

Q4 2022

Kaiko Research

# Quarterly Market Report

A data-driven recap of the quarter's  
most significant market events



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# Q4 Timeline

## October

- October 6**  
Maker DAO announces plan to invest \$500m in US Treasuries
- October 12**  
Solana-based Mango Markets hit with \$112m exploit
- October 24**  
Meta shareholders demand Metaverse cuts

## November

- November 8**  
FTX halts withdrawals after bank run
- November 16**  
Genesis halts withdrawals as FTX contagion spreads
- November 28**  
Aave freezes 17 lending pools

## December

- December 13**  
GBTC discount hits record 50%
- December 21**  
Core Scientific files for bankruptcy

**September 29**  
Binance introduces auto-conversion of USDC into BUSD

**October 7**  
Binance Smart Chain hacked for \$570m

**October 19**  
The new Aptos network launches native APT token

**November 2**  
Coindesk reveals Alameda's balance sheet is filled with FTT

**November 11**  
FTX files for bankruptcy after Binance backs out of acquisition

**November 22**  
Mango Markets exploiter targets Curve's CRV token

**December 12**  
SBF is arrested in the Bahamas

**December 16**  
Binance outflows hit \$6bn during crisis of confidence

**December 27**  
US launches criminal probe into \$400m FTX hack

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# Analyst Commentary



**Clara Medalie**



## The True Meaning of Liquidity

Liquidity is deeply misunderstood in crypto markets. Specifically, the metric "market depth". Unless you are a trader, it can be hard to wrap your head around the meaning of "2% Bid Depth" and how it relates to the value of an asset.

As FTX collapsed, we took a hard look at liquidity for FTT, specifically aggregated market depth across all active markets. We noticed that just a few million dollars in bid-side depth existed on FTT order books, despite FTX valuing this asset in the billions of dollars on their balance sheet. Essentially, what this meant is that if FTX needed to liquidate their FTT holdings, say in the case of a bank run, they would only be able to sell a few million dollars worth before suffering massive price slippage.

How could no one have noticed this obvious mismatch in valuation vs. actual market liquidity? In traditional finance, an asset's liquidity is incorporated into its valuation on a balance sheet through various accounting methods that factor in real market conditions. This is exactly what FTX did not do. In fact, we now know they didn't even have a real accounting department.

My new year's wish is that all investors gain a deep understanding of liquidity and an appreciation for tried and tested balance sheet accounting principals.



**Dessislava Aubert**



## Pay Attention to Interest Rates

Throughout Q4, BTC's correlation with the S&P 500 hit both an all time high and dropped to 15-month lows. The lows were reached during FTX's collapse, while the highs emerged in the final week of December. This is the best evidence yet that macro is back.

Over the past year, global interest rate hikes have helped create the least friendly macro environment for risk assets in years, evidenced by a dramatic drawdown for crypto, equities and everything in between. Correlations across asset classes have never been higher, and it seems that the only times crypto diverged in 2022 was during idiosyncratic market events.

Central banks continued to be extremely aggressive in Q4, despite recent indicators that inflation is slowing faster than expected. Over the coming months we can expect a period of volatility resulting from the mismatch between the Fed's hawkish rhetoric and market rate expectations, with US traders still betting on rate cuts in late 2023 as recession indicators flash red.

While the crypto industry has plenty of things to worry about right now, investors should pay close attention to changes in interest rates over the coming months. Macro could very well be the single biggest market catalyst in 2023.

# Analyst Commentary



**Conor Ryder, CFA**



## Crypto's Killer Use Case

Like everyone this quarter, I found myself questioning everything I knew about crypto; specifically, what real world problems it actually solves right now. Its easy to point to the potential of this great space, but something that is needed to quiet critics in bear markets is actual product-market fit.

The good news is that crypto in developing economies represents something completely different to what we're used to in Europe or the US. In developed economies, crypto represents a path to financial freedom, a safe keeping of savings and an opportunity to globalise wealth. In more developed economies, crypto is really just an investment opportunity to take part in the future of finance - it's not saving us from much right now.

The role of crypto in developing economies is particularly important as inflation decimates savings in local currencies. This has created strong demand for USD-pegged assets, and stablecoins fill that need perfectly. We have a story on the usage in Brazil in the report below, but we saw similar trends in Turkey and Mexico to name just a couple.

Stablecoins look to be crypto's best example of product market fit and they're genuinely improving a vast amount of lives in these countries. As long as this continues, crypto will survive and grow to solve more problems.



**Riyad Carey**



## Back to Basics

Q4 brought a fitting end to a rotten year in crypto as the excesses of the previous bull market were washed out in dramatic fashion. This time it was brought about by the man who had been anointed the face of crypto and regulatory voice of reason by FTX's marketing department and fawning VCs who thought they had the next Zuckerberg. Instead, it turns out they had backed a less charismatic Elizabeth Holmes.

For an industry founded on decentralization, crypto seems to desperately cling to larger than life figures, to pin its hopes on a genius builder who can bring TVL to a struggling chain or a YouTuber who can hold SBF accountable.

In 2023 I hope we can leave some of this mentality behind and instead focus on what makes this space exciting and different.

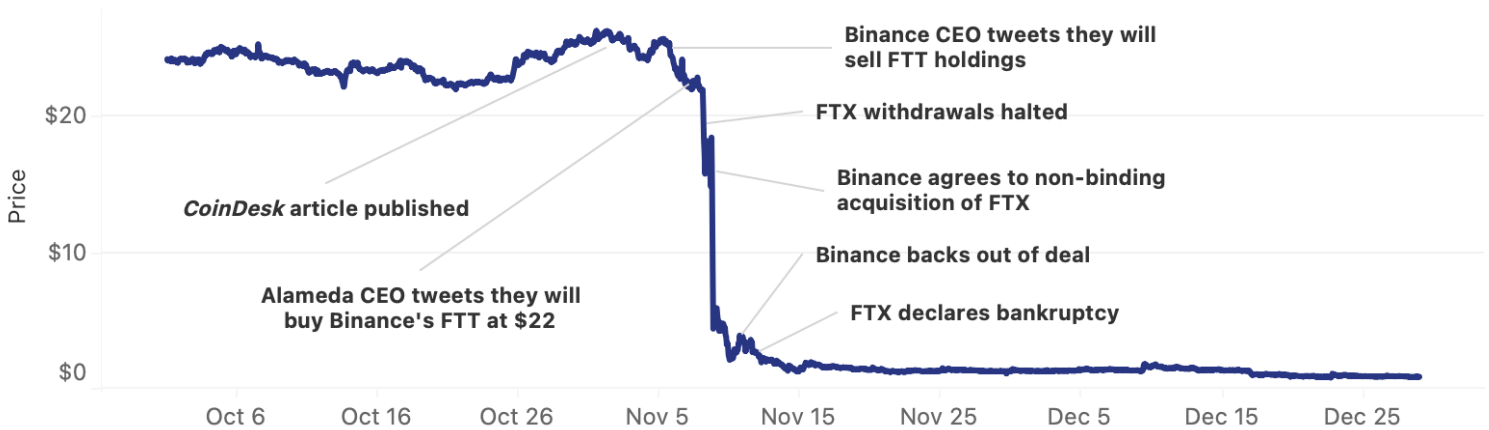
Specifically, I'll be closely watching the DeFi lending and borrowing space develop, as Aave and Compound have opted for two different visions for their futures. Is it possible that Uniswap V3 will continue its utter dominance, or will other innovative DEXs be able to capture a significant share of volumes? Which Layer 2s will achieve lasting adoption post-airdrop? Which decentralized futures exchange will come out on top?

These are the questions and debates that make crypto interesting, not glossy profiles of founders.

# The FTX Collapse

## FTT Triggers Bank Run

### FTT Price



On November 2, *CoinDesk* published an article examining the balance sheet of Alameda Research—the trading firm founded by SBF and closely affiliated with FTX. They found that Alameda held close to \$6bn worth of locked and unlocked FTT tokens, a cryptocurrency created by FTX. This immediately raised red flags... and the rest is history. FTX filed for bankruptcy one week after publication, and SBF was arrested one month later on charges related to the illegal commingling of FTX client funds with Alameda's vast trading operations.

Going back to FTT, when looking at the liquidity for this token, we can instantly see that it was over-valued, with just \$6mn in bid-side depth. This is nowhere near enough liquidity for Alameda to sell a significant amount of the tokens without crashing FTT, meaning that it had vastly overstated its assets' value and was almost certainly propping up its price. When FTT price's started sinking it became clear that both entities were insolvent. Notably, FTT liquidity was pulled from exchanges hours before price dipped below \$20, suggesting market makers may have gotten wind that the Binance and FTX deal fell through before it was announced.

