CENTRALISED EXCHANGE RETROSPECTIVE

2022 REVIEW & 2023 OUTLOOK

CryptoCompare

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About CryptoCompare

CryptoCompare is an FCA authorised benchmark administrator and global leader in digital asset data, providing institutional and retail investors with high-quality real-time and historical data. Leveraging its track record of success in data expertise, CryptoCompare's thought-leadership reports and analytics offer objective insights into the digital asset industry.

About This Report

2022 was one of the most impactful years for centralised crypto exchanges since the collapse of Mt. Gox in 2014, with the fall of FTX raising many questions about the transparency of exchanges and what measures they are taking to protect users. The objective of this report is to assess the changing dynamics of this subsector following the turbulent events of 2022, whilst assessing what this might mean for the future of the digital asset industry in 2023.

The report includes a retrospective analysis of the CEX landscape in 2022, helping readers to understand the developments in the industry. We cover:

Assessment Dimension	Data and Metrics Used
Trading Volumes	Absolute Volumes, Volumes Market Share
Liquidity Measures	Spreads, Slippage, Aggregated Market Depth
Customer Acquisition Practices	Fees, Market Maker Programs, Security

To conclude, we assess key trends to look out for this year relating to the above dimensions. To keep this report succinct, we will be covering the following exchanges: Binance, Bitfinex, Bittrex, Bybit, Coinbase, Crypto.com, Huobi, Kraken, Kucoin, FTX and OKX.

Explore the data on the CryptoCompare API

For those interested in accessing CryptoCompare's data for their own purposes, including cryptocurrency trade data, order book data, blockchain data, social data or historical data across thousands of cryptocurrencies and 200+ exchanges, please take a look at CryptoCompare's API here: https://min-api.cryptocompare.com.

For questions related to our research or any potential requests, feel free to contact our research department at **research@cryptocompare.com**.

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Key Insights

Exchange Market Share Consolidates While Volumes Decline

Binance’s volume market share increased from 48.7% in the first quarter of 2022 to 66.7% in the last quarter of the year (up to the 28th of December), based on the eleven assessed exchanges. The increase can be attributed to consolidation in the industry as overall volumes trend downwards, with exchanges competing for reduced volumes. Bybit and Binance were the only exchanges to see a market share increase each quarter in 2022.

Exchanges with the Lowest Spreads and Slippage Throughout 2022

In 2022, OKX, Binance and Huobi provided the lowest spreads on BTC-USD-denominated pairs. When looking at a simulated $100,000 buy order throughout the year, Binance, Kucoin and Coinbase had the lowest slippage at 0.009, 0.012, and 0.014 BTC respectively.

Zero-Fee Trading Successful at Increasing Volumes

Exchanges aimed to gain market share in 2022 by implementing certain programs that incentivise user activity. Most notably are the zero-fee trading programs implemented by Bybit and Binance. Bybit saw its volumes rise a staggering 248% the month after introducing zero fee trading across all its pairs. Binance, which implemented zero-fees just on BTC and BUSD pairs, saw its volumes rise 10.3%. These two exchanges were the only ones that reported an increase in trading volume in each quarter of 2022.

Increased Importance of Security and Transparency Metrics

Following the fall of FTX, the main takeaway from 2022 is the increased importance that security and transparency will play in the CEX sector in 2023. We hypothesise that exchanges with superior transparency policies, for example, releasing clear and audited Proof of Reserves (PoR), will be those that succeed, particularly in a year which we believe will have sustained lower volumes.

As of the end of 2022, most exchanges employ sufficient security metrics, outlined on page 15. Most of the assessed exchanges have also released some form of PoR attestation/audit in the closing stages of last year. However, many of these lack the basic principles a PoR should follow – they should cover proof of liabilities, be audited by a third party, be ongoing audits rather than snapshots, should cover multiple assets and should also involve the sharing of hot and cold wallet addresses for increased transparency. These are outlined on page 16.

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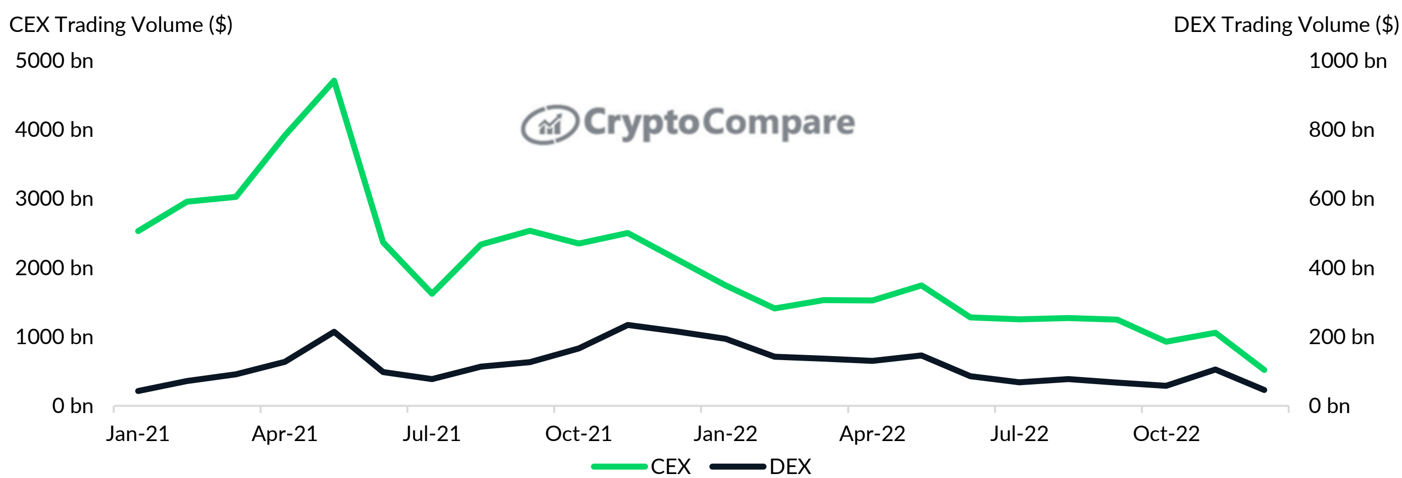
Centralised Exchanges in 2022 – Retrospective

2022 proved to be a transformative year for the digital asset industry. Following the exponential growth that was seen in the bull market of 2020 – 2021, the year's idiosyncratic events highlighted the deficiencies of the industry and showcased the value proposition that digital assets provide market participants compared to traditional finance.

