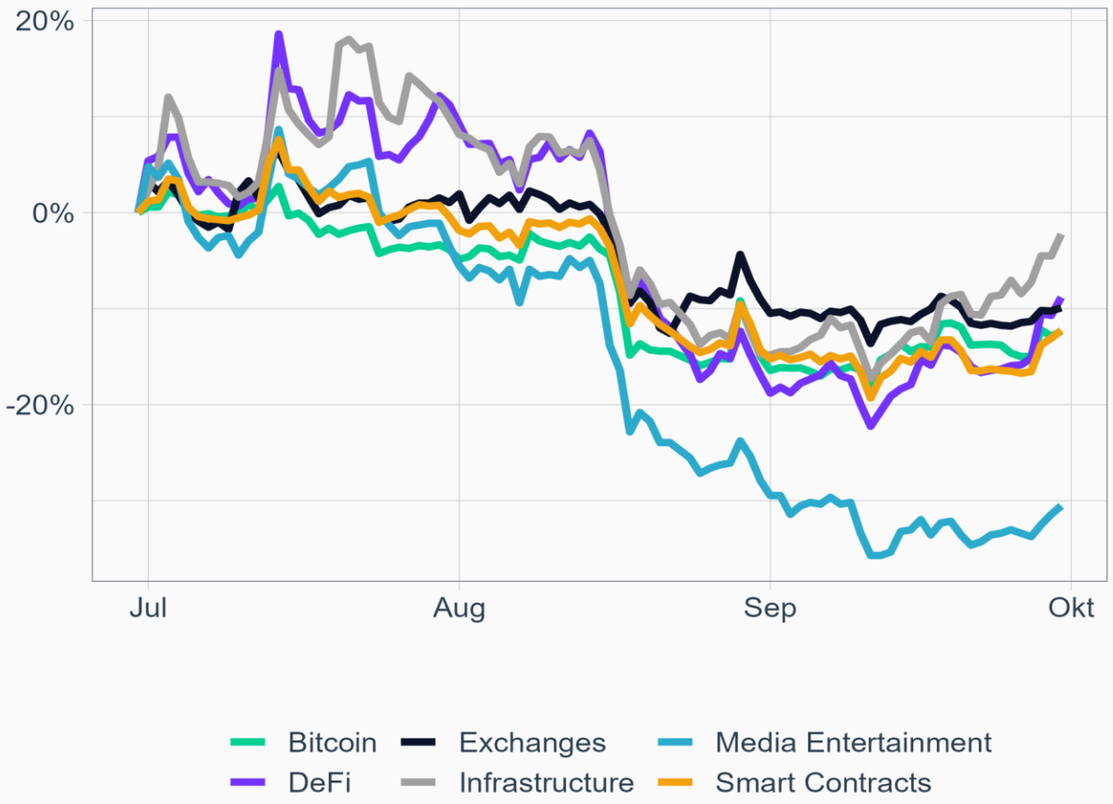
Symbol	Week	Month	Quarter	Year	All
Bitcoin	1.67%	4.9%	-11.60%	39.0%	-20.8%
DeFi	8.93%	12.3%	-10.50%	-26.9%	-76.4%
Exchanges	2.07%	0.7%	-12.69%	-25.7%	-28.8%
Infrastructure	6.92%	14.8%	-3.53%	-0.4%	-58.8%
Media Entertainment	4.28%	-1.5%	-30.73%	-67.4%	-92.4%
Smart Contracts	4.98%	3.5%	-11.33%	4.5%	-42.5%

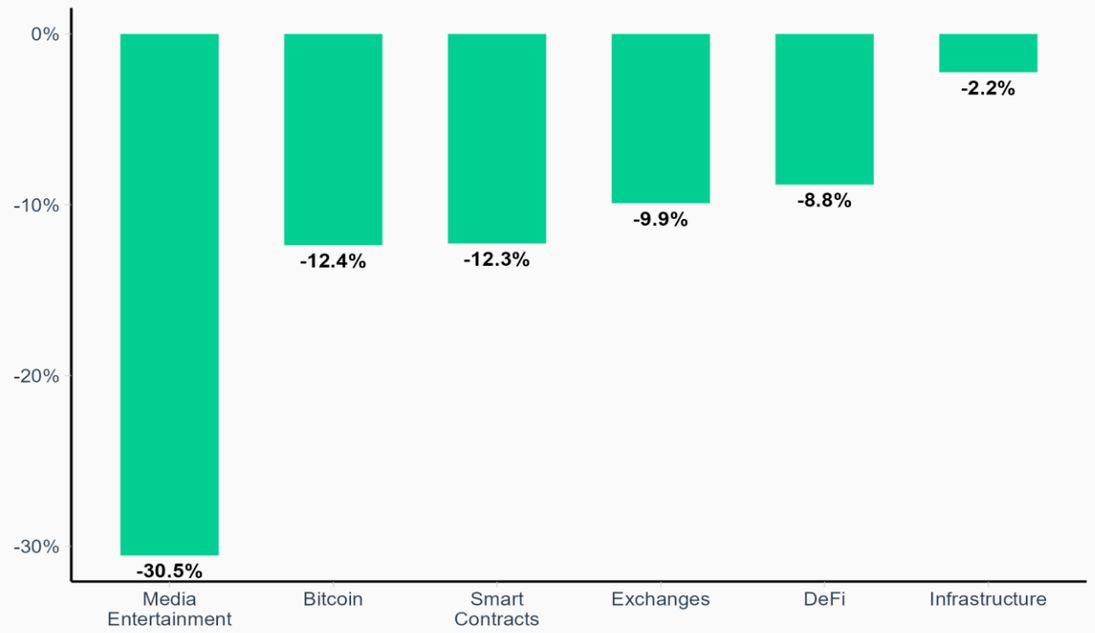
Source: MarketVector. Indexes used: MVBTC = Bitcoin, MVCEX = Exchanges, MVDF = DeFi, MVIAP = Infrastructure, MVME = Media Entertainment, MVSC = Smart Contracts.

