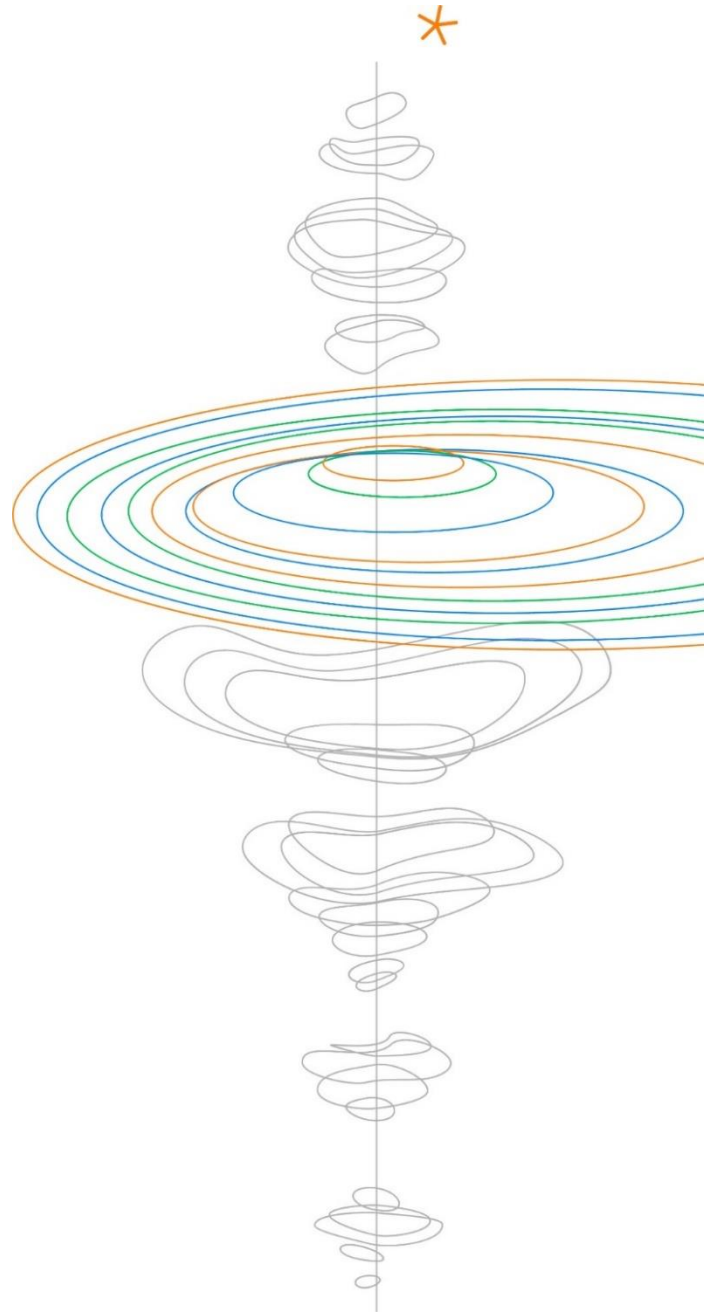


Digital Assets

Q2 2023 - Market Update



July 2023

KEY HIGHLIGHTS:

- The last quarter was marked by intense regulatory challenges with significant charges filed against Binance and Coinbase by the SEC and the classification of popular cryptocurrencies as securities. Despite the news flow, the year-to-date performance of Bitcoin surpasses the traditional asset classes with an 82.28% return.
- The Shanghai hard fork showcased the successful withdrawal of staked ether, resulting in increased deposit activity and a net increase in validators, with decentralized protocols dominating the market share of Ethereum staking.
- The DeFi market has contracted significantly, with a sharp decline in Total Value Locked from historical highs, but the growing number of users and innovations such as the integration of real-world assets and liquid staking derivatives indicate the sector's potential for expansion and bridging the gap between traditional finance and decentralized finance.
- The stablecoin market faced challenges, including the de-pegging of USDC and regulatory hurdles for BUSD, leading to significant outflows, while USDT experienced increased market dominance.
- Binance and Coinbase lawsuits hit layer 1 landscape, with 19 more cryptocurrencies labelled as securities by the SEC, affecting their listings and causing price depreciation; concerns arise over the relevance of the Howey test for classifying cryptocurrencies.
- Positive risk sentiment in the first half of the year led to a rise in Bitcoin and other cryptocurrency prices. Investment management firms filed for a Bitcoin spot ETF, which had a positive impact on Bitcoin's price.

