Market Review

JUNE 2022

Genesis

JUNE 2022 MONTHLY REVIEW

Introduction

While it feels like each month of 2022 so far has been tinged with market-related drama, June took a darker tone as the impact of May's events and further price drops started to show up in company downsizing, continued liquidations, and withdrawal suspensions at some lenders.

Fears of contagion further dimmed the mood and served as a reminder of how interconnected much of the market has become, with cross-pollination among the main DeFi platforms and some funds layering leverage across lenders.

Yet while "business as usual" was disrupted for many market participants, and the consequences of the blows to investor confidence have yet to fully work themselves out, the month's events highlighted many features of the crypto ecosystem that point to where its evolution is heading:

→ The large DeFi platforms withstood the market's considerable stress test, with continued transparency and no reported downtime

→ Large traditional financial institutions continued to make progress on the development of crypto asset operations (Goldman Sachs executed its first ether-linked derivative trade, Citi appointed a crypto custodian)

→ Crypto companies showed determination and resolve in pushing forward regulatory acceptance (Custodia is taking legal action against the Federal Reserve, Grayscale[1] against the SEC)

→ Several firms managed to close notable raises, in spite of the bearish sentiment (including FalconX, Prime Trust, Magic Eden, and Kaiko)

→ New investment funds launched, including from Binance Labs, Immutable, and 1confirmation

By and large, while there is much pain in the market, building, investing, and progress continues.

In the report below, we look at some of the main trends and metrics that grabbed our attention over the past month. Highlights include:

→ What some on-chain bitcoin-related metrics are telling us

→ How BTC price cycles differ from stock market price cycles

→ The latest on progress toward the Ethereum Merge

1 Grayscale Investments is owned by DCG, also the parent of Genesis

→ The significance of some of the moves behind the ETH/BTC ratio

→ Macro and micro trends in DeFi

Nothing in this report is intended to be investment advice—our aim is to update and explain some of the shifting narratives driving crypto markets. We hope you find it useful.

(Note: we use uppercase Bitcoin to denote the network, and lowercase bitcoin or BTC to denote the asset; for Ethereum, we use uppercase to denote the network, and ether or ETH to denote the asset. "Merge" is capitalized when referring to Ethereum's upcoming consensus shift. All $ are USD unless otherwise specified.)

Price performance for June

The June performance of the top 10 assets ex-stablecoins ranked by market cap:

Asset			Price	Mkt Cap (bn)	1-Month	3-Months	1-Year	1M RV
Bitcoin	BTC	Currencies	$20,108.53	$384,067,866,466	-36.65%	-57.27%	-44.09%	85.9%
Ethereum	ETH	Layer-1	$1,098.91	$133,275,228,451	-44.94%	-67.52%	-49.35%	115.0%
BNB	BNB	Layer-1	$219.37	$35,835,405,054	-31.91%	-50.46%	-27.10%	89.4%
Cardano	ADA	Layer-1	$0.47	$15,747,671,035	-18.48%	-60.91%	-66.07%	114.1%
XRP	XRP	Currencies	$0.33	$15,942,967,992	-21.28%	-61.69%	-53.34%	84.7%
Solana	SOL	Layer-1	$33.92	$11,618,504,834	-28.14%	-71.90%	-0.02%	141.9%
Dogecoin	DOGE	Currencies	$0.07	$9,229,637,614	-20.84%	-51.45%	-73.58%	133.7%
Polkadot	DOT	Layer-1	$7.00	$7,889,820,786	-33.07%	-68.90%	-56.99%	115.5%
TRON	TRX	Layer-1	$0.06	$6,002,921,515	-22.18%	-11.23%	-4.46%	96.2%
Unus Sed Leo	LEO	Centralized Exchanges	$5.91	$5,523,533,761	12.83%	-2.56%	152.07%	54.1%

Top 10 crypto assets, ex-stablecoins, ranked by market cap. Price at 30-Jun-22. Source: CoinGecko

1 Macro

The macro narrative in June seemed to shift from inflation concerns to recession fears, as Fed officials began to hint at doubts about a soft landing and the need for continued aggressive tightening.

The messaging was mixed, however: in his testimony on June 22 before the Senate Banking Committee, Federal Reserve Chairman Jerome Powell stressed that his institution was "strongly, strongly" committed to bringing down inflation, while acknowledging that a soft landing would be "challenging." He refrained from promising a Volcker-style "whatever it takes" approach, but insisted that the pain from high inflation was likely to do more harm than an increase in unemployment.

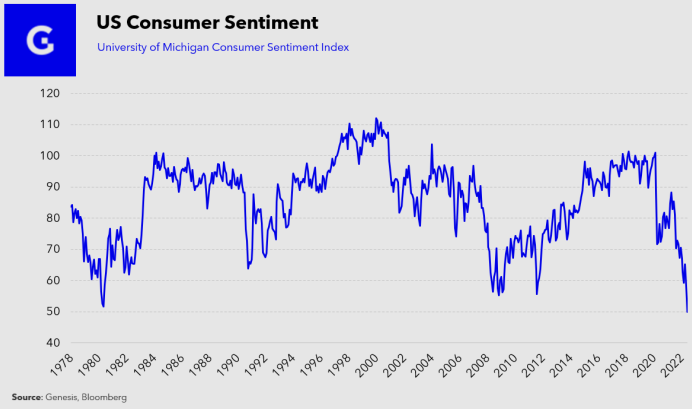
Meanwhile, other Fed officials have started hinting that some wiggle room might be needed. After the highest rate hike in 28 years, the lone dissenter Esther George (president of the Federal Reserve of Kansas City) expressed concern that the speed of the rate hikes could unsettle businesses and households. Neel Kashkari (president of the Federal Reserve of Minneapolis) warned about the dangers of too much front-loading.

Yet support seems to be lining up from both statements from Fed officials as well as market expectations for another 75bp hike on July 27. Overlay this onto the growing number of economists predicting an imminent recession, and we have the unusual potential situation of the Federal Reserve tightening into a recession.

Fed officials continue to insist that a recession is not likely. In a speech in Zurich on June 24, Federal Reserve Bank of St. Louis President James Bullard insisted that strong consumer appetite would keep the economy in expansion, and called for more "front loading" of rate hikes. Yet the US consumer is showing signs of weakness:

- → US Q1 GDP revision showed that personal consumption grew at approximately half the rate initially reported—1.8% annualized vs. 3.1%.
- → Personal spending for May came in at half the average expectation, and almost a quarter of April's figure.
- → US retail sales declined 0.3% in May (vs. +0.1% expected, +0.7% prior).

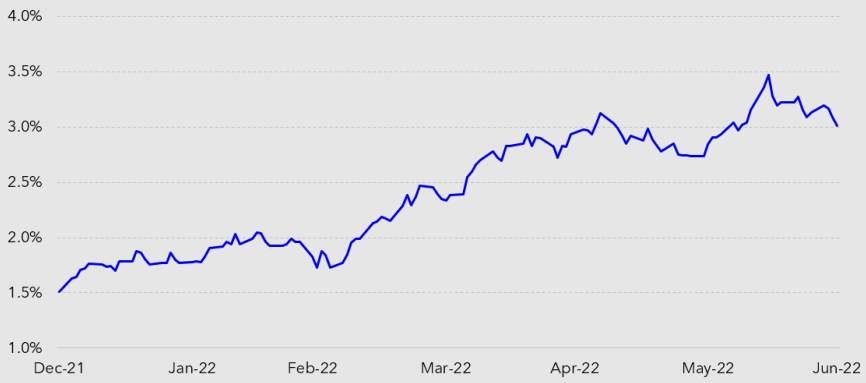
The University of Michigan Consumer Sentiment Index recorded its lowest reading ever, even lower than during the Great Financial Crisis of 2008.



