

CF Benchmarks Quarterly Attribution Report

Attribution Analysis: September 2, 2023 -
December 1, 2023

Market Recap

Possible ETF Approval Sparks Year-End Rally as Ether Joins Approvals Queue

Despite the existing regulatory challenges and roadblocks that remain, institutional interest in digital assets has witnessed a swell in activity over recent months. Open interest on the Chicago Mercantile Exchange (CME) has risen - the total number of outstanding futures contracts for both Bitcoin and Ether has increased over 76% and 40% respectively since our last rebalance period, with the former surpassing its all-time high set back in June. Perhaps the largest contributing factor for this renewed interest is the potential of spot Exchange Traded Fund (ETF) products for the two largest tokens. Many investors also see the approval of spot ETFs as a major 'unlock' for the crypto industry. The ETF fund structure has grown exponentially since they were first introduced in the 1990s, breaching the \$7tn level this past year in the U.S. Spot token ETFs would mark a major catalyst for adoption as retail investors would have access to the pure exposure of Bitcoin and Ether in a traditionally practical fund structure for the very first time. While many regulatory headwinds remain, the approvals of these spot ETFs could be seen as the very first steps in deconstructing these aforementioned challenges and hurdles that have plagued the digital asset class.

Over the last few months, several macroeconomic trends have impacted global markets. Inflation pressures have continued to steadily decline across the globe. With the latest data points coming in below expectations for both the U.S. and the Eurozone, this has allowed interest rate expectations for 2024 to shift in dovish manner. Some forecasters are now anticipating that the Federal Reserve could begin decreasing their benchmark rate as soon as March 2024. Furthermore, economic weakness, such as slowing job growth and cyclical demand, could give the central bank more slack in adjusting its tightening stance to the downside.

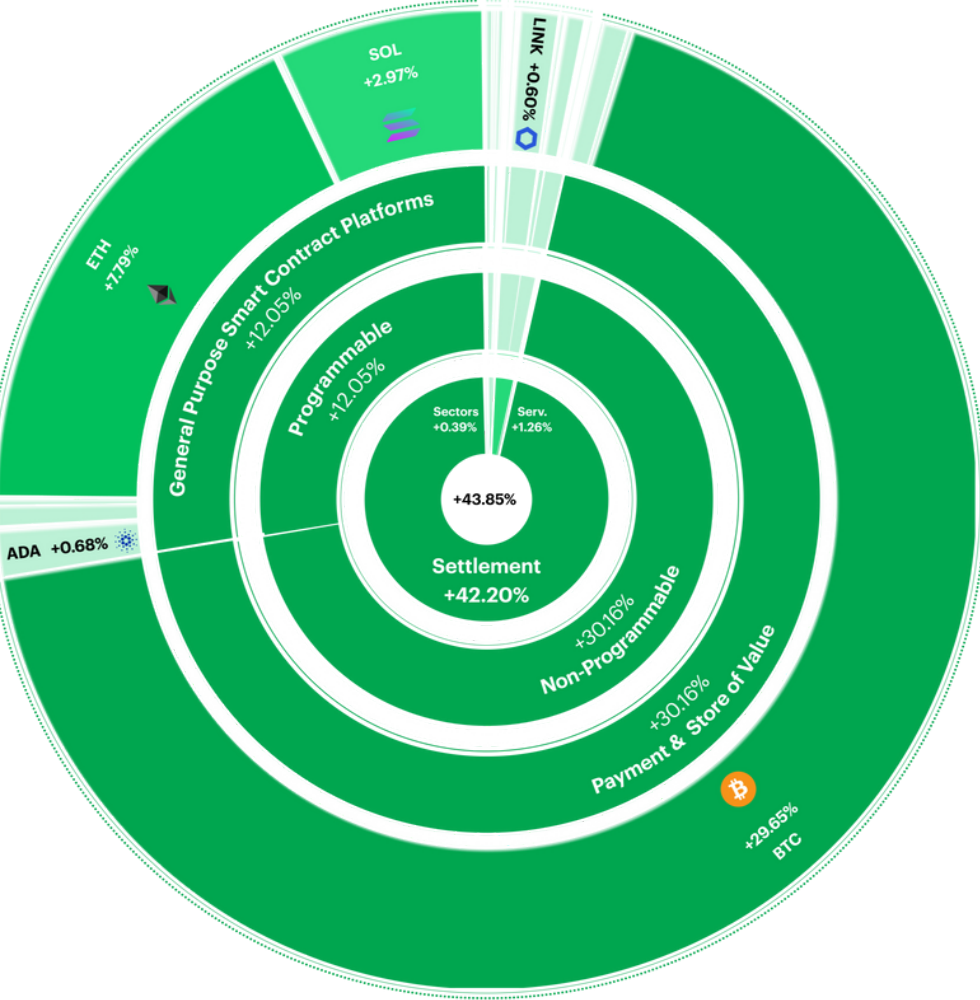
Given the current backdrop, investor sentiment has become more constructive for the digital asset class. All of our flagship portfolio indices posted strong performance over the last rebalance period, outperforming traditional risky assets, such as U.S. and global equity markets by a wide margin. The CF Web 3.0 Smart Contract Platforms Index led the pack, with the CF Blockchain Infrastructure Index coming in a close second. Both category indices outperformed the broader market (as measured by the CF Floating Broad Cap Index) by a significant margin. Lastly, the CF Digital Culture Composite Index continued to struggle, lagging behind the rest of the major portfolio indices for the second straight rebalance period.

Attribution Analysis: CF Broad Cap Indices

Performance Attribution (Free Float Market Cap)



Index Return Contribution



Total Performance Contribution: +43.85% Date: 1st December 2023

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | | |
|------------|------------------|----------------------------------|--|---------|--------|
| Sectors | Finance | Trading | +0.10% | | |
| | | Derivatives | +0.04% | | |
| | | Asset & Wealth Management | +0.04% | | |
| | Culture | Borrowing & Lending | +0.08% | | |
| | | Stablecoin Issuance & Management | +0.04% | | |
| | | Gaming | +0.02% | | |
| Services | Infrastructure | VR & AR | +0.03% | | |
| | | Scaling | +0.41% | | |
| | Utility | Interoperability | +0.00% | | |
| Settlement | Programmable | Computing | +0.12% | | |
| | | Oracles | +0.60% | | |
| | Non-Programmable | Payment & Store of Value | Information & Data Management | +0.12% | |
| | | | General Purpose Smart Contract Platforms | +12.05% | |
| | | | | ADA | +0.68% |
| | | | | ALGO | +0.04% |
| | | | APT | +0.01% | |
| | | | ATOM | +0.02% | |
| | | | AVAX | +0.30% | |
| | | | DOT | +0.10% | |
| | | | EOS | +0.01% | |
| | | | ETC | +0.03% | |
| | | | ETH | +7.79% | |
| | | | FTM | +0.02% | |
| | | | HBAR | +0.03% | |
| | | | ICP | +0.05% | |
| | | | SOL | +2.97% | |
| | | | XTZ | +0.02% | |
| | | | BCH | +0.05% | |
| | | | DOGE | +0.36% | |
| | | | LTC | +0.08% | |
| | | | BTC | +29.65% | |
| | | | XLM | +0.02% | |

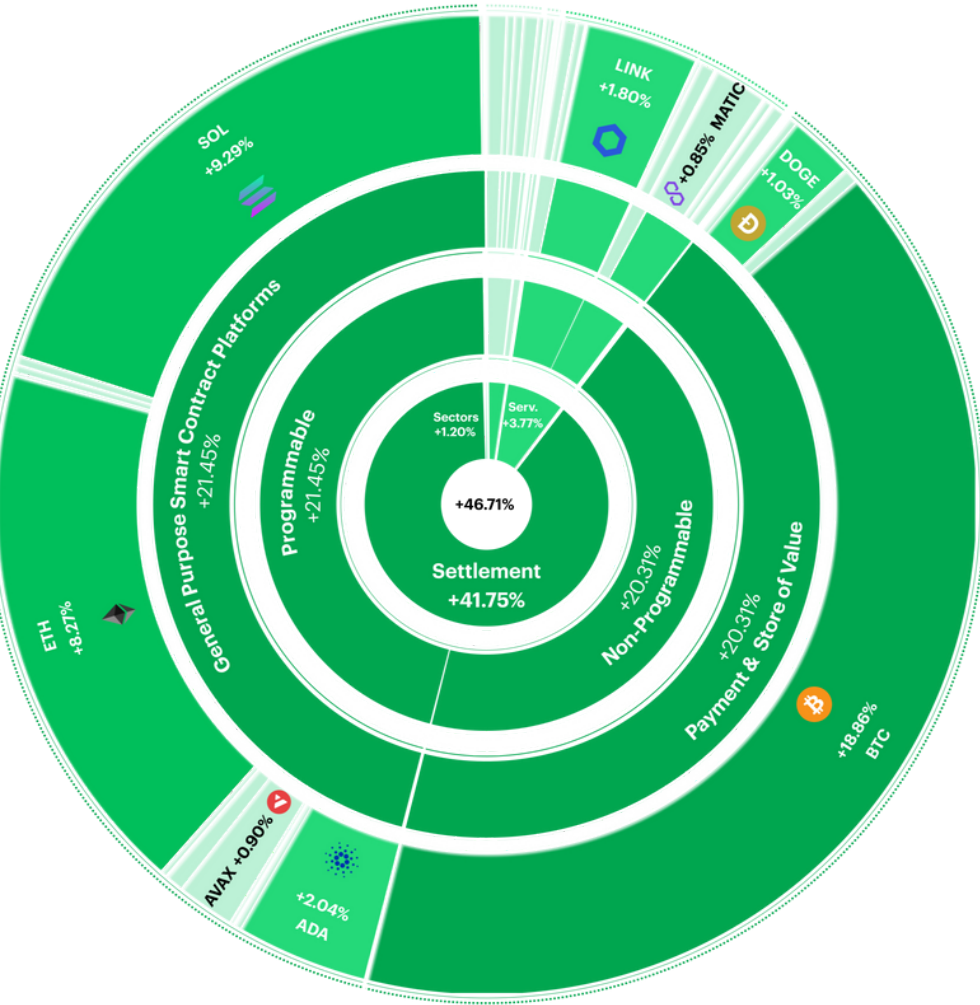
- The CF Floating Broad Cap Index posted a 43% increase over the most recent rebalancing period. Our market-cap weighted variant slightly underperformed the diversified weighted index by approximately 300 basis points.
- Bitcoin was the main performance contributor, adding over 29% in positive performance for the headline index and accounted for almost all of the Store of Value segment's contribution.

Source: CF Benchmarks, as of December 1, 2023

Performance Attribution (Diversified Weight)



Index Return Contribution



Total Performance Contribution: +46.71% Date: 1st December 2023

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|----------------|--|-------------|
| Sectors | Finance | Trading | CRV +0.03% |
| | | Derivatives | UNI +0.29% |
| | | Asset & Wealth Management | SNX +0.12% |
| Services | Infrastructure | Borrowing & Lending | LDO +0.13% |
| | | Stablecoin Issuance & Management | AAVE +0.23% |
| | | Gaming | MKR +0.10% |
| Settlement | Programmable | General Purpose Smart Contract Platforms | GALA +0.07% |
| | | Payment & Store of Value | MANA +0.08% |
| | | Non-Programmable | APE +0.03% |

- Our CF Diversified Broad Cap Index rose almost 47%, with Bitcoin’s relatively high weight translating into almost 19 percentage points of headline performance. Notable runners-up included ETH (+8.3%) and the relatively lower-weighted SOL (+9.3%)
- From a CF DACS perspective, SOL’s relatively robust rally translated into the General Purpose Smart Contract Platforms segment adding 21.4% of total index value.

Source: CF Benchmarks, as of December 1, 2023

Index Weights (Diversified Weight)



2nd September 2023

Total Weight: 100% Index Value: 990.73

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------------------|-------------------------------------|--|-------------------------|---------------|
| Sectors 3.99% | Finance 1.91% | Trading 0.91% | CRV 0.12% | |
| | | Derivatives 0.18% | UNI 0.79% | |
| | | Asset & Wealth Management 0.25% | SNX 0.18% | |
| | | Borrowing & Lending 0.27% | LDO 0.25% | |
| | | Stablecoin Issuance & Mgmt 0.30% | AAVE 0.27% | |
| | | | MKR 0.30% | |
| | Culture 2.08% | Gaming 0.18% | GALA 0.18% | |
| | | VR & AR 0.17% | MANA 0.17% | |
| | | Social 1.73% | APE 0.19% | |
| | | | CHZ 0.13% | |
| | | | SHIB 1.41% | |
| | | Services 6.49% | Infrastructure 4.59% | Scaling 3.51% |
| | Interoperability 0.77% | | | IMX 0.10% |
| | Computing 0.31% | | | MATIC 1.97% |
| Utility 1.90% | Oracles 1.20% | | QNT 0.77% | |
| | Information & Data Management 0.70% | | RNDR 0.16% | |
| | | | LINK 1.20% | |
| | | | FIL 0.39% | |
| Settlement 89.52% | Programmable 43.17% | General Purpose Smart Contract Platforms 43.17% | GRT 0.31% | |
| | | | ADA 4.21% | |
| | | | ALGO 0.23% | |
| | | | APT 0.09% | |
| | | | ATOM 0.16% | |
| | | | AVAX 0.71% | |
| | | | DOT 1.03% | |
| | | | EOS 0.09% | |
| | | | ETC 0.45% | |
| | | | ETH 30.62% | |
| | | | FTM 0.09% | |
| | | | HBAR 0.52% | |
| | | | ICP 0.30% | |
| | SOL 4.45% | | | |
| | XTZ 0.22% | | | |
| | Non-Programmable 46.35% | Payment & Store of Value 46.35% | BCH 1.12% | |
| | | | DOGE 3.40% | |
| | | | LTC 2.06% | |
| | | | BTC 38.78% | |
| | | | XLM 1.00% | |

1st December 2023

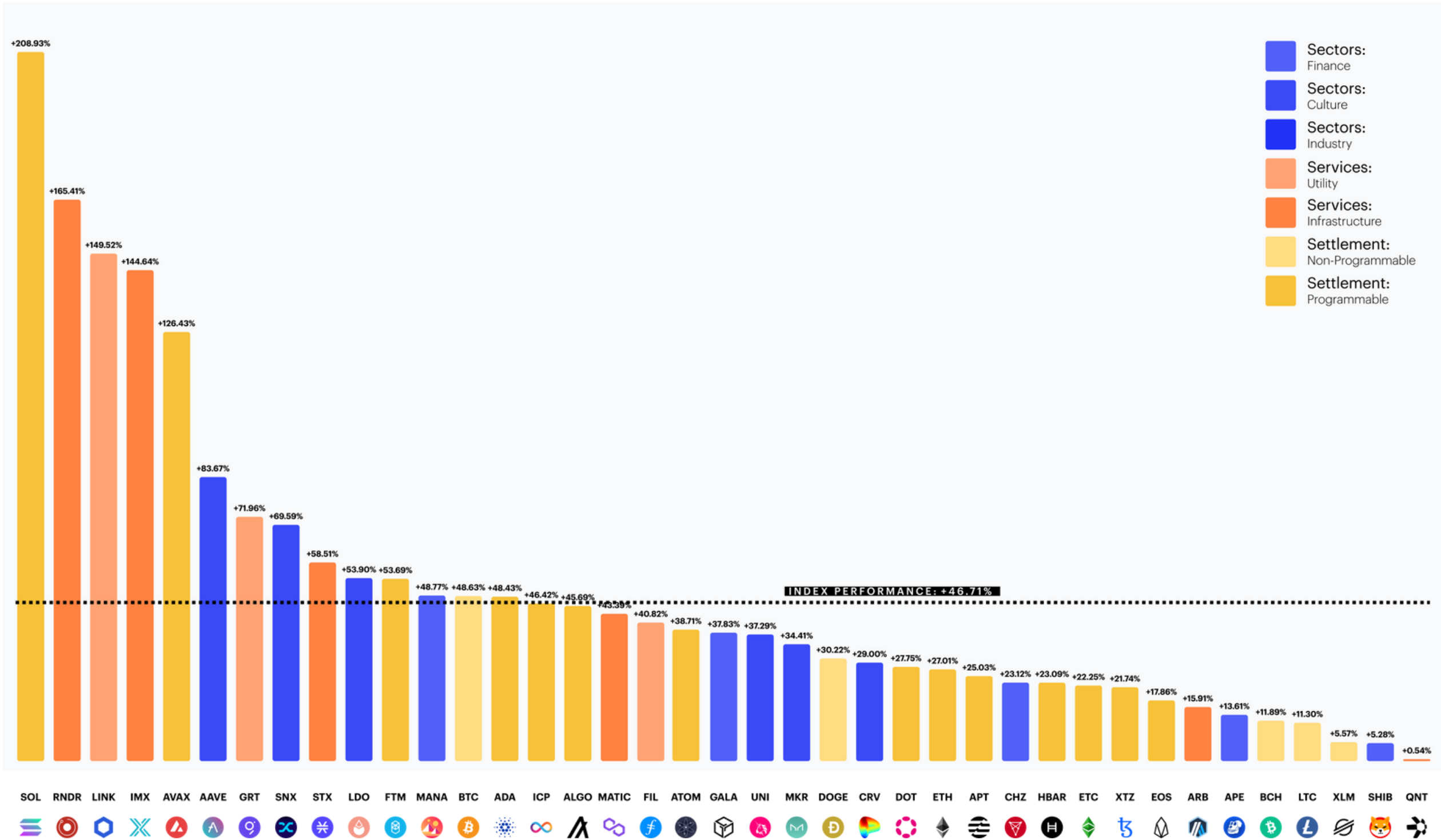
Total Weight: 100% Index Value: 1453.54

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------------------|-------------------------------------|--|-------------------------|---------------|
| Sectors 3.55% | Finance 1.93% | Trading 0.85% | CRV 0.10% | |
| | | Derivatives 0.21% | UNI 0.75% | |
| | | Asset & Wealth Management 0.26% | SNX 0.21% | |
| | | Borrowing & Lending 0.33% | LDO 0.26% | |
| | | Stablecoin Issuance & Mgmt 0.28% | AAVE 0.33% | |
| | | | MKR 0.28% | |
| | Culture 1.62% | Gaming 0.17% | GALA 0.17% | |
| | | VR & AR 0.17% | MANA 0.17% | |
| | | Social 1.28% | APE 0.15% | |
| | | | CHZ 0.11% | |
| | | | SHIB 1.02% | |
| | | Services 6.95% | Infrastructure 4.20% | Scaling 3.23% |
| | Interoperability 0.53% | | | IMX 0.16% |
| | Computing 0.43% | | | MATIC 1.94% |
| Utility 2.75% | Oracles 2.03% | | QNT 0.53% | |
| | Information & Data Management 0.73% | | RNDR 0.28% | |
| | | | LINK 2.03% | |
| | | | FIL 0.37% | |
| Settlement 89.50% | Programmable 44.05% | General Purpose Smart Contract Platforms 44.05% | GRT 0.36% | |
| | | | ADA 4.27% | |
| | | | ALGO 0.23% | |
| | | | APT 0.08% | |
| | | | ATOM 0.15% | |
| | | | AVAX 1.05% | |
| | | | DOT 0.91% | |
| | | | EOS 0.07% | |
| | | | ETC 0.37% | |
| | | | ETH 26.42% | |
| | | | FTM 0.10% | |
| | | | HBAR 0.44% | |
| | | | ICP 0.29% | |
| | SOL 9.48% | | | |
| | XTZ 0.18% | | | |
| | Non-Programmable 45.45% | Payment & Store of Value 45.45% | BCH 0.86% | |
| | | | DOGE 3.05% | |
| | | | LTC 1.55% | |
| | | | BTC 39.25% | |
| | | | XLM 0.73% | |