### FTT 2% Market Depth - Bid Side

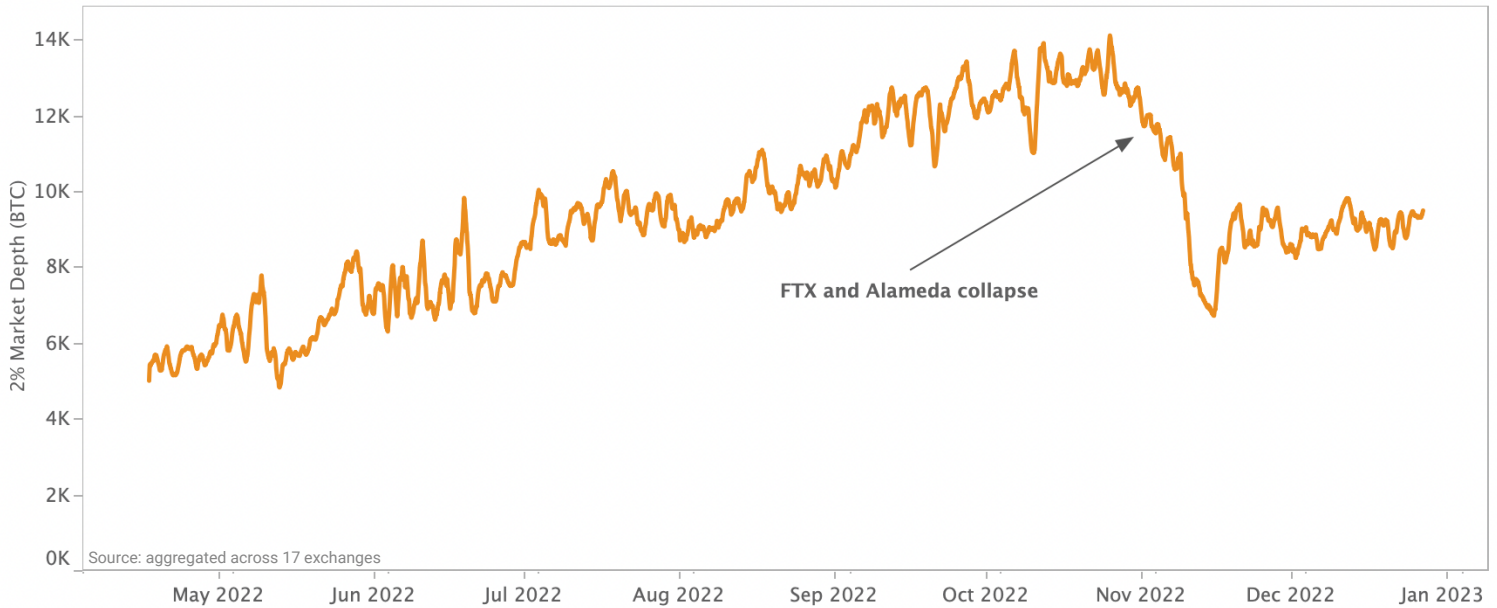


Source: Kaiko order book data; FTT-USD, USDT, and BUSD pairs on 6 exchanges



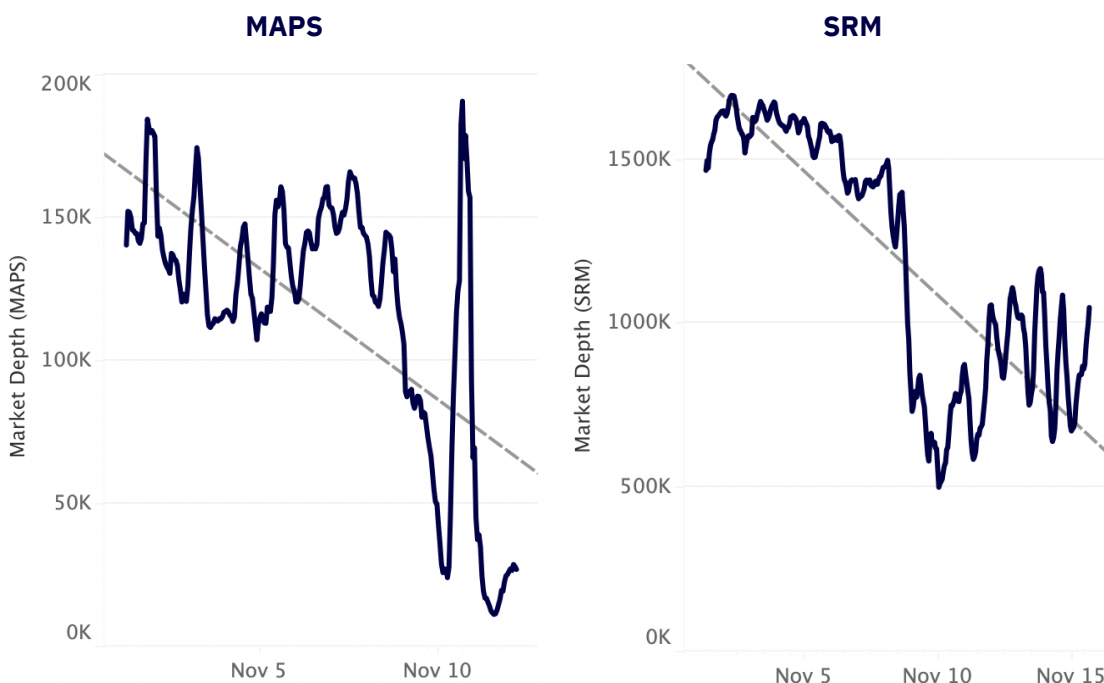
# The "Alameda Gap" in Liquidity Emerges

## Aggregated BTC Market Depth



Alameda Research was once one of the largest market makers in crypto, providing billions of dollars worth of liquidity for high-cap and low-cap tokens alike. We now know that their entire trading operation was funded by funds siphoned directly from FTX's clients. As the FTX/Alameda entity collapsed, a sharp drop in liquidity emerged across all markets, as measured by 2% market depth. Not only did Alameda halt market making activities, but many of the biggest crypto market makers were impacted by FTX's collapse and also decreased trading activity on other exchanges. Wintermute, Amber Group, and Genesis all announced they have funds locked on FTX, likely in the hundreds of millions of dollars. The "Alameda Gap" thus refers to the drop in liquidity across all exchanges in the aftermath of the collapse.

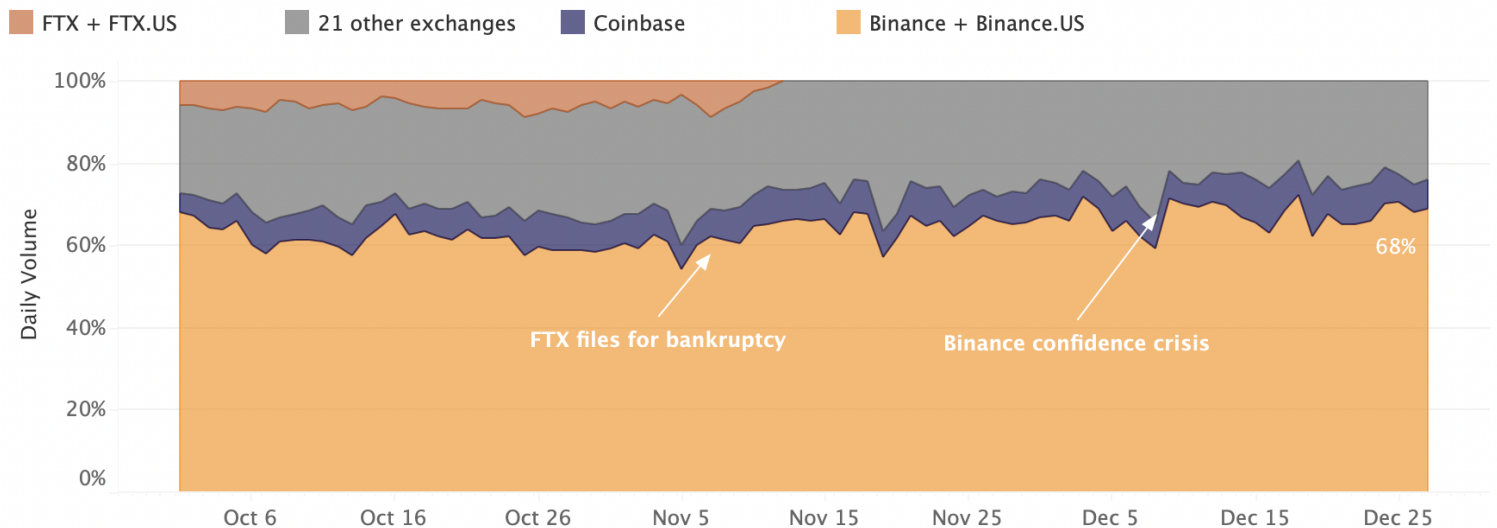
## FTX-Associated Altcoin Liquidity



Liquidity for altcoins associated with FTX suffered heavily. The projects behind the tokens MAPS and SRM were each backed by FTX, which held hundreds of millions worth. By November 11, market depth for both tokens had collapsed as prices crashed to near zero.