While a weaker consumer could help mitigate some inflationary pressures, price increase data continues to be strong. A startlingly higher-than-expected US CPI print for May (8.6% vs 8.3% expected and prior) sent virtually all markets tumbling lower. The June inflation estimate for the EU hit its all-time high of 8.6% vs 8.1% in May. And the UK's CPI for May was above 9% for the second month in a row, reaching its highest level in 40 years.

Expectations for rate hikes combined with the beginning of quantitative tightening, with the Federal Reserve allowing bonds on its balance sheet to mature without replacing them, pushed the US 10-year Treasury yield up to 3.5% for the first time since 2011. By the end of the month, however, the benchmark was down to 3%, and growing economic concerns pushed it down to below 2.8% just after month end.

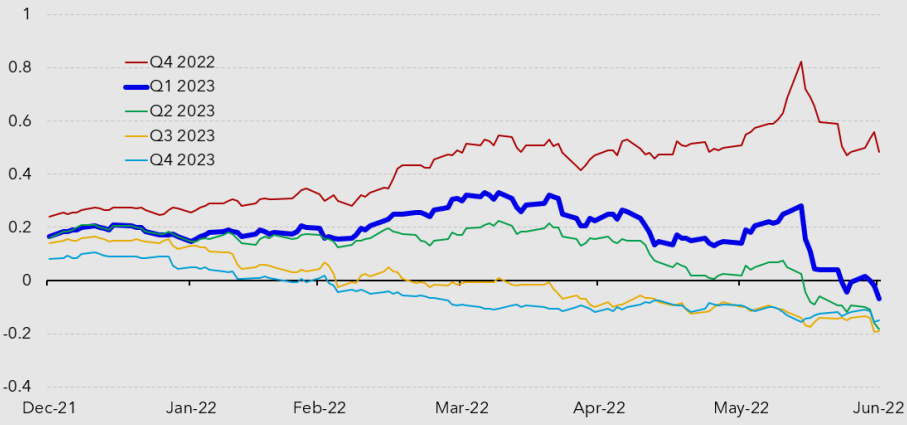
US 10 Year Treasury Yield



Source: Genesis, Bloomberg

The same economic concerns are also impacting rate hike expectations, with Eurodollar futures now firmly pointing to a series of rate cuts starting in Q1 2023.

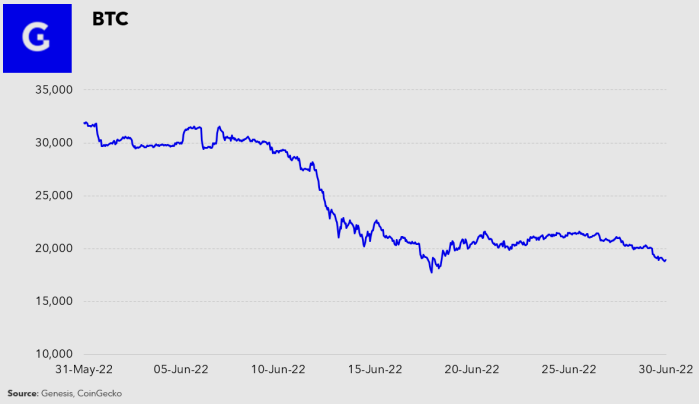
Eurodollar Futures



Source: Genesis, Bloomberg

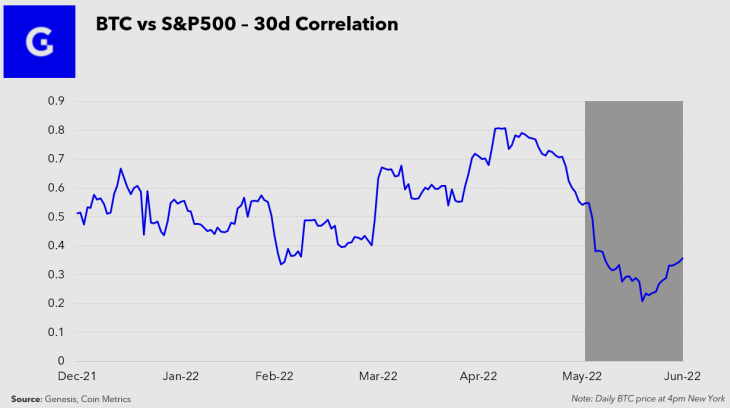
Meanwhile, tensions continue to escalate on the geopolitical stage, with NATO approving membership of Sweden and Finland (risking further provocation of their large neighbor to the east), Belarus becoming more directly involved in Russia's war with Ukraine, and signs of a lockdown relaxation from China offset by the appearance of new Covid cases in some regions.

2 Bitcoin



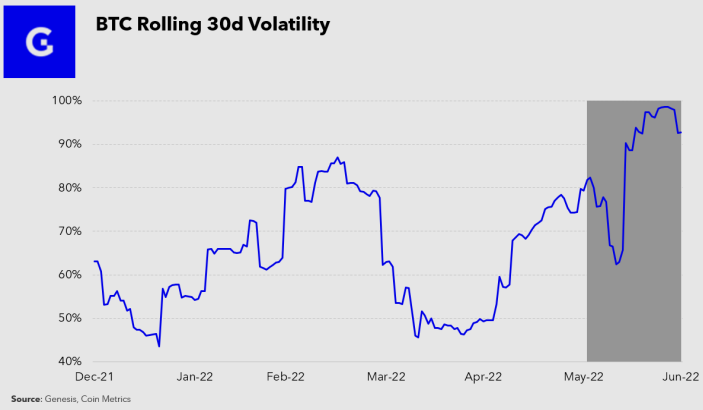
Bitcoin's price dropped 36.7% in June, its worst calendar month performance since 2010. Its 57.3% drop over the past three months was its worst quarterly performance since September 2011.

As factors specific to the crypto ecosystem further weakened sentiment already hit by building macroeconomic uncertainty, the 30d correlation between BTC and traditional stock indices such as the S&P 500 continued the downward path initiated in May. At one point, this reached as low as 0.2, a level not seen since December 2021. The market turbulence of the last half of the month triggered a reversal of this trend, however, and BTC's 30-day volatility ended the month at the still-relatively-low level of 0.35.

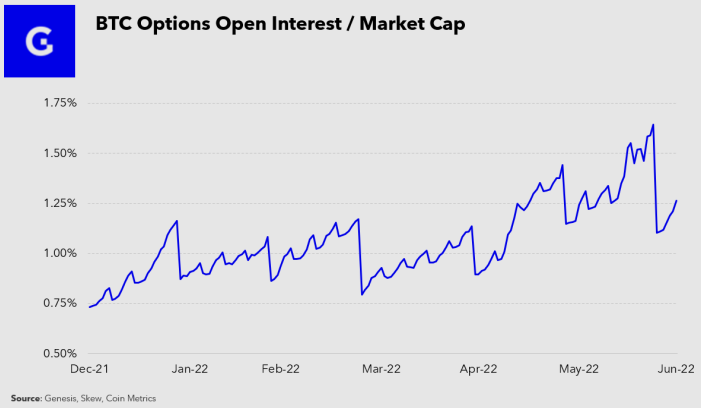


Going forward, this metric—as well as its smoother 60-day counterpart—is worth watching for hints as to the main drivers of market narratives. A strong increase could indicate that risk investors are again in the driving seat. Whether this is good or bad for BTC would depend on the prevailing rates outlook at the time. A continued decrease, however, could point to the growing protagonism of crypto narratives. Whether this is good or bad for BTC would depend on how much negative news has yet to be absorbed by the ecosystem.