Solana leads cyptos in year-end Santa rally



Absolute Performance



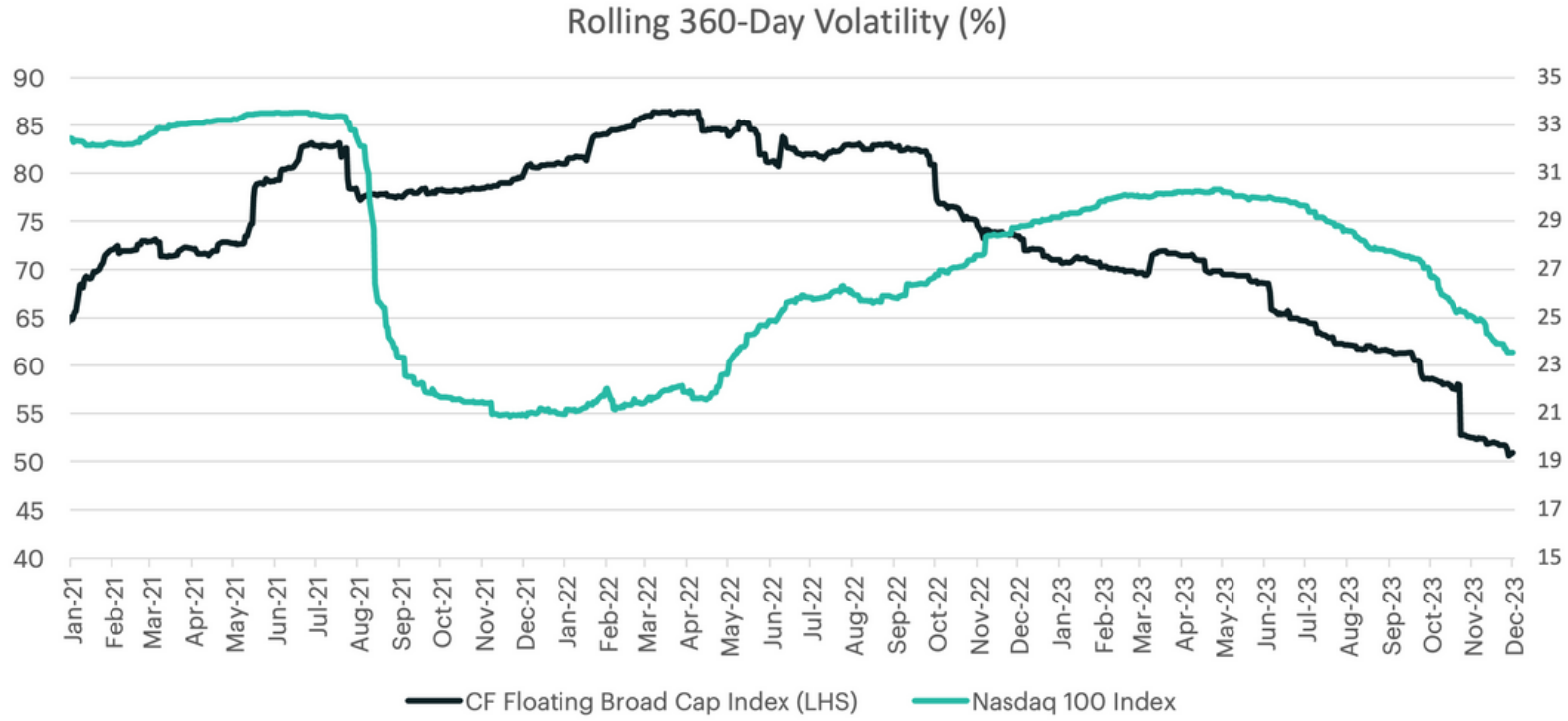
Our CF Broad Cap Indices experienced broad breadth in positive performance, with all individual constituent tokens posting positive performance over the last rebalance period. Furthermore, five of the thirty-nine constituents realized over triple-digit gains.

Solana (SOL) led the pack, rising over 208%. The General Purpose Smart Contract Platform has been on a steady uptrend after its mid-October consolidation breakout. However, the token’s price saw a sharp uptick following the news that BlackRock had filed for a spot Ether ETF, which led to bullish speculation that SOL may also soon be considered by a premier asset manager.

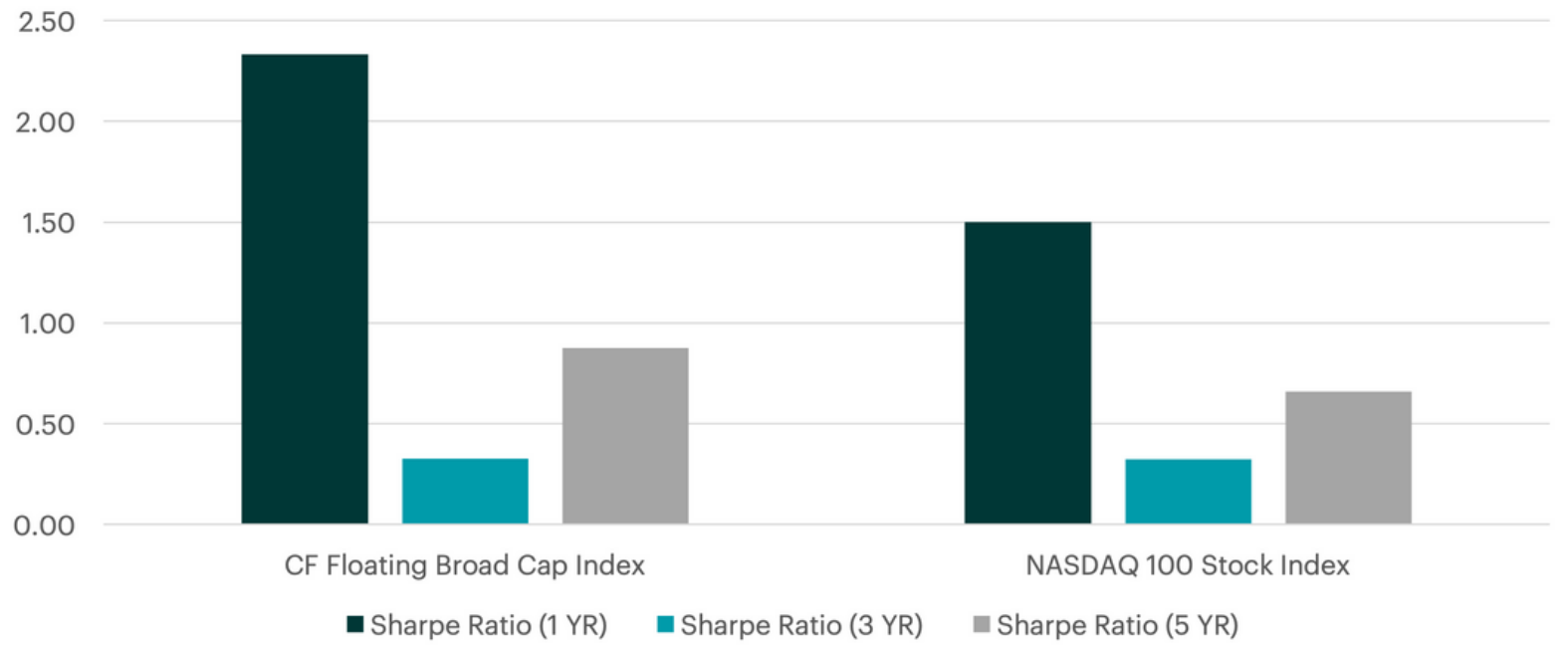
Render’s RNDR Token and Chainlink (LINK) round off the top-three. Both tokens gained more visibility and investor confidence due to increased user growth and the recent uptick in institutional interest.

Source: CF Benchmarks, as of December 1, 2023

Crypto's Declining Volatility & Risk Adjusted Returns



Our CF Broad Cap Index series provides definitive gauges into the investable crypto market for institutional users. Utilizing our Floating variant index, we can analyze the evolutionary dynamics of the market's volatility over time. Many critics of the digital asset class point towards the dramatic price swings and volatility. While cryptocurrencies have exhibited significantly higher volatility compared to other traditional risky asset classes, our Floating Broad Cap Index has recently exhibited the lowest rolling 360-day metric on record. The asset class over the past five years has largely experienced trending volatility, much like equities, but it appears to be in a secular downtrend as the market continues maturing.



Another concern for critical investors is whether this heightened volatility is adequately compensated through returns. One method to gauge an asset class's risk-adjusted returns is through the Sharpe Ratio, which measures the excess return of an investment relative to its volatility. Comparing our index's Sharpe Ratio to the tech-heavy Nasdaq 100 equity index reveals that digital assets have consistently rewarded investors for bearing the elevated volatility. As cryptocurrencies continue to gain widespread adoption, it is foreseeable that their volatility may gradually decline over time.

Source: CF Benchmarks, Bloomberg, as of November 30, 2023. All indices reflect price returns.

What's driving crypto?



Multi-asset correlations



Investors analyze the correlation of various asset classes to help build diversified portfolios that better optimize risk and return. Utilizing our CF Floating Broad Cap Index as the market benchmark, our analysis underscores the shifts in multi-asset correlations during the latest rebalance phase. While recent market cycles have seen strong correlations between crypto markets and equity markets like the S&P 500 and Nasdaq 100 indices, the crypto market has continued to exhibit a decoupling effect. This shift in pricing regime should bode well for diversification purposes for multi-asset investors seeking diversification. Factors such as the potential introduction of a spot ETF and diminishing macroeconomic challenges have contributed to a reduced synchronization between these digital assets and traditional markets.

Source: CF Benchmarks, Bloomberg, total return indices are referenced in USD, as of November 30, 2023

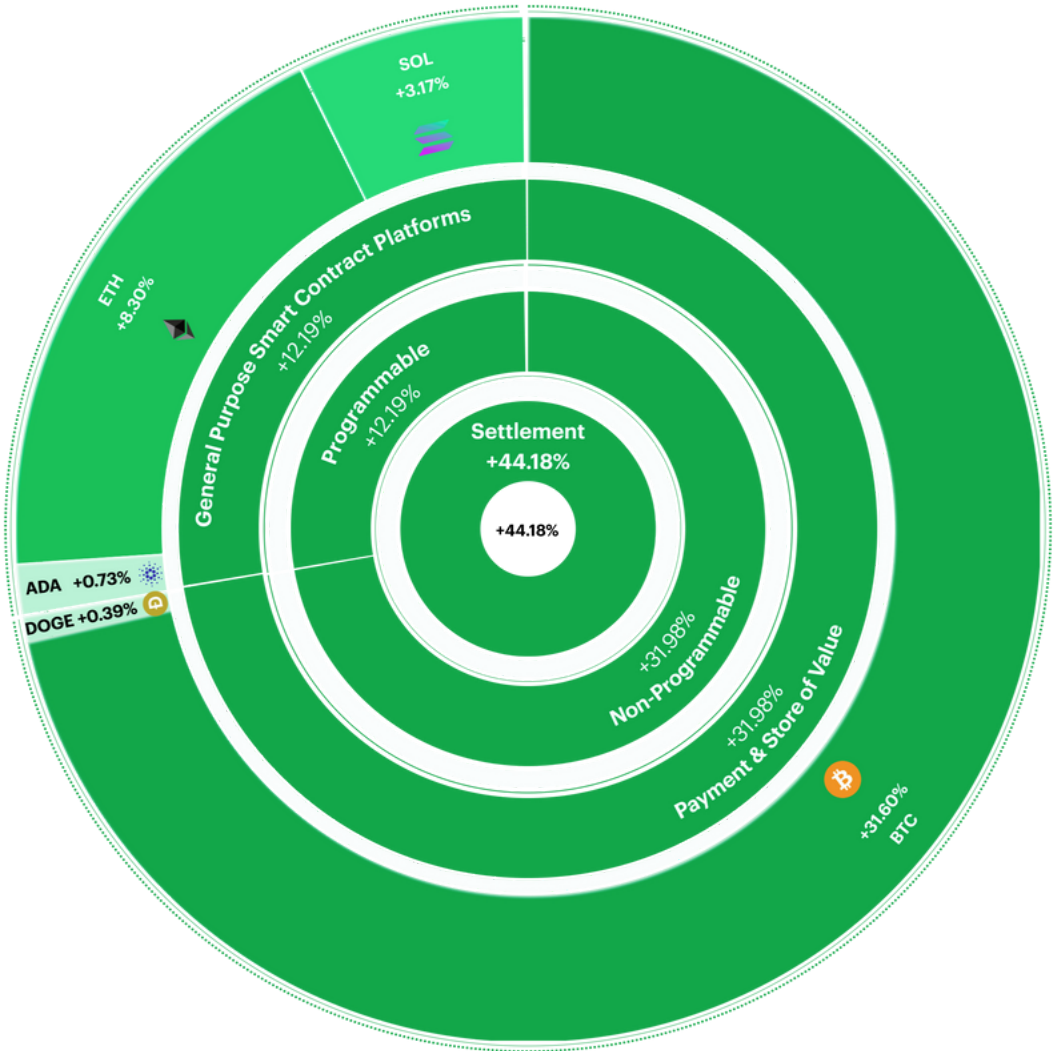
Attribution Analysis: CF Cryptocurrency Ultra Cap 5 Index

Bitcoin outshines Ether in Mega-Cap rise



Index Return Contribution

Total Performance Contribution: +44.18% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|------------------|--|-------------|
| Settlement | Programmable | General Purpose Smart Contract Platforms | ADA +0.73% |
| | | | ETH +8.30% |
| | Non-Programmable | Payment & Store of Value | SOL +3.17% |
| | | | BTC +31.60% |
| | | | DOGE +0.39% |
| | | | ADA +0.73% |

- Mega-cap tokens, as measured by our CF Cryptocurrency Ultra Cap 5 index, witnessed a sharp rally over the most recent rebalance period (+44%).
- From a CF DACS perspective, the index is entirely allocated to the Settlement category and primarily driven by the dominant positions of Bitcoin and Ether. The relative divergence in price performance between these two assets resulted in the non-programmable sub-category being the main contributor to index performance (+32%).