## Binance Takes FTX's Market Share

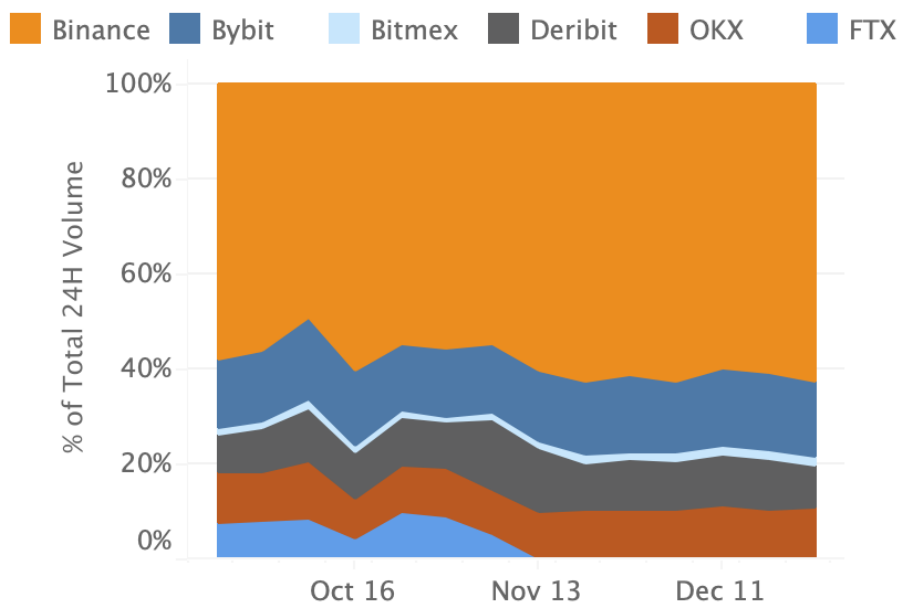
### Exchange Market Share - Spot Volumes



One of the immediate winners of the FTX collapse was Binance and its market share of volumes. In the days prior to FTX's collapse, Binance commanded 59-60% of the market. Approaching the end of Q4, Binance seems to have gained almost all of FTX's 6-8% market share, now commanding 68% of trade volume relative to 22 other exchanges. Binance suffered a slight drop in market share during the confidence crisis of mid-December, but since then the exchange has recovered.

Coinbase has also experienced a slight increase in market share, rising from 6-7% to 8-9%. This could be a lasting trend heading into 2023 as customers pay closer attention to regulation and transparency of centralized platforms. Regulated exchanges could be the long-term winners of the FTX collapse.

### Exchange Market Share - BTC Perpetual Futures

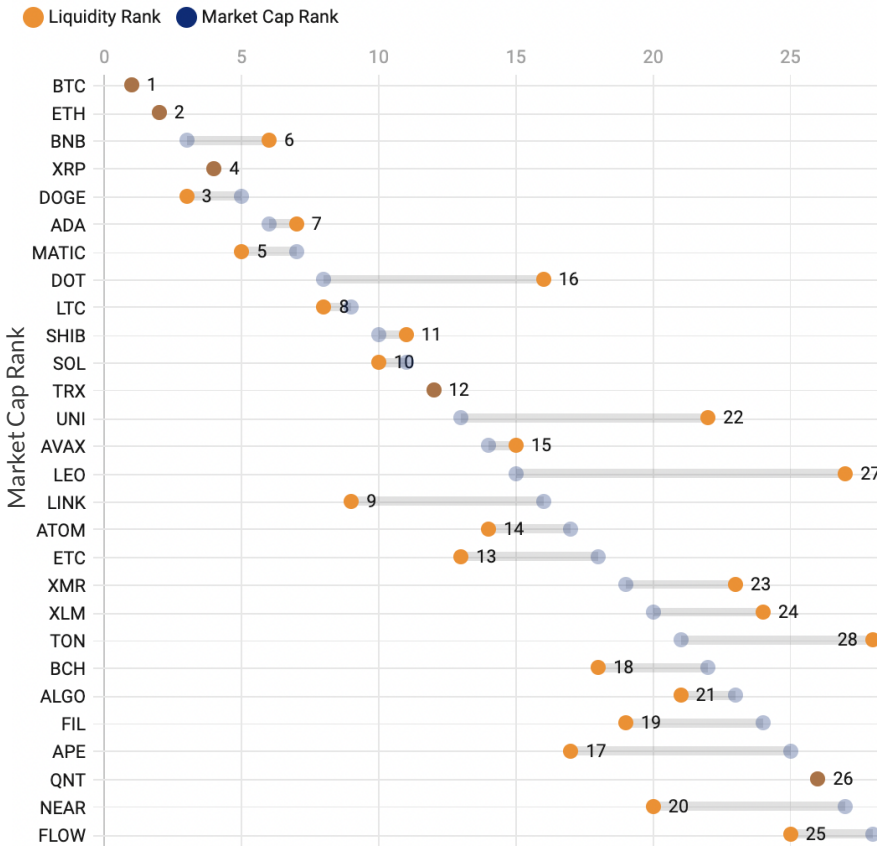


Derivatives play an important role in the crypto ecosystem and FTX was once one of the top 5 players when looking at trade volumes. FTX used to have 9% of the derivatives BTC market and Binance looks to have gained roughly 5% of that. The other 4% seems to have been split more or less equally across the other 4 exchanges listed.

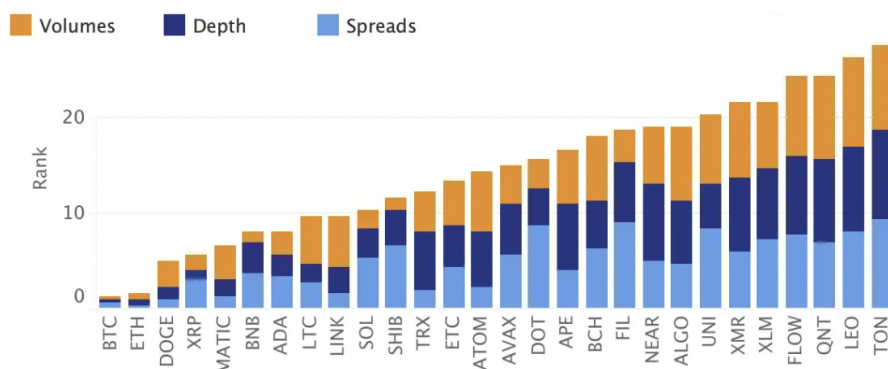


## A New Way to Value Crypto Assets

### Liquidity Rank vs. Market Cap



### Liquidity Ranking



Inappropriate crypto asset valuations played a core role in the collapse of FTX. FTX was given a multi-billion dollar valuation with just a few million dollars in liquidity on its order books. It is clear that a more thorough approach to valuing tokens is needed and liquidity must be considered going forward to properly assess the risk of holdings. Simply equating liquidity to market cap isn't sufficient as there are some large outliers.

This month, Kaiko Research presented a liquidity ranking model for 28 tokens and compared their liquidity rank to their market cap, using market depth, spreads and volumes.

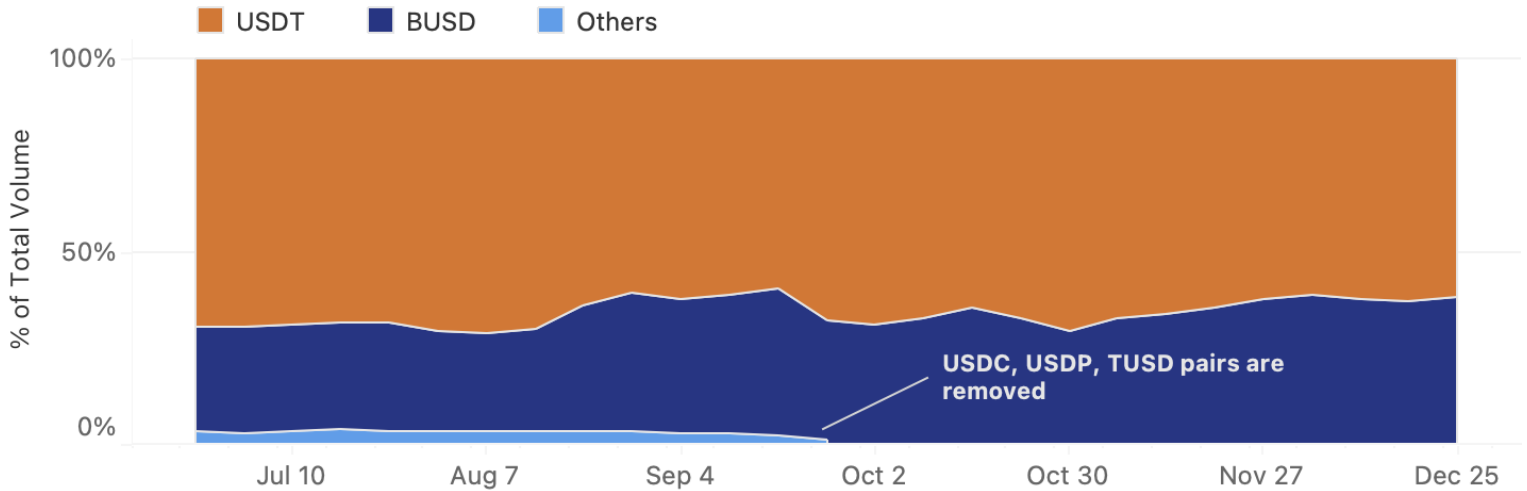
There were some notable outliers: DOGE, MATIC and LINK have better liquidity than their market caps suggest, according to our metrics. BNB, DOT, and LEO's market caps were the most misleading from a liquidity standpoint.