30d volatility dipped as low as 62% in the first few days of the month as the market took a breather from the May turmoil. This was short-lived, however, as June's turmoil kicked in, pushing the metric to as high as 98%, its highest level since June 2021.



June was a relatively dramatic month for BTC options, as open interest climbed to reach its highest point ever as a percentage of market cap. The options expiry of June 24, which impacted approximately 40% of total open interest, triggered a reset, and since then open interest has been climbing, but at a muted rate.



In the sections below, we look at some key bitcoin patterns and what they say about where BTC is in its current price cycles. We also look at the unique characteristics of BTC price cycles and how they might evolve going forward.

BTC.D

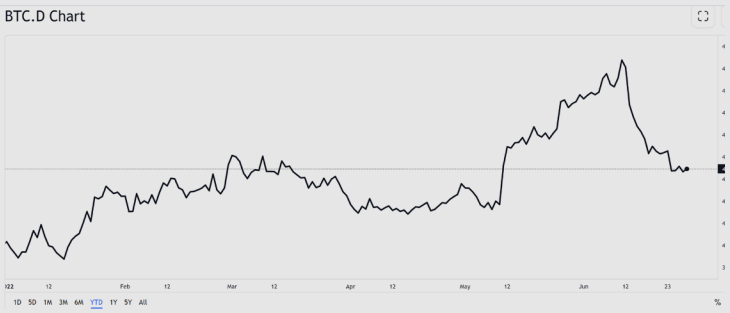
Bitcoin's dominance (also known as BTC.D) is a deceptively simple metric that can paint a complex narrative around the role of BTC in investment portfolios.

The calculation is simple: BTC's market capitalization divided by the total crypto market capitalization, expressed as a percentage. On the surface, it tells us how much of the crypto market is accounted for by its largest crypto asset.

Watching the direction of its moves, however, can reveal intriguing sentiment shifts, especially given the market turmoil of the past couple of months.

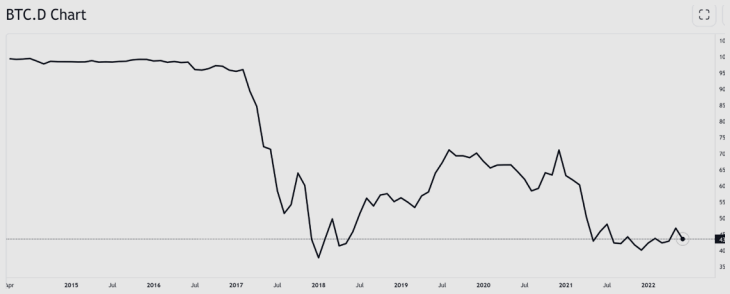
In May, BTC.D shot up as investors rotated out of altcoins into what they saw as a "safer" crypto asset—bitcoin's relatively low volatility and high liquidity led it to outperform a market reeling from the implosion of the Terra ecosystem.

June saw a different story, however. From a peak of 48.4% on June 11, BTC.D dropped to as low as 43.4%. In part, this reflected some pockets of outperformance in a few smaller assets, but was also a consequence of a different type of de-risking. In some cases, macro funds that only held BTC chose to unwind their crypto position, and in others, investors with diversified holdings are likely to have chosen to exit the asset that was easiest to sell without slippage. In May, BTC outperformed because of its relatively high liquidity; in June, it underperformed for the same reason.



(chart from TradingView)

Zooming out, BTC.D represents the evolution of market diversity. As recently as six years ago, bitcoin accounted for over 95% of the crypto asset market. Just two years ago, its concentration stood at 60%. The drop since then—most of which can be attributed to the emergence in H1 2021 of new layer-1 ecosystems—is a testament to the growing diversity of assets with a wide range of use cases and potential investment theses.



(chart from TradingView)

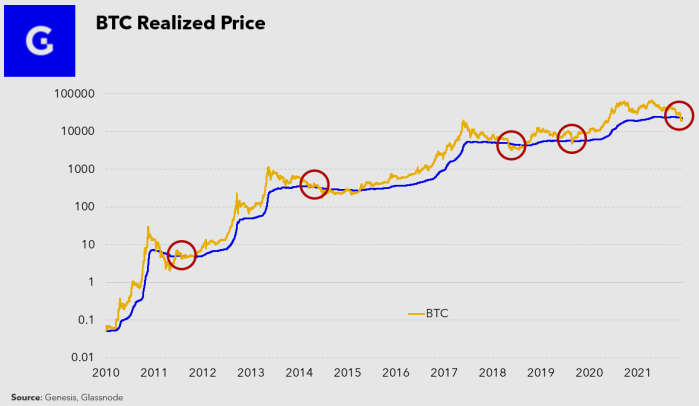
As such, BTC.D does not just reveal sentiment around the potential role of BTC in investment portfolios. It also highlights the potential role of other crypto assets, and therefore on the ecosystem as a whole.

Bitcoin's On-Chain Metrics

In our May report, we looked at two of these: dormancy flow, and the MVRV Z-score. Both were signaling that, following historical patterns, a bottom could be close. Both are even lower a month later.

Pivoting to other on-chain metrics that are also flashing intriguing signals, in this report we look at realized price, and long-term holder net unrealized profit/loss.

"Realized price" is simply the average purchase cost of each circulating BTC. Over the past 10 years, the market price dipping below this level indicated a local low. This happened in 2012, 2014, 2018, 2020 and again in early June.



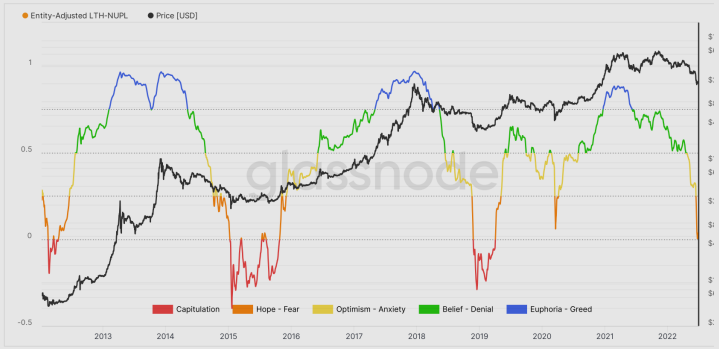
Each inversion hinted that a bottom was near, although in some cases (2014, 2018) the market price remained below the realized price for some months.

A more detailed visualization of investor sentiment can be seen in the **long-term holder net unrealized profit-loss (NUPL)**. "Long-term holders"[2] refers to addresses that, on a time-weighted average, hold their BTC for at least five months[3], after which statistically they are likely to hold for longer. Watching the investing behavior of this cohort reveals more about overall sentiment than that of short-term holders, since the former group are thought to be more thesis-driven and therefore more representative of the overall big-picture mood.