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 3349.17

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|------------------|--|------------|
| Settlement | Programmable | General Purpose Smart Contract Platforms | ADA 1.50% |
| | | | ETH 30.72% |
| | Non-Programmable | Payment & Store of Value | SOL 1.52% |
| | | | BTC 64.98% |
| 100.00% | | | DOGE 1.28% |

1st December 2023

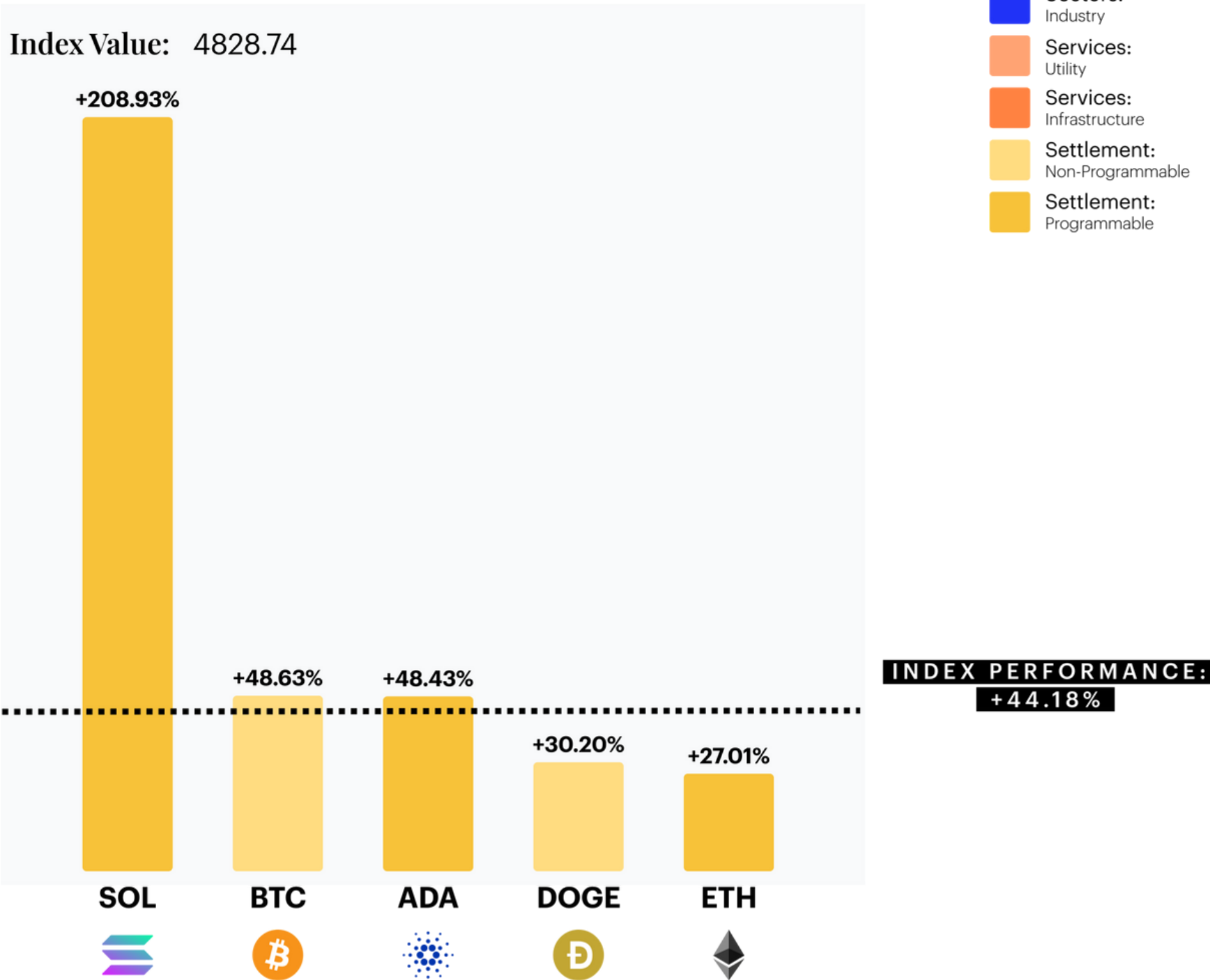
Total Weight: 100% Index Value: 4828.74

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|------------------|--|------------|
| Settlement | Programmable | General Purpose Smart Contract Platforms | ADA 1.55% |
| | | | ETH 27.00% |
| | Non-Programmable | Payment & Store of Value | SOL 3.29% |
| | | | BTC 66.98% |
| 100.00% | | | DOGE 1.17% |

Bitcoin price momentum continues as SOL rebounds



Absolute Performance



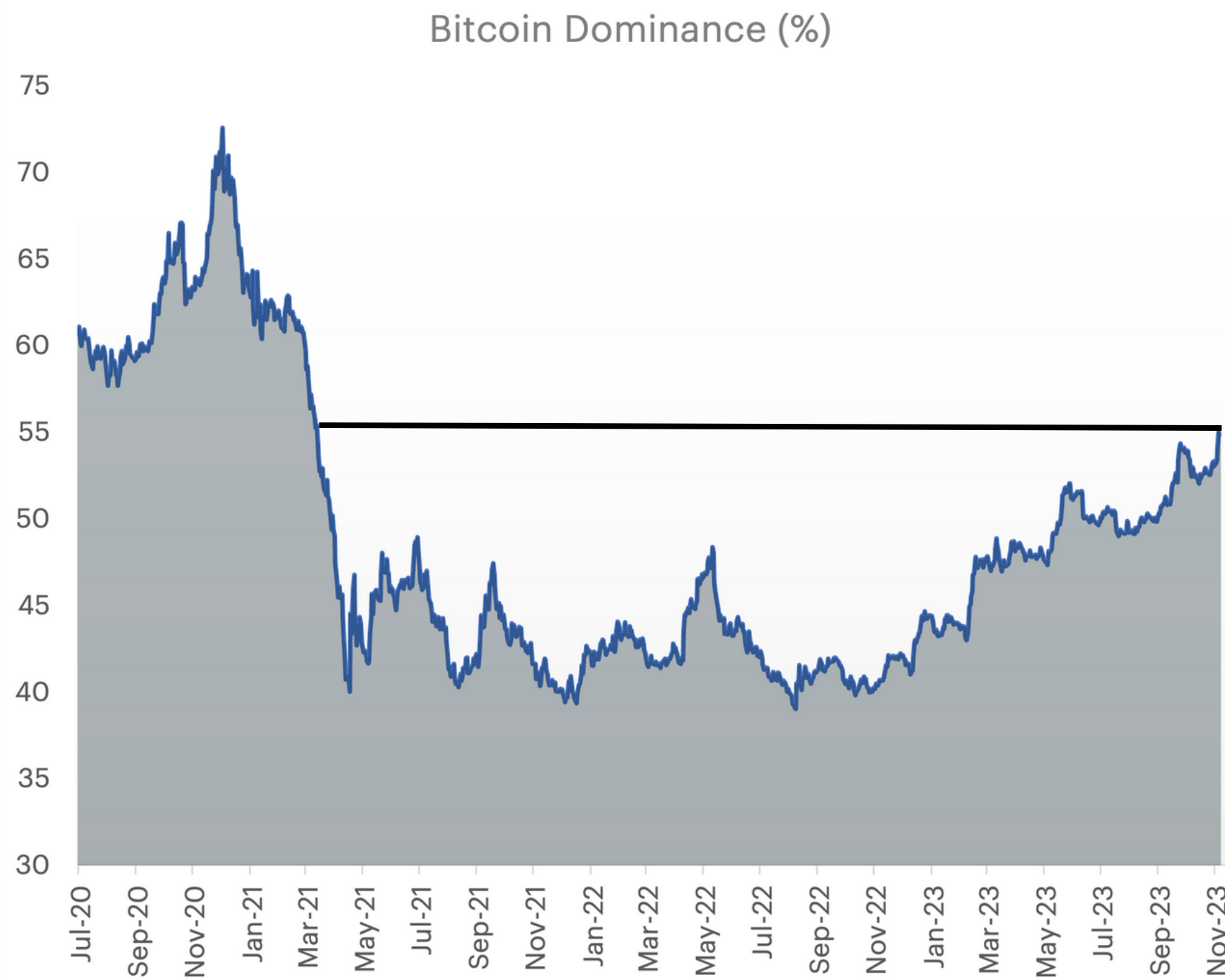
Soaring over 208%, Solana (SOL) topped the leaderboard as the best performer. The smart contract token continued an uptrend stemming from its October breakout consolidation. SOL then saw a sharp price boost after BlackRock filed for an Ether ETF. This sparked speculation that leading asset managers may soon consider Solana as well.

Bitcoin continues to perform on the hopes for a spot ETF approval. This watershed moment rings as a potential milestone for greater mainstream adoption. By allowing direct Bitcoin access within the familiar and regulated ETF wrapper, apprehensions surrounding crypto's novelty may diminish among skeptical institutional players. While volatility and regulatory uncertainty have deterred greater involvement, the availability via traditional brokerage accounts could prompt reassessments.

As the flagship cryptocurrency, Bitcoin endorsements from the likes of BlackRock resound more profoundly across both retail and institutional players. If approved for launch, the investing landscape may shift towards greater participation in what could emerge as a burgeoning asset class.

Source: CF Benchmarks, as of December 1, 2023

Bitcoin dominance reached multi-year highs



Bitcoin dominance refers to the percentage of the total cryptocurrency market capitalization that is held by Bitcoin. It's a crucial metric for understanding the overall health and sentiment of the crypto market and for gauging Bitcoin's influence relative to other cryptocurrencies (altcoins). Bitcoin dominance often reflects investor confidence in Bitcoin relative to altcoins. A rising dominance may indicate preference for safety and stability, while a falling dominance suggests increased interest and investment in altcoins.

Historically, Bitcoin dominance has fluctuated in cycles. Periods of strong altcoin performance tend to coincide with falling dominance, while periods of market downturn often see a rise in Bitcoin dominance as investors seek safer assets. Furthermore, the exponential growth of stable-coins has had a profound impact on steadily driving dominance levels lower.

Institutional investors are increasingly entering the crypto market, seeking exposure to the potential high returns and diversification. These institutions have so far favored Bitcoin due to its reputation, liquidity, and established track record. This dynamic is likely to continue to help its increase in dominance, especially if a spot ETF is approved.

Source: CF Benchmarks, TradingView, as of December 5, 2023

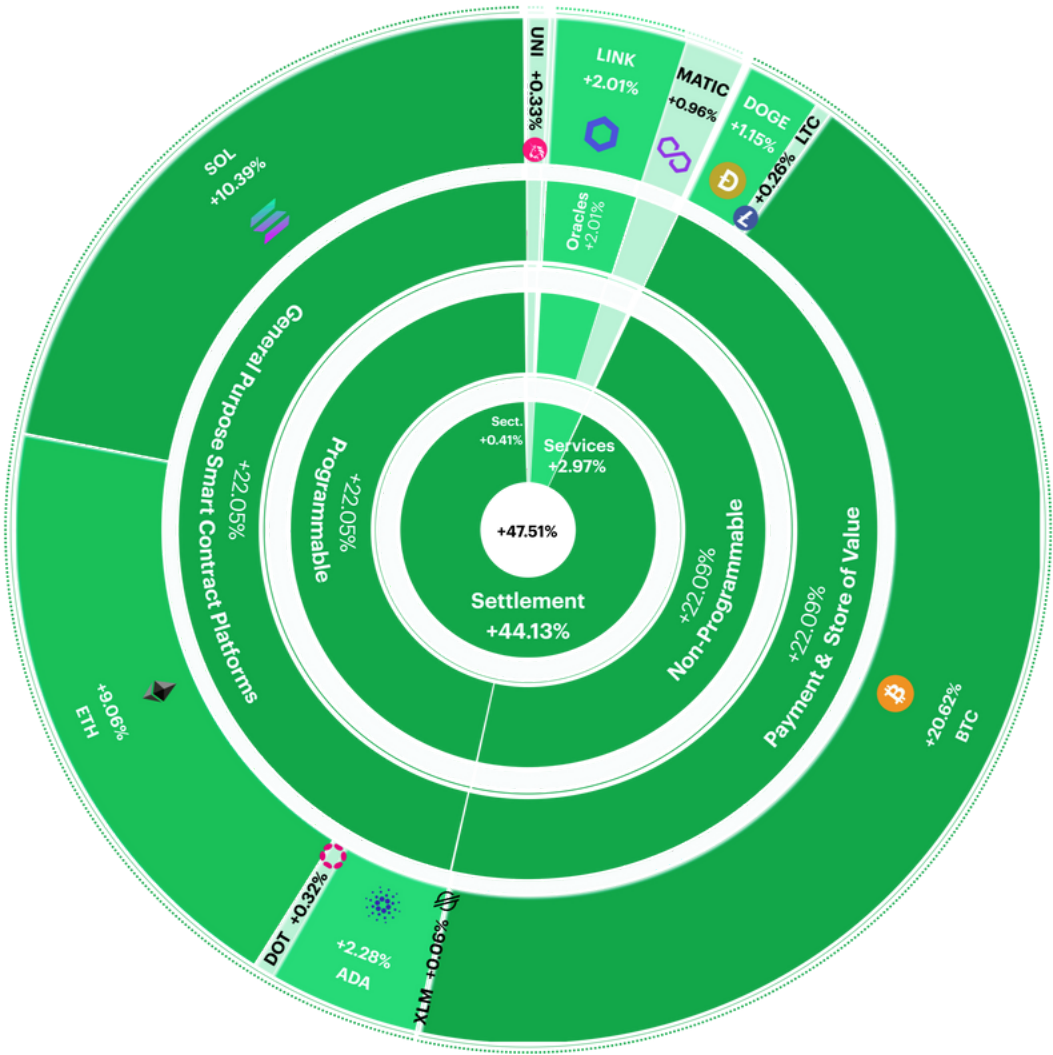
Attribution Analysis: CF Diversified Large Cap Index

Programmable tokens lead Large-Caps higher



Index Return Contribution

Total Performance Contribution: +47.51% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | PERCENTAGE |
|------------------|------------------|--|-------|------------|
| Sectors | Finance | Trading | UNI | +0.33% |
| | Culture | Social | SHIB | +0.08% |
| | Infrastructure | Scaling | MATIC | +0.96% |
| | Utility | Oracles | LINK | +2.01% |
| Services | Programmable | General Purpose Smart Contract Platforms | ADA | +2.28% |
| | | | DOT | +0.32% |
| Settlement | Non-Programmable | Payment & Store of Value | ETH | +9.06% |
| | | | SOL | +10.39% |
| Settlement | Non-Programmable | Payment & Store of Value | DOGE | +1.15% |
| | | | LTC | +0.26% |
| Settlement | Non-Programmable | Payment & Store of Value | BTC | +20.62% |
| | | | XLM | +0.06% |
| Total Settlement | | | | +44.13% |

- The positive sentiment for large-cap tokens has picked up heading into the year-end, with the Diversified Large Cap Index posting a 47.5% rise in index value. Bitcoin’s hefty weight led to over 20.6% in performance contribution. Meanwhile, Solana (SOL) edged out its larger General Purpose Smart Contract competitor (ETH), contributing over 10.3%, versus Ether’s 9.1%.
- From a DACS perspective, Store of Value and General Purpose Smart Contract categories led the pack, adding over 40% in combined performance.

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 293.22

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|-----------------------|-------------------------|---|-------------|
| Sectors 2.46% | Finance | Trading | UNI 0.88% |
| | Culture | Social | SHIB 1.58% |
| Services 3.55% | Infrastructure | Scaling | MATIC 2.20% |
| | Utility | Oracles | LINK 1.34% |
| | | | ADA 4.71% |
| Settlement | Programmable 44.38% | General Purpose Smart Contract Platforms 44.38% | DOT 1.16% |
| | | | ETH 33.54% |
| | | | SOL 4.97% |
| | | | DOGE 3.80% |
| | | | LTC 2.31% |
| | Non-Programmable 49.61% | Payment & Store of Value 49.61% | BTC 42.40% |
| | | | XLM 1.11% |
| | | | 93.99% |

1st December 2023

Total Weight: 100% Index Value: 432.54

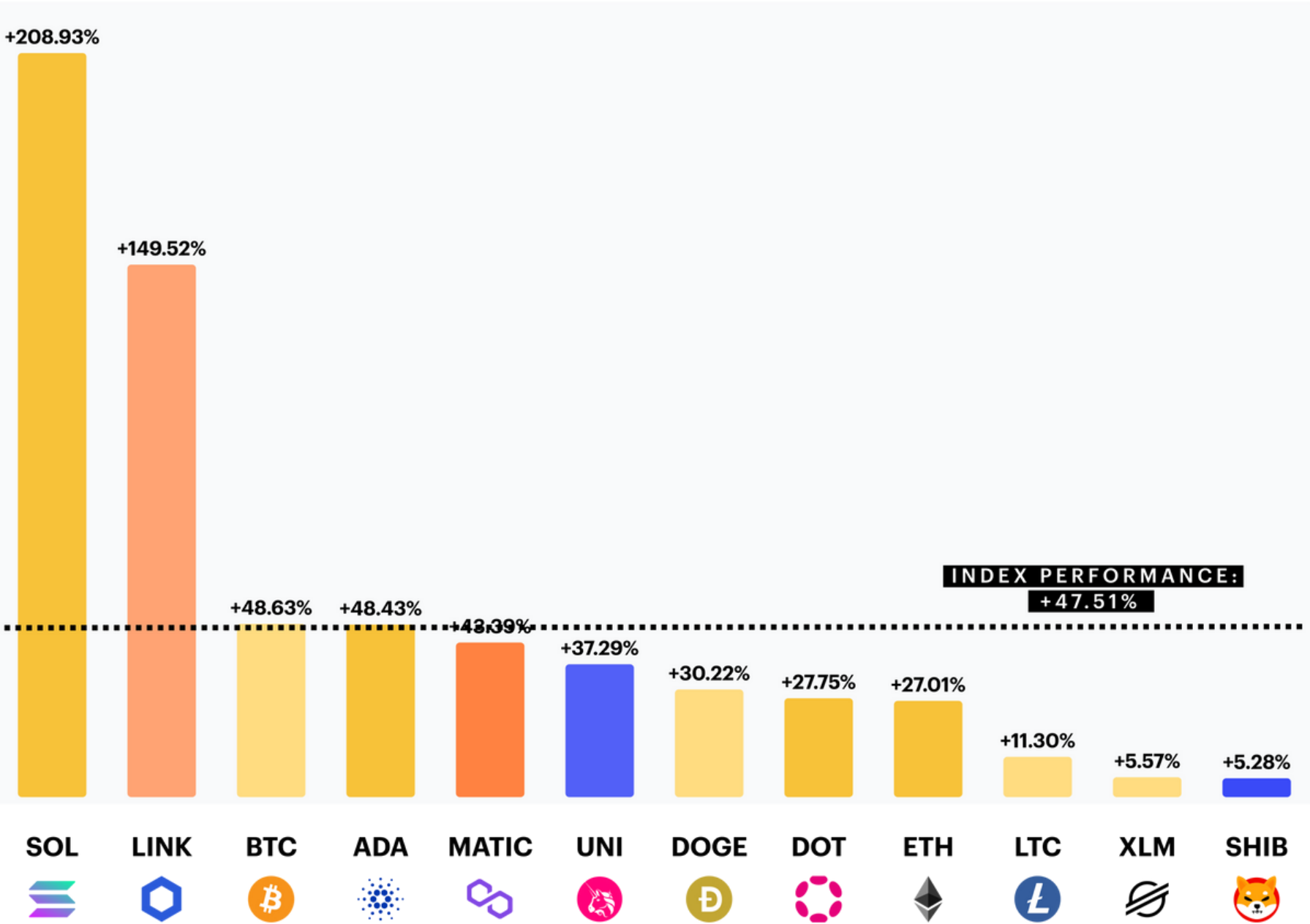
| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|-----------------------|-------------------------|---|-------------|
| Sectors 1.96% | Finance | Trading | UNI 0.83% |
| | Culture | Social | SHIB 1.13% |
| Services 4.41% | Infrastructure | Scaling | MATIC 2.16% |
| | Utility | Oracles | LINK 2.25% |
| | | | ADA 4.75% |
| Settlement | Programmable 45.05% | General Purpose Smart Contract Platforms 45.05% | DOT 1.01% |
| | | | ETH 28.76% |
| | | | SOL 10.54% |
| | | | DOGE 3.39% |
| | | | LTC 1.72% |
| | Non-Programmable 48.57% | Payment & Store of Value 48.57% | BTC 42.65% |
| | | | XLM 0.81% |
| | | | 93.63% |