The collapse of Terra in May underscored the necessity for robust and sustainable systems, particularly within decentralised finance (DeFi). The bankruptcy of FTX in November demonstrated the need for transparency, security and regulation in the domain between centralised and decentralised finance, while simultaneously illustrating the benefits that DeFi can bring through its transparent and permissionless infrastructure.

In the digital asset space, centralised exchanges (CEXs) can be seen as financial intermediaries that allow market participants to on-ramp into the cryptocurrency ecosystem. CEXs are particularly important considering the current development of the industry - with DeFi still in its infancy, centralised venues may act as a more secure alternative to getting digital asset exposure. In fact, trading volumes across CEXs remained well above their decentralised counterparts, as highlighted in the figure below.

Figure 1 – CEX vs. DEX Volume, 2021 – 2022



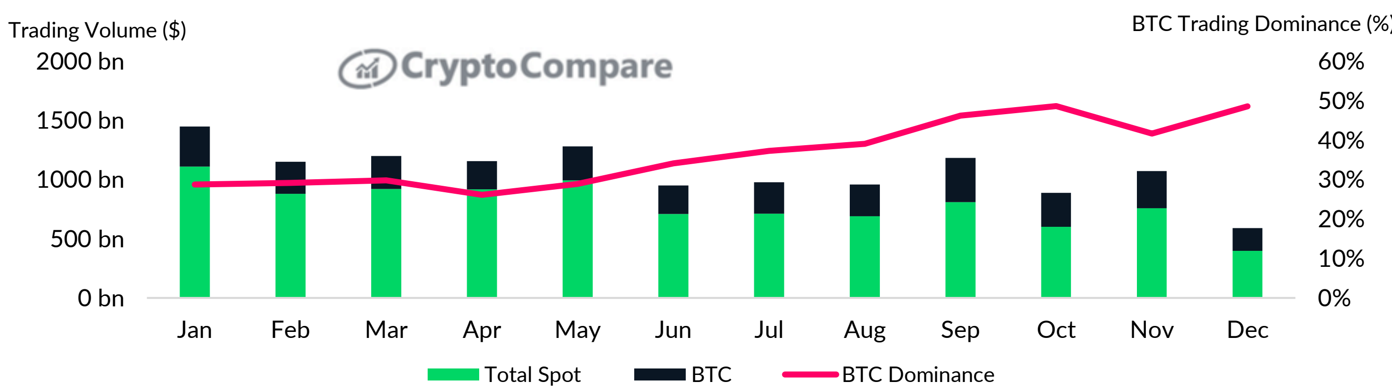
Changes in Trading Volume

The past couple of years have demonstrated the importance of market sentiment on trading activity. In 2021, the injection of stimulus checks led to a liquidity-rich bull market where traders took advantage of various trends, resulting in an influx of trading activity. However, the poor macroeconomic conditions of 2022 (rising inflation and interest rates), together with idiosyncratic events within the space, have affected cryptocurrency markets, reverting market participants to safer assets and away from trading. As a result, trading volume on centralised exchanges declined 46.2% in 2022.

Among the eleven exchanges analysed, Binance remains the market leader with a trading volume market share of 56.8% in 2022. However, spot trading on the exchange still fell 45.3% to $5.39tn, in line with the general downward trend in the market. OKX and Coinbase followed with a market share of 8.58% and 8.50%, trading $813bn and $805bn respectively. Of the 11 analysed exchanges, Bybit and Kucoin were the only exchanges that saw a rise in absolute trading volume last year – albeit they saw contrasting market share performance – highlighting the nascent stage of the industry, where multiple firms can grow despite a broad market downtrend. Bybit, in particular, was the only exchange along with Binance that saw its market share increase steadily in each quarter of 2022.

In contrast to the extensive risk-taking in the bull market, investors have primarily been fleeing to safer assets including Bitcoin (BTC) and stablecoins for capital protection. Though Bitcoin's trading volume declined 31.4% year-on-year, it remains the most traded crypto asset, with a trading volume of $3.36tn. Last year, Bitcoin's trading dominance increased from 28.8% in January to 48.6% in December, with traders preferring to trade the asset with less downside volatility amid uncertain market conditions. This is a common trend that was seen in previous market downturns.

Figure 2 – Bitcoin Trading Dominance, Jan – Nov 2022



Source: CryptoCompare

The changing dynamics in the centralised exchange landscape during 2022 were fascinating to watch. Below, we assess this on a quarter-by-quarter basis.

Quarter-by-Quarter Volumes Analysis

Q1 2022: Coming off the heels of the peak bull market, spot trading volume on centralised exchanges fell 36.9% in Q1 2022. This coincided with the early signs of a bear market, primarily fuelled by high inflation data and the escalation of the Russia - Ukraine war, which resulted in the full invasion of Ukraine in February.