I. BITCOIN SPOT ETFs ARE ON THE WAY

Key take-aways of this section

- The last quarter was marked by intense regulatory challenges with significant charges filed against Binance and Coinbase by the SEC and the classification of popular cryptocurrencies as securities. Despite the news flow, the year-to-date performance of Bitcoin surpasses the traditional asset classes with an 82.28% return.

Last quarter was particularly intense for Bitcoin with a lot of news, both on the regulatory and technological sides.

More specifically, June was a regulatory rollercoaster for Bitcoin and the cryptocurrency market.

- On the 5th, SEC charged against Binance entities and its founder Changpeng Zhao. Charges are serious and include operating unregistered exchanges, broker-dealers, and clearing agencies; misrepresenting trading controls and oversight on the Binance.US platform; and the unregistered offer and sale of securities.
- On the 6th, SEC charged Coinbase for operating as an Unregistered Securities Exchange, Broker, and Clearing Agency.
- On the 10th, SEC decided to classify several popular cryptocurrencies including Cardano, Binance Coin, Solana, or Polygon as securities.

This negative news flow impacted strongly the price of bitcoin which decreased by 7.36% during the first two weeks of June, falling from 27K USD to 25K USD. More generally, the crypto market also suffered. The total market capitalization fell by 11.4%, as some of the biggest cryptocurrencies (except Bitcoin) were flagged as securities by the SEC.

Nonetheless, bitcoin and all the crypto market in general rebounded quickly on June 15th when the world's biggest asset manager Blackrock filed for a spot bitcoin exchange-traded fund that would allow investors to get exposure to the cryptocurrency. Other big names such as Fidelity, WisdomTree or 21Shares followed the path and filled for a Bitcoin spot ETF. It is still unclear whether this will be eventually accepted by the SEC as on June 30th, the SEC declared that the filings were inadequate. We expect this exciting regulatory saga lasts for some time and we will certainly keep our readers informed in the next quarterly review.

YTD Bitcoin performance surpasses the traditional asset classes with a 82.28% return. Despite the news flow, our Bitcoin CO2 offset fund perfectly replicated the Bitcoin performance with a YTD tracking error of 0.32%.

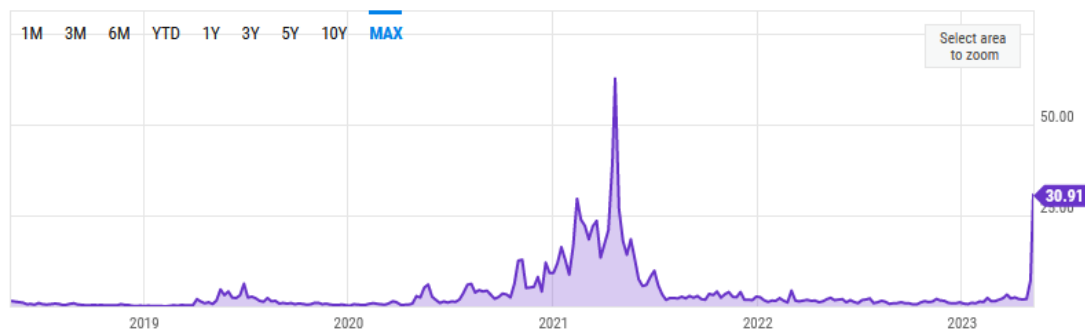
Figure 1: Bitcoin YTD performance



Source: TOBAM, NYSE. Net returns in USD.

On top of this, we also witnessed some technological innovation on Bitcoin. Bitcoin Ordinals were introduced in January 2023 as a method of generating Bitcoin artefacts by attaching information (text, image, audio, ...) to individual satoshis (a satoshi is the smallest known unit of Bitcoin - one hundred millionths of one Bitcoin is equal to a Satoshi). This is achieved through a process called "inscribing". As innovation comes with experimentation, a lot of BRC-20 tokens (common name given to satoshis to which a text is attached) or ordinals (common name given to satoshis to which an image is attached) have been minted (created) and exchanged, especially in Q2, mostly in a speculative way. This mania resulted in very high blockchain transaction fees.