NUPL measures the implicit "profit" (or "loss") of all BTC holdings—in other words, the aggregate difference between the market value and average purchase price on any given day. Long-term holder (LTH) NUPL looks at this metric only for addresses classified as long-term holders.

In the past, a LTH NUPL measure below 0 signaled that a local bottom was near. At the end of June, this metric hit 0 for the first time since 2018.

Bitcoin: Entity-Adjusted LTH-NUPL (7d Moving Average)



(chart from glassnode)

On-chain metrics do give unique insight into investor behavior by allowing us to track purchase price, holding patterns and sentiment shifts. On the other hand, as with all metrics, there are caveats:

- → While efforts are made to strip out transfers between addresses held by the same entity, some are likely to slip through, making the average purchase price an approximation rather than an exact figure
- → Technology development such as new types of custody services can influence holding patterns
- → Derivative products based on BTC held in storage as well as increasing layer-2 use can represent significant activity that these metrics don't register

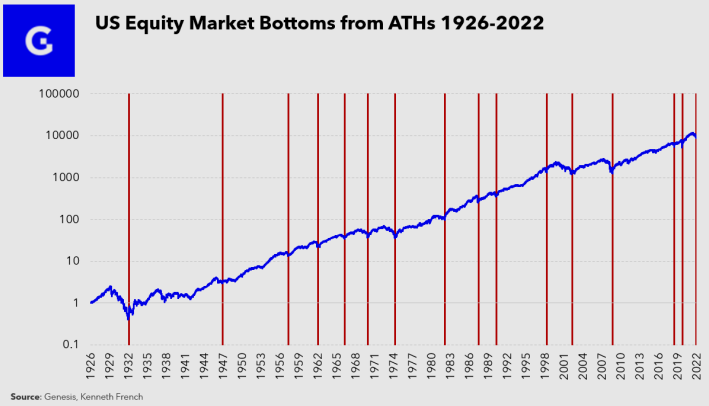
Nevertheless, they can point to larger trends which could both explain and influence price movements, and as such, are worth at least superficially considering.

2 For more on this definition, see this study by glassnode.

3 According to data studies conducted by glassnode.

The Bitcoin Cycle

One pattern astute readers may have noticed in the above charts is that the local bottoms have occurred with uncanny regularity. Excluding the exceptional circumstances of the 2020 pandemic crash, they have happened every four years. In stocks, on the other hand, local bottoms have happened with much less regularity, and were more spaced out.



This is not a coincidence. Bitcoin's four-year price cycle has historically been linked to its new supply schedule. Approximately every four years, the Bitcoin blockchain halves the amount of new BTC issued as rewards for miners who maintain its security. This is known as the "halving" (sometimes as the "halvening"), and is immutably pre-programmed into the Bitcoin code. The halving is not set to a specific calendar schedule but to a block height schedule, every 210,000 blocks. Given the average time between blocks of approximately 10 minutes, this happens roughly every four years.

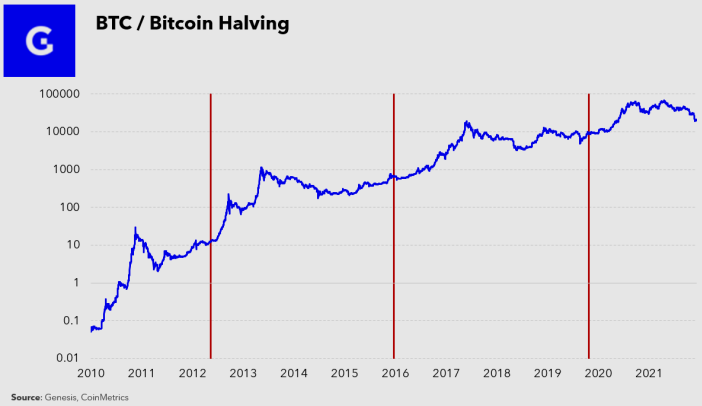
Bitcoin's previous halvings happened on:

- → November 28, 2012—Bitcoin mining rewards dropped from 50 BTC per block to 25
- → July 9, 2016—rewards dropped to 12.5 BTC per block
- → May 11, 2020—rewards dropped to 6.25 BTC per block

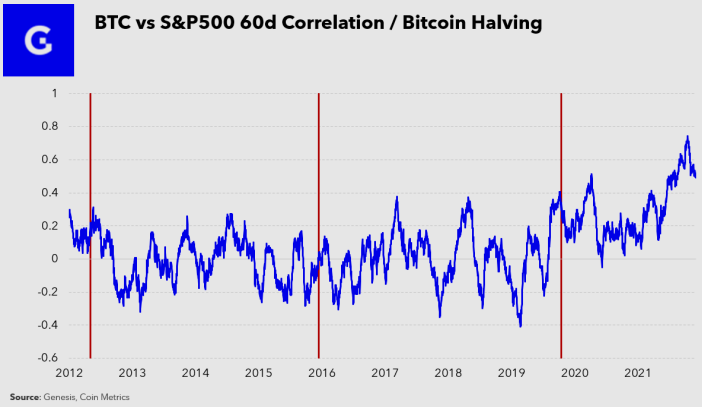
The next is expected to occur in early 2024.

Why is this relevant for the price? Because approximately every four years, the amount of new supply drops significantly. This, in theory, reduces the sell pressure. Less new supply means less available for new buyers, so—again in theory—the price should go up.

The cycle pattern so far in Bitcoin's history has been that the price reaches a new local high approximately one to two years after the previous halving, then drifts down for about a year, before rallying into the next halving.



Will this cycle follow the typical pattern, with a drift until the end of 2022 followed by a climb upwards? As the above chart shows, the price behavior over the past couple of years has been relatively unusual. The price of BTC hit a local high within 10 months of the 2020 halving—an unusually short ramp-up—only to dip but then hit another local high in October 2021, just six months later. These peaks are due in part to the growing participation of institutional participants in the market, and in part to the excitement around the listing in the US of the first bitcoin-based ETF[4].

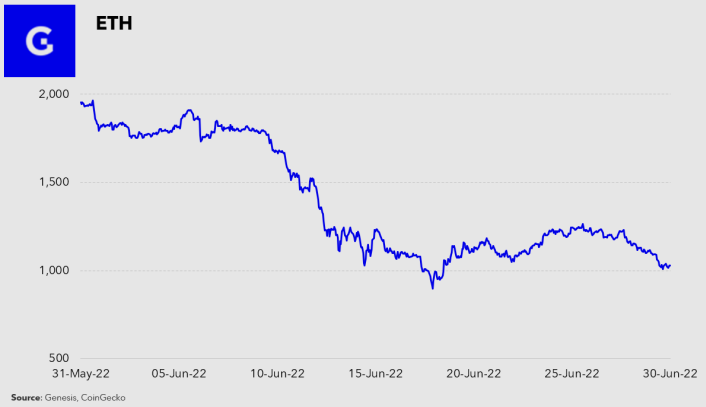


4 The ProShares Bitcoin Strategy Fund, based on CME-traded bitcoin futures, started trading as $BITO on October 19, 2021.

It is possible that “this time is different,” since in previous cycles bitcoin was not a macro asset with high correlations to traditional stocks (see above chart). Also, in previous cycles, investors were not struggling with how to position for a tightening rates environment and a potential recession. Bitcoin’s heightened macro correlation combined with deepening macro gloom could disrupt the typical four-year cycle and tie any potential rally to improved stock market sentiment.

