

JULY 2023

Digital Assets Quarterly

Chart Pack

The second quarter of 2023 presented a mixed bag for the crypto market, following a robust Q1. The [MarketVector™ Digital Assets 100 Index \(MVDA\)](#), representing over 90% of the crypto market cap, saw a modest decrease of 0.5%. However, Bitcoin and crypto stocks outperformed this benchmark, with gains of 6.9% and 46.8 %.

The MVDA's performance can be attributed to significant regulatory actions against large-cap alt tokens and positive developments for large cryptocurrencies. This resulted in a market split favoring coins, which are not meant to be securities.

In terms of sectors, those containing major crypto tokens (Smart Contract Platforms) outperformed smaller cap sectors (DeFi, Media Entertainment). April and May were relatively quiet months, with the market trading within a range established post the Silicon Valley Bank collapse in March. This period also saw the lowest volatility quarter for Bitcoin and other sectors in the past two years.

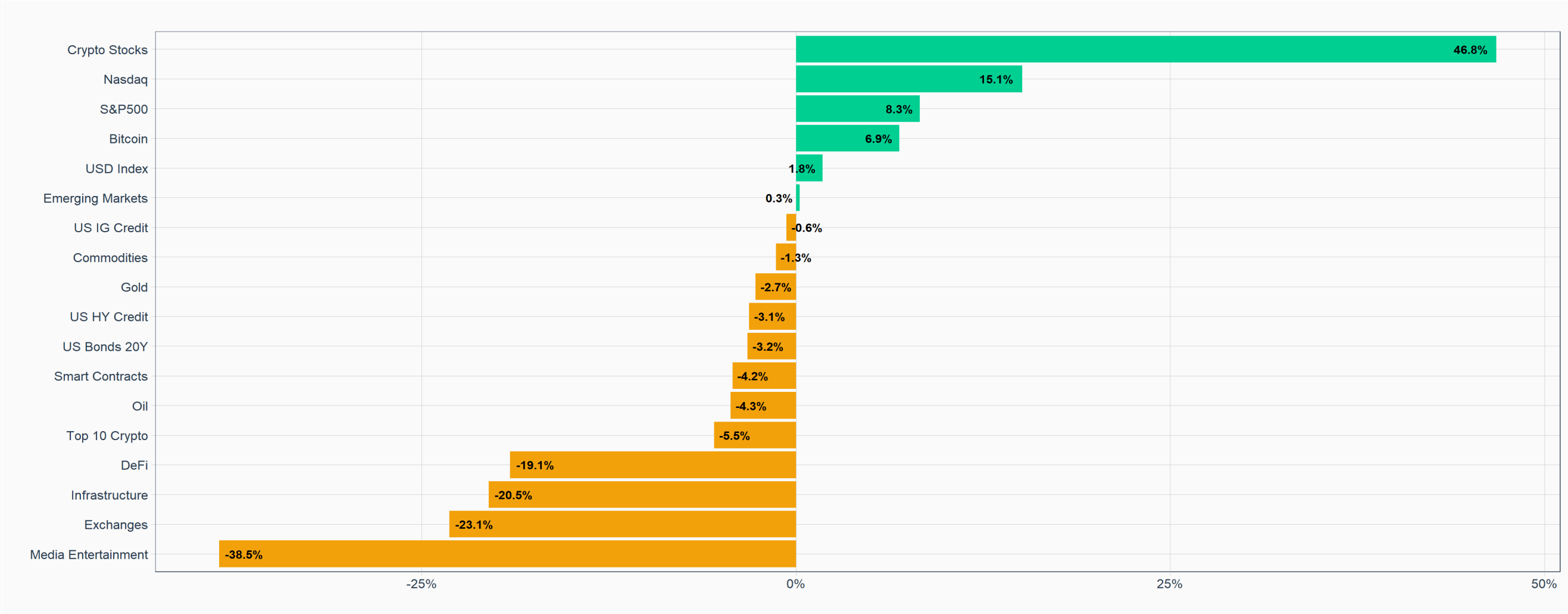
June saw the market lows tested by regulatory announcements, and highs tested with the filing of a Bitcoin spot ETF. This event increased demand for Bitcoin, positively impacting the MVDA 100 index. The positive development for Bitcoin, coupled with regulatory action against certain exchanges for allegedly listing specific alt coins as unregistered securities, led to an increase in Bitcoin's market cap dominance, a level not seen since 2021.

The recent flurry of Bitcoin Spot ETF filings and newer institutional exchange offerings could potentially revitalize interest in the market, bringing new focus and attention to the asset class. Especially the strong performance of crypto stocks indicates, that a lot of investors who are not allowed to buy crypto directly might be positioning for higher Bitcoin prices.