AI's Ascendance: Spurring the Demand for Infrastructure Applications

MarketVector™

Cumulative Return: 2023-06-30 to 2023-09-30

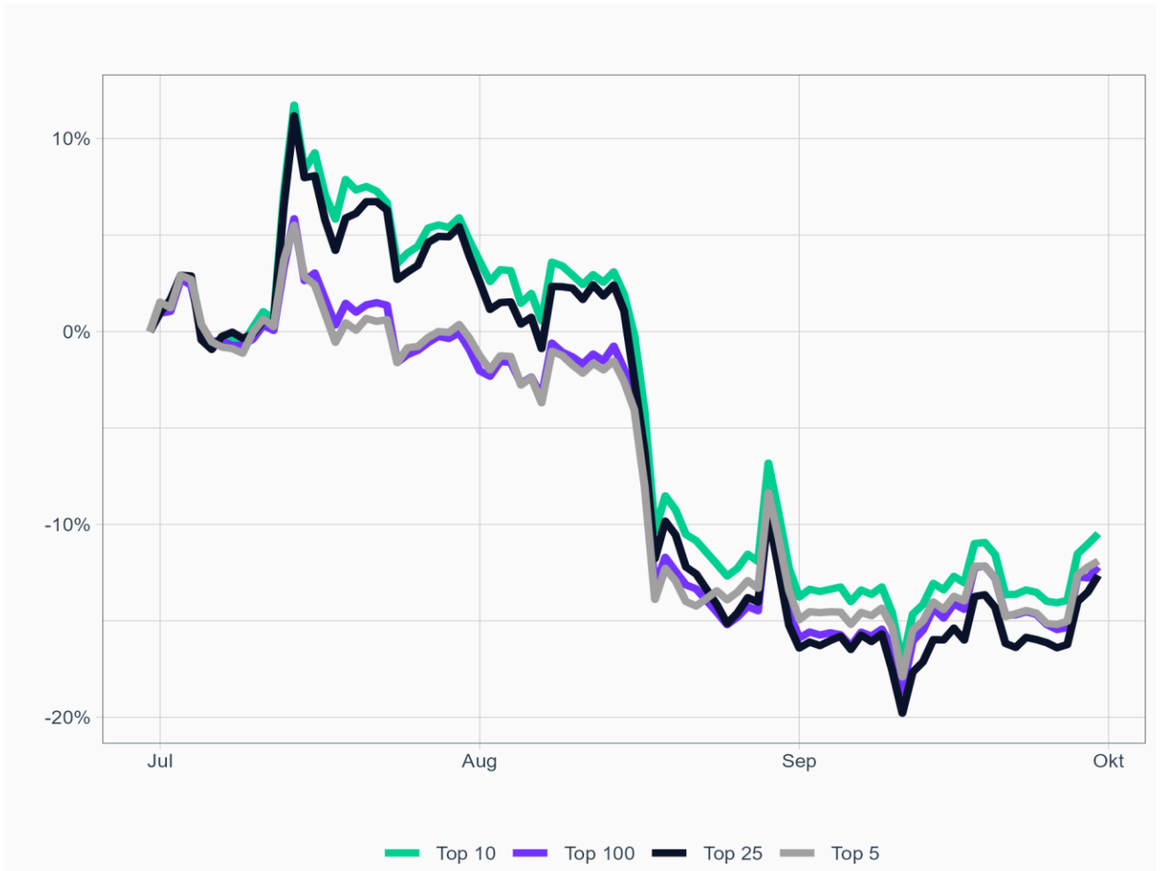


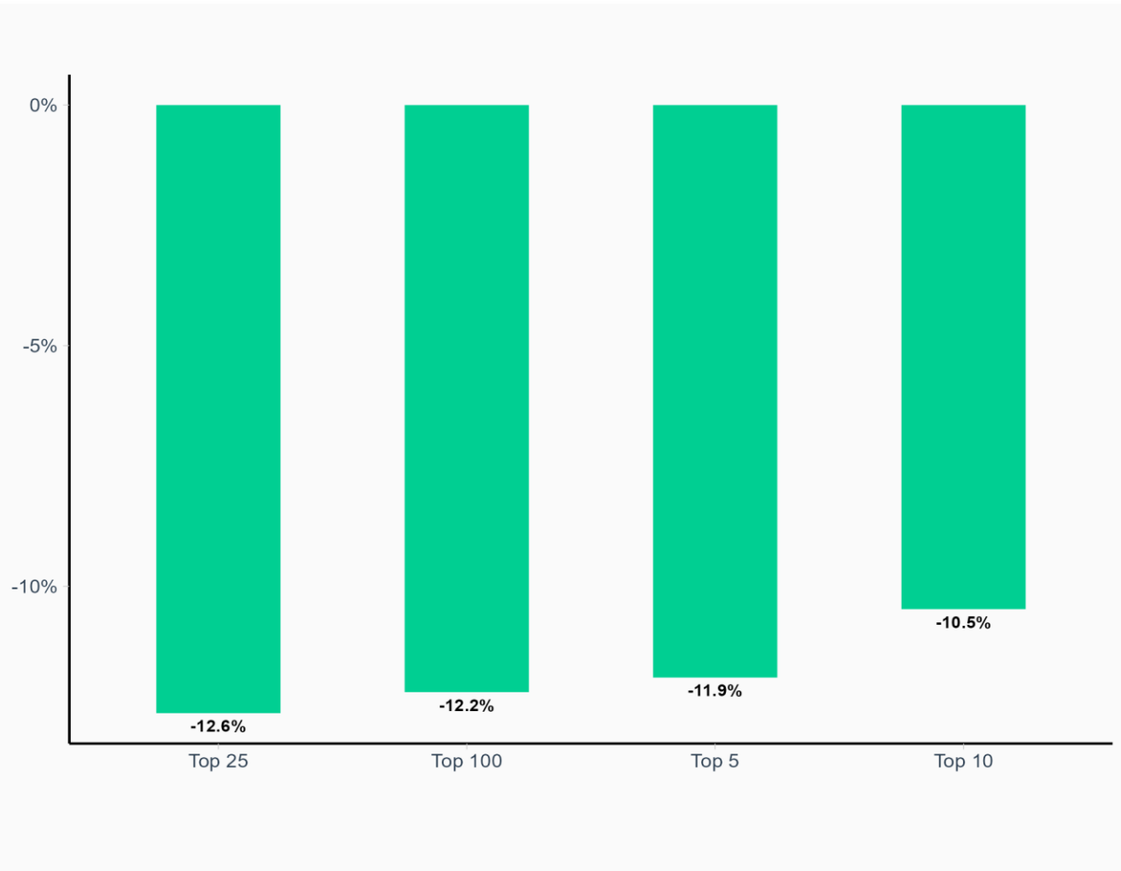


Source: MarketVector. Indexes used: MVBTC = Bitcoin, MVCEX = Exchanges, MVDF = DeFi, MVIAP = Infrastructure, MVME = Media Entertainment, MVSC = Smart Contracts.

Top 10 Tokens: Leading, But Not By Much

Performance by Size
Cumulative Return: 2023-06-30 to 2023-09-30

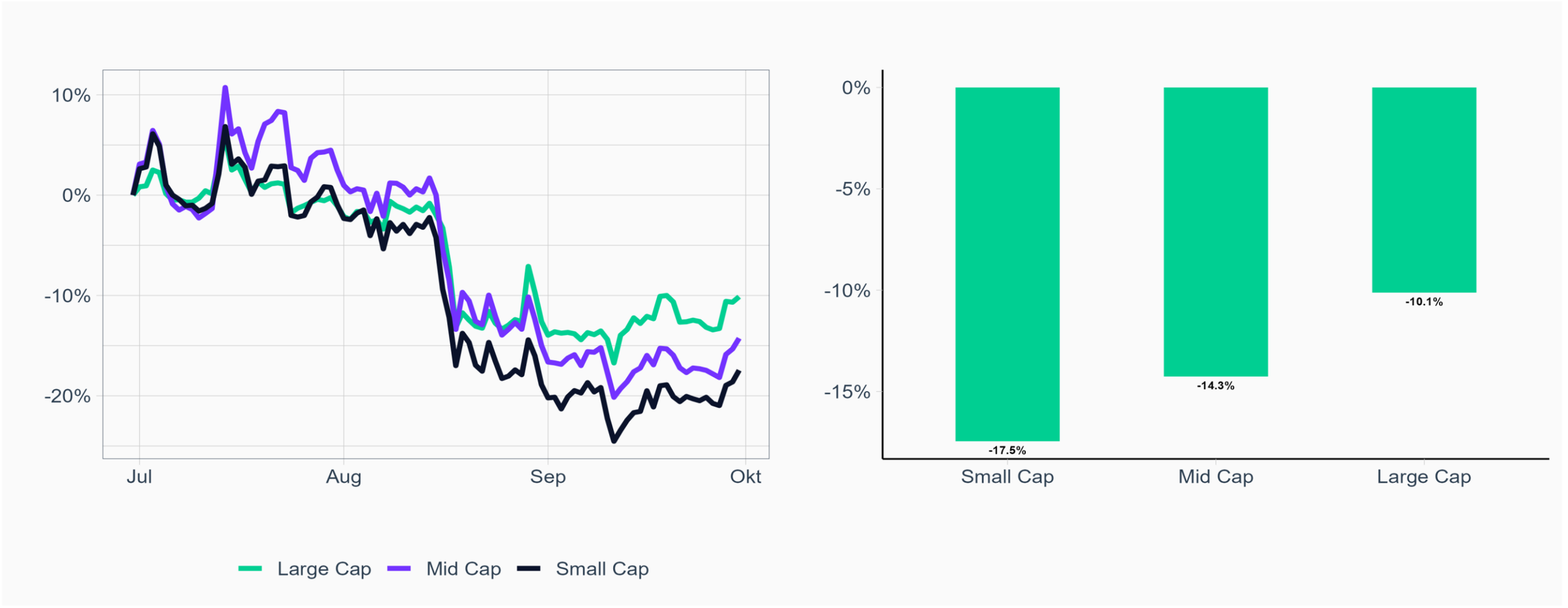




Source: MarketVector. Indexes used: MVDA5 = Top 5, MVDA10 = Top 10, MVDA25 = Top 25, MVDA = Top 100.