**The industry needs absolute transparency and better balance sheet management.**

The FTX collapse will have long-lasting implications for the industry. Liquidity will take a long time to return to exchanges as market makers reduce exposure. Now we're looking at a monopolistic market structure with Binance at the helm. We must learn our lessons from this scandal and apply them in the next bull run. We need proper liquidity management of positions so investors aren't as exposed to illiquid tokens that they can't sell. We need maximum transparency from exchanges and should not settle for anything less. In the meantime, investors will flee to self-custody their assets for maximum protection.

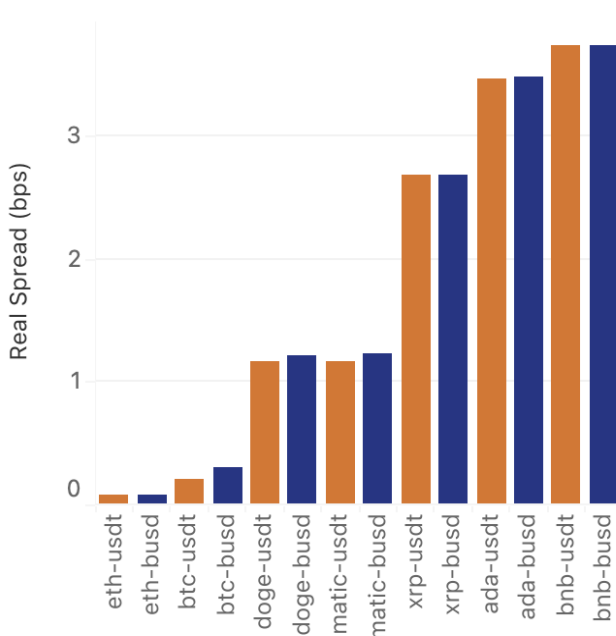
# Binance Autoconverts to BUSD

## Stablecoin Market Share on Binance - BTC and ETH Pairs



Source: Kaiko COHLCV data; altcoins include BNB, ADA, DOGE, XRP, and MATIC

## USDT vs. BUSD Spreads



On September 29, Binance began autoconverting user deposits of USDC, USDP, and TUSD to BUSD, the exchange's stablecoin. The stated purpose of this change was to improve overall liquidity by consolidating order books. Users are still able to deposit and withdraw the aforementioned stablecoins, though all associated trading pairs have been deprecated. USDC, USDP, and TUSD accounted for just over 2% of BTC and ETH trading when they were deprecated.

BUSD's market share of volume on Binance has increased steadily from 32% in October to 38% in December relative to USDT. Altcoin market share has been more volatile, dipping as low as 24% and as high as 44%, though it also increased from 30% in October to 35% in December.

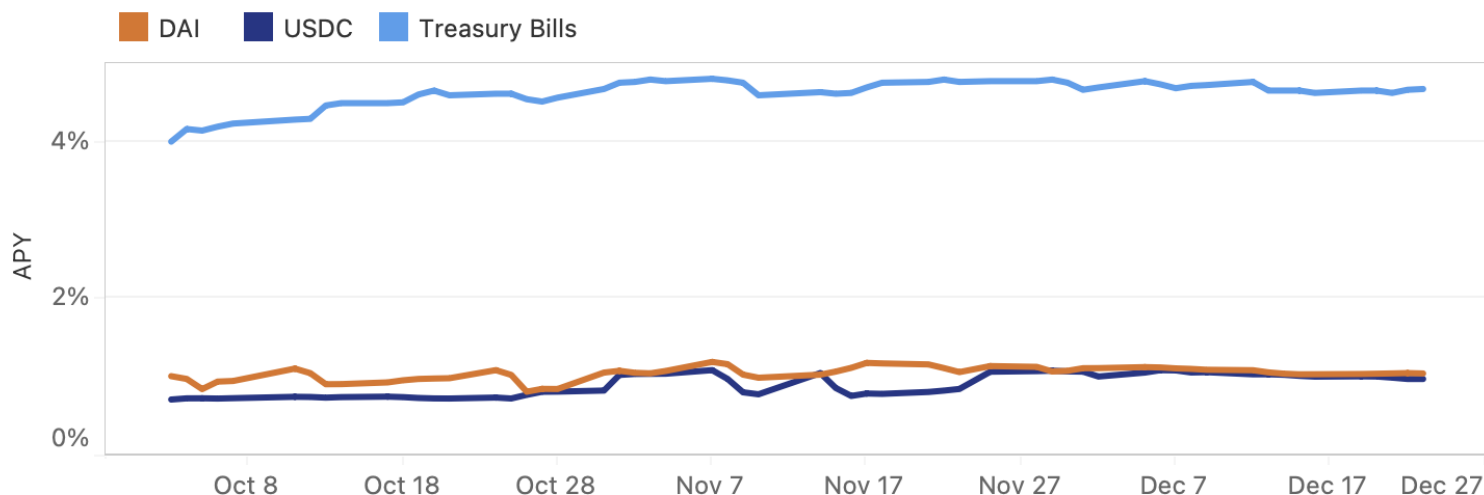
Spreads for top USDT and BUSD pairs are nearly identical, suggesting that Binance is engaging market makers to ensure that BUSD pairs are competitive with USDT pairs.

## **BUSD grows in importance, but attracts skepticism.**

Binance is clearly prioritizing the growth of its stablecoin during the bear market, prompting concerns around monopoly behavior, especially as BUSD becomes more systemically important to the crypto ecosystem. Notably, Paxos issued a statement confirming that it issues BUSD on Ethereum while Binance itself issues BUSD on other blockchains like BNB Smart Chain. This quickly called into question the backing of BUSD's Binance-managed reserves. In December, market makers pulled hundreds of millions of BUSD from Binance.

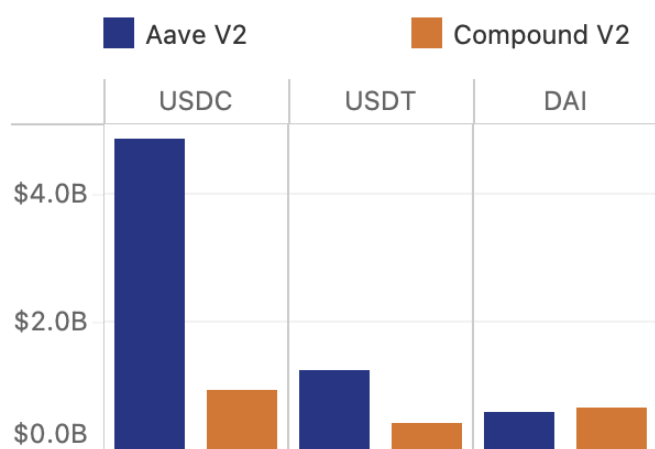
# DeFi Yields Remain Low

## Supply APYs on Aave V2 vs. U.S. Treasury Bill Yields



In early October, MakerDAO, the protocol supporting the stablecoin DAI, voted to deploy up to \$500mn of its reserves into U.S. Treasuries and corporate bonds. Yields in DeFi have remained depressed during the bear market, with a USDC or DAI deposit in Aave earning about 1% APY while Treasuries have approached 5%. DAOs are increasingly being forced to become creative with their treasuries to generate returns and create healthy reserves, both by diversifying out of their native tokens and investing off-chain.

## Q4 Deposits of Stablecoins



Despite low yields and collapsing centralized entities, lending and borrowing protocols continued to function normally, with Aave taking in close to \$5bn of USDC deposits this quarter while users deposited \$2.1bn worth of USDC, USDT, and DAI into Compound. However, both protocols had to take action to limit lending and borrowing of less liquid assets because of exploit attempts.

## DeFi remains niche and yields are not appealing.

As centralized lenders continue to collapse, DeFi lending and borrowing protocols worked mostly without a hitch, which was widely touted by proponents. However, lending yields for major assets like USDC, DAI, and ETH have fallen so low that they now pale in comparison to those available in traditional finance. The number of wallets interacting with protocols like Aave and Compound number in the low thousands, as they are primarily used by more sophisticated users. MakerDAO turning to Treasuries could be a sign of effective governance and creativity or a signal that DeFi is not yet able to function independently of traditional finance.