Crypto Stocks: Leading the Charge



Cross Asset Return
Cumulative Return: 2023-03-31 to 2023-06-30



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



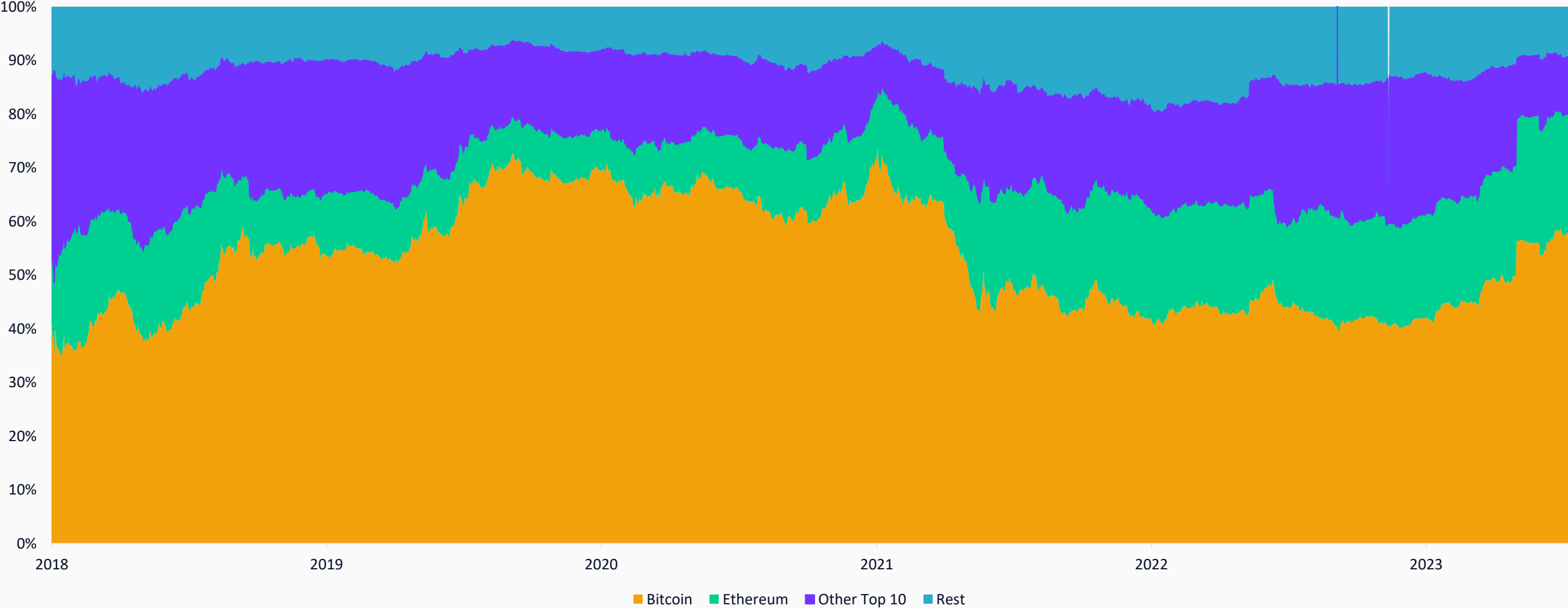
| Q3-2020 | Q4-2020 | Q1-2021 | Q2-2021 | Q3-2021 | Q4-2021 | Q1-2022 | Q2-2022 | Q3-2022 | Q4-2022 | Q1-2023 | Q2-2023 |
|---------------------------------------|--------------------------------------|---------------------------------------|--|---|---|--|--|---|--|---|--|
| Bitcoin -58.2% | Bitcoin 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% |
| Top 10 -64.3% | Ethereum 103.1% | Mid-Cap 300.1% | 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% |
| Mid-Cap -64.5% | Top 10 93.1% | Smart Contract Platforms 256.6% | 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% |
| Small-Cap -67.8% | Smart Contract Platforms 73.0% | Top 10 174.2% | Mid-Cap -19.4% | 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% |
| Ethereum -68.4% | Mid-Cap 40.9% | Ethereum 153.8% | Small-Cap -29.3% | 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 -71.7% | Small-Cap 37.2% | Bitcoin 107.9% | Infrastructure Applications -34.9% | 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 -42.1% | 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% |
| | | | | Media & Entertainment 23.2% | 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% |
| | | | | Infrastructure Applications 21.0% | 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% |
| | | | | Decentralized Finance 20.8% | 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% |