Figure 2: Bitcoin average transaction fee (USD)



Source: ycharts.com

From a broader point of view, we also notice the positive evolution important Bitcoin features:

- 1- **Dominance:** since September 2022, the bitcoin dominance has increased from 39% to 52%. The biggest events in the industry pushed the proportion of bitcoin in the total cryptocurrency market up.

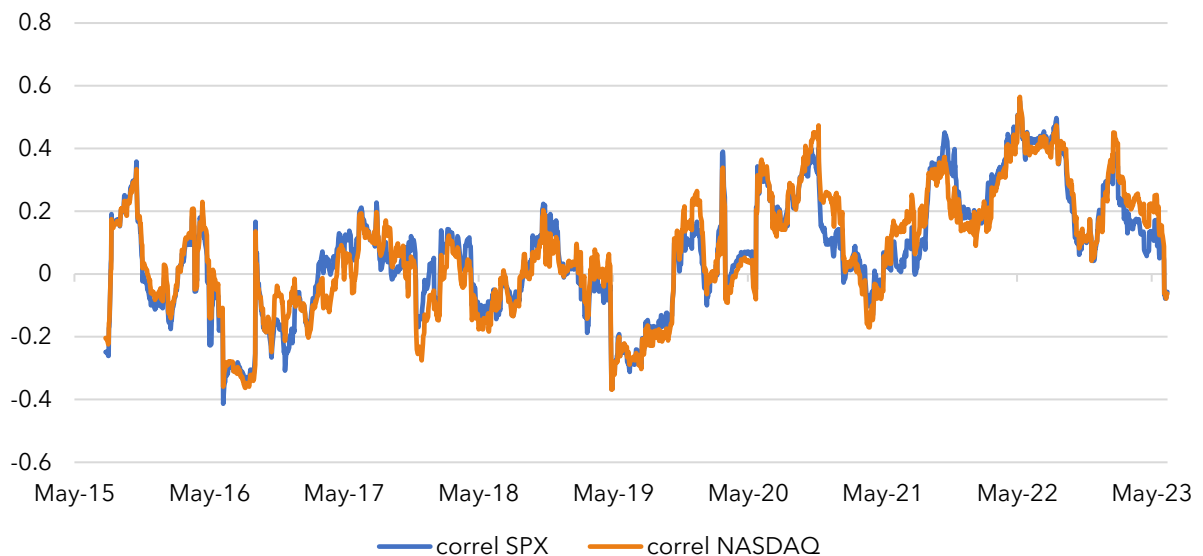
Figure 3: Bitcoin dominance since September 2022



Source: coinmarketcap.com

- 2- **Correlation with stock indices** is back to 0. After a bullish year in 2021 where correlation between bitcoin and stocks increased, we have noticed that it is now back to statistically insignificant levels: if two people play heads or tails many times, they may both draw ten hands in a row, and this will not mean the coins are loaded!

Figure 4: Bitcoin correlation (60d rolling) with major US stock indices



Source: TOBAM, coingecko

- 3- **Volatility** is also reaching very low levels. Two years ago, during the 2021 bull market, Bitcoin's volatility was roughly 100% annualized. At the end of Q2 2023, it is 45% annualized.

Figure 5: Bitcoin volatility (60d rolling)



Source: TOBAM, coingecko

Lower volatility and higher decorrelation with traditional asset classes should lead institutional investors to increase their allocation to bitcoin for well diversified portfolios.

II. ETHEREUM STAKING WITHDRAWALS ABILITY PUSHES THE STAKING RATE HIGHER

Key take-aways of this section

- The Shanghai hard fork showcased the successful withdrawal of staked ether, resulting in increased deposit activity and a net increase in validators, with decentralized protocols dominating the market share of Ethereum staking.

The second quarter of 2023 showcased the growth and notable developments within the Ethereum ecosystem.

Ethereum started the year with a value of approximately 1,196 USD and concluded the second semester at around 1,950 USD, exhibiting a performance rate of 63%. This significant increase in Ethereum's value can be attributed primarily to a shift in investors' sentiments that took place at the start of the year, as well as the collapse of three banks, including Silvergate and Silicon Valley Bank, which likely influenced market dynamics and further fueled interest in cryptocurrency as an investment.