Large Caps: The Most Defensive Tokens in the Market

Performance by Size
Cumulative Return: 2023-06-30 to 2023-09-30



Source: MarketVector. Indexes used: MVDALC = Large Cap, MVDAMC = Mid Cap, MVDASC = Small Cap. The MarketVector™ Digital Assets 100 Large-Cap Index (MVDALC) is a market cap-weighted index that tracks the performance of the 20 largest digital assets in the MarketVector™ Digital Assets 100 Index (MVDA). The MarketVector™ Digital Assets 100 Mid-Cap Index (MVDAMC) is a market cap-weighted index that tracks the performance of the 30 mid-size digital assets in the MarketVector™ Digital Assets 100 Index (MVDA). The MarketVector™ Digital Assets 100 Small-Cap Index (MVDASC) is a market cap-weighted index that tracks the performance of the 50 smallest digital assets in the MarketVector™ Digital Assets 100 Index (MVDA).

Large Caps: The Most Defensive Tokens in the Market

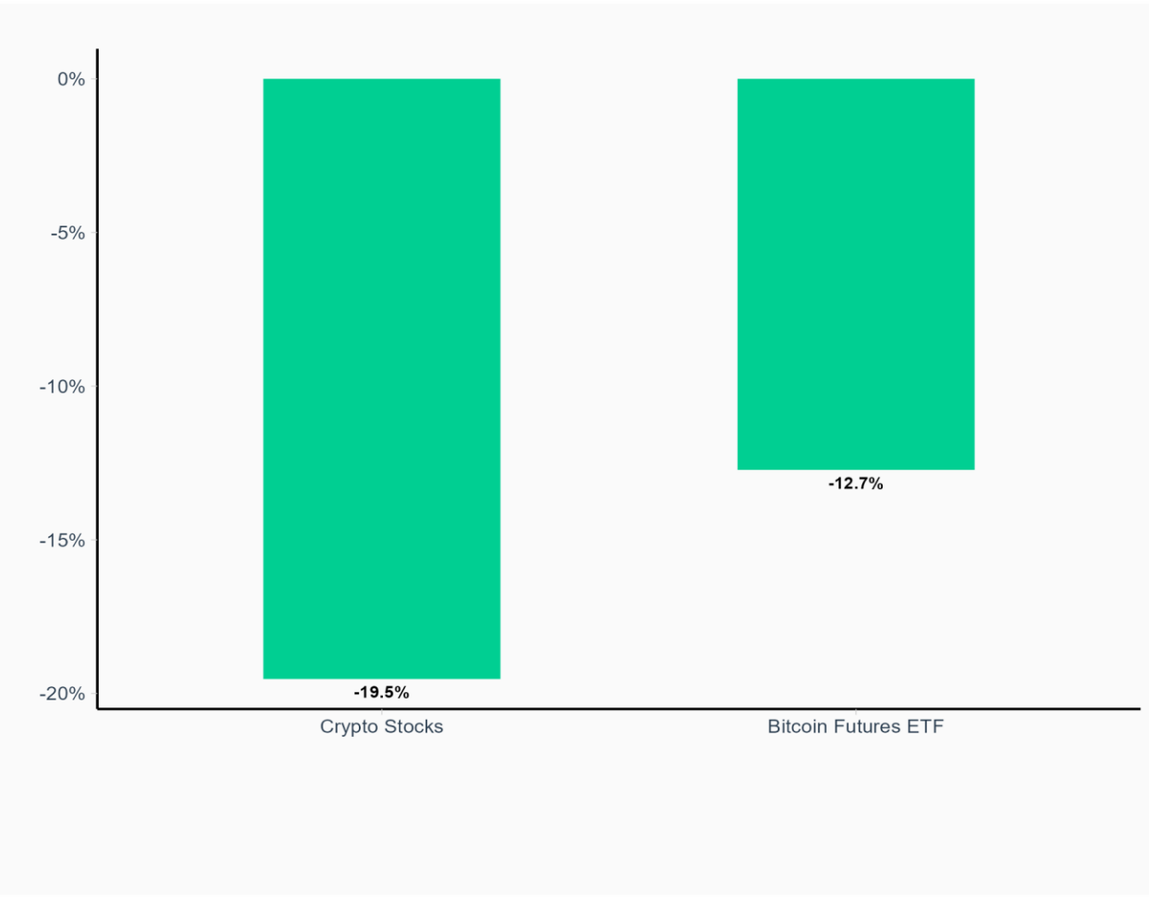
MarketVector™

Price Ratio of Large Cap to Small Cap Token
Cumulative Return: 2023-03-31 to 2023-06-30

Source: MarketVector. Indexes used: MVDALC = Large Cap, MVDAMC = Mid Cap, MVDASC = Small Cap. The MarketVector™ Digital Assets 100 Large-Cap Index (MVDALC) is a market cap-weighted index that tracks the performance of the 20 largest digital assets in the MarketVector™ Digital Assets 100 Index (MVDA). The MarketVector™ Digital Assets 100 Mid-Cap Index (MVDAMC) is a market cap-weighted index that tracks the performance of the 30 mid-size digital assets in the MarketVector™ Digital Assets 100 Index (MVDA). The MarketVector™ Digital Assets 100 Small-Cap Index (MVDASC) is a market cap-weighted index that tracks the performance of the 50 smallest digital assets in the MarketVector™ Digital Assets 100 Index (MVDA).