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

Bitcoin Dominance: Surpassing the 50% Threshold Again



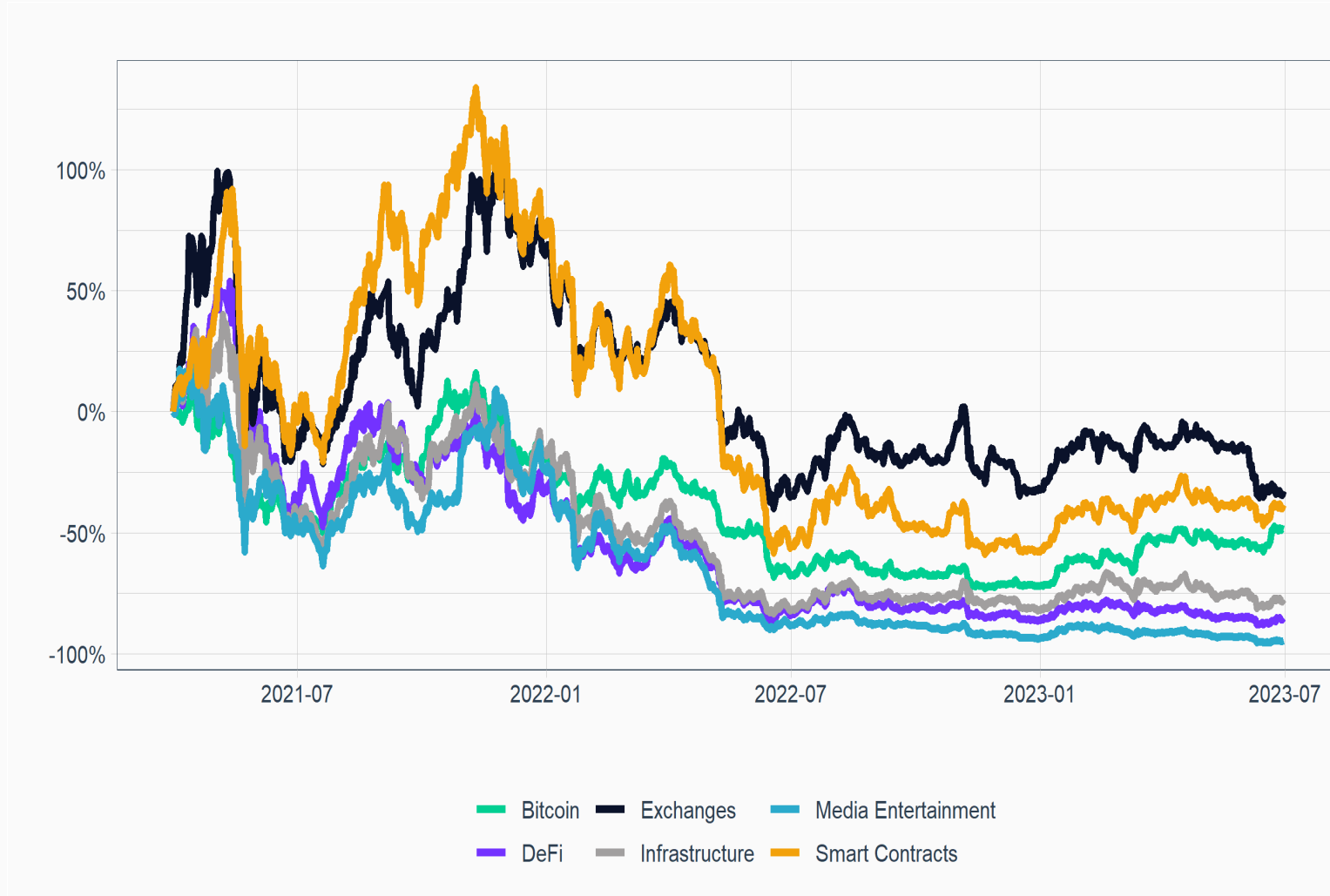
Market Cap Dominance



Source: MarketVector. Based on MVDA Index.

SEC Actions: Ripple Effects Across Sectors, Exchanges, and Binance Hit Hard

Cumulative Return: 2021-03-31 to 2023-06-30



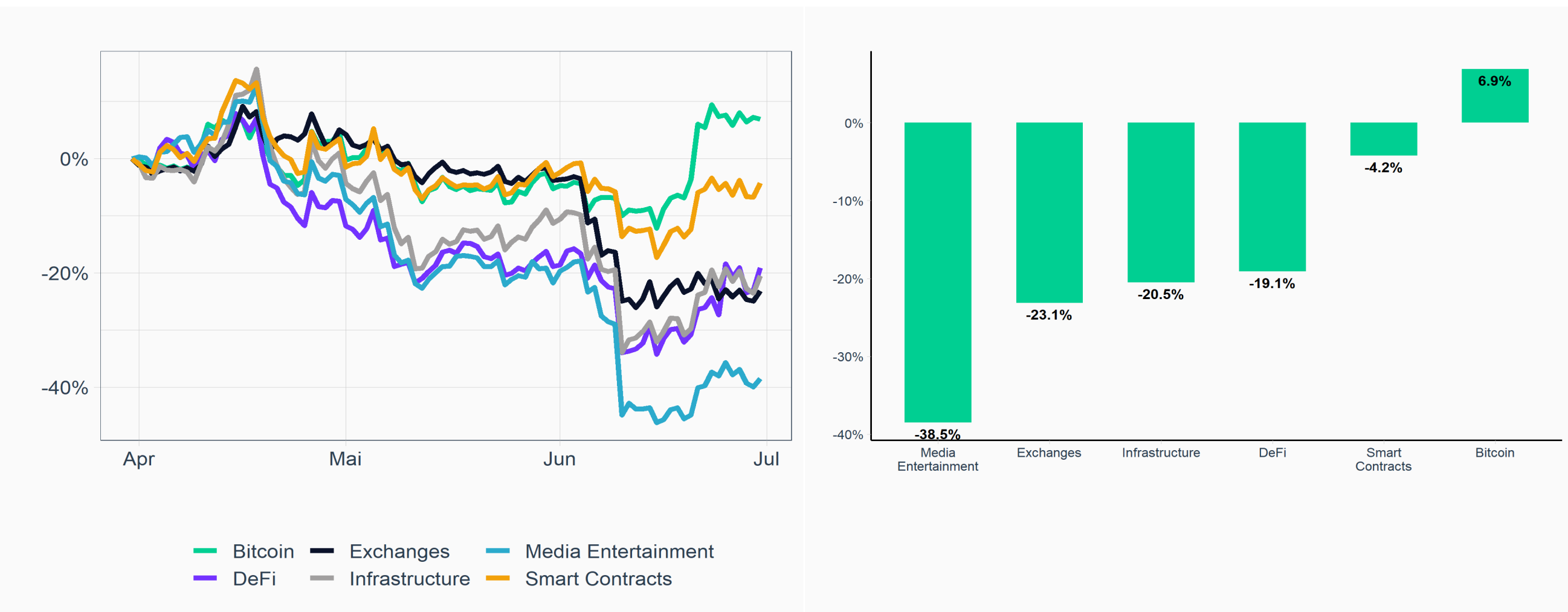
| Symbol | Week | Month | Quarter | Year | All |
|---------------------|--------|--------|---------|------|--------|
| Bitcoin | -0.41% | 12.2% | 7.2% | 52% | -48.5% |
| DeFi | 11.34% | -0.6% | -18.2% | -11% | -85.1% |
| Exchanges | 1.88% | -20.2% | -22.2% | 2% | -32.7% |
| Infrastructure | 2.47% | -11.1% | -19.9% | 21% | -77.4% |
| Media Entertainment | -0.73% | -23.4% | -38.7% | -56% | -94.6% |
| Smart Contracts | 1.25% | -1.9% | -3.2% | 34% | -38.3% |