Figure 6: Ethereum YTD performance

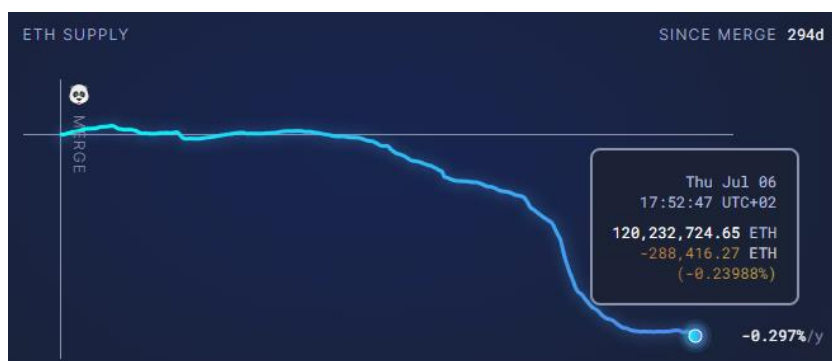


Source: Coingecko, TOBAM

In the wake of BRC-20, "meme coins" interest have also grown on the Ethereum network. PEPE, FLOKI, and BOBO showed impressive returns since their creation. Their impact on Ethereum's network activity was significant, leading to an 83% gas fee increase over the past three months and temporarily displacing popular assets like ETH, Wrapped ETH (WETH), and USDT in gas consumption rankings.

One of the consequences of this intense activity was the decrease of ETH supply, reaching an all-time low. The annualized net issuance rate of ETH dropped to -0.3%, primarily driven by the reduced issuance after the Merge in September, making ETH more susceptible to deflation during fee spikes. The ETH supply trend has stabilized since network fees returned to normal levels.

Figure 7: ETH supply since the Merge



Source: Ultrasound.money

Following up the Shanghai hard fork, which took place on 12th April 2023 and marked a significant milestone for Ethereum stakers as it allowed the withdrawal of staked funds, enabling stakers to access their accumulated rewards and exit their positions. Contrary to concerns about potential sell-side pressure, the Ethereum market did not experience significant disruptions following the unlocking of staked ETH. Prices briefly climbed to 2,110 USD in the week after the upgrade before declining to 1,920 USD, likely due to the overall market downturn. This suggests that the market absorbed the unlocked ETH without creating a flood of supply.

Rather than witnessing a wave of withdrawals, the hard fork motivated a fresh wave of deposits as stakers gained confidence in the new flexibility since withdrawals now eliminate the liquidity risk and uncertainty associated with the previously undefined lock-up period. On 1st June, deposit activity reached a peak with over 13,595 new deposits (worth over 404k ETH).