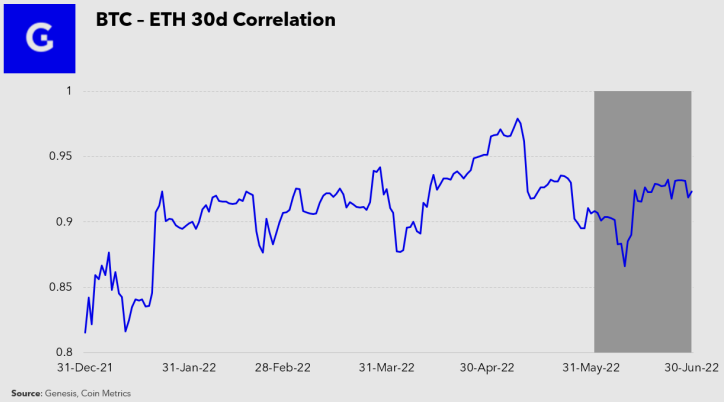
However, bitcoin’s supply cycle is real, and has the distinct characteristic of being programmatic—that is, not influenced by price, economics or sentiment, unlike more traditional assets. What’s more, the correlations are heading down, and as the developed world faces its toughest battle with inflation in decades, as well as monetary, economic and social dislocations, it is possible that bitcoin’s “alternative” status will attract a new type of investor.

3 Ethereum

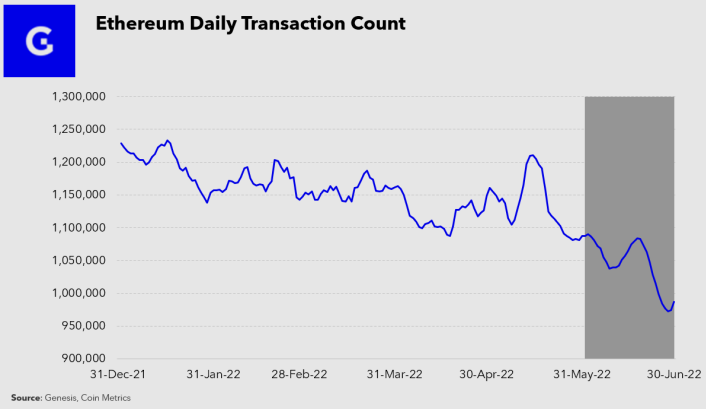


The price of ETH fell by 44.9% in June, delivering the worst calendar month performance since March 2018. Its 67.5% drop over the past three months was its worst quarterly performance of all time.

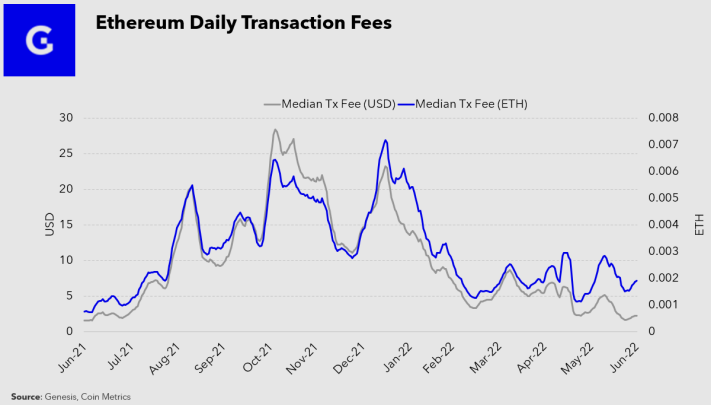
The correlation between ETH and BTC dipped early in the month to as low as 0.6, its lowest level since January 2022, as contagion fears escalated and punished ETH more than the leading crypto asset in terms of market cap. As the turmoil started to settle, however (in relative terms), the ETH/BTC correlation returned to levels similar to those seen just after the May Terra ecosystem implosion.



Meanwhile, economic activity on Ethereum seems to be dropping. The number of on-chain transactions continued the decline that began toward the end of 2021, at one stage reaching the lowest point since July 2020, according to data from Coin Metrics. In part, this could be due to overall market uncertainty; it could also be partly due to growing activity on layer-2 networks. Daily transaction counts on both Optimism and Arbitrum for June was more than double that of May, according to data from Dune Analytics.



This has had an impact on Ethereum transaction fees, which in USD terms dipped as low as $1.30 in mid-June, the lowest point in approximately a year. While this local low is largely attributable to the drop in the price of ETH, fees in native unit terms—while marginally higher than in May—are still relatively low, hovering around similar levels to those of last August.



The Merge

For several years now, Ethereum developers have been preparing the network for a shift from its current proof-of-work consensus algorithm to proof-of-stake. This is a complex process that has already seen many delays, and the longer it takes the greater the risk as there is more value riding on the network. However, precisely because of its complexity and the size of the ecosystem, developers understandably feel the need to proceed with great caution, and investor sentiment on the change tends to range from "it will never happen" to "it will usher in an explosive new era of growth".

Thus, the market tends to pay attention to any notable steps toward the "Merge", so called because it is not technically a swap of one system for another, but is rather a combination of the current "state" with a new consensus layer. Speculation around the impact of the Merge is expected to intensify as estimates of the timing become clearer, which is one reason why Ethereum developer calls are attracting an ever larger audience.

After the successful "dress rehearsal" for mainnet merge in early June, when the Ropsten testnet successfully underwent the process, attention has pivoted to the second trial, this time for the Sepolia testnet.

This "dress rehearsal" is somewhat different, however. Ropsten—the original Ethereum testnet—will be deprecated after the Merge, to be replaced by Sepolia. This makes the next merge more significant in that Sepolia, which was launched in late 2021, more closely resembles Ethereum's mainnet. It is also much "lighter" than Ropsten, given its relative youth.

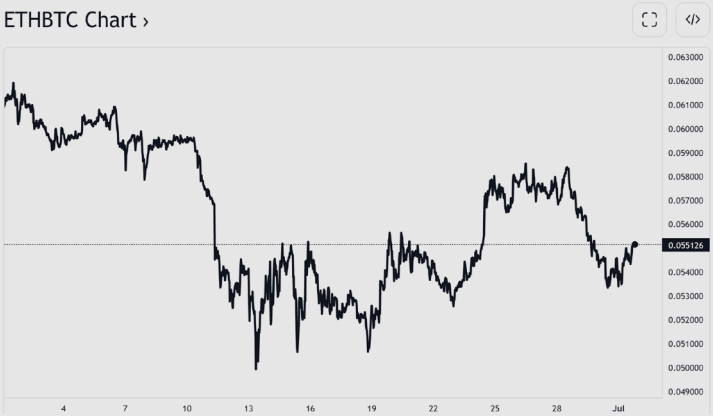
On June 30, the Ethereum development team announced that Sepolia will merge with its proof-of-stake layer on or around July 6, so by the time you read this, we will know if it was successful.

A successful Sepolia merge could stimulate some excitement about Merge timing, which developers are still optimistic could come as soon as Q3; on the other hand, macro sentiment still weighs heavily on investor behavior, and a week is a long time in crypto markets.

ETH/BTC

The ETH/BTC ratio is often used as a barometer for risk sentiment in crypto markets: a relatively high measure implies greater investor comfort higher-volatility crypto assets such as ETH, whilst a decline hints at greater risk aversion and preference for the relative safety of BTC.[5]

In June, the ETH/BTC ratio dropped from 0.061 to below 0.50 at one point. For comparison, the ratio was over 0.075 in early May, before the implosion of the Terra network in early May.