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

BlackRock's ETF Filing: A Positive Turn for Bitcoin



Cumulative Return: 2023-03-31 to 2023-06-30

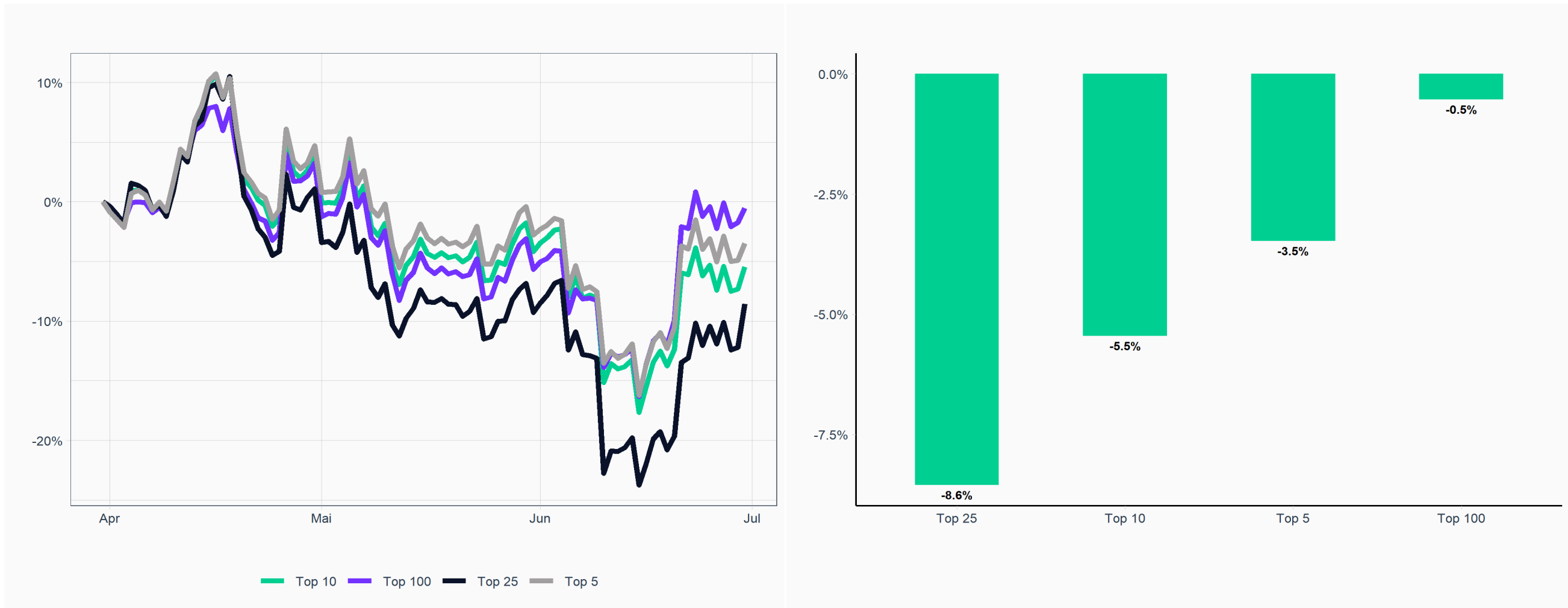


Source: MarketVector. Indexes used: MVBTC = Bitcoin, MVCEX = Exchanges, MVDF = DeFi, MVIAP = Infrastructure, MVME = Media Entertainment, MVSC = Smart Contracts.