Crypto Stocks and Bitcoin: A Shift in Market Dynamics

Performance of Crypto Stocks vs. Bitcoin Futures ETF: Cumulative Return: 2023-06-30 to 2023-09-29

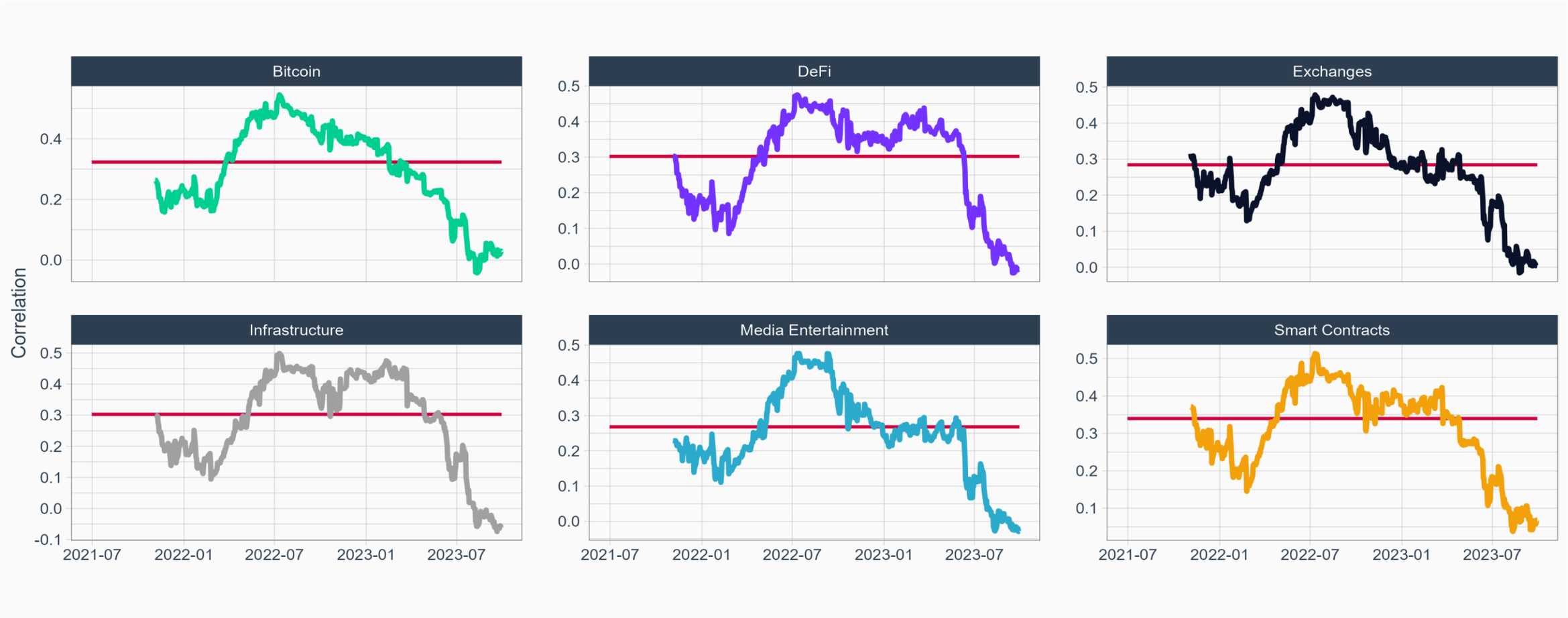


Source: MarketVector, Yahoo Finance. ETFs used: XBTF = Bitcoin ETF, DAPP = Crypto Stocks

Crypto and Tech Stocks: A Decorrelation Trend

MarketVector™

90-Day Rolling Correlations, Digital Asset Sector Indexes vs Nasdaq
Relationships are dynamic vs static correlation (red line)