Figure 8: Staking inflow



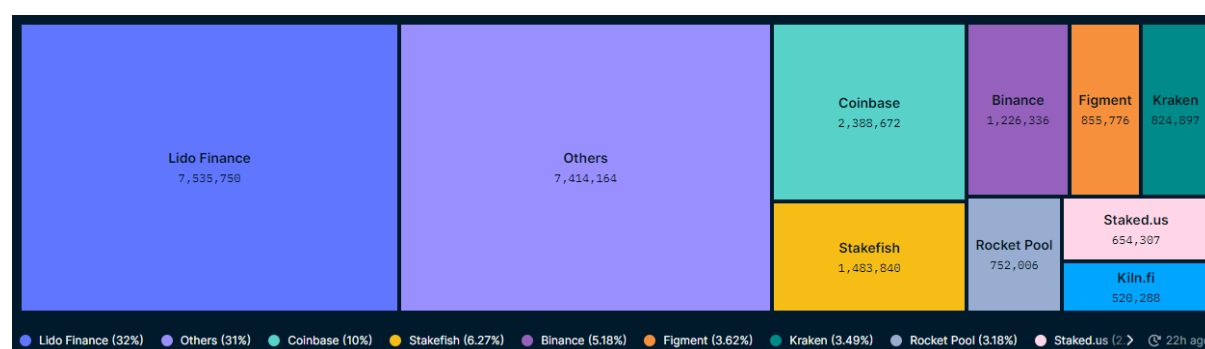
Source: cryptoquant

The day after the upgrade saw the highest number of validators exiting, with 14,249 exits. However, when analyzing the composition of the exited stake, one can notice that the majority of exits came from centralized exchanges offering staking services, especially Kraken. Kraken, Binance, Coinbase, Figment, and Gate.io were the top providers of deactivated validators, with Kraken alone representing 32% of the total exited ETH. This move was forced by the regulator as they charged the company with selling unregistered securities through its "crypto asset staking-as-a-service" program. A total of 48,341 validators have exited, amounting to 1.55 million ETH (2.93 Bn USD).

Exit events have since tapered off to between 300 and 700 per day. On the other hand, the entry activation queue has over 23k validators waiting, while the exit queue has shrunk to just 1,837. This would imply a net increase in the number of validators in the near future, due to the high influx of new deposits. Currently, there are 561k validators in the staking pool, resulting in an estimated APR of 4.27%.

Liquid staking provider Lido holds the largest market share with a 32% dominance, followed by Coinbase with 10% and Binance with 5.1%. These centralized exchanges play a significant role in Ethereum staking. Approximately a quarter of the market share is attributed to solo or unidentified stakers, which could include individuals running nodes from their homes or smaller groups operating private staking pools.

Figure 9: Top entities depositing ETH



Source: nansen

While the Shanghai upgrade represents the final stage of the Ethereum Merge, it does not mark the end of planned improvements for the blockchain. Following the Merge, Ethereum will continue its evolution with a series of upcoming upgrades referred to as the “Surge”, the “Verge”, and the “Purge”. The focus of the upcoming Surge upgrade is to enhance scalability by enabling rollups, also known as layer-two solutions like Optimism or Arbitrum, to achieve a remarkable throughput of 100,000 transactions per second without compromising security. This scalability improvement will be achieved through the implementation of proto-danksharding, outlined in Ethereum Improvement Proposal 4844 (EIP-4844), which is slated for implementation before the end of the year.

III. LIQUID STAKING DERIVATIVES ARE NOW THE BIGGEST DEFI PLAYERS

Key take-aways of this section

- The DeFi market has contracted significantly, with a sharp decline in Total Value Locked from historical highs, but the growing number of users and innovations such as the integration of real-world assets and liquid staking derivatives indicate the sector's potential for expansion and bridging the gap between traditional finance and decentralized finance.

The DeFi market has experienced a significant contraction in size, with the Total Value Locked (TVL) reducing to \$49B, a fifth of its all-time peak of \$248.84B in November 2021.

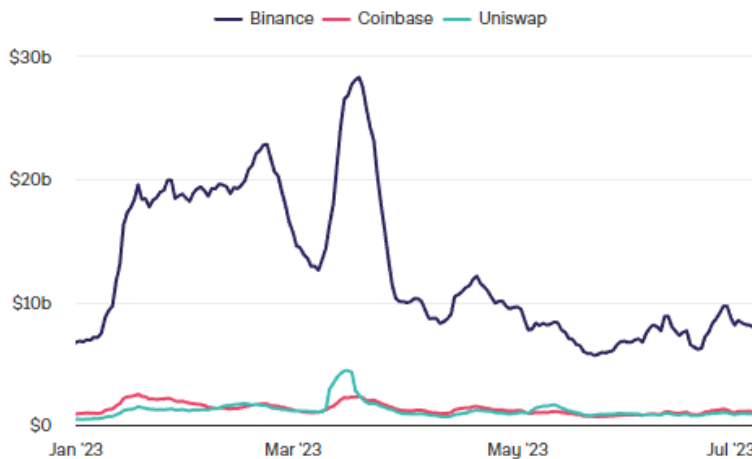
Figure 10: DeFi total value locked



Source: Defillama

This impact is to a large extent due to the decline in crypto currency prices. DeFi still looks promising as following the collapse of FTX and the regulatory actions by the SEC against Centralized Exchanges earlier this year, traders have shifted their focus to Decentralized Exchanges (DEXes). This trend is reflected in the declining volume of CEXes like Binance and OKX. As a result, in Q2 2023, Uniswap has surpassed Coinbase, becoming the second-largest exchange for Ethereum trading during some periods, especially the banking crisis that occurred in mid-March.