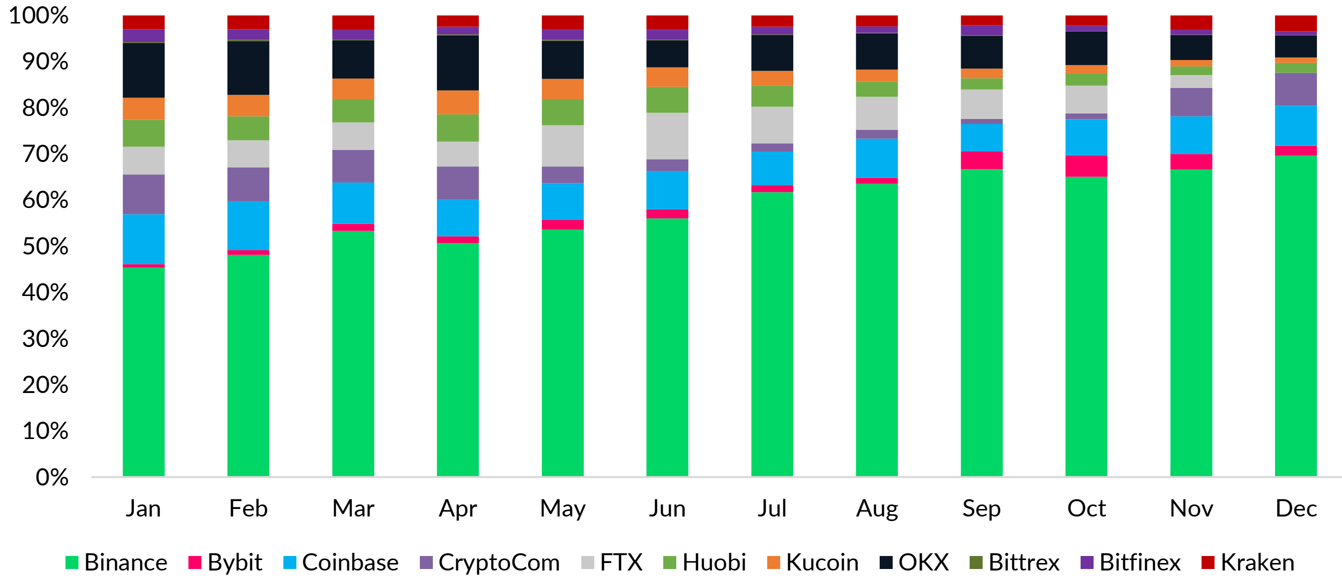
Among the eleven exchanges analysed, Binance traded the highest spot volume with a market share of 48.7%, followed by OKX and Coinbase with 10.7% and 10.1% respectively. As there was still optimism for a further rally, Crypto.com, and Kucoin saw increased trading activity, recording their highest market share in the last two years during this period at 7.73% and 4.64% respectively.

Q2 2022: The second quarter of the year was catastrophic for the digital asset industry, with the high-profile collapse of the Terra ecosystem and crypto lending products such as Celsius and BlockFi.

Spot trading volume on centralised exchanges fell 10.0%, with Binance increasing its market share to 53.2%. FTX capitalised heavily on the events during this period, recording a market share of 8.06%, courtesy of their high incentives and late delisting of LUNA trading pairs compared to other exchanges. As a result, trading volume on FTX rose 20.9% to $210bn in Q2 and it was the only exchange to record an increase in trading volume during this period. It is important to note that FTX's management team has since been charged with price manipulation, and while this does not necessarily equate to manipulation of trading volumes, we must appraise their reported volumes with some scepticism.

Meanwhile, the market share of Coinbase and OKX fell sharply, recording lower monthly volumes than FTX for the first time in its history. The chart below shows the change in market share among these exchanges throughout 2022.

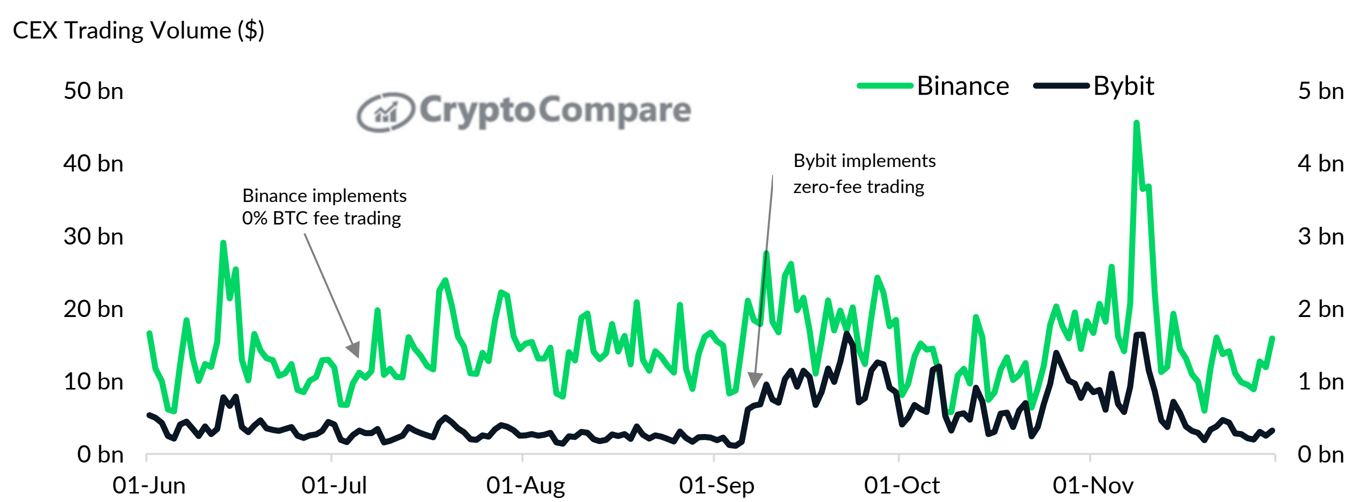
Figure 3 – Monthly Market Share of Analysed Exchanges, 2022



Q3 2022: In Q3, the price action of cryptoassets was heavily influenced by macroeconomic data. As a result, spot trading volume on centralised exchanges fell 15.6% to a total of $2.20tn among analysed exchanges. Q3 also saw the long-awaited Ethereum Merge be carried out successfully, however it was not enough to increase trading activity as investors remained risk-averse.