(chart via TradingView)

5 BTC has a longer history, a more static technology and lower realized volatility than ETH

Whilst overall bearish sentiment and de-risking within crypto markets are likely to be one factor behind the drop, other possible influences are idiosyncratic factors pertaining to the network itself. There's the declining transaction count and fees seen above, as well as the sharp drop in total value locked in the Ethereum ecosystem (down from $213 billion at the beginning of January, to less than $70 billion at the end of June, according to data from DeFi Llama). There's also the new influence of an on-chain derivative called stETH (see below for more on this).

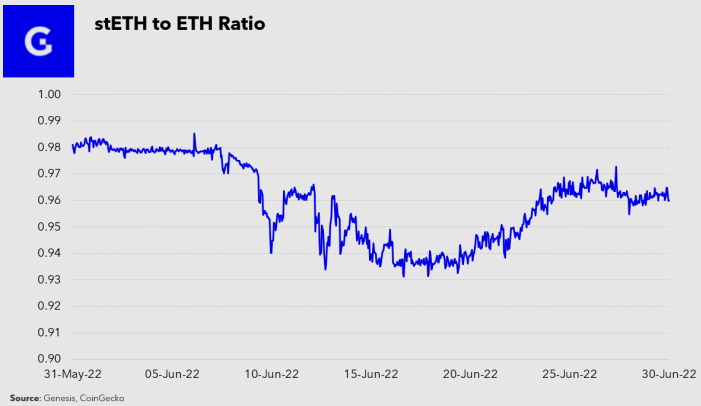
Toward the end of the month, the ratio started to head up, possibly buoyed by a slight relaxation of the de-risking sentiment, by value players sensing that ETH might have been oversold, and/or by signs of progress toward the Ethereum Merge.

stETH/ETH

The relationship between ETH and its on-chain derivative stETH took on a new protagonism in the market turmoil of the past month, as it exacerbated contagion concerns and shrouded ETH in an additional veil of uncertainty. What is stETH, and why is it important?

stETH is a liquid staking derivative issued by Lido Finance to users that deposit ETH through the platform to be staked on Ethereum's proof-of-stake blockchain. Staked ETH earns a yield of just over 4%, but the ETH is locked until a few months after the Merge. Liquid staking platforms such as Lido stake ETH on users' behalf, issuing a "sister" token (stETH) that users can then employ on other DeFi platforms, earning additional yield.

For most of this year, stETH has traded in line with ETH since the tokens become redeemable for 1 ETH once withdrawals are enabled on Ethereum's Beacon Chain post-merge. However, during the market turmoil of May and June, stETH began trading at a discount, reaching a low of 0.93 ETH in mid-June.



This stETH/ETH price drop reflects two main factors:

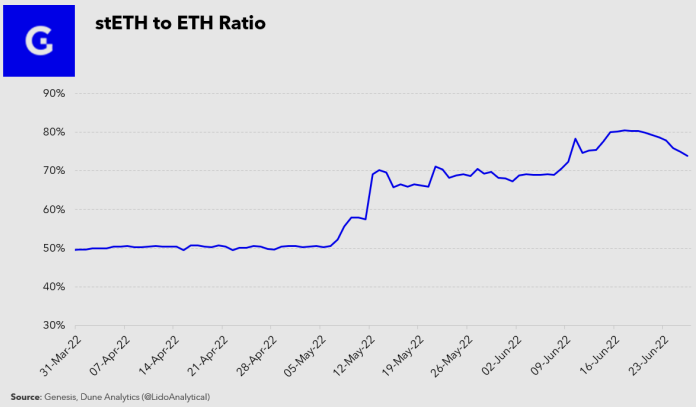
→ An imbalance in the quantity of the two tokens deposited in the main liquidity venue for stETH on Curve[6], resulting from significant sell pressure on the token as large holders such as Celsius looked to swap stETH for ETH to meet withdrawals and margin calls.

→ A discount for increased uncertainty regarding the timing of the Merge and potential risk to the convertibility at 1 ETH.

The chart above shows that the price of stETH in ETH terms recovered notably in the second half of the month, almost reaching 0.97 ETH, where it was in early June before the market's liquidity concerns exacerbated the imbalance on Curve.

The bounce could be due in part to dust starting to settle on the uncertainty surrounding certain large holders of the token and the fear that more stETH sell pressure may enter the market. The main Curve stETH/ETH pool is still imbalanced, but less so as users are again depositing ETH in exchange for stETH. stETH now accounts for 76% of the pool, far from the ideal 50% but notably below the ~80% of a week ago.

6 Curve is a decentralized exchange (DEX) that facilitates the swap of "like" tokens, such as stETH for ETH, USDT for USDC, etc. 70% of stETH's trading volume occurs on its main trading pool on Curve.



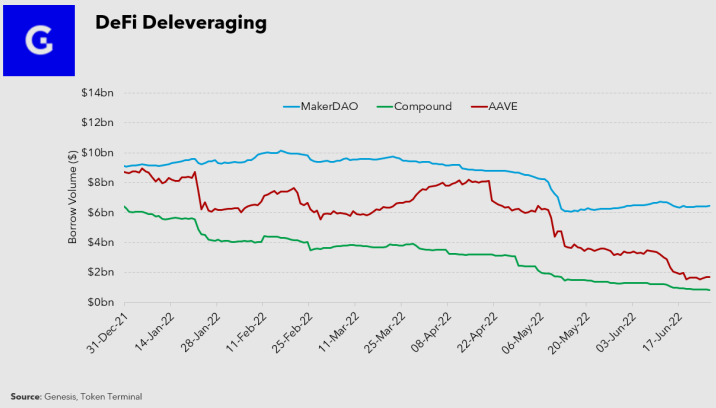
The stETH/ETH shift, as well as that of ETH/BTC, could also be due to growing clarity around the timing of Ethereum's Merge, which is likely to not only impact investor interest in ETH, but could also further close the gap between stETH and ETH as convertibility approaches.

While the shifts in stETH/ETH may end up being temporary in this uncertain environment, they are worth keeping an eye on, not least for what they both could be telling us about emerging risks and broader market sentiment.

4 DeFi

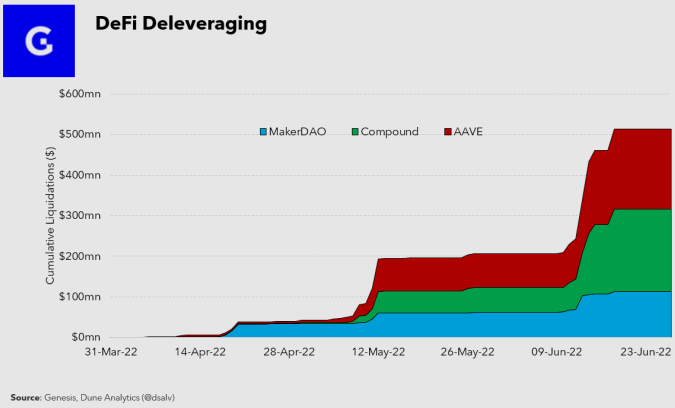
DeFi Lending - The Deleveraging

The continued tightening of monetary conditions has seen a broad draining of liquidity across traditional markets. A decline in collateral values has also seen deleveraging within DeFi lending protocols, with borrow volumes down 32% at MakerDAO and over 75% for both Compound and Aave since March, according to data from Token Terminal.