Bitcoin's Performance: A Boost for the Uncapped Top 100 Index



Performance by Size
Cumulative Return: 2023-03-31 to 2023-06-30

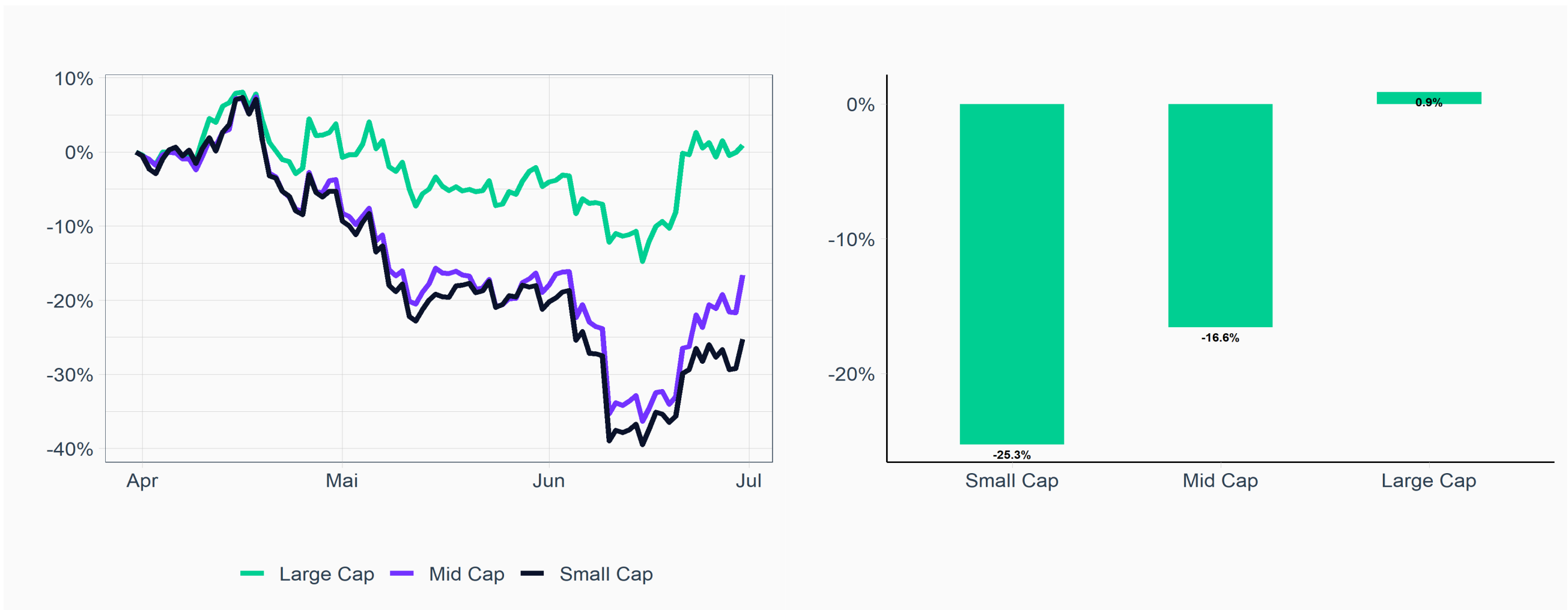


Source: MarketVector. Indexes used: MVDA5 = Top 5, MVDA10 = Top 10, MVDA25 = Top 25, MVDA = Top 100.

Large Caps: The Most Defensive Tokens in the Market



Performance by Size
Cumulative Return: 2023-03-31 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: Surpassing Bitcoin in Performance



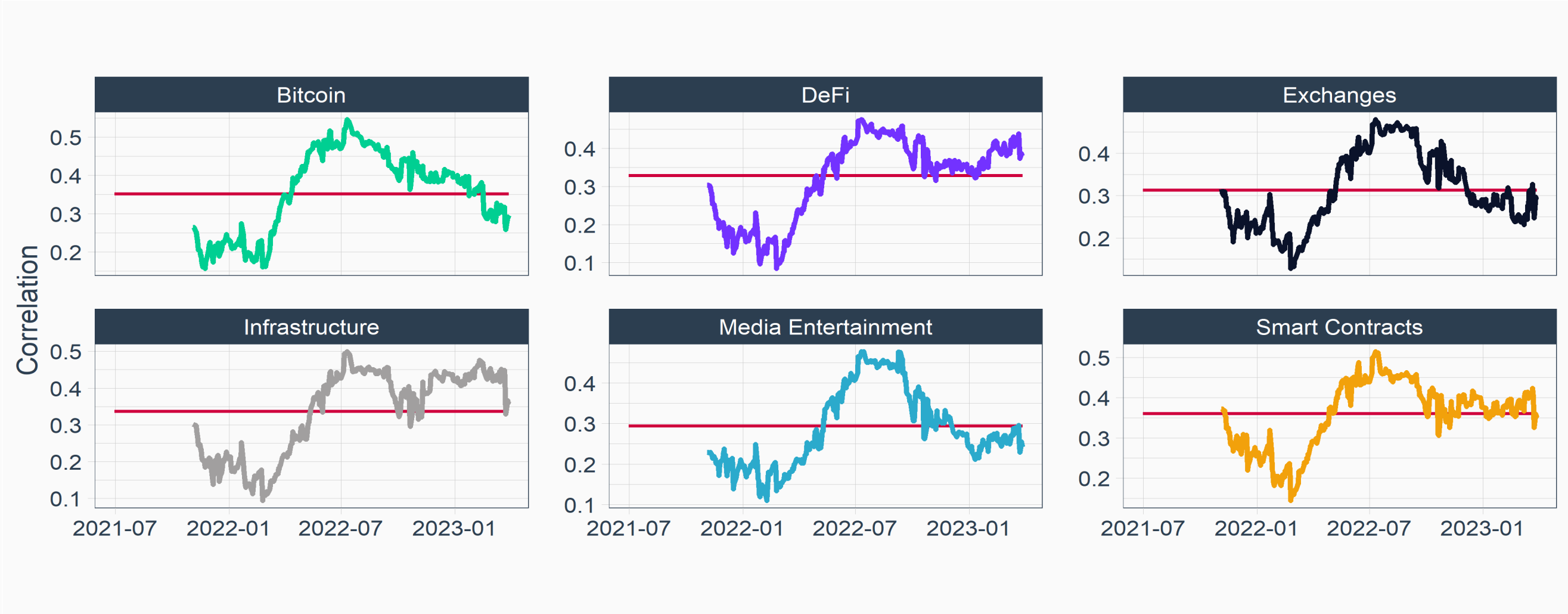
Performance of Crypto Stocks vs. Bitcoin:
Cumulative Return: 2023-03-31 to 2023-06-30