Binance continued to increase its market share to 64.1% at the end of Q3. Among the eleven assessed exchanges, Binance and Bybit were the only trading venues to record an increase in volume from their previous quarter, with both exchanges introducing zero-fee trading in September. Meanwhile, other exchanges continued their decline in trading volume, struggling to attract traders with their comparatively higher trading fees.

Figure 4 – Binance and Bybit Spot Volumes, H2 2022



Q4 2022: With the bear market in full strength and market participants still reeling from the downward trend in price action, spot trading volume on centralised exchanges continued to decline in Q4. One of the biggest signals showing the lack of participation is the drop in volatility and liquidity in the market. On October 22, the annualised 30-day volatility of BTC dropped to 26.6% - the lowest figure since July 2020, reflecting the risk averse sentiment in the market.

However, on November 8, concerns about the liquidity of FTX, the fourth-largest exchange by market share at the time, started to arise. Four days later, the exchange filed for bankruptcy after an unprecedented turn of events. As a result, trust in centralised exchanges is at an all-time low, and there was a rising trend in users taking their assets off exchanges or moving to more reputable venues that introduced transparency measures such as Proof of Reserves audits.

In Q4, Binance increased its market share to 66.7% among the exchanges assessed. Coinbase, Bybit and Kraken also seemed to have benefited from the events in Q4, with their market share increasing to 8.16%, 3.54%, and 2.91%, respectively. The only other exchange that saw an increase in market share was Crypto.com, however, their rise in trading volume can be attributed to the concerns over their liquidity in the latter half of November. The quarter-on-quarter market share of the assessed exchanges is presented below.

Figure 5 – Quarterly Market Share, 2022

	Binance	Bybit	Coinbase	Crypto.com	FTX	Huobi	Kucoin	OKX	Bittrex	Bitfinex	Kraken
Q1	48.7%	1.1%	10.1%	7.7%	6.0%	5.4%	4.6%	10.7%	0.2%	2.4%	3.1%
Q2	53.2%	1.8%	8.1%	4.6%	8.0%	5.7%	4.6%	8.9%	0.2%	2.0%	2.8%
Q3	64.1%	2.3%	7.1%	1.6%	7.1%	3.3%	2.6%	7.6%	0.1%	1.8%	2.3%
Q4	66.7%	3.5%	8.2%	4.6%	3.3%	2.2%	1.5%	5.9%	0.1%	1.0%	2.9%

Q4 Data is up to the 28th of December.

Exchange Liquidity

Since the fall of FTX at the end of last year, centralised exchanges have been under a microscope from regulators, traders and investors. As a result, exchanges' transparency and exposure to systematic risk are being heavily questioned as user confidence seems to be at cycle low.

In this regard, monitoring an exchange's performance is essential for understanding its systematic risks, and its ability to meet customers' expectations. Exchange volumes and liquidity have been used by many as a proxy for a healthy-operating exchange, and while both metrics are related, there are major differences in their core usage and their main characteristics and functionality.

Volumes give insights into the level of trading activity that occurs on an exchange, while liquidity can tell us more about efficient operation and order book structure. In the following section, we dive deeper into liquidity metrics, focusing on spread and slippage; market depth has not been considered due to a lack of comparable data across the exchanges analysed.

Spreads

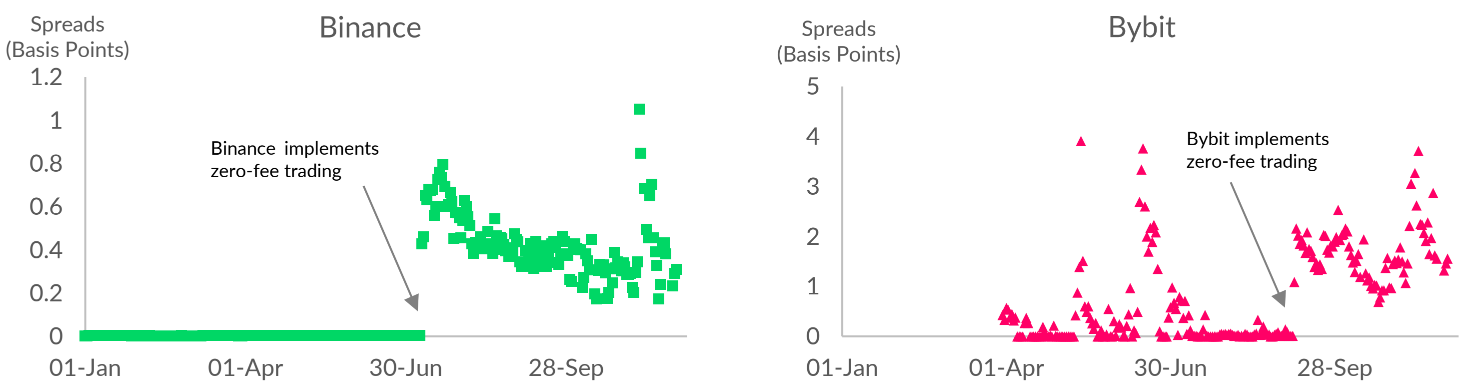
Spread is the difference between the best bid and ask and represents the cost to trade. Tighter spreads typically signify higher liquidity as there is more certainty around the fair price of an asset, leading to more willingness to trade. Analysing BTC-USD and USDT pairs, we find that spreads have been declining in USD value and maintaining similar records in basis points. Aggregated average daily spreads maintained a level between 7.97bp recorded in April and 12.3bp recorded in June, before they soared in November, recording 19.75bp; a 108% increase compared to average monthly spreads in 2022.