Large-cap momentum bounces back



Absolute Performance

Index Value: 432.54



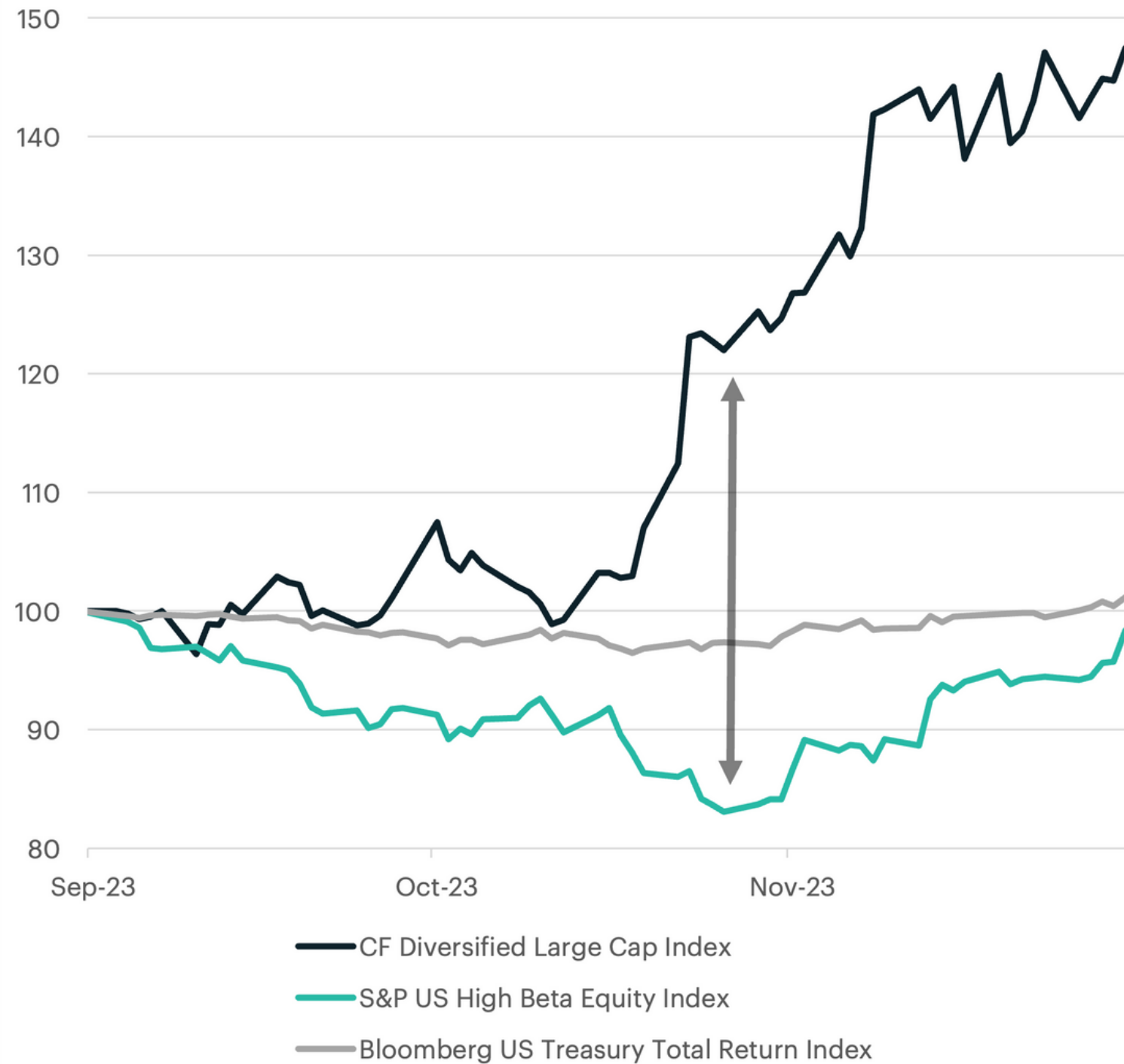
- Sectors: Finance
- Sectors: Culture
- Sectors: Industry
- Services: Utility
- Services: Infrastructure
- Settlement: Non-Programmable
- Settlement: Programmable

Directional performance of Large Cap tokens reversed course over the latest rebalance period, with all of our index constituents posting positive price action. The average performance of the Large Cap universe was over 50% and the top two performing tokens delivered over triple-digit price returns.

Institutional interest has helped the top tokens outperform. Soaring over 208%, Solana (SOL) spearheaded the rally among its peers. The smart contract platform token has charted a steady uptrend after breaking out of its mid-October bout of consolidation. Solana further catalyzed upside momentum following reports of BlackRock filing for a spot Ether ETF. Such news stimulated bullish speculation among investors anticipating SOL could soon follow. Likewise, the adoption of Chainlink’s Cross-Chain Interoperability Protocol (CCIP) by institutional players helped boost LINK prices over 149%.

Source: CF Benchmarks, as of December 1, 2023

Crypto's relative strength mounts



When correlated assets exhibit divergent strength, it can potentially signify a potential shift in market sentiment or a breakdown in the usual relationship between these assets. This phenomenon can be particularly insightful when examining the behavior of risky and non-risky assets. Risky assets are typically characterized by higher volatility and a higher potential for return. Examples include stocks, commodities, and emerging market bonds. Non-risky assets are generally considered to be less volatile and offer lower potential returns. Examples include government bonds, high-grade corporate bonds, and cash equivalents.

Traditionally, risky and non-risky assets have a strong negative correlation. This means that when risky assets perform well, non-risky assets tend to perform poorly, and vice versa. This negative correlation arises from investors seeking safety during times of market uncertainty and vice versa.

During the latest rebalancing period, we observed a divergent strength phenomenon as the U.S. Treasury Market outperformed the more market-sensitive, or 'high beta,' segment of the U.S. equity market. This dynamic may indicate a shift towards a risk-off sentiment or defensive price action. Concurrently, our gauge of large-cap tokens experienced a relative decoupling from path of their traditional high-risk asset counterparts.

Source: CF Benchmarks, Bloomberg, as of December 1, 2023

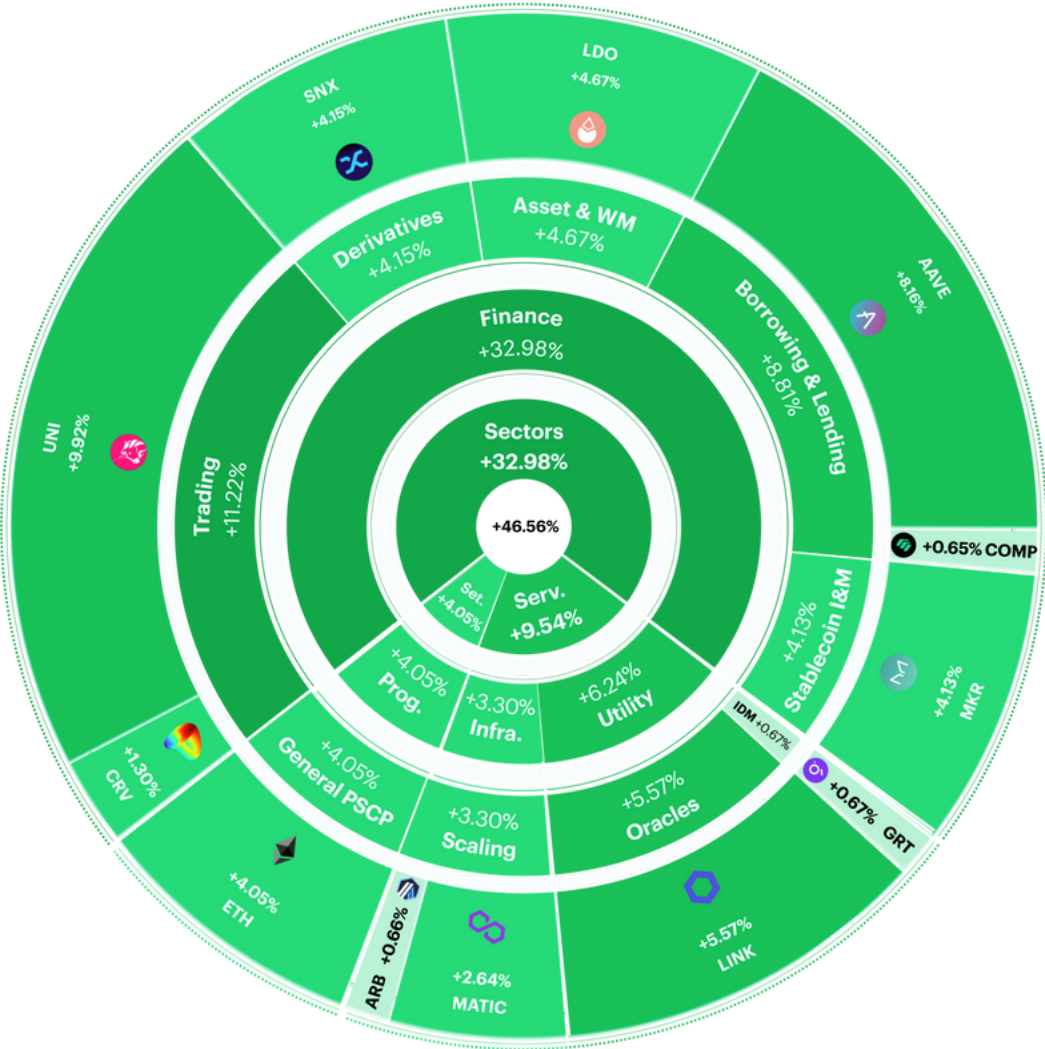
Attribution Analysis: CF Defi Composite Index

Finance tokens lift headline index



Index Return Contribution

Total Performance Contribution: +46.56% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|--------------|--|--------------|
| Sectors | Finance | Trading | CRV +1.30% |
| | | | UNI +9.92% |
| | | | SNX +4.15% |
| | | | LDO +4.67% |
| | | | AAVE +8.16% |
| | | | COMP +0.65% |
| | | | MKR +4.13% |
| | | | ARB +0.66% |
| | | | MATIC +2.64% |
| | | | LINK +5.57% |
| ETH +4.05% | | | |
| Services | Utility | Oracles | LINK +5.57% |
| | | | GRT +0.67% |
| | | | ETH +4.05% |
| Settlement | Programmable | General Purpose Smart Contract Platforms | ETH +4.05% |

- Our CF DeFi Composite Index increased over 46% over the last three months. The leading contributor in index value was Uniswap (UNI), which contributed almost 10% to the headline index’s total return.
- From a sub-category perspective, Finance tokens contributed almost over 70% to the index performance. Meanwhile, the higher weighting to UNI resulted in the Trading segment adding the most to the index value (+11.2%).

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 208.76

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------------------|------------------------|--|-------------------|-------------|
| Sectors 70.11% | Finance 70.11% | Trading 31.09% | CRV 4.49% | |
| | | | UNI 26.60% | |
| | | Derivatives 5.96% | SNX 5.96% | |
| | | Asset & Wealth Management 8.67% | LDO 8.67% | |
| | | Borrowing & Lending 12.40% | AAVE 9.75% | |
| | | COMP 2.65% | | |
| | | Stablecoin Issuance & Management 11.99% | MKR 11.99% | |
| | Services 14.89% | Infrastructure 10.23% | Scaling 10.23% | ARB 4.15% |
| | | | | MATIC 6.08% |
| | | Utility 4.66% | Oracles 3.72% | LINK 3.72% |
| | | Information & Data Management 0.94% | GRT 0.94% | |
| Settlement 15.00% | Programmable 15.00% | General Purpose Smart Contract Platforms 15.00% | ETH 15.00% | |

1st December 2023

Total Weight: 100% Index Value: 305.97

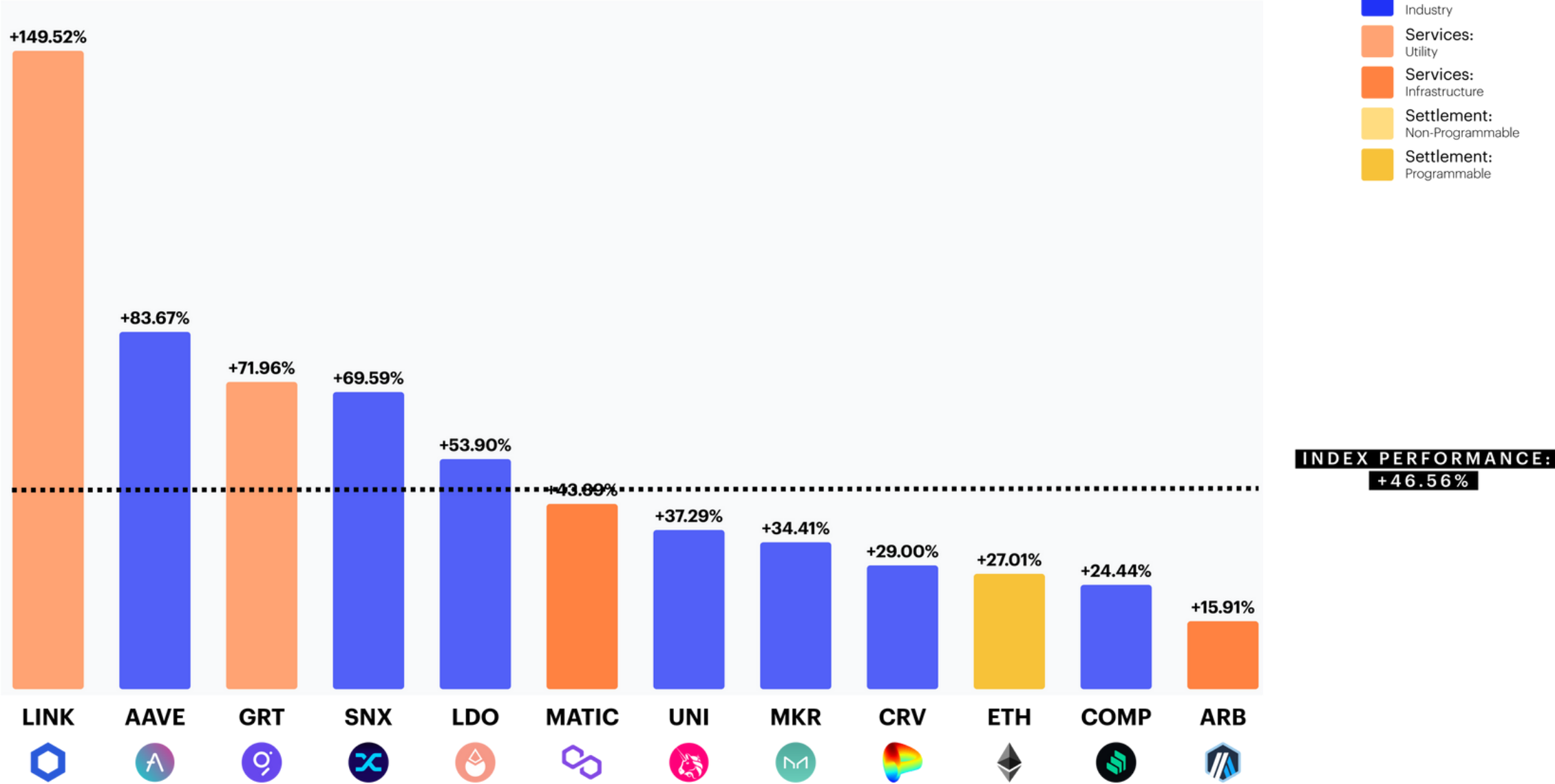
| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------------------|------------------------|--|------------------|-------------|
| Sectors 70.49% | Finance 70.49% | Trading 29.01% | CRV 3.92% | |
| | | | UNI 25.09% | |
| | | Derivatives 6.95% | SNX 6.95% | |
| | | Asset & Wealth Management 9.14% | LDO 9.14% | |
| | | Borrowing & Lending 14.33% | AAVE 12.03% | |
| | | COMP 2.30% | | |
| | | Stablecoin Issuance & Management 11.06% | MKR 11.06% | |
| | Services 16.58% | Infrastructure 9.25% | Scaling 9.25% | ARB 3.26% |
| | | | | MATIC 5.99% |
| | | Utility 7.33% | Oracles 6.26% | LINK 6.26% |
| | | Information & Data Management 1.07% | GRT 1.07% | |
| Settlement 12.93% | Programmable 12.93% | General Purpose Smart Contract Platforms 12.93% | ETH 12.93% | |

Chainlink posts banner quarter as user activity rises



Absolute Performance

Index Value: 305.97



Our DeFi index witnessed broad-based gains over the past quarter, with all twelve constituents notching positive returns averaging over 53% during the rebalance period.