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

Crypto and Tech Stocks: A Decorrelation Trend

90-Day Rolling Correlations, Digital Asset Index 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.

Steady Course: Low Volatility in Bitcoin and Other Sectors



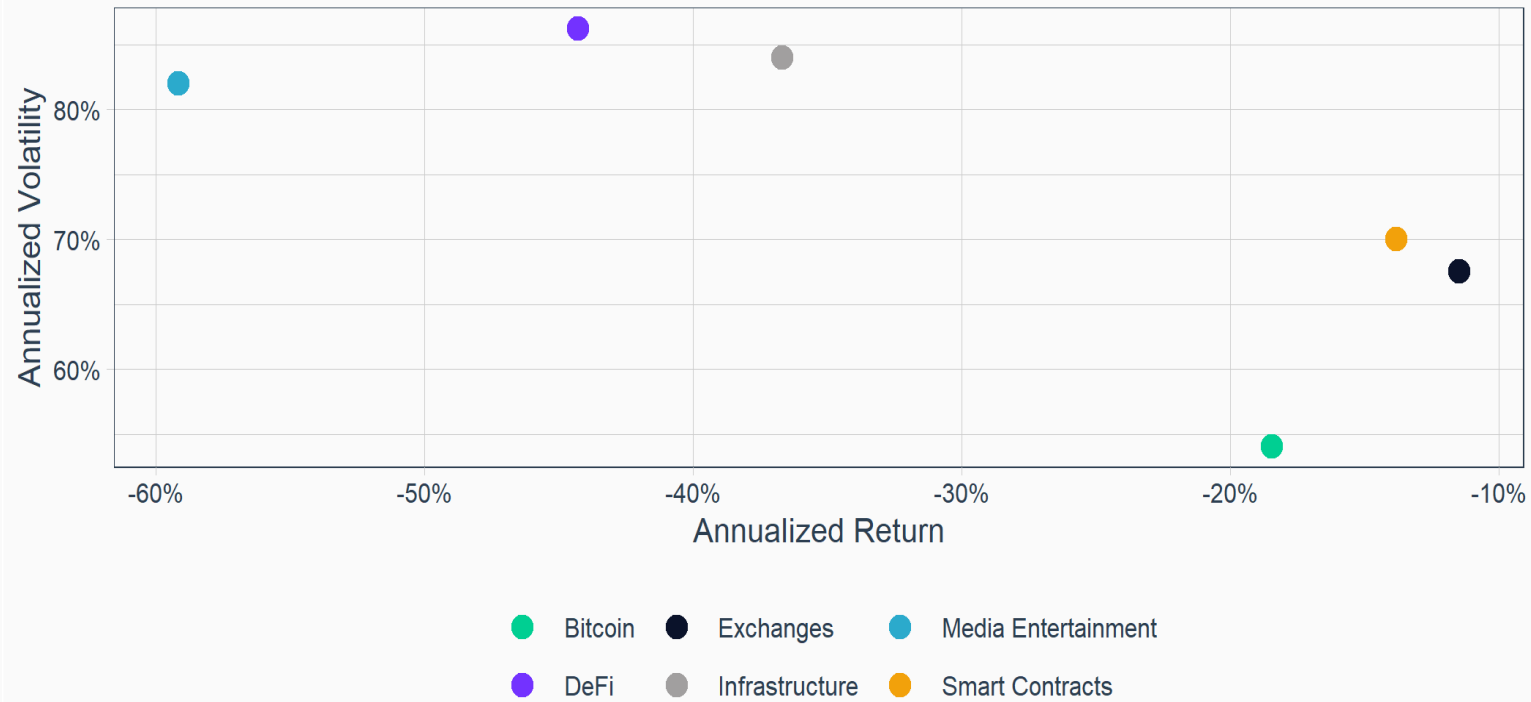
Rolling 90-day Annualized Volatility



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

Bitcoin's Progress: Enhancing Risk-Return Profile Amid Struggling Exchanges

Risk & Return since 2021-03-31



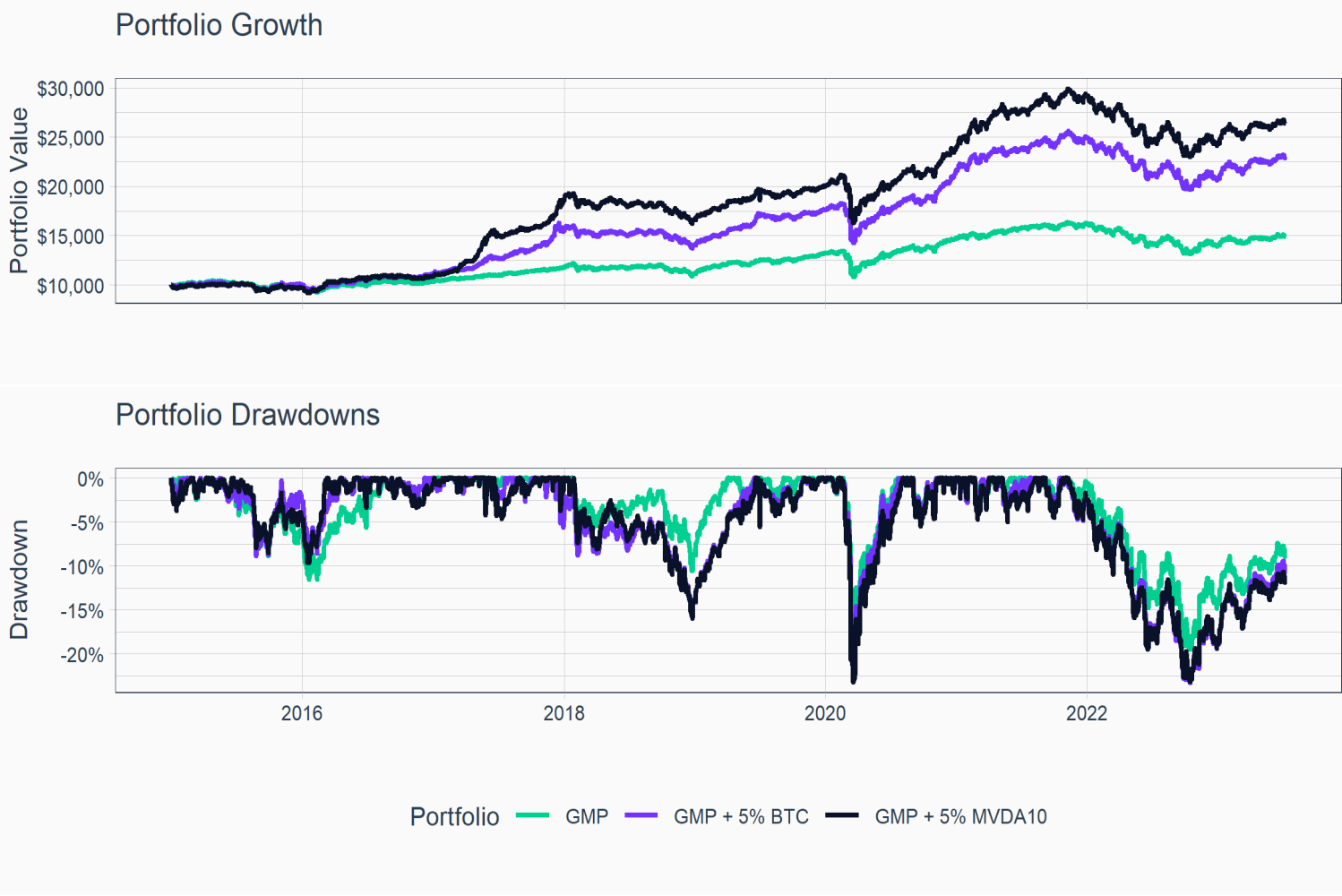
| Sector | Return p.a. | Sharpe Ratio | Volatility p.a. | Max Drawdown |
|---------------------|-------------|--------------|-----------------|--------------|
| Bitcoin | -18% | -41% | 54% | 77% |
| DeFi | -44% | -54% | 86% | 92% |
| Media Entertainment | -59% | -75% | 82% | 96% |
| Exchanges | -11% | -23% | 68% | 71% |
| Infrastructure | -37% | -47% | 84% | 88% |
| Smart Contracts | -14% | -26% | 70% | 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% | 0.41 | 8% | 19% |
| GMP + 5% Bitcoin | 7% | 0.73 | 10% | 23% |
| GMP + 5% MVDA10 | 8% | 0.82 | 10% | 23% |

Source: 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 June 30, 2023)