Given the inherent transparency of on-chain data and systematic nature of liquidations on the larger decentralized lending protocols, deleveraging has occurred in a relatively orderly fashion thus far. As per the chart below, liquidations totaled over $500 million since the end of March with no long-term impact on protocol health, following the two main waves that occurred after the collapse of UST in May and the spikes in crypto volatility in June. There were also some notable near misses during the period, including on MakerDAO, where their largest single borrower came close to liquidation on their WBTC collateral during the BTC price decline in mid-June—but the address replenished collateral in time and continued to do so in the ensuing weeks to increase their margin of safety.

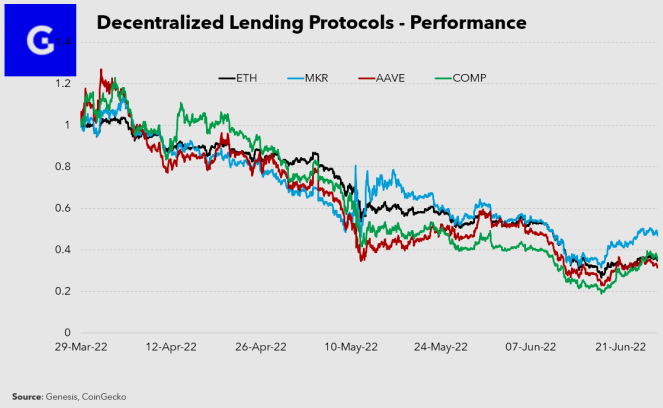
Another potential large liquidation that was averted, which may become a case study in why DAO governance still leaves a lot to be desired, occurred on smaller lending protocol Solend. The Solana-based project saw its largest borrower (~25% of TVL at the time) come close to liquidation on their SOL collateral. The size of potential risk to the protocol led to a controversial decision by the Solend team to spin up a DAO[7] and pass a proposal to take over and force liquidation of the borrower's position OTC, since this would have softened the price impact (highlighting that even in DeFi, there is a role to play for intermediaries). Subsequently, a second proposal to negate the first was passed, and the borrower became aware of the potential liquidation risk and reduced their position, leaving Solend with a new maximum borrow limit and the broader DeFi community with some philosophical questions around protocol governance to ponder.



Despite the sharp deleveraging and the downward pressure on collateral values during the quarter, Compound and Aave token performances were broadly in line with ETH, whilst MakerDAO has outperformed—perhaps reflecting the shallower decline in borrower volume and also daily protocol

7 A decentralized autonomous organization (DAO) facilitates governance on decentralized platforms by codifying community decision making with smart contracts that manage and execute according to votes on proposals.

revenue (-61% vs -80% for both Compound and Aave, according to data from Token Terminal).



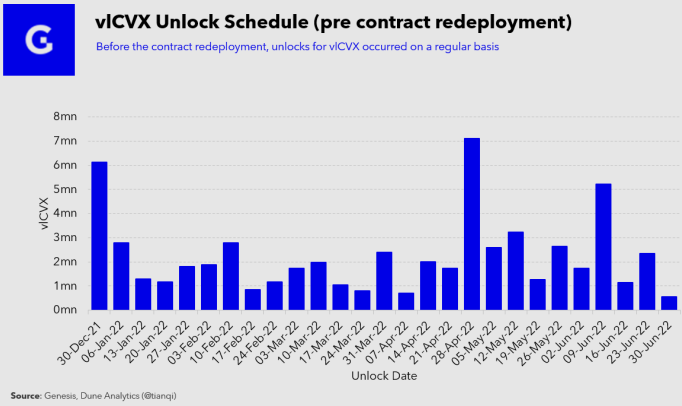
Source: Genesis, CoinGecko

Leverage has its role to play in all market cycles—the desire to borrow beyond one's means is a feature, not a bug, of human nature. There are a variety of tradeoffs between traditional financial infrastructure and its young decentralized cousin, and this period has highlighted that whilst the market-imposed discipline of on-chain transparency in DeFi can be a source of vulnerability, it can also enable the ecosystem to cleanse itself and nip excessive leverage in the bud.

Convex—The Unlockening Boogeyman

The morning of June 30th saw the largest unlock of Convex (CVX) in the protocol's history, following a bug fix in March that inadvertently led to a steep cliff in the unlocking schedule of the token. Convex Finance (which peaked at $20 billion in TVL at the start of the year) is a significant cog in the DeFi ecosystem, specifically in relation to Curve. As the largest DEX by TVL, Curve is a prominent source of liquidity in DeFi, and the incentives on Curve's liquidity pools are a consequential factor in where liquidity providers deposit their tokens. Curve DAO governance determines which liquidity pools get the incentives, specifically holders of voting escrow Curve tokens (veCRV), which are CRV tokens that have been locked for up to 4 years—locking up CRV not only allows holders to participate in governance, but grants them a share of the protocol's trading fees as well as a boost to their liquidity rewards.

Convex Finance is built on top of Curve, enabling CRV holders to instead deposit their tokens in the protocol in exchange for cvxCRV, which also grant a share of Curve's trading fees—but unlike veCRV, these can be traded on the secondary market and can be staked to earn CVX rewards. As at the end of June, Convex has gathered over 45% of outstanding veCRV, the largest of any DAO, which gives it enormous weight in voting where Curve liquidity incentives are allocated. Convex's CVX token holders also receive a share of Curve trading fees and more significantly, they can also vote-lock their CVX tokens for 16 weeks (granting them vlCVX tokens) to give them a share of Convex's voting rights in Curve—this was the most popular choice for token holders, with over 56% of CVX vote locked as of June 30, creating a staggered unlock schedule with a large amount of vlCVX unlocking each week.



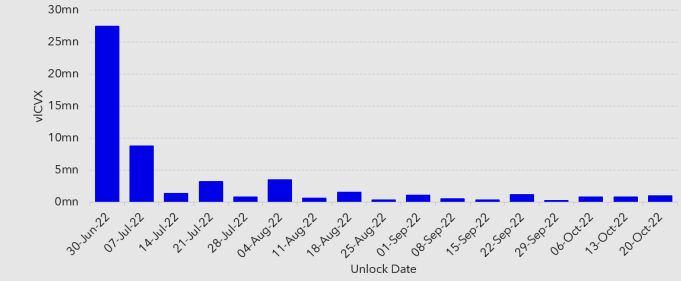
Source: Genesis, Dune Analytics (@tianqi)

The event that was dubbed "The Unlockening" manifested inadvertently following the discovery of a bug in Convex's original vote-locking contract in March. The bug had not been exploited and itself had no impact on the protocol. However, due to the immutability of Convex contracts, they had to fully redeploy a new version, which triggered all

vlCVX to unlock and required all holders to vote lock into the new contract. The simultaneous relocking of CVX made the unlock schedule far less attractive, with over 27 million vlCVX (half of outstanding vlCVX) now all unlocking at once on June 30th. Though long-term holders were likely to re-lock their tokens, some market participants were concerned with the potential sell pressure, given a worse macro backdrop, the large drawdown in CVX since the original lock date in March, and the fact that the size of the unlock was multiples of daily CVX volume on Curve and Binance.

vlCVX Unlock Schedule (post contract redeployment)

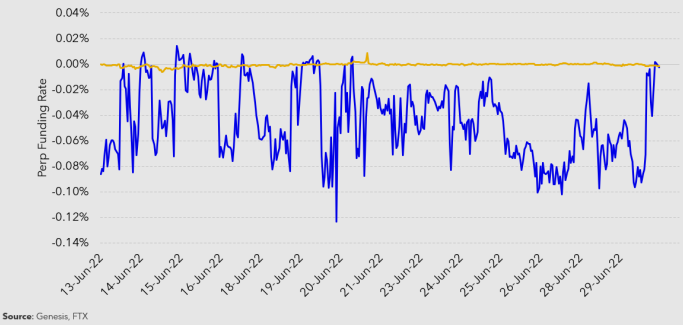
Large unlock "cliff" on 30Jun22 following the contract redeployment



Source: Genesis, Dune Analytics (@tianqi)

The CVX perpetual futures funding rate on FTX had been firmly negative (below -600% per annum), as an indication of the demand for short exposure to the token, though open interest on the contract was relatively small at just over 1 million CVX.