The price breakout for Chainlink’s LINK token follows strengthening user activity growth. As an integral oracle solutions leader, Chainlink continues expanding its footing, especially among decentralized finance applications seeking trusted data feeds.

Moreover, the launch of Chainlink Staking v0.2 constituted the latest milestone. By increasing the staking pool to 45 million LINK, this upgrade advanced the Economics 2.0 roadmap targeting reinforced functionality, security, and decentralization. The swelling developer adoption for Chainlink’s real-time price reference infrastructure was another catalyst behind LINK’s outperformance.

Other leading tokens, AAVE and GRT, also saw significant break outs to the upside in the wake of the news that a federal judge ruled against the U.S. Securities and Exchange Commission (SEC) in their efforts to appeal a decision involving Ripple Labs.

Source: CF Benchmarks, as of December 1, 2023

DeFi activity rebounds after summer slump



The total value locked (TVL) in decentralized finance (DeFi) protocols reached a thirteen-month high, the recovery in activity was mostly catalyzed by price surges from integral crypto assets Ether (ETH) and Solana (SOL).

As core components facilitating DeFi transactions and applications, ETH and SOL value has historically impacted the valuation of assets staked on compatible protocols. Additionally, the announcement that BlackRock has filed for a spot ETH exchange-traded fund (ETF) provided additional tailwinds, intertwining with further DeFi growth. Solana-based protocols similarly benefited, with certain popular applications doubling TVL.

Beyond asset appreciation, rising interest in liquid staking protocols enticed capital inflows from yield-focused participants. As crypto prices trended higher, investors demonstrated increased interests for staking and lending to generate returns on holdings rather than sit idle. These built-in DeFi features allow crypto assets to earn yield through automated protocols. This recent uptick in TVL reflects the dynamic and rapidly evolving nature of the DeFi sector and its interconnection with broader cryptocurrency market trends.

Source: CF Benchmarks, DeFiLlama, as of December 1, 2023

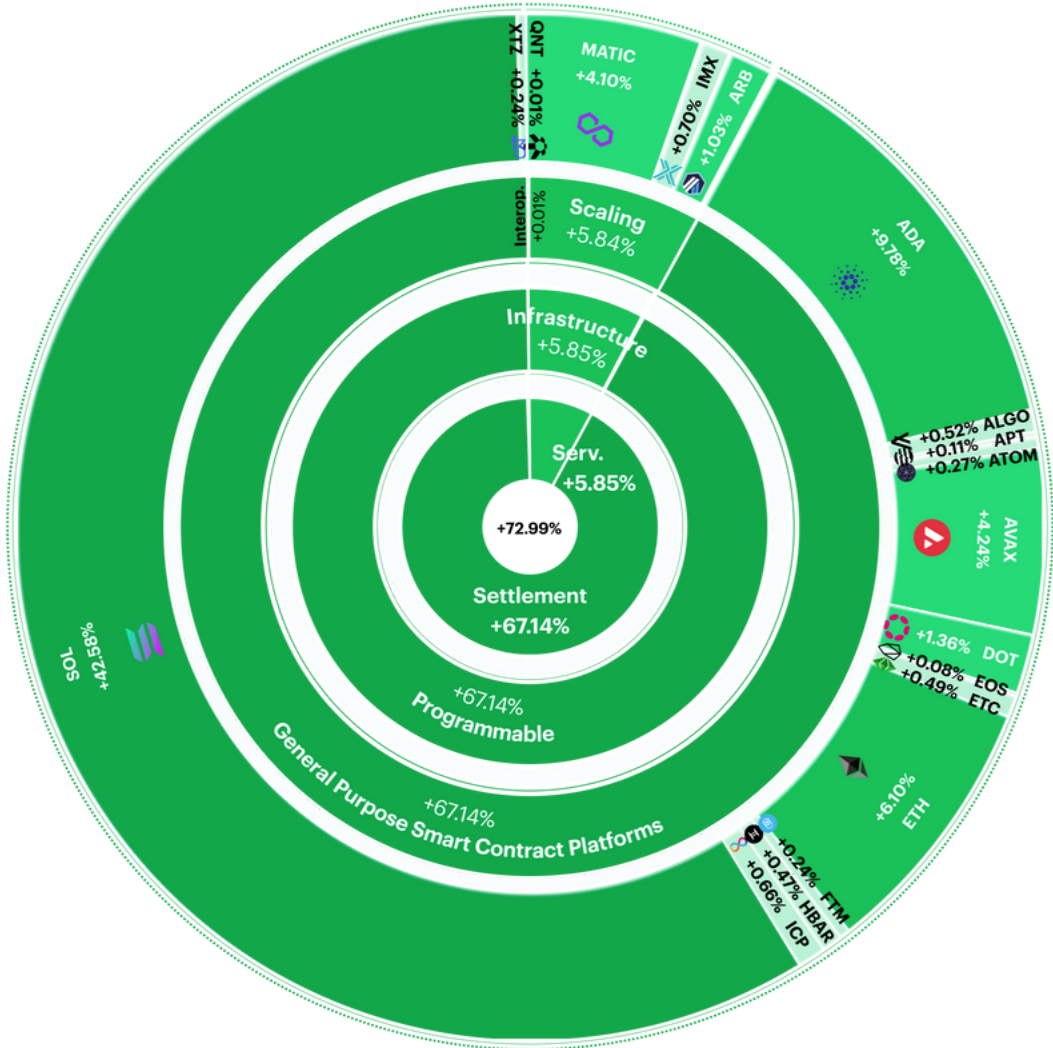
Attribution Analysis: CF Web 3.0 Smart Contract Platforms Index

Smart Contract Platforms outperform



Index Return Contribution

Total Performance Contribution: +72.99% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | CONTRIBUTION |
|------------|----------------|--|-------|--------------|
| Services | Infrastructure | Scaling | ARB | +1.03% |
| | | | IMX | +0.70% |
| Settlement | Infrastructure | Interoperability | MATIC | +4.10% |
| | | | QNT | +0.01% |
| Settlement | Programmable | General Purpose Smart Contract Platforms | ADA | +9.78% |
| | | | ALGO | +0.52% |
| | | | APT | +0.11% |
| | | | ATOM | +0.27% |
| | | | AVAX | +4.24% |
| | | | DOT | +1.36% |
| | | | EOS | +0.08% |
| | | | ETC | +0.49% |
| | | | ETH | +6.10% |
| | | | FTM | +0.24% |
| | | | HBAR | +0.47% |
| | | | ICP | +0.66% |
| | | | SOL | +42.58% |
| | | | XTZ | +0.24% |

- The CF Web 3.0 Smart Contract Platforms Index rallied by 73% during the most recent rebalancing period. The index led all of our flagship portfolio indices and outperformed the broader market by almost 30% in absolute performance terms.
- Solana’s SOL token was the leading contributor, contributing over 42% of the headline index’s total performance. This translated into the General Purpose Smart Contract Platform segment adding over 67% to the portfolio’s increase in value.

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 146.67

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|----------------------|--------------------------|--|---|
| Services 18.68% | Infrastructure 18.68% | Scaling 16.41% | <ul style="list-style-type: none"> ARB 6.47% IMX 0.49% MATIC 9.46% QNT 2.27% |
| | | Interoperability 2.27% | |
| Settlement 81.32% | Programmable 81.32% | General Purpose Smart Contract Platforms 81.32% | <ul style="list-style-type: none"> ADA 20.20% ALGO 1.14% APT 0.44% ATOM 0.71% AVAX 3.36% DOT 4.91% EOS 0.44% ETC 2.21% ETH 22.56% FTM 0.45% HBAR 2.02% ICP 1.41% SOL 20.38% XTZ 1.10% |

1st December 2023

Total Weight: 100% Index Value: 253.71

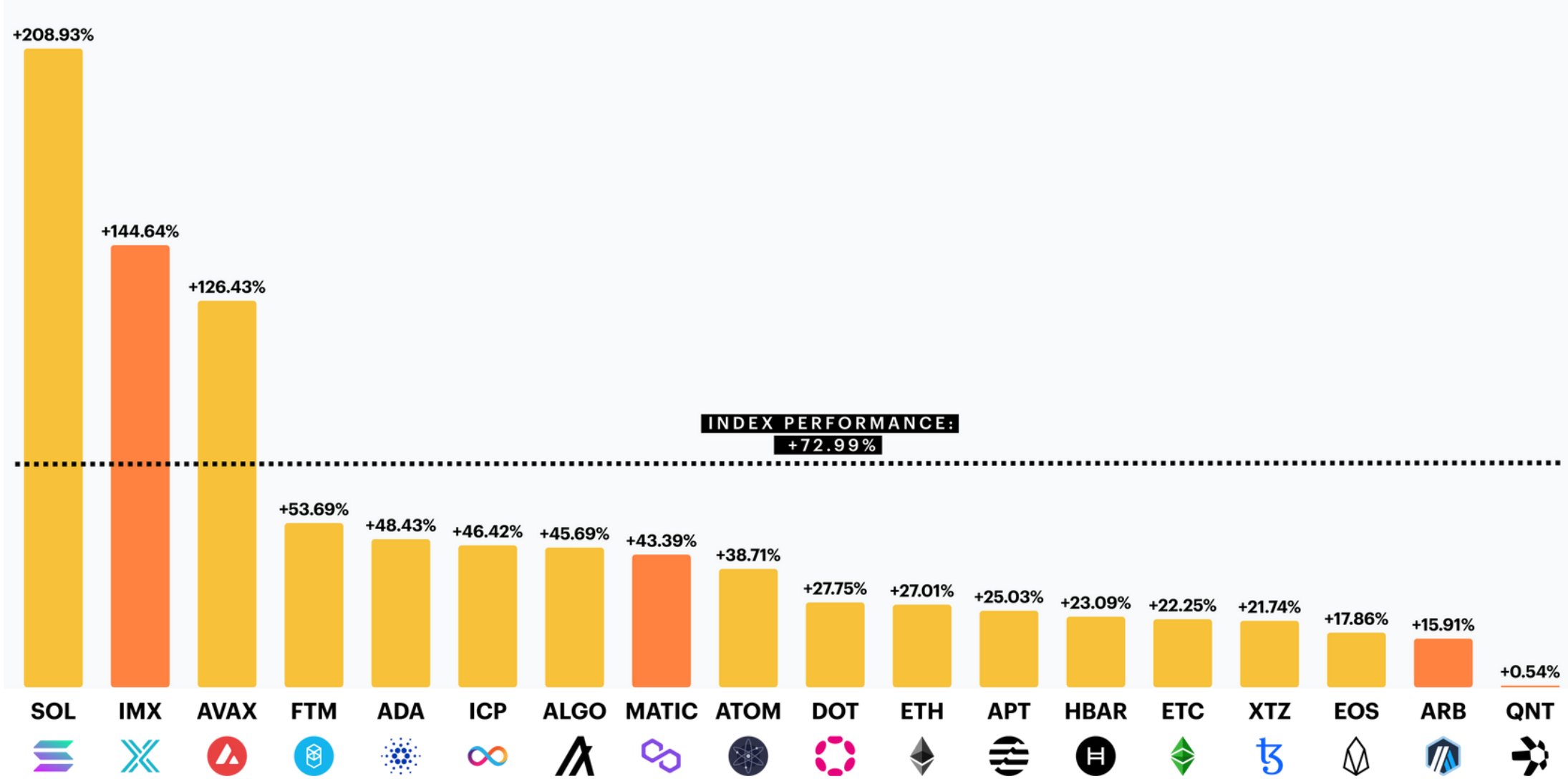
| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|----------------------|--------------------------|--|---|
| Services 14.16% | Infrastructure 14.16% | Scaling 12.83% | <ul style="list-style-type: none"> ARB 4.30% IMX 0.64% MATIC 7.89% QNT 1.33% |
| | | Interoperability 1.33% | |
| Settlement 85.84% | Programmable 85.84% | General Purpose Smart Contract Platforms 85.84% | <ul style="list-style-type: none"> ADA 17.33% ALGO 0.97% APT 0.32% ATOM 0.57% AVAX 4.22% DOT 3.64% EOS 0.30% ETC 1.56% ETH 16.46% FTM 0.39% HBAR 1.45% ICP 1.13% SOL 36.74% XTZ 0.77% |

QNT misses out on broad Smart Contract rally



Absolute Performance

Index Value: 253.71



- Sectors: Finance
- Sectors: Culture
- Sectors: Industry
- Services: Utility
- Services: Infrastructure
- Settlement: Non-Programmable
- Settlement: Programmable

The robust gains in smart contract tokens over the past quarter can be attributed to several factors, including an improved regulatory outlook for the cryptocurrency market stemming from favorable legal outcomes for Ripple Labs. At the individual level, most tokens saw positive price action, with Quant's QNT being the exception as it traded essentially flat.

Driving overall momentum was a standout 208% surge in Solana's SOL. The blockchain's native token has trended higher after its mid-October consolidation breakout. However, news of BlackRock's spot Ethereum ETF filing sparked speculation that major asset managers may soon bring a SOL ETF to market as well.

Sentiment also lifted for Immutable X and Avalanche's tokens on recovering from their September lows. The renewed buyer enthusiasm fueled their upside performance over the last three months.

Source: CF Benchmarks, as of December 1, 2023

Solana's on-chain activity outpaces Ethereum



Smart contract platforms serve a vital function in bolstering blockchain economies. In decentralized finance (DeFi), they enable key automated transactions through coded agreements that heighten security, transparency and efficiency. At their core, they provide the infrastructure for DeFi systems by executing financial contracts, upholding ledger integrity and accountability.

Of the prominent platforms, Ethereum still dominates by total value locked (TVL), owing much to its head start and large community built on smart contract specialization. Yet Solana has carved out a niche with its blazing speeds, facilitating complex high-frequency DeFi that would prove more costly on Ethereum. Following FTX's fallout, Solana's blockchain usage was derailed amid the close association between FTX and the Solana-Foundation. Still, recent on-chain movements indicate renewed traction the past quarter.

In fact, Solana's DeFi TVL expanded by approximately 150% the latest period - dwarfing Ethereum's 40% rise. This fundamental resurgence has resulted in somewhat proportional price gains based on relative TVL growth, with the "Ethereum Killer" outpacing its larger smart contract competitor by 180%. The data shows Solana may be rebounding in utilization and value on its path to more DeFi adoption.

Attribution Analysis / CF Digital Culture Composite Index

Services and Sectors categories finish even



Index Return Contribution

Total Performance Contribution: +28.92% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET |
|------------|--------------|--|--|
| Sectors | Culture | NFT Platforms | +1.06% ENJ +1.06% |
| | | Gaming | +3.16% GALA +3.16% |
| | | VR & AR | +3.80% MANA +3.80% |
| | | Social | +4.40% APE +1.16% CHZ +1.31% SHIB +1.92% |
| | | Utility | +8.74% LINK +7.80% |
| | | Infrastructure | +3.69% MATIC +3.69% |
| Services | Utility | Oracles | +7.80% LINK +7.80% |
| | | Information & Data Management | +0.94% GRT +0.94% |
| Settlement | Programmable | General Purpose Smart Contract Platforms | +4.07% ETH +4.07% |

- The CF Digital Culture Composite Index rose by 28.9%. Despite broad participation in positive constituent performance, the index underperformed the broader market and finished the rebalancing period as the index laggard for the second straight time.
- From an attribution and classification standpoint, LINK’s relatively strong performance translated into it being the largest contributor to portfolio performance, along with its respective segment category, Oracles, adding 7.8% to the headline index’s value.