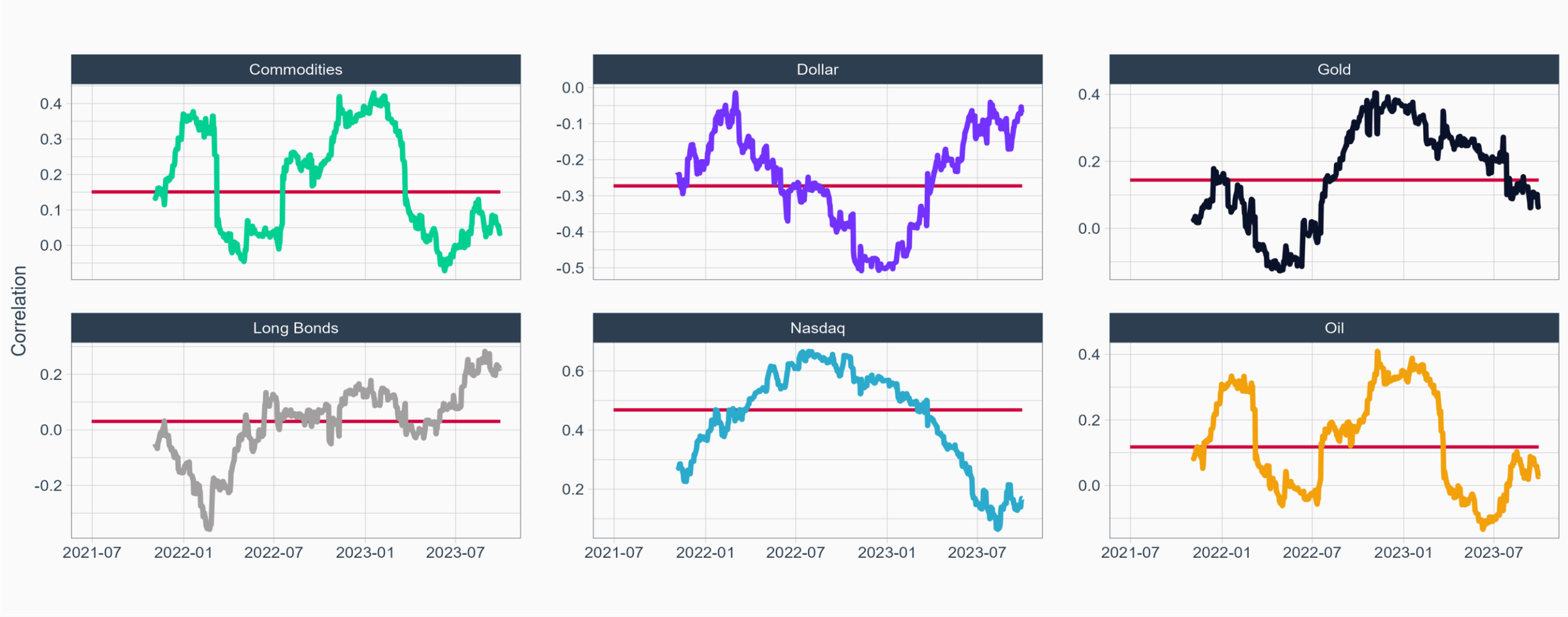


Source: MarketVector, Yahoo Finance. Indexes used MVBTC, MVCEX, MVDF, MVIAP, MVME, MVSC. Traditional returns based on ETF returns from QQQ. Daily returns used since 2021-06-30.

Since April 2023, Bitcoin Shifts Away from Macro Asset Dynamics in Trading

MarketVector™

90-Day Rolling Correlations, Bitcoin vs Traditional Asset Classes
Relationships are dynamic vs static correlation (red line)



Source: MarketVector, Yahoo Finance. Traditional returns based on ETF returns from GSG, UUP, GLD, TLT, QQQ, USO. Daily returns used since 2021-06-30.

Steady Course: Low Volatility in Bitcoin and Other Sectors

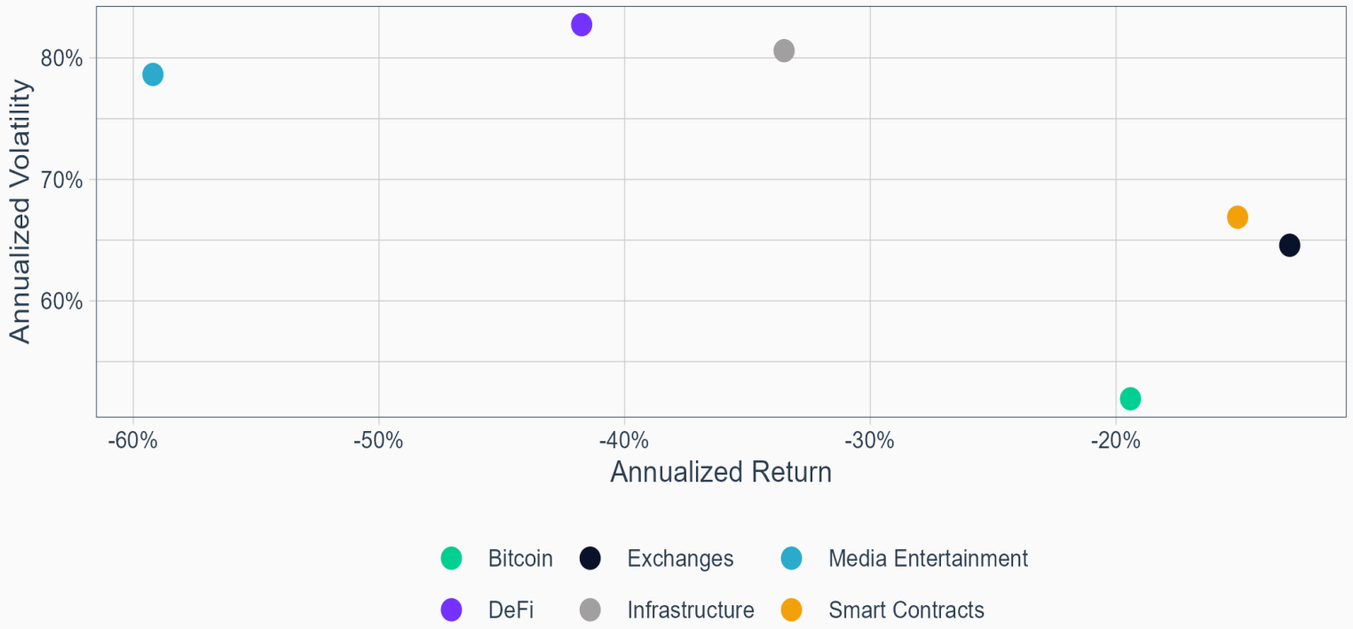
MarketVector™

Rolling 90-day Annualized Volatility

Source: MarketVector. Indexes used MVBTC, MVCEX, MVDF, MVIAP, MVME, MVSC. Daily returns used since 2021-06-30.