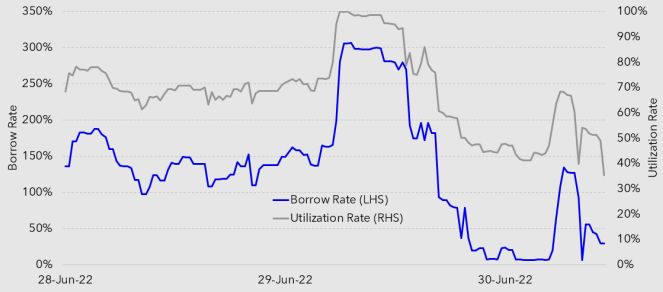
Funding Rate on Perpetual Futures



Source: Genesis, FTX

There was also outsized demand for borrowing CVX on Aave, with borrowers paying over 300% on an annualized basis going into the unlock (according to data from Aave), to the extent that all available CVX was borrowed on the lending platform, with utilization rates hitting 100%. In the ensuing hours following the unlock, perp funding rates turned mildly positive and borrow rates on Aave are back to low double digits as utilization has declined below 40% (also according to data from the platform), suggesting short demand could have been driven by hedging going into the unlock, which was subsequently covered following release of the tokens.

Borrowing Maxed Out on Aave



Source: Genesis, Aave (via TheGraph)

Of the total 27 million CVX involved in the unlock, 8.5 million has since been fully relocked as of June 30 (including 4.5 million from the two largest addresses involved), whilst 6 million has been withdrawn, with the remainder pending action. Price action on CVX suggested the worst-case scenario did not come to pass, but it remains to be seen whether another synchronized lock-up from token holders will create an additional cliff event down the road. With many large DAO holders of vlCVX due to unlock in August and September (including Mochi, Olympus DAO, Terraform Labs, and Wonderland), the ecosystem may be looking to current holders to take a more staggered approach to vote locking going forward.

10 As per data from Dune Analytics

Curve & stETH—Price is a Liar

In a well-functioning market, price discovery is informed by the wisdom of crowds—buyers and sellers come together and their aggregate supply and demand determine the fair price of an asset. But prices themselves are also crucial inputs in the decision-making of market participants. Unlike in traditional finance, where the price of a stock comes from a primary source (e.g. the exchange it trades on), in crypto, there is no one primary listing—market prices must be aggregated from multiple trading venues, with more weight given to the venues where the asset has had the most trading volume. And for many smaller cap coins, the largest venues are decentralized exchanges (DEXs).

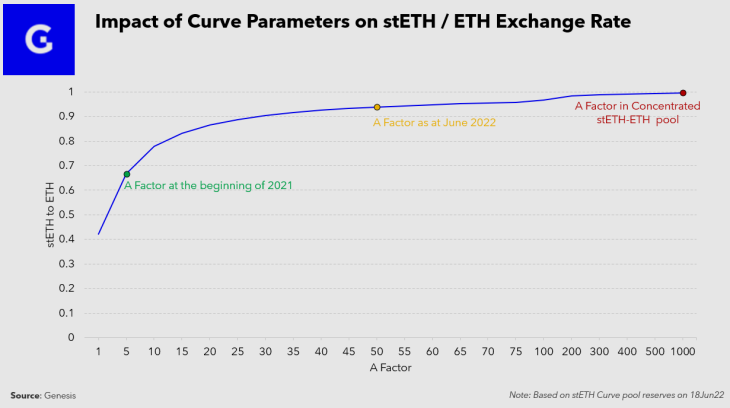
In contrast to traditional exchanges, DEXs are powered by automated market makers (AMMs), and prices are not linearly related to supply and demand in most AMMs. The sensitivity of price to the quantity being traded depends on the bonding curve—a mathematical function with a predetermined price for given levels of supply. A simplified mental model of comparing different bonding curves in typical AMMs is that they are a mixture of two building blocks, each with different trade-offs:

→ A constant sum function, in which the exchange rate is constant and there is no slippage to trade between tokens.

→ A constant product function (known colloquially as XYK), where trading does impact the exchange rate and thus there is continual price discovery.

Mixing these two functions with different weights can calibrate between the strengths and weaknesses of each. For volatile pairs of tokens, where price discovery is a priority over low slippage, being closer to a constant product function would be more appropriate (otherwise the liquidity providers are exposed to arbitrage if prices don't adjust with shifts in demand that reflect changes in fundamentals). For stable pairs, such as when trading between two fiat-backed stablecoins, a bonding curve more like constant sum is more efficient since fundamental value is relatively stable around 1 much of the time.

Issues arise in the shades of gray between these two extremes. For instance, for stETH and ETH, the correct specification is more subjective. The largest volumes for Lido's liquid staking derivative (see section above) have been on the stETH-ETH liquidity pool on the Curve DEX. The weighting between constant sum and constant product used in this pool is determined by a parameter called the "A Factor"—a higher A Factor moves the bonding curve towards constant sum and makes the stETH-ETH exchange rate more stable around 1. The A Factor is set via Curve DAO governance and was increased from 5 to 50 over the course of 2021, through multiple governance proposals. With the persistent selling of stETH into the pool, there was a heavy imbalance of the two tokens during the course of the month, peaking at a ratio of 80% stETH relative to 20% ETH—the current A Factor of 50 resulted in a corresponding rate of 0.94 stETH to one ETH, which was the established market price. For comparison, if the A Factor was still at its original value of 5, the exchange rate would have troughed at closer to 0.67.



Following stETH's initial decline in May, Lido launched a separate "concentrated" stETH Curve pool in an effort to maintain the exchange rate closer to 1, and added large incentives for liquidity providers in an attempt to make the new concentrated pool the dominant source for pricing. This new pool had an A Factor of 1000—

for reference, if the original pool had this parameter value, the stETH rate would have troughed at 0.996 ETH. However, despite the generous incentives, the new concentrated pool has not gained the same traction—market participants have instead withdrawn ETH from this pool to the point at which the stETH rate traded in line with the original pool (the concentrated pool became more imbalanced than its predecessor, at 95% stETH).

A price is only a useful piece of information to the extent it is set by market forces—in crypto, DEX design choices can have a large influence on the reactivity of prices to the forces of supply and demand. Yet, even in this instance, the market has been quick to reveal which price it believes to be the liar.

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