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 196.61

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | | |
|--------------------------|--------------------------|--|----------------------------|--|-------------|
| Sectors 69.91% | Culture 69.91% | NFT Platforms 3.11% | ENJ 3.11% | | |
| | | Gaming 8.36% | GALA 8.36% | | |
| | | VR & AR 7.78% | MANA 7.78% | | |
| | | Social 50.65% | APE 8.55% | | |
| | | | CHZ 5.67% | | |
| | | | SHIB 36.44% | | |
| | | | Services 15.04% | Infrastructure 8.51% | MATIC 8.51% |
| | | | | Utility 6.53% | LINK 5.21% |
| | | Information & Data Management 1.31% | | GRT 1.31% | |
| | | Settlement 15.06% | Programmable 15.06% | General Purpose Smart Contract Platforms 15.06% | ETH 15.06% |

1st December 2023

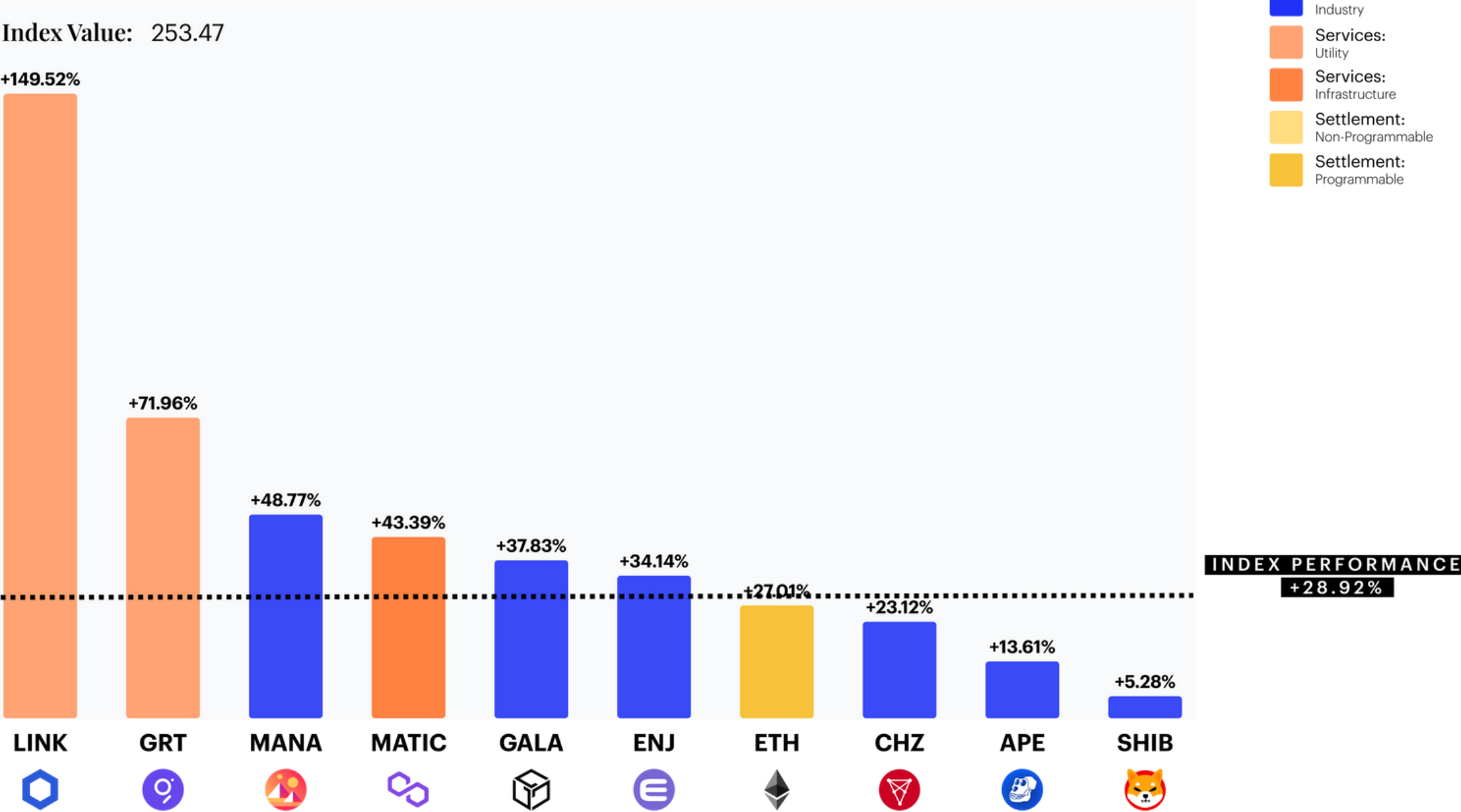
Total Weight: 100% Index Value: 253.47

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | | |
|--------------------------|--------------------------|--|----------------------------|--|-------------|
| Sectors 64.08% | Culture 64.08% | NFT Platforms 3.24% | ENJ 3.24% | | |
| | | Gaming 8.82% | GALA 8.82% | | |
| | | VR & AR 9.04% | MANA 9.04% | | |
| | | Social 42.98% | APE 7.69% | | |
| | | | CHZ 5.44% | | |
| | | | SHIB 29.84% | | |
| | | | Services 21.18% | Infrastructure 9.52% | MATIC 9.52% |
| | | | | Utility 11.66% | LINK 9.96% |
| | | Information & Data Management 1.71% | | GRT 1.71% | |
| | | Settlement 14.73% | Programmable 14.73% | General Purpose Smart Contract Platforms 14.73% | ETH 14.73% |

Utility tokens lift headline index higher



Absolute Performance



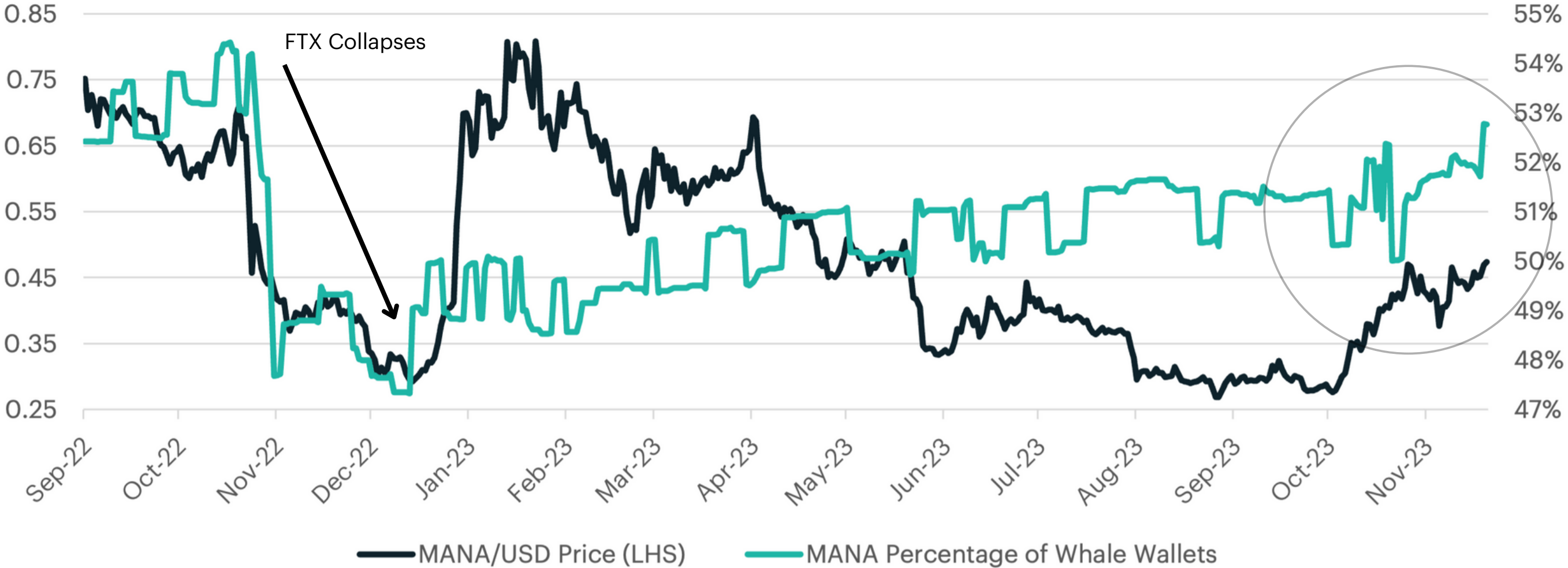
Digital Culture tokens broadly experienced a bullish retracement over the past three months. However, this degree of absolute performance can be misleading when taken in context with the broader market. For the second straight quarter, our barometer for Digital Culture tokens has finished the rebalance period as the group’s underperformer.

Taking a deeper look into the constituent performance by their CF Digital Asset Classification Structure (DACS) categories, the average positive performance from the tokens in the headline Culture sub-category underperformed non-headline tokens by approximately 49%.

LINK and GRT prices led the rest of their constituents, rising 149.5% and 71.9%, respectively. Prices broke out of their summer range of consolidation, which fostered a wave of bullish sentiment and positive price momentum.

Source: CF Benchmarks, as of December 1, 2023

Crypto whales revisit MANA



Decentraland’s MANA token outperformed the rest of its peers in its respective Culture sub-category. Decentraland users can buy and sell digital real estate, while exploring, interacting and playing games within this virtual world. MANA is the native cryptocurrency that facilitates purchases of digital land, as well as virtual goods and services used in Decentraland. Whale investors are individuals or entities holding large amounts of cryptocurrency, with a common minimum threshold being a wallet address that holds at least 1% of total circulating supply. MANA’s price was heavily influenced by a decrease in these large token holders during the FTX collapse. However, over the past three months, MANA whales have returned to the market, increasing their share of circulating supply from 50 to 53%. This increase in interest has translated into a recovery in price for the popular AR/VR metaverse token.

Source: CF Benchmarks, intotheblock.com, as of December 5, 2023

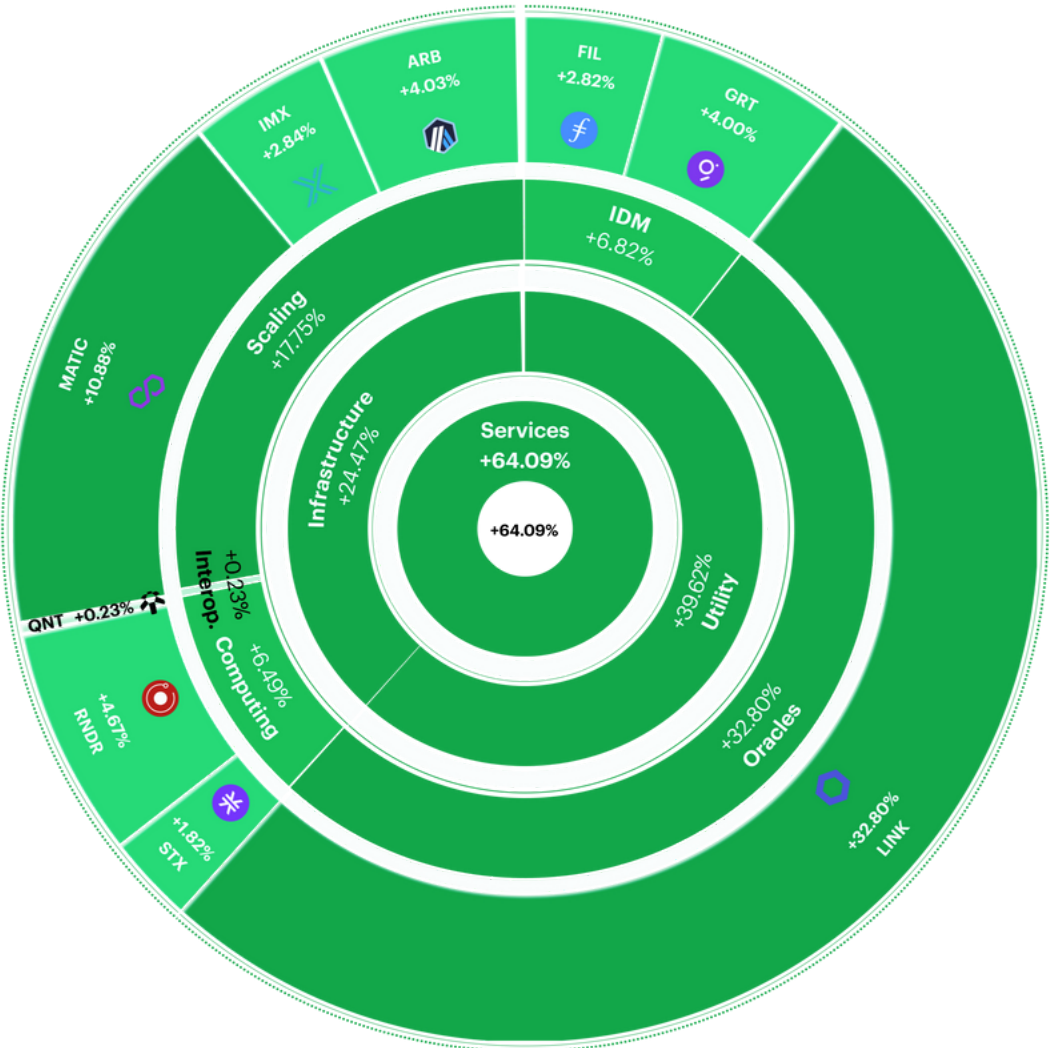
Attribution Analysis: The CF Blockchain Infrastructure Index

Outperformance split between Oracles and Scaling



Index Return Contribution

Total Performance Contribution: +64.09% Date: 1st December 2023



| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------|----------------|------------------|-------------------------------|------------|
| Services | Infrastructure | Scaling | ARB +4.03% | |
| | | | IMX +2.84% | |
| | | | MATIC +10.88% | |
| | | Interoperability | QNT +0.23% | |
| | | | RNDR +4.67% | |
| | Utility | Computing | STX +1.82% | |
| | | | LINK +32.80% | |
| | | Oracles | LINK +32.80% | |
| | | | Information & Data Management | FIL +2.82% |
| | | | | GRT +4.00% |
| +64.09% | | | | |

- The CF Blockchain Infrastructure Index witnessed a sharp 64.1% increase over the last rebalancing period, outperforming the broader crypto market (as measured by the CF Floating Broad Cap Index) by approximately 20%.
- Chainlink’s LINK token was the leading individual contributor in index performance (+32.8%). From a CF DACS sub-catagory perspective, Utility tokens added 39.9%, or approximately 60% of the total index return, as compared to Infrastructure’s 24.5% contribution.

Source: CF Benchmarks, as of December 1, 2023

Index Weights



2nd September 2023

Total Weight: 100% Index Value: 292.91

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------|----------------|------------------|-------------------------------|------------|
| Services | Infrastructure | Scaling | ARB 22.53% | |
| | | | IMX 1.75% | |
| | | | MATIC 22.50% | |
| | | Interoperability | QNT 14.22% | |
| | | | Computing | RNDR 2.80% |
| | | | | STX 2.74% |
| | Utility | Oracles | LINK 21.44% | |
| | | | Information & Data Management | FIL 6.64% |
| | | GRT 5.38% | | |
| | | 100.00% | | |

1st December 2023

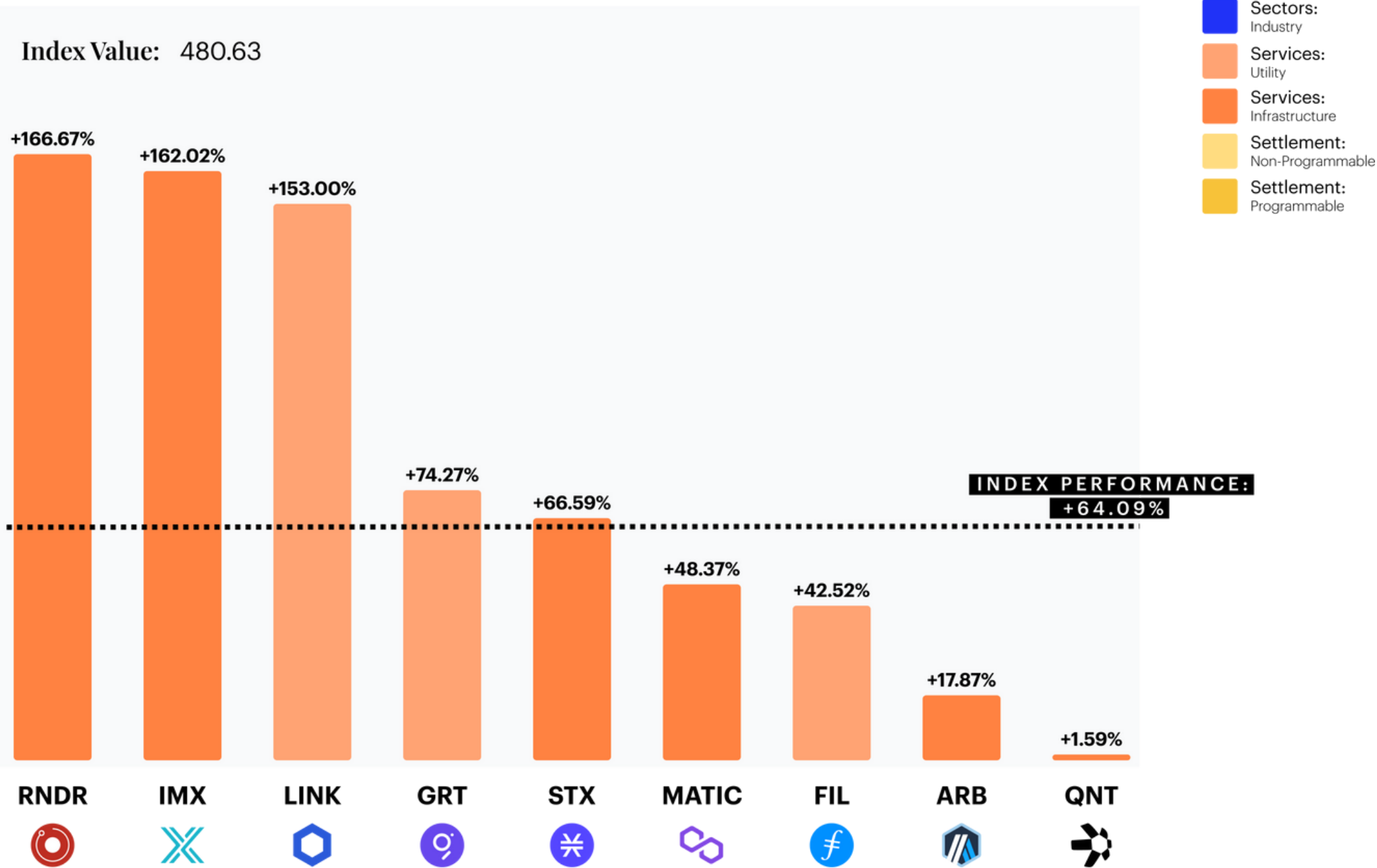
Total Weight: 100% Index Value: 480.63

| CATEGORY | SUB-CATEGORY | SEGMENT | ASSET | |
|----------|----------------|------------------|-------------------------------|------------|
| Services | Infrastructure | Scaling | ARB 16.31% | |
| | | | IMX 2.59% | |
| | | | MATIC 20.36% | |
| | | Interoperability | QNT 8.99% | |
| | | | Computing | RNDR 4.59% |
| | | | | STX 2.63% |
| | Utility | Oracles | LINK 33.03% | |
| | | | Information & Data Management | FIL 5.84% |
| | | GRT 5.67% | | |
| | | 100.00% | | |