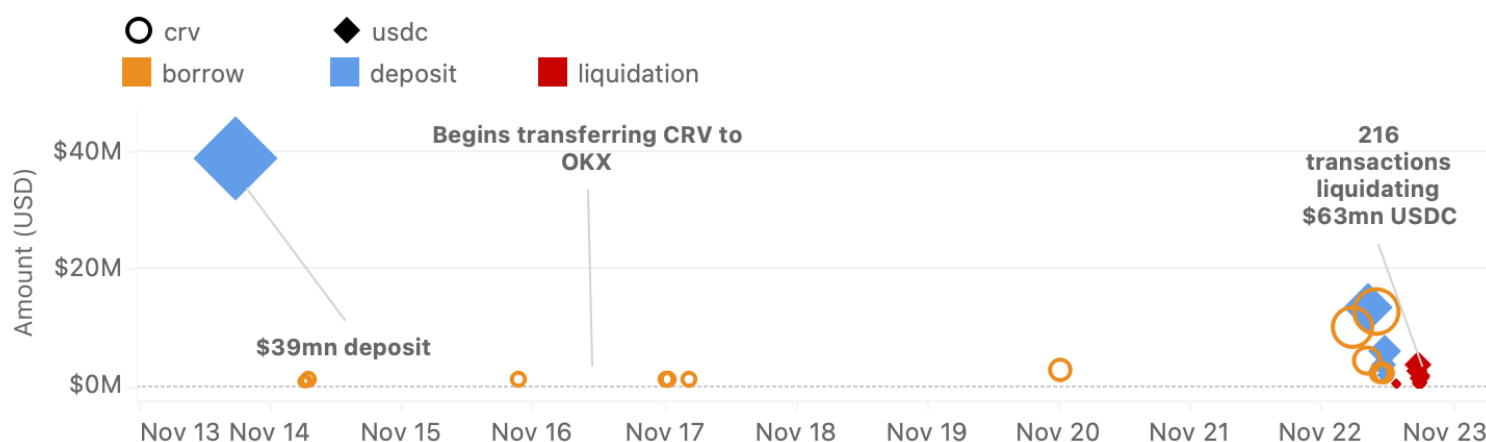
# DeFi Exploits: Mango and Aave

A string of DeFi exploits this quarter seemingly came to an end last week as the U.S. Department of Justice charged Avraham Eisenberg with commodities fraud and market manipulation for his heist of Mango Markets. This exploit involved him opening a large MNGO futures position on Mango Markets and then pumping MNGO's price on the few exchanges on which it traded. This allowed him to walk away with over \$100mn worth of other tokens. For a more detailed recounting see our Deep Dive [here](#).

His next exploit attempt targeted Aave V2 and Curve Finance's CRV token. He began by depositing close to \$40mn of USDC and borrowing CRV, which was then transferred to OKX, presumably to sell. Unfortunately for Eisenberg, CRV's price held up, and actually spiked, putting his position above the liquidation threshold. Because of a lack of on-chain CRV liquidity, liquidations were processed slowly, leaving Aave with over \$1mn in bad debt. Again, for a more detailed recounting see our [Deep Dive](#).

## Exploiter Activity on Aave V2

November 2022



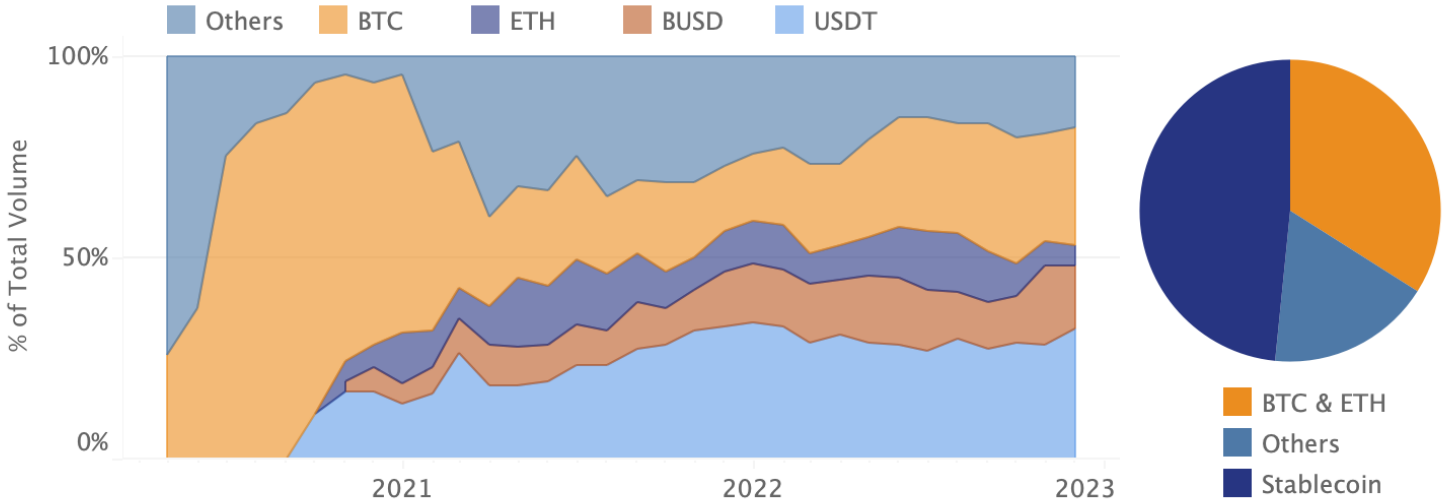
Eisenberg was arrested in Puerto Rico on December 27, but in his brief reign of terror he forced protocols like Aave to limit lending and borrowing of less liquid tokens. Following both exploits he was active on Twitter, claiming that he was able to drain Mango Markets because of a "highly profitable trading strategy."

## Losses of liquidity (and Avi) have stressed DeFi protocols.

Avi Eisenberg gained a significant social media following after his exploit of Mango Markets, with many in the community viewing him as a necessary evil, someone who did nothing wrong but push smart contracts to their limits and make money in the process. The DOJ clearly has a different opinion, charging him with the well-established crimes of market manipulation and fraud. Whatever one's opinion of him, he exposed vulnerabilities in protocols that have since been remedied. These vulnerabilities had become especially pronounced post-FTX with lower altcoin liquidity, making token prices easier to manipulate.

# Stablecoin Usage Surges in Brazil

## Brazilian Real (BRL) Spot Volumes

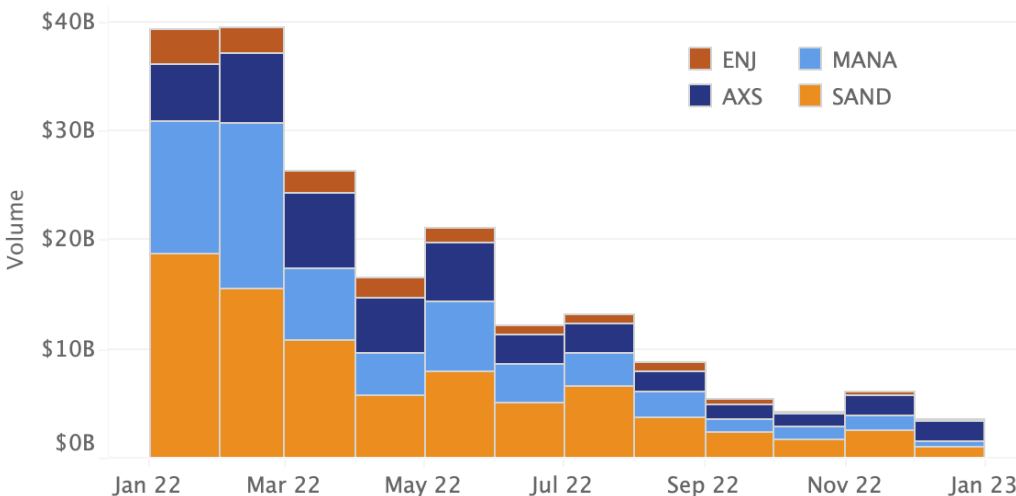


Over the last 10 years, the Brazilian Real (BRL) has been devalued by over 200% vs USD and as a result, has decimated Brazilians' savings in their domestic currency. Additionally, the Brazilian government has implemented capital controls on foreign currencies and Brazilian bank accounts can only hold Brazilian Reals. This has left many Brazilians desperate for an alternative to their local currency and ideally one which is pegged to the US Dollar to protect their savings; enter stablecoins.

50% of volumes on BRL pairs involve a stablecoin, compared to just 5% of volumes for USD-denominated pairs. Since the bull market of 2021, USDT has increased its share of total BRL-denominated volume by nearly 20% at the expense of altcoins, which suggests locals are opting for the safety of stablecoins over the speculation of altcoins.