Figure 11: CEXes vs. DEXes



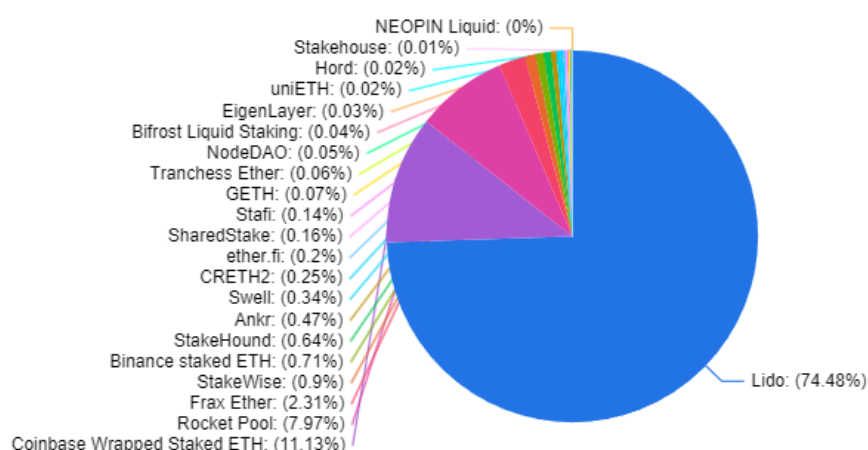
Source: theblock

To revitalize the DeFi sector, innovation is crucial. While the market has been stagnant, the growing number of users indicates that DeFi remains relevant and holds potential for expansion. The integration of real-world assets, such as corporate bonds, into DeFi protocols demonstrates that this evolution is already taking place. The inclusion of traditional financial instruments within DeFi highlights the sector's ability to bridge the gap between traditional finance and decentralized finance.

Liquid staking derivatives are also an example of the further innovation in DeFi and has experienced significant growth since the Shanghai upgrade. The introduction of Ethereum's staking withdrawal functionality during the Shanghai upgrade has led to a surge in interest for liquid staking tokens. Liquid staking tokens (LSTs) are an innovative solution that allows Ethereum stakers to unlock the value of their staked ETH, while still participating in the staking process. These tokens serve as a bridge between the staked ETH and the broader DeFi ecosystem.

Among the various providers, Lido has emerged as the dominant player. This protocol has captured the largest market share of staked ETH, with its stETH token gaining integration network effects within the DeFi sector.