A broad & diversified rally leaves QNT behind



Absolute Performance

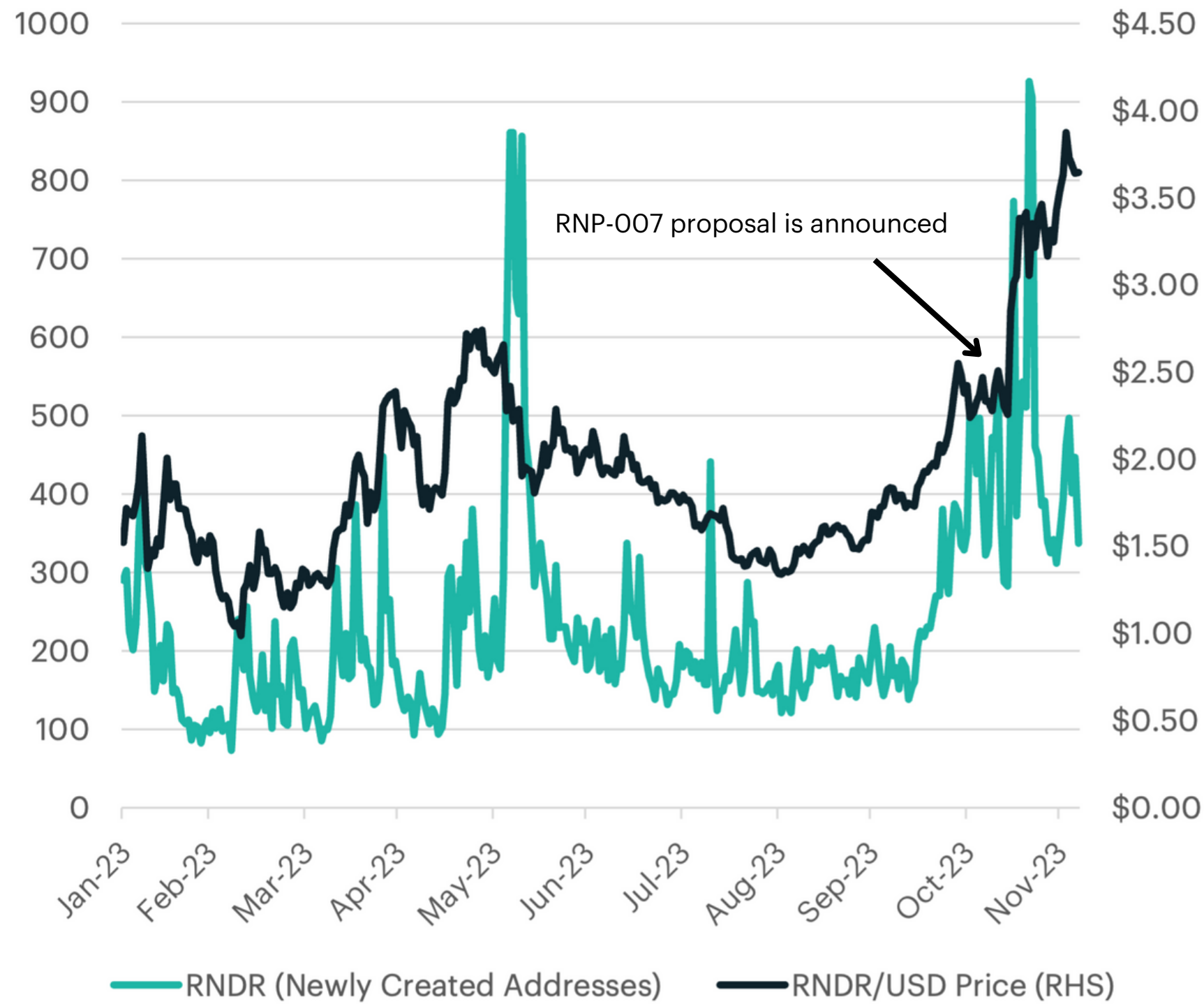


Blockchain infrastructure protocols provide the underlying frameworks and resources that enable the blockchain economy and ecosystem to function effectively, similar to how power grids and stations are essential for providing electricity. Our CF Digital Asset Classification Structure (CF DACS) provides users with definitive segments, such as scaling, information, oracles, and computing as the main categories of services for these decentralized protocols.

Performance of the Blockchain Infrastructure tokens was broadly felt, with all tokens posting positive performance over the last three months. Even more notable, the top three performers (RNDR, IMX, and LINK) each represented different segments of blockchain infrastructure, indicating a more diversified performance dynamic in the portfolio index. This resulted in our CF Blockchain Infrastructure Index taking second place in price performance over the most recent rebalance period.

Source: CF Benchmarks, as of December 1, 2023

RNP-007 proposal brings renewed enthusiasm



The Render Network establishes a decentralized ecosystem where users can lease unused GPU power. Its native RNDR token enables access to the network's functionality.

On November 13th, Render proposed launching FEDML - a new cloud compute solution designed to streamline building, deployment and monetization of large AI models like Large Language Models (LLMs) for developers and companies. It features robust model libraries, intuitive interfaces and a large-scale GPU marketplace. All of these features aim to help train and run LLMs more cheaply and efficiently.

With 91.34% support out of 33,000 RNDR votes, the community resoundingly approved the FEDML proposal, reflecting belief in its potential. This introduction of leading-edge AI innovation on Render also sparked marketplace excitement, evident in the spiking of new wallet addresses around the time of the announcement. Overall, token holders and users hope these platform enhancements will unlock new use cases and value for the network as the swell of new AI models continues to gain investor focus.

Appendix

Market Performance Overview



Major Crypto-Pairs (USD)

| Name | 1 Day | 1 Week | 1 Month | 3 Month | YTD | 90 D Volatility |
|----------------|-------|--------|---------|---------|--------|-----------------|
| Bitcoin | -0.4% | 1.5% | 9.8% | 45.5% | 128.1% | 37.90 |
| Ethereum | 0.1% | -0.9% | 13.4% | 24.2% | 70.4% | 37.65 |
| Cardano | -1.4% | -1.2% | 29.4% | 46.0% | 49.4% | 49.85 |
| Dogecoin | 2.2% | 9.3% | 22.1% | 29.6% | 22.1% | 43.72 |
| Polygon | 2.7% | 0.5% | 23.1% | 42.2% | 0.5% | 60.09 |
| Solana | -0.4% | 4.6% | 65.5% | 205.7% | 491.1% | 77.79 |
| Litecoin | -0.3% | 0.8% | 0.9% | 9.6% | -1.2% | 46.78 |
| Chainlink | -0.8% | 1.4% | 29.7% | 141.4% | 158.1% | 79.18 |
| Polkadot | 2.7% | 4.9% | 23.0% | 26.5% | 22.5% | 46.97 |
| Avalanche | 0.2% | 1.7% | 87.9% | 111.3% | 95.8% | 84.09 |
| Uniswap | -2.5% | -5.6% | 46.0% | 36.6% | 15.8% | 63.34 |
| Algorand | 2.8% | 4.5% | 25.6% | 45.2% | -22.2% | 62.47 |
| Stellar Lumens | 0.4% | 2.5% | -0.2% | 3.0% | 66.1% | 47.94 |
| Cosmos | 2.5% | 6.7% | 17.7% | 35.3% | -1.1% | 52.26 |
| Aave | 0.2% | 1.2% | 20.4% | 77.4% | 86.4% | 72.27 |
| Maker | -0.4% | 2.9% | 12.6% | 31.6% | 197.9% | 58.00 |
| Compound | 0.6% | 0.0% | 12.8% | 26.3% | 67.6% | 71.57 |
| Axie | -2.8% | 9.5% | 17.8% | 36.9% | 7.3% | 63.26 |
| Curve | -1.2% | -2.6% | 47.8% | 70.6% | 128.3% | 61.39 |

Commodities

| Name | 1 Day | 1 Week | 1 Month | 3 Month | YTD | 90 D Volatility |
|--------------------------------------|-------|--------|---------|---------|--------|-----------------|
| Bloomberg Commodity Index | -0.5% | -0.4% | -2.7% | -9.7% | -9.7% | 10.92 |
| Bloomberg Energy Subindex | -1.9% | -3.0% | -10.8% | -20.5% | -20.5% | 23.97 |
| Bloomberg Industrial Metals Subindex | -0.6% | -0.3% | -0.1% | -16.7% | -16.7% | 15.80 |
| Bloomberg Precious Metals Subindex | -0.2% | 3.2% | 3.9% | 5.0% | 5.0% | 13.74 |
| Bloomberg WTI Crude Oil Subindex | -2.4% | -1.5% | -5.6% | -0.9% | -0.9% | 31.81 |
| Bloomberg Gold Subindex | -0.5% | 2.3% | 2.6% | 11.6% | 11.6% | 11.81 |

Equities

| Name | 1 Day | 1 Week | 1 Month | 3 Month | YTD | 90 D Volatility |
|-----------------------------|-------|--------|---------|---------|-------|-----------------|
| S&P 500 INDEX | 0.4% | 0.3% | 9.1% | 20.8% | 20.8% | 12.76 |
| NASDAQ 100 Stock Index | -0.2% | -0.3% | 10.8% | 47.0% | 47.0% | 17.36 |
| FTSE 100 Index | 0.4% | -0.4% | 2.3% | 3.7% | 3.7% | 11.30 |
| MSCI Europe Index | 0.6% | 0.7% | 6.5% | 12.3% | 12.3% | 10.90 |
| MSCI Japan Index | 0.5% | -0.2% | 5.9% | 29.6% | 29.6% | 15.88 |
| MSCI Emerging Markets Index | 0.4% | -0.1% | 8.0% | 6.0% | 6.0% | 13.87 |
| MSCI World Index | 0.3% | 0.5% | 9.4% | 18.6% | 18.6% | 11.61 |
| MSCI ACWI Index | 0.4% | 0.5% | 9.3% | 17.2% | 17.2% | 11.20 |

Fixed Income

| Name | 1 Day | 1 Week | 1 Month | 3 Month | YTD | 90 D Volatility |
|---|-------|--------|---------|---------|-------|-----------------|
| Bloomberg Global-Aggregate Bond Index | -0.4% | 0.9% | 5.0% | 1.5% | 1.5% | 6.43 |
| Bloomberg Global Agg Credit Index | -0.4% | 1.0% | 5.5% | 4.8% | 4.8% | 6.77 |
| Bloomberg Global High Yield Index | -0.1% | 1.1% | 5.4% | 9.6% | 9.6% | 5.22 |
| Bloomberg US Long Treasury Bond Index | -1.0% | 0.8% | 9.2% | -5.1% | -5.1% | 18.71 |
| Bloomberg US Short Term Treasury Index | 0.0% | 0.2% | 0.6% | 4.4% | 4.4% | 0.29 |
| Bloomberg Global Inflation-Linked Index | -0.3% | 0.4% | 2.7% | 1.2% | 1.2% | 6.56 |

Fiat Currency Pairs

| Name | 1 Day | 1 Week | 1 Month | 3 Month | YTD | 90 D Volatility |
|-----------------------------|-------|--------|---------|---------|--------|-----------------|
| DOLLAR INDEX SPOT | 0.7% | -0.4% | -3.0% | -0.1% | 0.0% | 6.18 |
| EURO/US DOLLAR | -0.7% | -0.2% | 3.0% | 0.4% | 1.7% | 6.85 |
| BRITISH POUND/US DOLLAR | -0.6% | 0.7% | 3.9% | -0.4% | 4.5% | 7.48 |
| JAPANESE YEN/US DOLLAR | -0.6% | 0.9% | 2.4% | -1.8% | -11.5% | 7.67 |
| US DOLLAR/SWISS FRANC | 0.1% | -1.0% | -3.9% | -0.9% | -5.3% | 6.15 |
| AUSTRALIAN DOLLAR/US DOLLAR | -0.2% | 0.7% | 4.2% | 1.9% | -3.1% | 9.81 |
| MEXICAN PESO/US DOLLAR | -0.6% | -1.1% | 3.8% | -2.0% | 12.2% | 13.07 |
| BRAZIL REAL/US DOLLAR | -0.3% | -0.3% | 2.4% | 0.7% | 7.5% | 11.20 |
| US DOLLAR/SINGAPORE DOLLAR | 0.3% | -0.3% | -2.4% | -1.0% | -0.2% | 4.18 |
| TAIWAN DOLLAR/US DOLLAR | -0.3% | 0.7% | 3.6% | 1.9% | -1.7% | 5.32 |

Source: CF Benchmarks, Bloomberg, as of November 30, 2023

The CF Diversified Broad Cap Indices



The CF Diversified Broad Cap Index and CF Broad Cap Index (Free Float Market Cap Weight) are liquid investible benchmark portfolio indices designed to track the performance of diversified exposure to a broad portfolio of the digital asset class. The index seeks to capture 99% of the total market capitalization of the investible digital asset universe as its constituents.

For the diversified variant, the index constituents are weighted by diversified market capitalization that reduces portfolio weight away from overly dominant constituents. Conversely, the index constituents are weighted using free-float market capitalization and reconstituted and rebalanced once a quarter in accordance with the CF Multi Asset Ground Rules.

The index is calculated and published once a day at 4:00pm London Time every day of the year, it is re-constituted and rebalanced quarterly in accordance with the CF Multi Asset Ground Rules. There are two variants; the CF Diversified Broad Cap Index & CF Floating Broad Cap Index and both were launched on October 30th 2022 with an inception date of September 1st 2022 at a value of 1,000.

Constituent changes: CF Broad Cap Indices



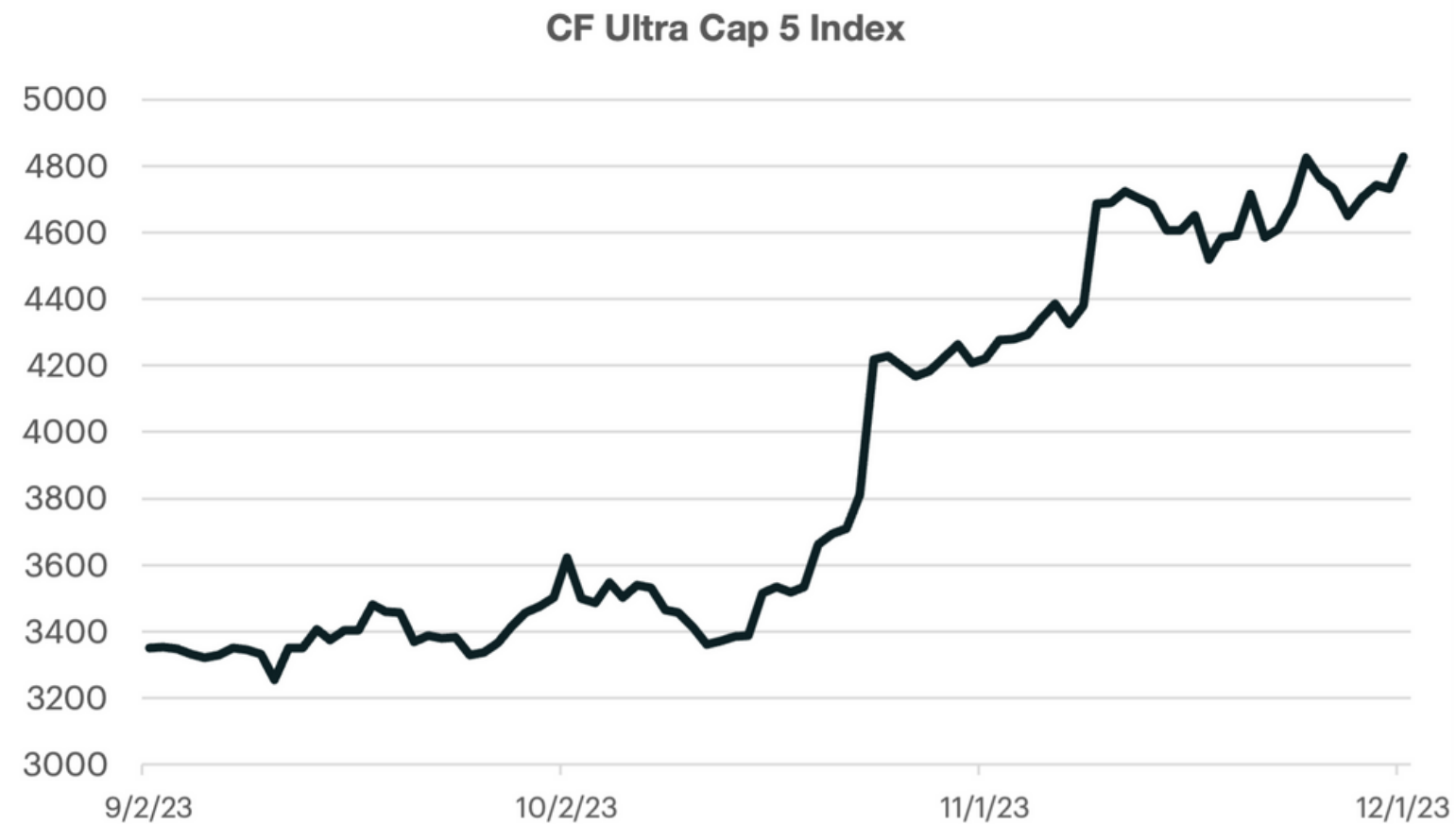
Additions (+)

- **Ripple (XRP):** Ripple XRP is a cryptocurrency built for efficient payments. Ripple is the company behind the cryptocurrency XRP. Ripple created XRP as a decentralized cryptocurrency native to the RippleNet payment platform. RippleNet was created in 2012 by Ripple to offer banks and financial institutions a real-time settlement system that allows for secure, instant financial transactions that can span the globe.