# Investors Lose Interest in Metaverse

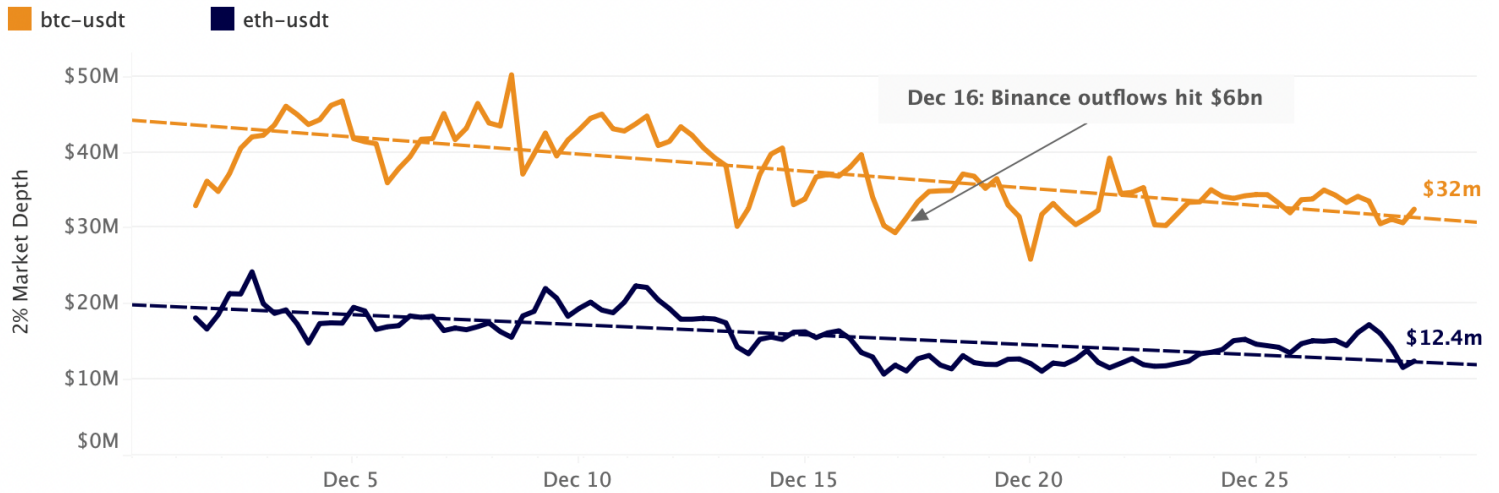
## Metaverse Token Monthly Volumes



Interest in blockchain based metaverse projects, as measured by trade volume on exchanges, peaked in November 2021 during the market top when play-to-earn games dominated crypto narratives. Fast forward a year and metaverse trade volume have fallen by nearly 90% as interest in the digital world has dwindled.

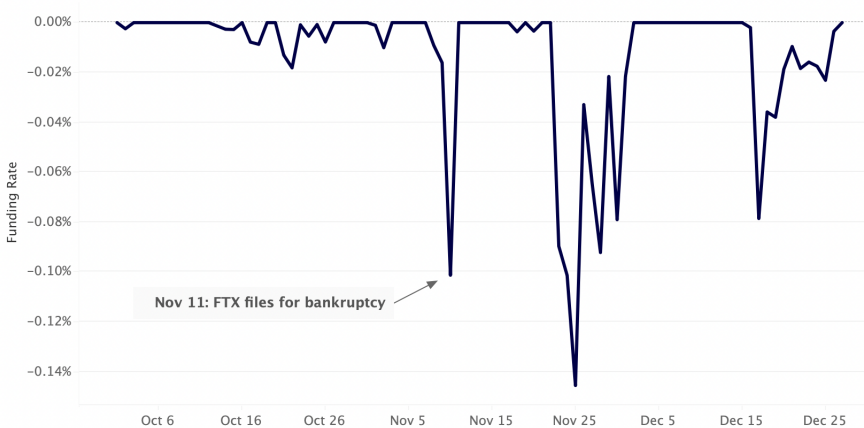
# Binance Suffers Confidence Crisis

## BTC and ETH Market Depth



In early December, a swirl of rumors started circulating around the solvency of Binance following an unsatisfactory "proof of reserves" report and potential legal troubles in the U.S. Panic spread as traders rushed to the exits, resulting in more than \$6bn in net outflows. The exchange continued to function normally aside from a brief pause in USDC withdrawals. Market makers didn't stay around to test their luck, though, causing market depth for BTC and ETH trading pairs to dip. Liquidity has not yet fully recovered.

## BNB Funding Rate



In the weeks following FTX's collapse, derivatives traders placed their bets against Binance by shorting the exchange's native BNB token, which also powers BNB Smart Chain. BNB funding rates dipped to as low as  $-0.14\%$  and the token's price is down 13% since the start of Q4.

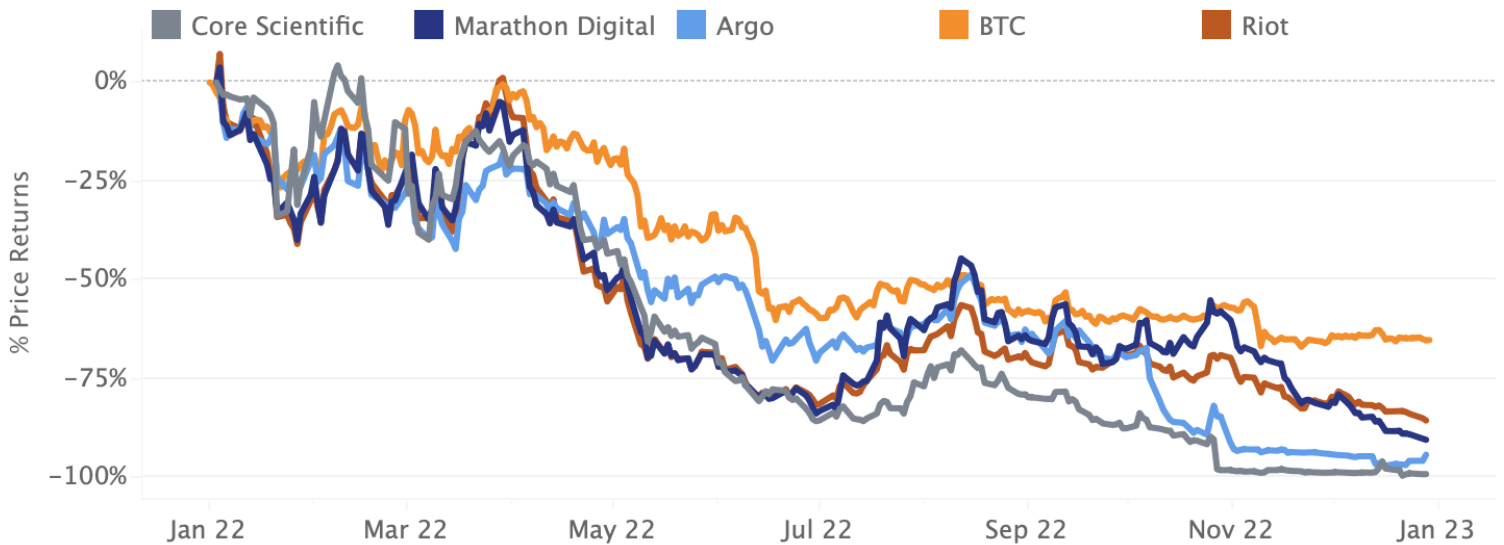
## Binance survived its biggest test yet, but 2023 poses new challenges.

FTX collapsed after just \$3bn of outflows while Binance continued to function normally with more than \$6bn. This attests to their stronger balance sheet, although it doesn't resolve all concerns. In 2023, Binance will need to prove to both traders and regulators that it has good governance and a strong balance sheet, but this may be difficult considering the exchange doesn't even have an official headquarters. A Binance collapse would be devastating for the industry, so let's hope that the exchange is working fast to clean things up internally.



# Crypto Investments Suffer

## Crypto Mining Stock YTD Returns



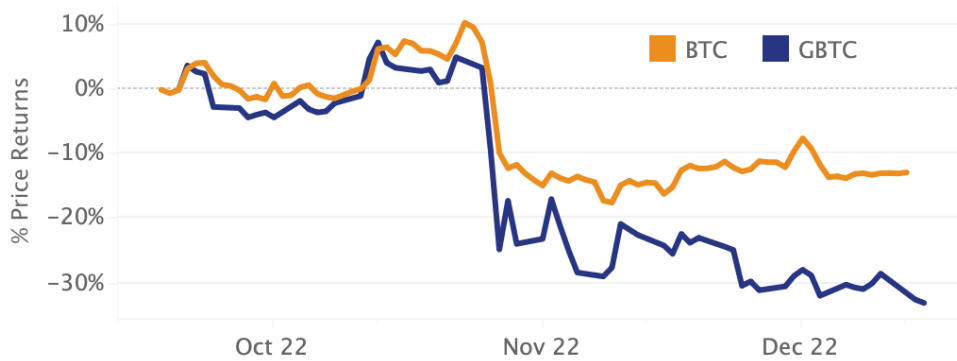
The share prices of the largest public mining companies are underperforming BTC by a wide margin. At the end of December, the mining company Core Scientific filed for bankruptcy protection, which comes as the company closes the year down a staggering 99%. Meanwhile, Argo managed to avoid bankruptcy after agreeing to be acquired by Galaxy Digital. While Bitcoin’s hash rate has retreated from all-time highs hit in November, it has rebounded in December, putting continued stress on miners. Miners’ difficulties put additional pressure on crypto lenders, who provided large amounts of rig-backed loans during the crypto bull run.