| Main | Universe | Index Ticker | Index Name | Meta Theme | Launch Date | Base Date | Quarterly Returns (USD) | | | | Last3 Years (USD) | | |
|----------|--------------|--------------|--|-----------------------------|-------------|-----------|-------------------------|---------|---------|---------|-------------------|-----------|-----------|
| | | | | | | | Q2-2023 | Q1-2023 | Q4-2022 | Q3-2022 | Ann Ret | Ann Stdev | Draw-Down |
| MVBTC | Single Token | MVBTC | MarketVector™ Bitcoin | Bitcoin | 10.23.17 | 01.31.12 | 6.9% | 72.0% | -16.1% | 3.1% | 49.1% | 76.7% | -40.5% |
| MVALGOV | Single Token | MVALGOV | MarketVector™ Algorand VWAP Close Index | Algorand | 12.22.21 | 06.30.19 | -46.6% | 37.9% | -53.9% | 22.2% | -17.0% | 115.5% | -46.7% |
| MVAVAXV | Single Token | MVAVAXV | MarketVector™ Avalanche VWAP Close Index | Avalanche | 11.18.21 | 09.30.20 | -26.9% | 63.7% | -38.3% | 7.3% | | | |
| MVLINKV | Single Token | MVLINKV | MarketVector™ Chainlink VWAP Close Index | Chainlink | | | -20.4% | 39.5% | -29.0% | 28.6% | 9.8% | 125.2% | -40.7% |
| MVETH | Single Token | MVETH | MarketVector™ Ethereum Index | Ethereum | 10.23.17 | 08.31.15 | 3.7% | 53.1% | -11.7% | 31.6% | 103.6% | 103.3% | -47.7% |
| MVMATICV | Single Token | MVMATICV | MarketVector™ Polygon VWAP Close Index | Polygon | 11.18.21 | 09.30.20 | -41.8% | 46.6% | -2.7% | 77.9% | | | |
| MVDA | Multi Token | MVDA | MarketVector™ Digital Assets 100 Index | Top 100 | 10.23.17 | 12.31.14 | -0.5% | 48.7% | -15.9% | 9.3% | 47.9% | 72.6% | -35.2% |
| MVDA5 | Multi Token | MVDA5 | MarketVector™ Digital Assets 5 Index | Top 5 | 10.23.17 | 12.31.14 | -3.5% | 52.9% | -18.8% | 18.6% | 54.1% | 87.8% | -40.4% |
| MVDA10 | Multi Token | MVDA10 | MarketVector™ Digital Assets 10 | Top 10 | 10.23.17 | 12.31.14 | -5.5% | 52.3% | -17.9% | 15.8% | 59.6% | 89.0% | -38.6% |
| MVDA25 | Multi Token | MVDA25 | MarketVector™ Digital Assets 25 Index | Top 25 | 10.23.17 | 12.31.14 | -8.6% | 47.3% | -24.3% | 15.4% | 46.3% | 94.1% | -35.0% |
| MVDALC | Multi Token | MVDALC | MarketVector™ Digital Assets 100 Large-Cap Index | Large-Cap | 10.23.17 | 12.31.14 | 0.9% | 49.3% | -13.7% | 8.8% | 49.8% | 71.2% | -35.4% |
| MVDAMC | Multi Token | MVDAMC | MarketVector™ Digital Assets 100 Mid-Cap | Mid-Cap | 10.23.17 | 12.31.14 | -16.6% | 32.0% | -39.6% | 19.7% | 30.9% | 96.2% | -33.7% |
| MVDASC | Multi Token | MVDASC | MarketVector™ Digital Assets 100 Small-Cap | Small-Cap | 10.23.17 | 12.31.14 | -25.3% | 67.3% | -33.5% | 6.1% | 15.4% | 107.7% | -38.0% |
| MVLEADV | Multi Token | MVLEADV | MarketVector™ Crypto Leaders VWAP Close Index | Crypto Leaders | 12.07.21 | 12.31.18 | -6.7% | 60.4% | -25.1% | 8.4% | 54.7% | 90.7% | -38.4% |
| MVGCFI | Multi Token | MVGCFI | MarketVector™ Optimum Global Cryptoasset Index | Fixed Multi Coins | | | -5.3% | 63.5% | -24.1% | 12.0% | | | |
| MVWTAR | Multi Token | MVWTAR | Weiss MarketVector™ Top Tech Adoption Rating Index | Weiss Tech Adoption Rating | 12.16.20 | 12.31.17 | 2.3% | 60.6% | -15.5% | 12.9% | 62.6% | 82.7% | -42.0% |
| MVCEX | Multi Token | MVCEX | MarketVector™ Centralized Exchanges Index | Exchanges | 06.01.22 | 02.28.21 | -23.1% | 29.5% | -19.1% | 29.0% | | | |
| MVDF | Multi Token | MVDF | MarketVector™ Decentralized Finance | Decentralized Finance | 10.08.21 | 01.31.21 | -19.1% | 34.3% | -29.9% | 22.8% | | | |
| MVDFLE | Multi Token | MVDFLE | MarketVector™ Decentralized Finance Leaders | Decentralized Finance | 10.08.21 | 01.31.21 | -15.2% | 50.4% | -30.8% | 19.3% | | | |
| MVIAP | Multi Token | MVIAP | MarketVector™ Infrastructure Application | Infrastructure Applications | 10.08.21 | 12.31.20 | -20.5% | 57.9% | -23.0% | 30.4% | | | |
| MVIALE | Multi Token | MVIALE | MarketVector™ Infrastructure Application Leaders | Infrastructure Applications | 10.08.21 | 12.31.20 | -20.1% | 59.5% | -23.9% | 39.2% | | | |
| MVME | Multi Token | MVME | MarketVector™ Media & Entertainment | Media & Entertainment | 10.08.21 | 03.31.21 | -38.5% | 41.3% | -48.5% | 2.8% | | | |
| MVMELE | Multi Token | MVMELE | MarketVector™ Media & Entertainment Leaders | Media & Entertainment | 10.08.21 | 03.31.21 | -37.0% | 41.6% | -50.5% | 8.8% | | | |
| MVSC | Multi Token | MVSC | MarketVector™ Smart Contract | Smart Contract Platforms | 10.08.21 | 12.31.17 | -4.2% | 52.7% | -21.4% | 22.5% | 71.1% | 102.4% | -43.5% |
| MVSCLE | Multi Token | MVSCLE | MarketVector™ Smart Contract Leaders | Smart Contract Platforms | 10.08.21 | 12.31.17 | -18.0% | 54.5% | -36.2% | 13.9% | 45.4% | 122.5% | -43.9% |

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 |

Important Disclosure



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