Subtractions (-)

- **Gala (GALA):** Gala Games (GALA) is a blockchain games studio aiming to create 'blockchain games you'll actually want to play.' It seeks to establish an ecosystem where players can take ownership over their in-game assets and achievements. Gala Games' native token is GALA, which is used to secure the platform and incentivize players.
- **Fantom (FTM):** Fantom is a blockchain-based smart contract platform for developing decentralized applications (dApps). The platform uses a novel consensus mechanism and asynchronous Byzantine Fault Tolerance (aBFT) approach to solve issues with decentralization, security and scalability found in existing blockchains. FTM is the native token of the protocol which is used to vote on decisions affecting the future of the platform, pay network transaction fees, interact with its ecosystem of dApps and earn rewards via staking.

The CF Cryptocurrency Ultra Cap 5 Index



The CF Cryptocurrency Ultra Cap 5 (CFUC5) is an investible benchmark index tracking the performance of a free float market capitalization weighted portfolio of the 5 largest cryptocurrencies by market capitalization. It is the first true measure of the market beta of cryptocurrencies being a Registered Benchmark under EU BMR. All pricing sources for constituents of the index are also themselves Registered Benchmarks. The index is calculated and published once every second in accordance with the methodology. The portfolio composition is determined by the CF Digital Asset Index Family Multi Asset Series Ground Rules with constituent reviews taking place twice a year and monthly rebalancing. The index was launched on August 18th 2020 with an inception date of September 1st 2018 at a value of 1000.

Constituent changes: CF Ultra Cap 5 Index



Additions (+)

- **Ripple (XRP):** Ripple XRP is a cryptocurrency built for efficient payments. Ripple is the company behind the cryptocurrency XRP. Ripple created XRP as a decentralized cryptocurrency native to the RippleNet payment platform. RippleNet was created in 2012 by Ripple to offer banks and financial institutions a real-time settlement system that allows for secure, instant financial transactions that can span the globe. RippleNet uses XRP to processes transactions extremely quickly, handling about 1,500 transactions per second. Ripple (the company) now acts as principal steward in the funding and development of the XRP Ledger and plays an important role in its development and digital economy.

Subtractions (-)

- **Dodge (DOGE):** Dogecoin is a decentralized, peer-to-peer cryptocurrency that uses the "Doge" meme as its mascot. Dogecoin (DOGE) is a peer-to-peer cryptocurrency that is widely used for tipping content creators on various social media platforms. Dogecoin features the likeness of the Shiba Inu dog popularized in the "Doge" meme, and was first introduced as a marketing experiment in 2013. DOGE quickly gained a massive audience, however, and now boasts one of the largest market caps in the industry. Much wow. Doge is pleased.

The CF Diversified Large Cap Index



The CF Diversified Large Cap Index - is a liquid, investible benchmark portfolio index designed to track the performance of large-cap digital assets. The index seeks to capture 95% of the total market capitalization of the investible digital asset universe as its constituents. Index constituents are weighted using the diversified market capitalization which is determined by the free-float market capitalization adjusted by the application of the harmonic series' terms. This has the benefit of discounting the higher capitalization assets within the portfolio in accordance with the CF Multi Asset Series Ground Rules and the CF Diversified Large Cap Index Methodology. The index is calculated and published every second. The index is re-constituted on a twice yearly basis and rebalanced quarterly. The CF Diversified Large Cap Index - was incepted on December 1st 2021 with a value of 1,000. The index was launched on February 14th, all values from inception date to launch date provided are back tested.

Constituent changes: CF Diversified Large Cap Index



Additions (+)

- **Ripple (XRP):** Ripple XRP is a cryptocurrency built for efficient payments. Ripple is the company behind the cryptocurrency XRP. Ripple created XRP as a decentralized cryptocurrency native to the RippleNet payment platform. RippleNet was created in 2012 by Ripple to offer banks and financial institutions a real-time settlement system that allows for secure, instant financial transactions that can span the globe. RippleNet uses XRP to processes transactions extremely quickly, handling about 1,500 transactions per second. Ripple (the company) now acts as principal steward in the funding and development of the XRP Ledger and plays an important role in its development and digital economy.

Subtractions (-)

- **Chainlink (LINK):** Chainlink is a decentralized oracle that provides external data to smart contracts. Using reputation and validation systems to reward honest behavior among tamper-proof oracles, the Chainlink network connects smart contracts to real world data, events and payments. The cryptocurrency that powers the network is LINK, an ERC-20 token that incentivizes oracles - third party blockchain data sources - to maintain service level agreement (SLA) standards.
- **Polkadot (DOT):** Polkadot is a blockchain network designed to facilitate fast transaction confirmations. Polkadot is a blockchain that seeks to connect an ecosystem of blockchains, and toward this goal, it introduces a number of novel technical features. Polkadot network is made up of two types of blockchains. A main chain, called a relay chain, where all transactions are agreed upon permanently, and user-generated chains, which are called parachains.

The CF DeFi Composite Index



The CF DeFi Composite Index - London is a liquid, investible benchmark portfolio index that tracks the return performance of decentralised financial services, commonly referred to as "DeFi". The index is comprised of three distinct sub-portfolios of fixed weight that represent the components of blockchain architecture that are required to deliver decentralised financial services to individual and institutional end users; decentralized applications (dApps) via DeFi protocols, Services and Settlement Blockchains. Digital assets are classified in accordance with the CF Digital Asset Classification Structure (DACs) for sub-portfolio eligibility. The index is calculated and published once a day at 4:00pm London Time. The index is re-constituted on a twice yearly basis and rebalanced quarterly.

The CF DeFi Composite Index - London was inceptioned on December 1st 2021 with a value of 1,000. The index was launched in January 18th, all values from inception date to launch date provided are backtested.

Constituent changes: CF DeFi Composite Index



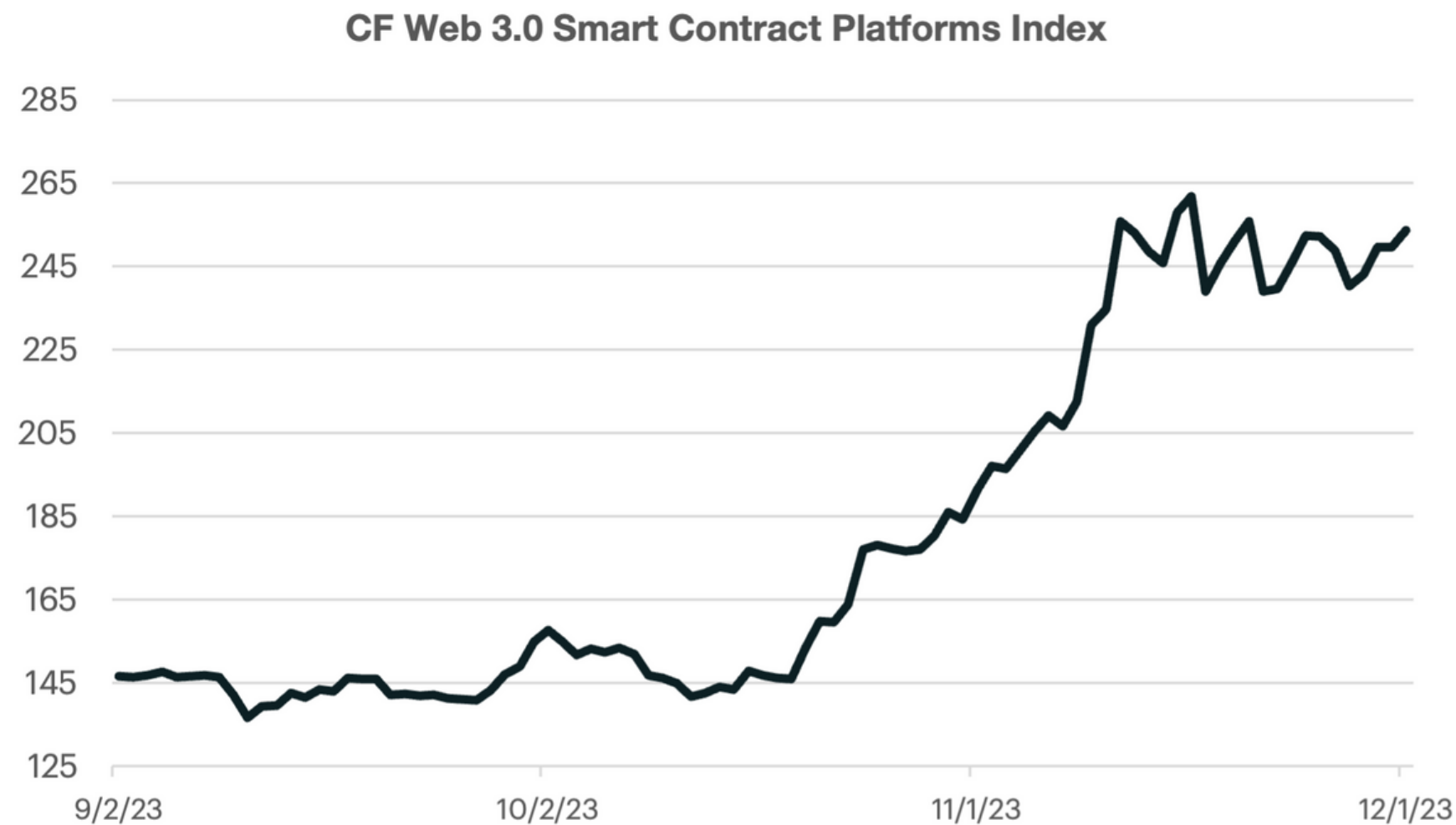
Additions (+)

- None

Subtractions (-)

- None

Constituent changes: CF Web 3.0 Smart Contract Platforms Index



The CF Web 3.0 Smart Contract Platforms Index - London is a liquid, investible benchmark portfolio index that tracks the return performance of Smart Contract Platforms within the Digital Asset space. The index seeks to capture returns of all eligible protocols under the Settlement category and Programmable sub-category of the CF Digital Asset Classification Structure. Index constituents are weighted by using a capped free-float market capitalization in accordance with the CF Digital Asset Series Ground Rules and the index methodology. The index is calculated and published once a day at 4:00pm London Time. The index is re-constituted and rebalanced quarterly. The CF Web 3.0 Smart Contract Platforms Index - London was inceptioned on December 1st 2021 with a value of 1,000. The index was launched on June 28th, all values from inception date to launch date provided are backtested.

Constituent changes: CF Web 3.0 Smart Contract Platforms Index



Additions (+)

- None

Subtractions (-)

- None

The CF Digital Culture Composite Index



The CF DeFi Composite Index - London is a liquid, investible benchmark portfolio index that tracks the return performance of decentralised financial services, commonly referred to as "DeFi". The index is comprised of three distinct sub-portfolios of fixed weight that represent the components of blockchain architecture that are required to deliver decentralised financial services to individual and institutional end users; decentralized applications (dApps) via DeFi protocols, Services and Settlement Blockchains. Digital assets are classified in accordance with the CF Digital Asset Classification Structure (DACs) for sub-portfolio eligibility. The index is calculated and published once a day at 4:00pm London Time. The index is re-constituted on a twice yearly basis and rebalanced quarterly.

The CF DeFi Composite Index - London was inceptioned on December 1st 2021 with a value of 1,000. The index was launched in January 18th, all values from inception date to launch date provided are backtested.

Constituent changes: CF Digital Culture Index



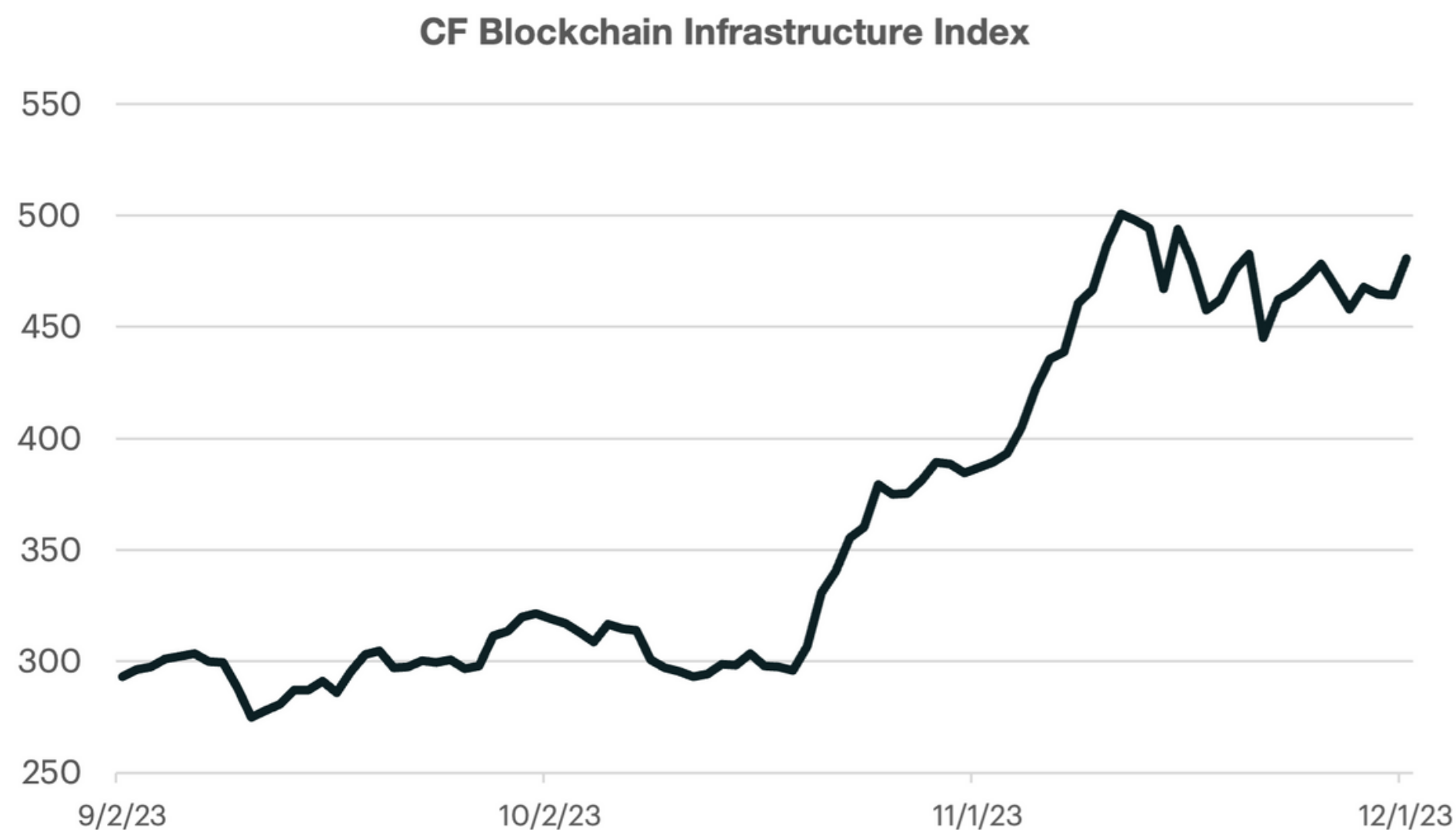
Additions (+)

- None

Subtractions (-)

- Enjin (ENJ): Enjin is a platform used to create and manage virtual goods and collectibles. Enjin is an Ethereum-based decentralized application (dapp) designed for developers to create and manage virtual in-game goods and collectables. ENJ, Enjin's native cryptocurrency, is central in managing the digital assets on its platform as each in-game item created on Enjin is assigned a value in ENJ.

The CF Blockchain Infrastructure Index



The CF Blockchain Infrastructure Index is a liquid, investible benchmark portfolio index that tracks the return performance of blockchain services within the Digital Asset space. The index seeks to capture returns of all eligible protocols under the Services category of the CF Digital Asset Classification Structure. Index constituents are weighted by using a capped free-float market capitalization in accordance with the CF Digital Asset Series Ground Rules and the index methodology.

The index is calculated and published once a day at 4:00pm Brasilia Time. It is re-constituted and rebalanced quarterly. The CF Blockchain Infrastructure Index - Brazil was incepted on April 1st 2022 with a value of 1,000. The index.

Constituent changes: CF Blockchain Infrastructure Index



Additions (+)

- None

Subtractions (-)

- None

CF Digital Asset Classification Structure



CF Digital Asset Classification Structure

The CF Digital Asset Classification Structure (CF DACS) classifies coins and tokens based on the services that the associated software protocol delivers to end users, grouping assets by the role they play in delivering services to end users. The CF DACS powers CF Benchmarks' sector composite and category portfolio indices and allows users to perform attribution analysis to better understand the fundamental drivers of returns within their digital asset portfolios.

CF Digital Asset Classification Structure



Additional Resources

For more information about our CF Benchmark indices and our methodologies, please visit the respective web links below:

- [CF Diversified Large Cap Index](#)
- [CF DeFi Composite Index](#)
- [CF Web 3.0 Smart Contract Platforms Index](#)
- [CF Digital Culture Composite Index](#)
- [CF Blockchain Infrastructure Index](#)
- [CF Cryptocurrency Ultra Cap 5 Index](#)
- [CF Broad Cap Index Market Cap Weight](#)
- [CF Broad Cap Index Diversified Weight](#)

Contact us

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