## Coinbase Share Price vs. Nasdaq



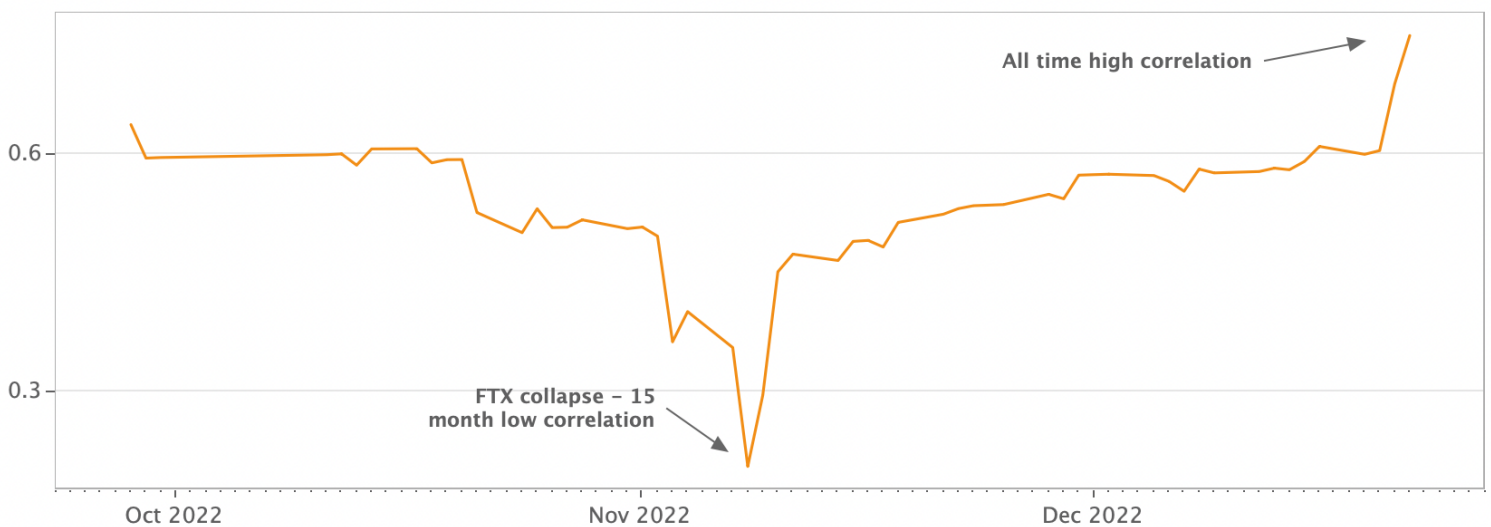
Coinbase has been one of the worst performing tech stocks in 2022, down 87% at the time of writing. Meanwhile the Nasdaq is down 35% on the year, meaning Coinbase underperformed the index by 52%. Coinbase's bonds have fallen to distressed levels and rumors are circulating that they could become the target of a takeover at current debt levels.

### GBTC Discount vs. BTC



Bearish sentiment around the Grayscale Bitcoin Trust (GBTC) deepened due to fears that its parent company – the Digital Currency Group (DCG) could experience liquidity issues alongside its other subsidiary Genesis. GBTC remains by far the largest BTC investment vehicle, holding over \$10bn worth of BTC, yet it underperformed BTC by over 20% this quarter.

### BTC's Correlation with the S&P500



The last week in December marked an all-time high for BTC's correlation with the S&P 500, which comes only a month after a 15-month low in the same metric. This has epitomized crypto in 2022: tied to macro for the majority, however, a handful of crypto-specific disasters saw crypto decouple from stocks. Aside from these idiosyncratic events, crypto has been largely tied to interest rate movements and by extension, stocks.

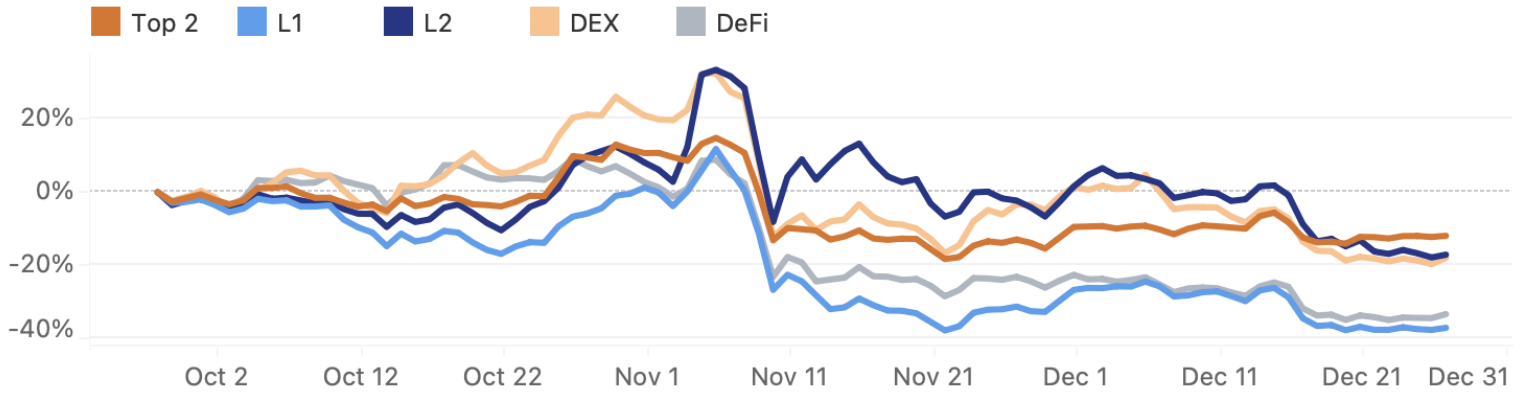
### In Q4, crypto decoupled for the wrong reasons.

The only decoupling catalysts crypto has experienced this year have been negative events such as FTX's collapse. Aside from these major incidents, crypto's price action remains tied to macro events. With the Fed expected to hold strong on interest rates to start the year, we can expect crypto to move largely in line with stocks for the near future. Decoupling was a goal of crypto in 2022 and the industry got what it asked for, just in the wrong direction. The second half of 2023 can hopefully be the time when crypto finally decouples for the right reasons, in the right style.

# Q4 Chartbook

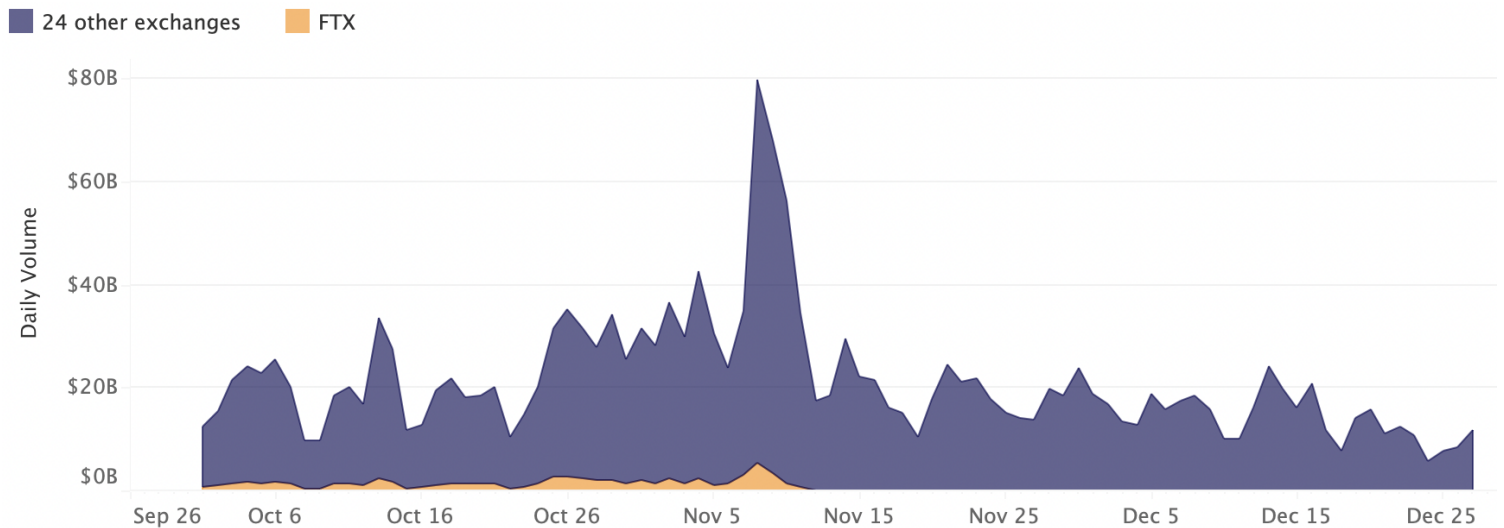
## Price and Volume

### Quarterly Returns by Sector



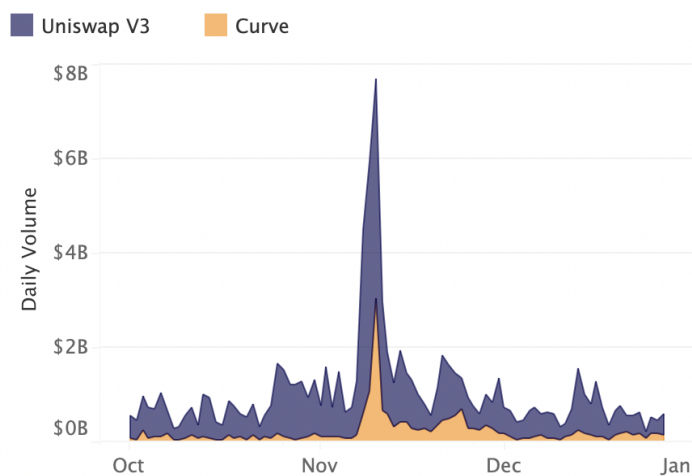
Source: Kaiko valuation data. DEX: uni,sushi,bal,crv,1inch. DeFi: mkr,ldo,aave,comp,cvx. L1:ada,avax,ftm,sol,atom. L2: ctsi,skl,dydx,lrc,matic.