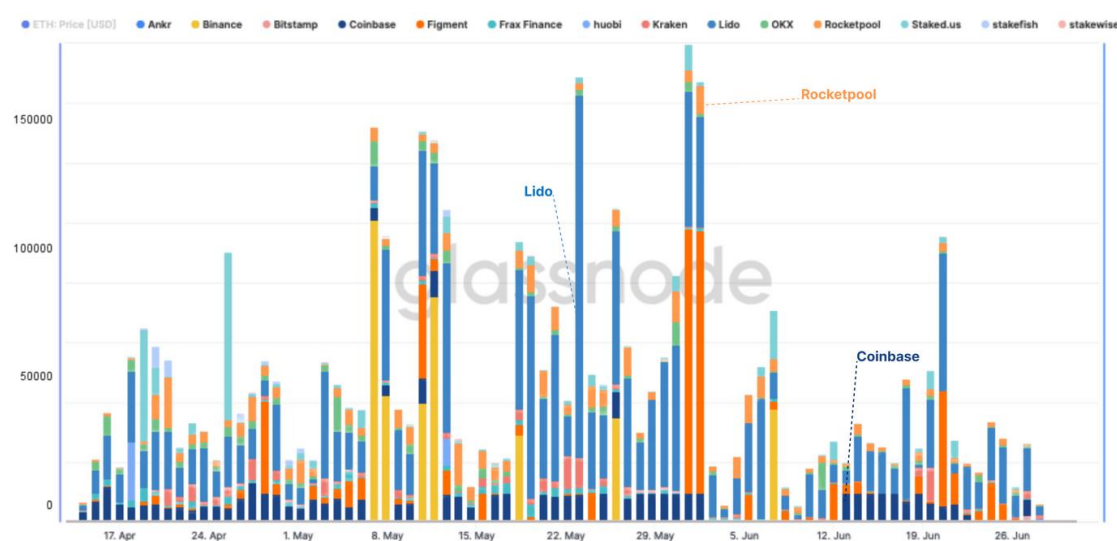
Figure 12: Total value locked ETH LSTs



Source: defillama

Lido stands out as the clear leader, with a supply 16 times larger than its nearest competitor. Lido's V2 upgrade on 15th May enabled node operators to withdraw staked ETH, resulting in a contraction of stETH supply. However, the wave of new ETH deposits has more than compensated for this decline, pushing stETH supply to an all-time high.

Figure 13: Daily staking deposits by staking provider



Source: Glassnode

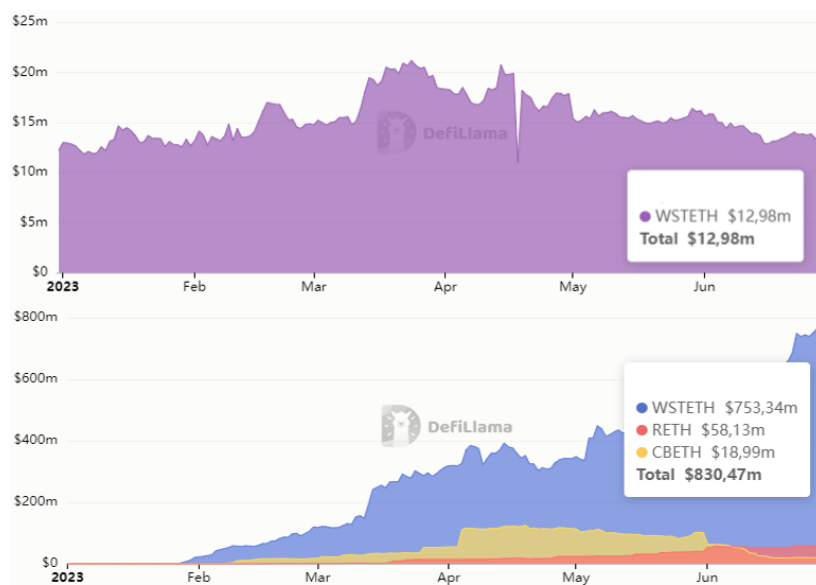
Despite Lido's growing dominance, the number of new token holders has not significantly increased. The growth in staking tokens of other providers such as Rocketpool and FRAX suggests that new deposits made through Lido are primarily driven by existing stETH token holders seeking to increase their exposure. Notably, Rocketpool's rETH supply has grown three times faster than Lido's since the beginning of the year.

Liquid staking tokens offer integration into various DeFi protocols, enabling easy trading, use as collateral, and yield opportunities through lending protocols. Lido's stETH has seen increased activity and network effects within the DeFi ecosystem. However, some liquidity pools associated with stETH, such as the stETH-ETH Curve Pool, have experienced a decline in total value locked.

Liquidity pools associated with liquid staking have witnessed a decline in locked value, as capital is redirected towards use as collateral in lending protocols. This shift in liquidity usage may indicate diminished return opportunities for market makers and increased opportunity costs for liquidity providers, due to new revenue streams across other DeFi protocols.

Lending protocols like Aave and Compound have seen significant growth in total value locked for liquid staking tokens. Leveraging LSTs against ETH has become an attractive strategy. The Aave V3 wstETH pool and Compound V3 wstETH pool have experienced substantial growth, indicating that yield-bearing staking derivatives are becoming the preferred collateral options relative to ETH and stablecoins.

Figure 14: LST liquidity on Curve (top) and AAVE (bottom)



Source: defillama

IV. USDT HAS WON THE COMPETITION SO FAR. CAN NEW PLAYERS TRY THE CHALLENGE?

Key take-aways of this section

- The stablecoin market faced challenges, including the de-pegging of USDC and regulatory hurdles for BUSD, leading to significant outflows, while USDT experienced increased market dominance.