Risk-Return Profile Amid Different Crypto Sectors

Risk & Return since 2021-03-31

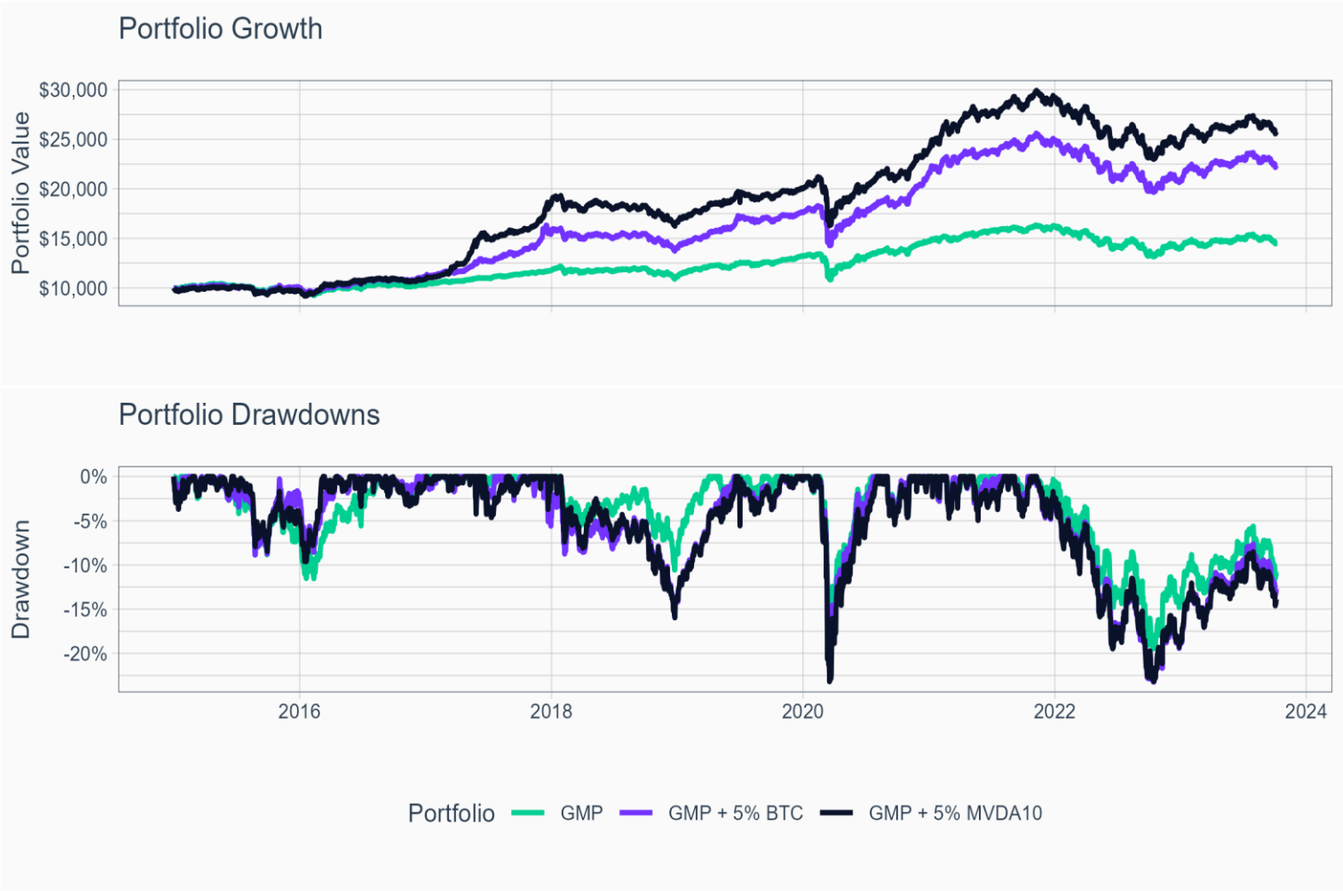


Sector	Return p.a.	Sharpe Ratio	Volatility p.a.	Max Drawdown
Bitcoin	-19%	-0.45	52%	77%
DeFi	-42%	-0.54	83%	92%
Media Entertainment	-59%	-0.78	79%	97%
Exchanges	-13%	-0.27	65%	72%
Infrastructure	-34%	-0.46	81%	88%
Smart Contracts	-15%	-0.29	67%	82%

Source: MarketVector. Indexes used MVBTC, MVCEX, MVDF, MVIAP, MVME, MVSC. Daily returns used since 2021-03-31.

Crypto Inclusion: Enhancing the Risk-Return Profile of a Global Market Portfolio

Impact of BTC and a crypto basket with an initial investment of $10k and quarterly rebalancing



Portfolio	Return p.a.	Sharpe Ratio	Vola p.a.	Max Drawdown
Global Market Portfolio (GMP)	3%	0.38	8%	19%
GMP + 5% Bitcoin	7%	0.69	9%	23%
GMP + 5% MVDA10	8%	0.78	10%	23%

Source: MarketVector, Yahoo Finance. Indexes used MVBTC, MVDA10. Traditional returns based on ETF from ACWI, BND, GSG. Daily returns used since 2014-12-31.Data as of Dec 30, 2022.

Index Returns (USD, ending September 30, 2023)