### Daily CEX Trade Volume

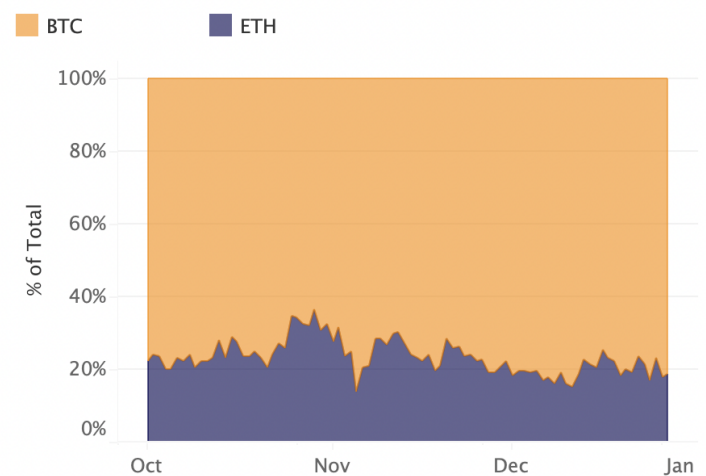


Source: all exchanges with "B" ranking or higher on Kaiko Exchange Ranking

### Daily DEX Trade Volume



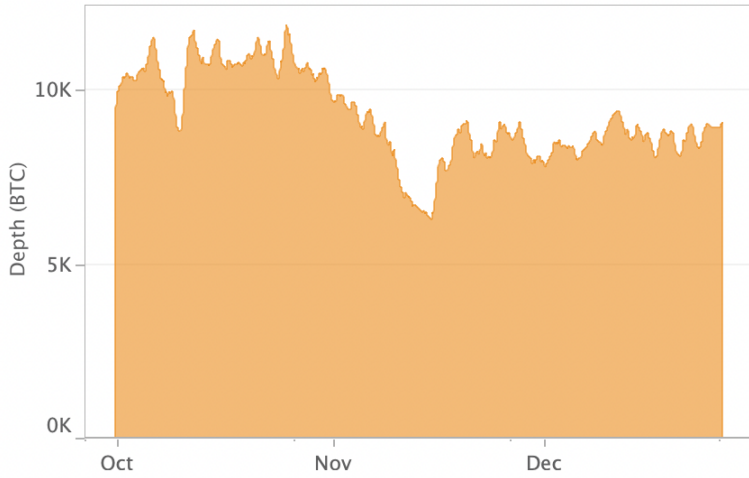
### BTC to ETH Spot Volume Ratio



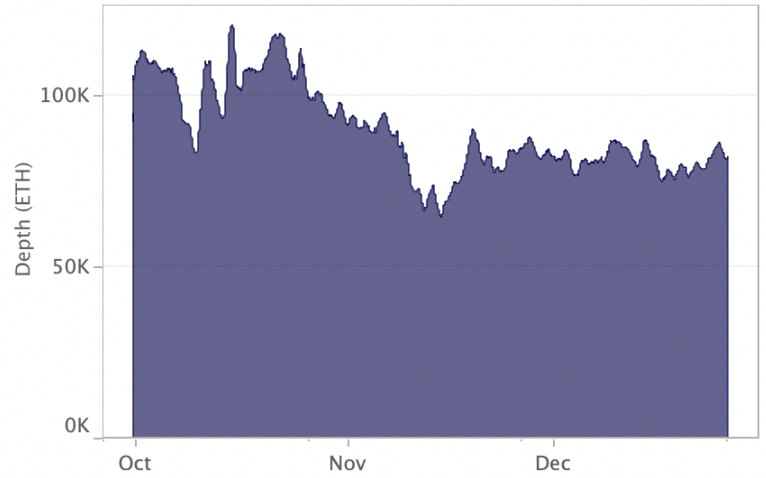
Liquidity

Aggregated 2% Market Depth

BTC-USD(T)



ETH-USD(T)

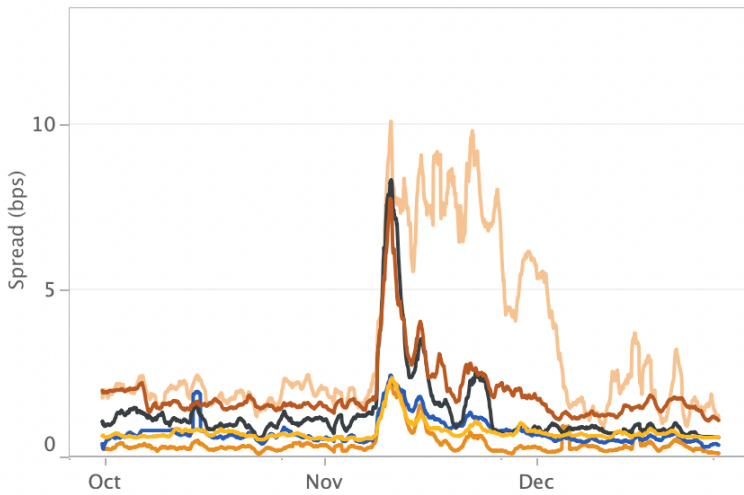


Source: aggregated across most liquid exchanges, listed below

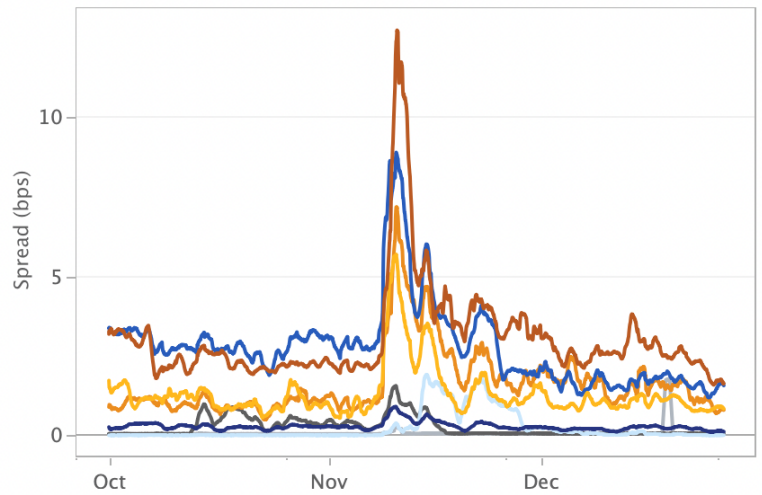
Bid-Ask Spread

- Binance
- Bitfinex
- Coinbase
- Huobi
- Kucoin
- Binance US
- Bitstamp
- Gemini
- Kraken
- OKX

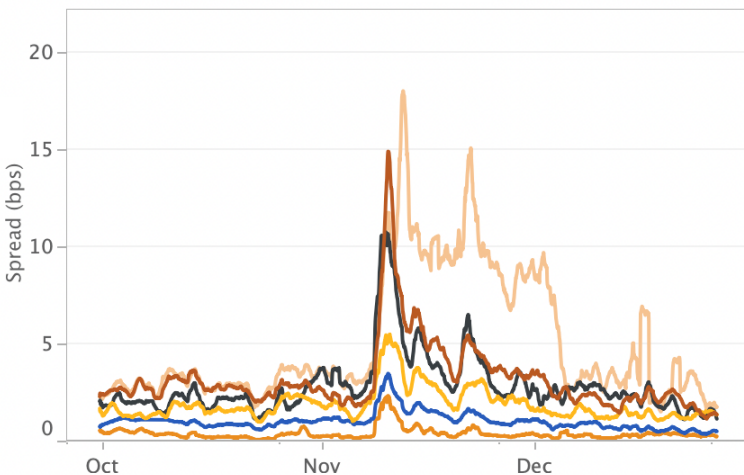
BTC-USD



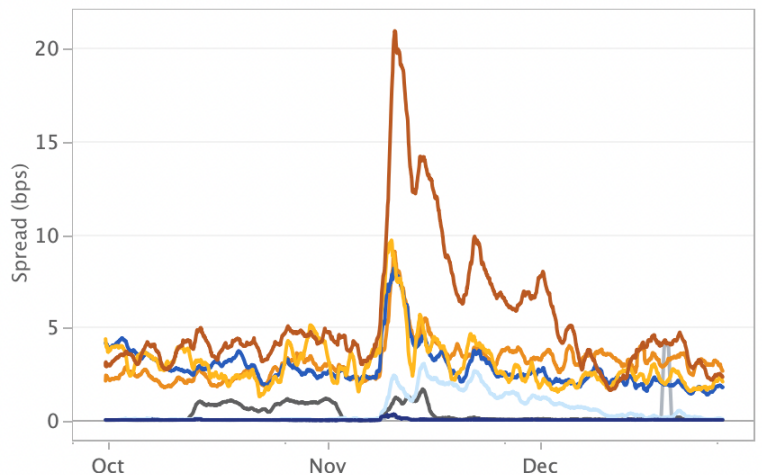
BTC-USDT



ETH-USD



ETH-USDT



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