Figure 6 – Average Daily Spreads in BTC-USD denominated pairs, 2022

	Binance	Bybit	Coinbase	Huobi	Kucoin	OKX	Bittrex	Bitfinex	Kraken
Jan	0.003	-	0.098	0.003	0.025	0.025	4.218	0.448	2.057
Feb	0.002	-	0.065	0.003	0.025	0.025	4.385	0.441	2.247
Mar	0.003	-	0.616	0.003	0.024	0.016	4.488	0.374	2.167
Apr	0.003	0.136	0.264	0.003	0.024	0.021	4.253	0.227	1.924
May	0.003	0.383	0.274	0.003	0.032	0.026	4.733	0.318	2.635
Jun	0.004	0.992	0.681	0.004	0.042	0.042	4.724	0.689	2.711
Jul	0.459	0.201	0.616	0.005	0.046	0.046	4.37	0.553	2.55
Aug	0.451	0.044	0.848	0.004	0.045	0.045	3.163	0.449	1.504
Sep	0.38	1.48	0.57	0.005	0.05	0.05	2.645	0.506	1.159
Oct	0.318	1.384	0.628	0.005	0.271	0.051	3.183	0.509	0.895
Nov	0.42	1.989	0.989	0.458	0.218	0.052	10.504	0.642	2.141

It is important to note that an exchange's fee structure plays a dramatic role in spreads, since market makers account for fees when matching trades. While some might expect zero-fee trading to lead to tighter spreads due to reduced costs, zero-fee trading also eliminates the rebates earned by market makers. As a result, market makers must profit from larger spreads in the absence of rebates.

Figure 7 – Binance & Bybit Daily Spreads on BTC-USDT Pair Following Zero-Fee Trading

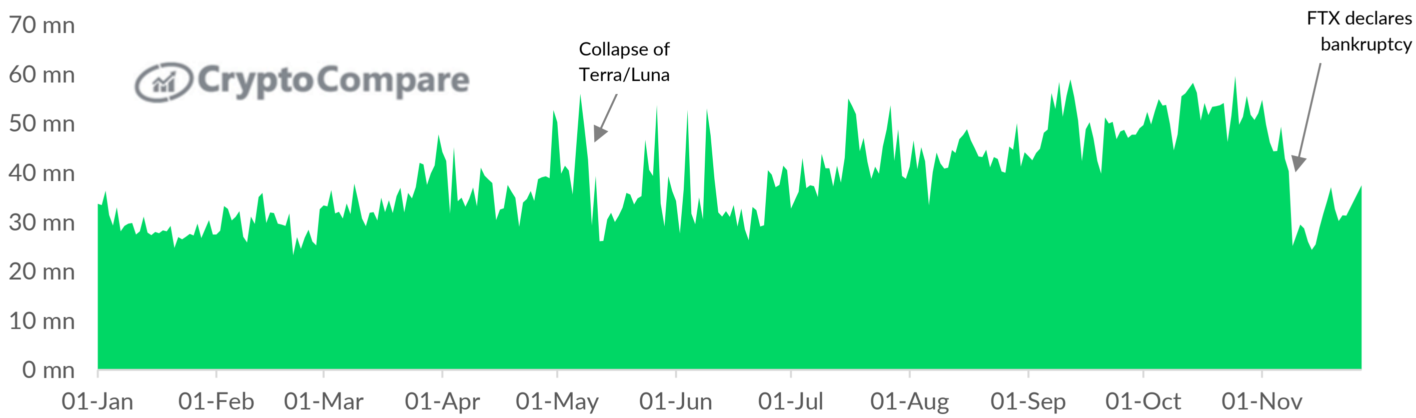


Thus, the implementation of zero-fee trading negatively impacts spreads. Having said this, both Binance and Bybit's spreads remained lower than other competitors – with Bittrex and Kraken having the largest spreads to end 2022, at 10.5 and 2.1 basis points respectively.

FTX's Impact on Liquidity

FTX's bankruptcy had a dramatic influence on the entire exchange industry - something which was also proven true for the Terra crash and 3AC bankruptcy. During each of these events, liquidity witnessed sharp spikes in volatility. In November of last year, average daily 1% market depth decreased from \$38.6mn in October to \$28.2mn, a 27.1% decline.

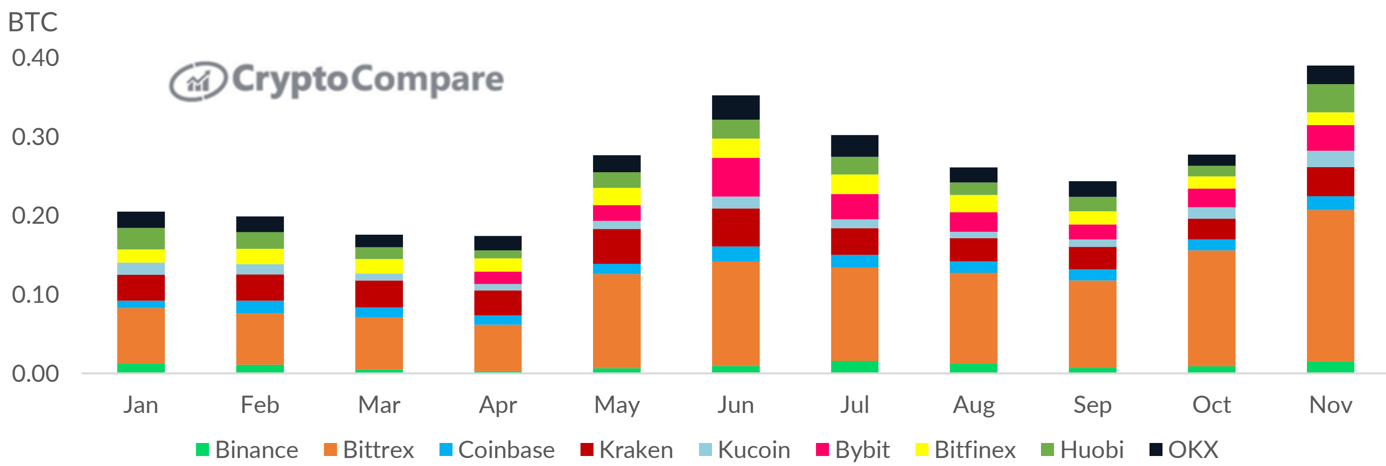
Figure 8 – Aggregate Daily 1% BTC Market Depth, 2022