MarketVector™

Main	Universe	Index Ticker	Index Name	Meta Theme	Launch Date	Base Date	Quarterly Returns (USD)				Last3 Years (USD)		
							Q3-2023	Q2-2023	Q1-2023	Q4-2022	Ann Ret	Ann Stdev	Draw-Down
MVBTC	Single Token	MVBTC	MarketVector™ Bitcoin	Bitcoin	10.23.17	01.31.12	-11.6%	6.9%	72.0%	-16.1%	35.6%	76.3%	-40.5%
MVALGOV	Single Token	MVALGOV	MarketVector™ Algorand VWAP Close Index	Algorand	12.22.21	06.30.19	-16.1%	-46.6%	37.9%	-53.9%	-32.5%	104.0%	-46.7%
MVAVAXV	Single Token	MVAVAXV	MarketVector™ Avalanche VWAP Close Index	Avalanche	11.18.21	09.30.20	-27.5%	-26.9%	63.7%	-38.3%	30.9%	270.6%	-60.3%
MVLINKV	Single Token	MVLINKV	MarketVector™ Chainlink VWAP Close Index	Chainlink			28.0%	-20.4%	39.5%	-29.0%	-7.6%	100.4%	-40.7%
MVETH	Single Token	MVETH	MarketVector™ Ethereum Index	Ethereum	10.23.17	08.31.15	-12.2%	3.7%	53.1%	-11.7%	67.2%	99.4%	-47.7%
MVMATICV	Single Token	MVMATICV	MarketVector™ Polygon VWAP Close Index	Polygon	11.18.21	09.30.20	-18.9%	-41.8%	46.6%	-2.7%	196.4%	262.7%	-44.6%
MVDA	Multi Token	MVDA	MarketVector™ Digital Assets 100 Index	Top 100	10.23.17	12.31.14	-11.0%	-0.5%	48.7%	-15.9%	33.1%	71.5%	-35.2%
MVDA5	Multi Token	MVDA5	MarketVector™ Digital Assets 5 Index	Top 5	10.23.17	12.31.14	-12.2%	-3.5%	52.9%	-18.8%	34.1%	85.6%	-40.4%
MVDA10	Multi Token	MVDA10	MarketVector™ Digital Assets 10	Top 10	10.23.17	12.31.14	-8.8%	-5.5%	52.3%	-17.9%	40.2%	86.8%	-38.6%
MVDA25	Multi Token	MVDA25	MarketVector™ Digital Assets 25 Index	Top 25	10.23.17	12.31.14	-11.0%	-8.6%	47.3%	-24.3%	27.8%	92.2%	-35.0%
MVDALC	Multi Token	MVDALC	MarketVector™ Digital Assets 100 Large-Cap Index	Large-Cap	10.23.17	12.31.14	-10.7%	0.9%	49.3%	-13.7%	34.7%	70.1%	-35.4%
MVDAMC	Multi Token	MVDAMC	MarketVector™ Digital Assets 100 Mid-Cap	Mid-Cap	10.23.17	12.31.14	-15.3%	-16.6%	32.0%	-39.6%	14.5%	94.2%	-33.7%
MVDASC	Multi Token	MVDASC	MarketVector™ Digital Assets 100 Small-Cap	Small-Cap	10.23.17	12.31.14	-18.6%	-25.3%	67.3%	-33.5%	10.7%	105.5%	-38.0%
MVLEADV	Multi Token	MVLEADV	MarketVector™ Crypto Leaders VWAP Close Index	Crypto Leaders	12.07.21	12.31.18	-11.2%	-6.7%	60.4%	-25.1%	36.9%	88.6%	-38.4%
MVGCFI	Multi Token	MVGCFI	MarketVector™e Optimum Global Cryptoasset Index	Fixed Multi Coins			-10.8%	-5.3%	63.5%	-24.1%			
MVCEX	Multi Token	MVCEX	MarketVector™ Centralized Exchanges Index	Exchanges	06.01.22	02.28.21	-10.2%	-23.1%	29.5%	-19.1%			
MVDF	Multi Token	MVDF	MarketVector™ Decentralized Finance	Decentralized Finance	10.08.21	01.31.21	-7.2%	-19.1%	34.3%	-29.9%			
MVDFLE	Multi Token	MVDFLE	MarketVector™ Decentralized Finance Leaders	Decentralized Finance	10.08.21	01.31.21	-7.2%	-15.2%	50.4%	-30.8%			
MVIAP	Multi Token	MVIAP	MarketVector™ Infrastructure Application	Infrastructure Applications	10.08.21	12.31.20	-1.4%	-20.5%	57.9%	-23.0%			
MVIALE	Multi Token	MVIALE	MarketVector™ Infrastructure Application Leaders	Infrastructure Applications	10.08.21	12.31.20	-4.2%	-20.1%	59.5%	-23.9%			
MVME	Multi Token	MVME	MarketVector™ Media & Entertainment	Media & Entertainment	10.08.21	03.31.21	-29.1%	-38.5%	41.3%	-48.5%			
MVMELE	Multi Token	MVMELE	MarketVector™ Media & Entertainment Leaders	Media & Entertainment	10.08.21	03.31.21	-30.6%	-37.0%	41.6%	-50.5%			
MVSC	Multi Token	MVSC	MarketVector™ Smart Contract	Smart Contract Platforms	10.08.21	12.31.17	-11.0%	-4.2%	52.7%	-21.4%			
MVSCLE	Multi Token	MVSCLE	MarketVector™ Smart Contract Leaders	Smart Contract Platforms	10.08.21	12.31.17	-10.6%	-18.0%	54.5%	-36.2%	43.6%	98.7%	-43.5%

Digital Asset Classification Scheme

There is currently no standard definition of digital asset types, as there are for securities in various jurisdictions. Drawing distinctions between different types of digital assets is important because the regulatory treatment of a particular digital asset depends in large part on whether or not it is a “security”. MarketVector Indexes™ categorizes digital asset coins into distinct, non-overlapping categories that form the building blocks of a new crypto classification scheme. Categories capture the value and use case related to a coin. Using a qualitative process, each coin is categorized into one category.

Category	Definition	Examples
DeFi	Financial services built on top of distributed networks with no central intermediaries	Uniswap, Aave
Exchange	Tokens owned and operated by a centralized cryptocurrency exchange	Binance, OKB
Infrastructure Applications	A decentralized computer program designed to perform specific tasks	Polygon, Chainlink, The Graph
Media & Entertainment	Used to reward users for content, games, gambling or social media	Axie Infinity, Basic Attention Token, Decentraland
Payments	Digital, non-stable money for use in a distributed network	Bitcoin Cash, Litecoin, wallet apps
Smart Contract Platforms	Blockchain protocol designed to host variety of self-developed and 3rd party applications	Ethereum, Cardano, Solana
Stablecoins	Designed to minimize volatility by pegging to a more stable asset	Tether, USDC
Store of value	Designed to hold or increase purchasing power over time	Bitcoin

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