Slippage

Slippage refers to the difference between the expected price of an asset and the actual price at which an order is filled. High slippage can occur when there is low liquidity in the market, as indicated by a shallow order book. In our analysis of simulated $100k buy orders for BTC pairs, Bittrex had the highest average yearly slippage in 2022 at 0.10 BTC, followed by Kraken with an average daily slippage of 0.03 BTC. Binance and Kucoin had the lowest slippage, with averages of 0.009 and 0.012 BTC, respectively.

Figure 9 – Average Daily Slippage on BTC-USD/USDT Pairs on a Simulated $100,000 Order



Customer Acquisition Practices

As covered above, Binance was the leading CEX in terms of trading volume in 2022. Interestingly, Binance has not benefited from first-mover advantage; having launched in 2017, several years after competitors like Coinbase, Bitfinex and Huobi. Instead, Binance and other exchanges carry out specific customer acquisition practices to fuel growth. Some of these have proven to be successful strategies to gain market share, particularly in 2022 – most notably Bybit's volumes rose by a staggering 248% month-on-month after implementing zero-fee trading. We dive deeper into this below.

Fee Structures

The fee structure employed by exchanges can be one of the most influential decisions on its market quality and structure. Most exchanges offer a maker-taker model that grants market makers zero fees if they trade sufficient volumes, while market takers are typically always charged a trading fee. As of the 1st of December last year, exchanges are employing the below fees.

Figure 12 – Maker Fee Structures

Monthly Trading Volume	Binance	Bybit	Coinbase	Crypto.com	Huobi*	Kucoin*	OKX	Bittrex	Bitfinex	Kraken
1k	0.10%	0.00%	0.40%	0.08%	0.18%	0.10%	0.08%	0.35%	0.10%	0.16%
10k	0.10%	0.00%	0.25%	0.08%	0.18%	0.10%	0.08%	0.35%	0.10%	0.16%
100k	0.10%	0.00%	0.10%	0.08%	0.18%	0.10%	0.08%	0.10%	0.10%	0.14%
1mn	0.10%	0.00%	0.08%	0.07%	0.18%	0.09%	0.08%	0.06%	0.06%	0.08%
10mn	0.08%	0.00%	0.08%	0.00%	0.18%	0.05%	0.06%	0.02%	0.00%	0.02%
100mn	0.02%	0.00%	0.03%	0.00%	0.03%	0.00%	0.02%	0.00%	0.00%	0.00%
1bn	0.02%	0.00%	0.00%	0.00%	0.01%	-0.01%	-0.01%	0.00%	0.00%	0.00%
10bn	0.02%	0.00%	0.00%	0.00%	0.01%	-0.01%	-0.01%	0.00%	0.00%	0.00%
Additional Details	0% BTC and BUSD trading. 25% reduction in fees when trading BNB	Zero-fee trading implemented on 6th September	N.A	Reduced fees if CRO is staked	Must hold at least 2,000 Huobi Tokens	Cheaper fees available if paid using Kucoin Token	Zero maker fees for USDC pairs. Holding OKX token grants additional discounts	N.A	Additional discounts available for LEO holders	N.A

Trading Volumes in BTC terms – assumed $20,000 BTC price.

There are two main observations we can make from exchange fee offerings.

- **First**, many exchanges aim to incentivise adoption of their native tokens by reducing exchange fees, which is the case for Binance, Huobi, Kucoin, OKX, and Bitfinex. We believe this is somewhat troublesome for the industry - the collapse of FTX showed that underlying exchange tokens do not always have clear utility or a distinct value proposition. While reduced fees is certainly an added benefit, the aggregate market cap of the exchange tokens above is $47.2bn as of the end of the year. This seems a highly inflated amount for tokens which primary utility is reduced fees. Of course, this is not the case for all these tokens - BNB is also the native token of the Binance Smart Chain, which boasts a range of DeFi goods and services that create additional utility for BNB. However, for the most part, these exchange tokens seem heavily overvalued and may see continued price declines, particularly as previously locked supply enters the market.

- **Second**, the provision of zero-fee trading can certainly lead to significant volume growth and increased market share. Binance and Bybit are the two examples that come to mind. As covered above, both exchanges saw significant growth in volumes after implementing zero-fee trading. While Binance only applied this policy to BTC and BUSD pairs, Bybit implemented zero fee trading on all pairs, which explains the deviation in volumes growth. This was particularly important in 2022 as activity in the industry waned.

Zero-fee trading is a valuable incentive for retail and institutional users alike – in the months where Binance implemented zero-fee trading, it saw its monthly volumes rise 10.3%, while Bybit saw a larger increase of 248%. Typically, retail users pay larger percentage fees to offset smaller trading volumes, while institutions would pay smaller percentage fees, which equates to higher dollar costs due to the quantity they are trading.

This is a common way for exchanges to attract customers, however, it must be one part of a more holistic strategy. As fees typically account for around 90% of exchange volumes, exchanges must be wary to remain profitable, and should not and cannot employ this strategy for long periods of time without hurting their bottom line. Of course, a limitation of the above is that zero fee trading may facilitate wash trading as it creates an environment where there are no direct costs of increased activity.

Market Maker Programs

Trading fees are a direct cost to market participants. As such, a reduction of fees should lead directly to higher volumes and increased liquidity due to the reduced cost of a roundtrip trade. However, exchanges may utilise other methods to increase volumes and improve market liquidity.

A common practice in this regard is to employ Market Maker Programs, incentivising professional market makers to add liquidity to an exchange. Market makers improve liquidity by being on the other side of trades, aiming to profit through spreads while carrying out a market-neutral strategy. Exchange programs will provide trading fee incentives, capital optimisation systems, and increased support to encourage market makers to bring their business to that exchange. Data from our October 2022 Exchange Benchmark suggested that only 25.6% of exchanges employ market making programs, usually utilised by top-tier exchanges – 8 of the 11 exchanges assessed in this report have an active market maker program in place as of December 2022.

Security

While exchanges can pursue customer acquisition strategies, one of the biggest factors to consider when retaining users is the security of the platform. A common theme of 2022 was the wide range of hacks in the industry, also affected centralised and decentralised exchanges alike - Crypto.com was hacked in January 2022 for a reported total loss of $33.7mn, while the derivatives exchange, Deribit, also fell prey to a $28.0mn exploit. Most recently, FTX was drained of $477mn after the exchange filed for bankruptcy.

Thus, 2022 has proven that security should be of the utmost importance for centralised exchanges, with several measures adding tremendous value.

- **First**, exchanges should employ customer-facing procedures that allow them to have confidence in the security of the platform. This includes 2-factor authentication and appropriate customer service to support users in distress.
- **Second**, exchanges should implement backend security measures, including the use of cold wallet storage, the appointment of custodians for fund safekeeping, or geographical distribution of private user keys to avoid a central point of failure. Releasing a clear and audited Proof of Reserves will also lead to increased confidence on the safety of user funds.
- **Third**, exchanges should actively engage with the community by creating Bug Bounty programs that allow white-hack hackers to identify and resolve security bugs. Not only does this directly identify potential points of failure, but the engagement with the community leads to increased trust for users.

The table below illustrates the measures employed by the assessed exchanges, as of December 2022.

Figure 13 – Security Measures Employed by Exchanges

	Binance	Bybit	Coinbase	Crypto.com	Huobi	Kucoin	OKX	Bittrex	Bitfinex	Kraken
2FA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cold Wallet Storage	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Custody Providers	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗
Geographically Distributed Keys	✓	✓	✓	✓	✗	✗	✓	✗	✓	✓
Proof of Reserves	✓	✓	✗	✓	✗	✓	✓	✗	✓	✓
Bug Bounty Program	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Max Bug Bounty	$100k	$20k	$250k	$80k	$10k	$5k	$3k	Not Found	$10k	$60k

The most glaring observation from the above is the lack of Proof of Reserves audits carried out by top exchanges prior to the collapse of FTX. While at the start of 2022 other security and transparency measures would have been given more importance – such as the necessity for 2-factor authentication or the use of cold wallets – the collapse of FTX brought about a rapid change in the sector. Proof of Reserves is now considered a fundamental practice for exchanges to prove deposited funds are safe. Thus, while not many firms have released a **fully** audited proof of reserves as of the end of the year, we expect other top exchanges will follow suit in 2023, particularly with the expectation of increased scrutiny from regulators.

In fact, we have already seen exchanges begin to release Proof of Reserves since the fall of FTX. In November, OKX released full Proof of Reserves that uses cryptographic verification (i.e. Merkle Tree) to ensure funds held match liabilities. Similarly, Bybit also released their own Proof of Reserves with Merkle Tree validation in the month of December. Other exchanges have also begun to release Proof of Reserves, albeit not to the same standard that should be set by the industry. For example, Binance's most recent Proof of Reserves received extensive criticism – it included negative balances, interchangeable assets (e.g. BTC was not differentiated with BTC-pegged tokens like BTCB), and no assurance conclusion by the auditor at the time, all of which signal an inappropriate and incomplete audit. We hope and expect Binance to come out with a full audit report, as should be expected by an industry leader. The table below outlines the key characteristics that a Proof of Reserves should have, and what exchanges had carried out as of mid-December 2022.

Figure 14 – Proof of Reserves (PoR)

	Binance	Bybit	Coinbase	Crypto.com	Huobi	Kucoin	OKX	Bittrex	Bitfinex	Kraken
Carried out PoR	✓	✓	✗	✓	✗	✓	✓	✗	✓	✓
Liabilities Validation	✗	✓	N.A	✓	N.A	✓	✓	N.A	✗	✓
Audited by 3rd Party	✓	✗	N.A	✓	N.A	✓	✗	N.A	✗	✓
Ongoing/Snapshot	Snapshot	Snapshot	N.A	Snapshot	N.A	Snapshot	Ongoing	N.A	Snapshot	Semi-Annual
Number of Assets	1	4	N.A	9	N.A	4	3	N.A	N.A	Most
Public Hot/Cold Wallets	✓	✓	✗	✓	✓	✓	✓	✗	✓	✗

Outlook/Conclusion

As we have seen above, there are multiple elements that exchanges must consider in the new year. One of the most important factors is the availability of sufficient liquidity - users will flock to exchanges that can effectively maintain liquid markets. Above, we have outlined the main metrics used throughout the industry to assess liquidity - volumes, spreads, and slippage.

Furthermore, exchanges can employ a wide range of business acquisition strategies to attract and retain users. These include an appropriate level of fees to incentivise activity while maintaining a strong revenue stream, as well as employing market makers to sustain liquidity. An area that has also become increasingly important is the security of the exchange, with multiple avenues available for exchanges to enhance their security measures. Other factors to reduce the risk for users include strong data provision infrastructure, adequate KYC policies, and a framework to address legal and regulatory concerns, as covered in CryptoCompare's Exchange Benchmark.

2022 was undoubtedly a turbulent year for the centralised exchange sector as well as crypto, topped by the collapse of FTX which will have ripple effects on the rest of the industry. This has begun to play out with Genesis Lending, one of the largest lending arms in the crypto space, currently facing liquidity issues. There will also be secondary effects on some exchanges - Gemini's EARN program, which had $3bn in assets as of August 2021, is one of the largest pools of funds affected after they were lent out to Genesis in the search of yield. It is unlikely that users of this program will receive 100% of their funds back in the short term.

Thus, as contagion continues to unfold, we expect to see the following trends take place this year in the areas covered in this report:

1. **Sustained low trading volumes relative to 2021 all-time highs** - given the newfound scepticism for the asset class following the collapse of FTX and negative price activity, we expect volumes to remain notably below the highs reached in 2021. In the same way that Kucoin and Bybit saw an increase in absolute volumes last year despite the industry trend, we expect some exchanges to buck the trend of low volumes. These will be exchanges with superior security measures and increased transparency.
2. **Consolidation of market share** - as volumes remain low, exchanges will continue to compete to gain volume market share. As a result, it is likely that some exchanges will come out of this bear market with a stronger market share relative to previous years.

3. **Higher regulatory scrutiny** - the collapse of multiple centralised entities in the crypto space in 2022 has brought about attention from regulators. Exchanges will have to adhere to more stringent regulatory requirements, although it will likely take several years before a sufficiently robust framework is employed by regulators.
4. **Increased importance of transparency** - the main takeaway from FTX's fall is the lack of transparency within the centralised exchange sector, particularly surrounding the use and storage of user funds. We expect there to be a major push within the industry for all exchanges to employ Proof of Reserves audits and other transparency measures. Exchanges that do not follow this standard will likely lose market share to competitors with more transparent business practices.

While 2022 may have been a difficult year for digital assets and the centralised exchange industry, there are many players that are innovating and providing necessary services for users who are not yet comfortable with self-custody or the use of Decentralised Finance. CEXs will undoubtedly continue to be an integral part of crypto infrastructure, and we look forward to covering any developments relating to the above trends and any new events that will undoubtedly arise throughout 2023.

Metric Definitions

Metric	Definition/Methodology	Report Section	Source
Volumes	The dollar amount traded on an exchange.	Changes in Trading Volumes	CryptoCompare
Volumes Market Share	An exchange's percentage share of total volumes across the eleven exchanges analysed.	Changes in Trading Volumes	CryptoCompare
Spreads	The difference between the best bid and ask and represents the cost to trade.	Exchange Liquidity	CryptoCompare
Aggregate Market Depth	The cumulative quantity of all the current bids and asks orders waiting in a given order book, at some % above or below the mid-price.	Exchange Liquidity	CryptoCompare
Slippage	The amount paid for a trade over and above the market price stated prior to making a trade.	Exchange Liquidity	CryptoCompare
2FA	Whether the exchanges employs 2-factor authentification as a security measure.	Customer Acquisition Practices	CryptoCompare
Geographically Distributed Keys	Whether the exchanges geographically distributes user private keys as a security measure.	Customer Acquisition Practices	CryptoCompare
Proof of Reserves	Whether the exchange has carried out a Proof of Reserves audit/attestation proving asset ownership and liability amount.	Customer Acquisition Practices	Exchange Websites, Public Sources

Methodology

Pairs used for the Exchange Liquidity BTC-USD-denominated analysis (Spread & Slippage):

Binance	Bybit	Coinbase	Huobi	Kucoin	OKX	Bittrex	Bitfinex	Kraken
BTC-USDT	BTC-USDT	BTC-USD	BTC-USDT	BTC-USDT	BTC-USDT	BTC-USDT, BTC-USD	BTC-USD	BTC-USDT

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As the digital asset markets continue to grow, so does the need for high-quality research that brings greater clarity and transparency to this rapidly evolving industry. CryptoCompare's suite of research reports provides market participants with trusted, high-quality data and analysis.

Recurring Reports

Report	Description
Exchange Review	Captures key developments within the cryptocurrency exchange market — providing readers with an in-depth analysis of exchange volumes, trading activity, and derivatives open interest.
Digital Asset Management Review	Tracks and provides analysis of the most innovative institutional products in the industry, assessing volumes, assets under management (AUM), and product flow trends.
Exchange Benchmark	Brings clarity to the crypto asset exchange sector. Two years on, it has become the industry standard for assessing and evaluating cryptocurrency exchanges, with the methodology and rankings now being utilised to help create financial products and indices.
Asset Report	Provides professionals in the financial services space, particularly the investment management industry, with a summarised analysis of the latest movements in five of the largest cryptocurrencies.
Market Outlooks	A quarterly report that identifies the most important developments of the last quarter, which may thereafter set the tone for key trends to look out for in the following months. This includes references to the macroeconomic environment, DeFi, NFTs, stablecoins, and more.

Topic Deep Dives

Report	Description
Liquidity Report	Created in collaboration with Bitstamp — a first of its kind report — it examines the intricacies of digital asset liquidity and compares it across top-tier exchanges to find the true liquidity of digital asset exchanges.
UST's Fall From Grace	Summarises the depegging of UST and subsequent debacle of LUNA and the Terra ecosystem, including analysis on the ripple effects of the event and where it situates the digital asset industry.