Figure 15: Top 5 Stablecoins - Gains & Loss in Market cap (YTD)

TOP STABLECOINS	MARKET CAP GAIN/LOSS (YTD)
Tether (USDT)	25.9%
USD Coin (USDC)	-38.4%
Dai (DAI)	-19.3%
Binance (BUSD)	-76.0%
True USD (TUSD)	216.8%

Source: Coingecko

The stablecoin market experienced significant shifts and challenges during the last semester. The collapse of Silicon Valley Bank (SVB) led to the USDC brief depegging, resulting in the combined market capitalization of the top 5 stablecoins hitting a 28-month low of \$124 billion.

USDC, issued by Circle, witnessed an outflow of \$17 billion, while Paxos-issued Binance USD (BUSD) shed nearly \$12 billion following lawsuits with the SEC and CFTC. Paxos faced regulatory hurdles as the SEC and CFTC deemed BUSD to be an unregistered security, leading to the halt of BUSD minting. Consequently, Binance and Coinbase delisted BUSD, further impacting its market presence.

Amidst these challenges, the stablecoin market also witnessed significant growth. TrueUSD (TUSD), the fifth largest stablecoin, experienced a massive surge in market cap, increasing by over 216%. Starting at a total value of \$755.47 million on 1st January, the TUSD supply crossed \$3.01 billion by the end of the semester. One contributing factor to this surge was Binance's transition from BUSD to TUSD for zero-fee Bitcoin trading.

Interestingly, the hardships faced by USDC and BUSD proved advantageous for the largest stablecoin, Tether (USDT). USDT achieved a 22-month-high market dominance, surpassing 65% in the crypto market.

V. "EVERYTHING OTHER THAN BITCOIN" IS A SECURITY

Key take-aways of this section

- Binance and Coinbase lawsuits hit layer 1 landscape, with 19 more cryptocurrencies labelled as securities by the SEC, affecting their listings and causing price depreciation.
- Concerns arise over the relevance of the Howey test for classifying cryptocurrencies.

SEC chair Gensler stated last February that "everything other than Bitcoin" is a security. It seems that these words have been put into action last quarter when the layer 1 landscape was severely hit by the Binance and Coinbase lawsuits as the SEC labelled 19 more cryptocurrencies as securities.

The targeted cryptocurrencies are mostly layer 1 (Cosmos, Polygon, Cardano, Solana, Internet Computer, ...) or linked to the metaverse space (Axie Infinity, Decentraland, the Sandbox, ...). This

brings the total amount of cryptocurrencies flagged as securities by the SEC to 68: tokens such as Algorand or OmiseGo have already been classified in this category. Being listed as a security means that the token cannot be listed on unlicensed exchanges, making it harder to buy. We have witnessed a strong price depreciation for many of them as Polygon following the news.

Figure 16: Polygon (MATIC) YTD performance



Source: TOBAM

The Howey test has been used to decide on the subject. This test stipulates the following criteria to be declared as a security: an investment of money, in a common enterprise, with an expectation of profit derived predominantly from the effort of others. Having said that, as all proof of stake blockchains may use the work of other people (other validator) to earn rewards, they may be considered in the future as securities as well. However, SEC chairman Gary Gensler was not able to clearly answer to the question whether Ethereum is a security token or not despite the fact that Ethereum has moved to the proof of stake consensus mechanism recently. One may also challenge the relevancy of the Howey test that has been designed in 1946, several decades before the development of the cryptocurrencies.

VI. UPDATE ON BITCOIN/BLOCKCHAIN RELATED EQUITIES

Key take-aways of this section

- Positive risk sentiment in the first half of the year led to a rise in Bitcoin and other cryptocurrency prices.
- Investment management firms filed for a Bitcoin spot ETF, which had a positive impact on Bitcoin's price.

The positive risk sentiment in the beginning of the year followed up until the end of June and made Bitcoin and other crypto currency prices rise. This sentiment also had a positive impact on the prices of companies that are active in this field or that hold a significant amount of Bitcoin on their balance sheets.

In such a supportive context, the first two months of Q2 23 proved quite uneventful for Bitcoin and the listed companies involved in the blockchain ecosystems. Yet, the month of June was marked by

two significant events: increased regulatory pressure from the US market authorities on the one hand, and some TradFi behemoths investing into the crypto space on the other hand.

Figure 17 summarizes the best and worst performers since the beginning of the year.

Figure 17: Best and Worst Movers in the Crypto Ecosystem

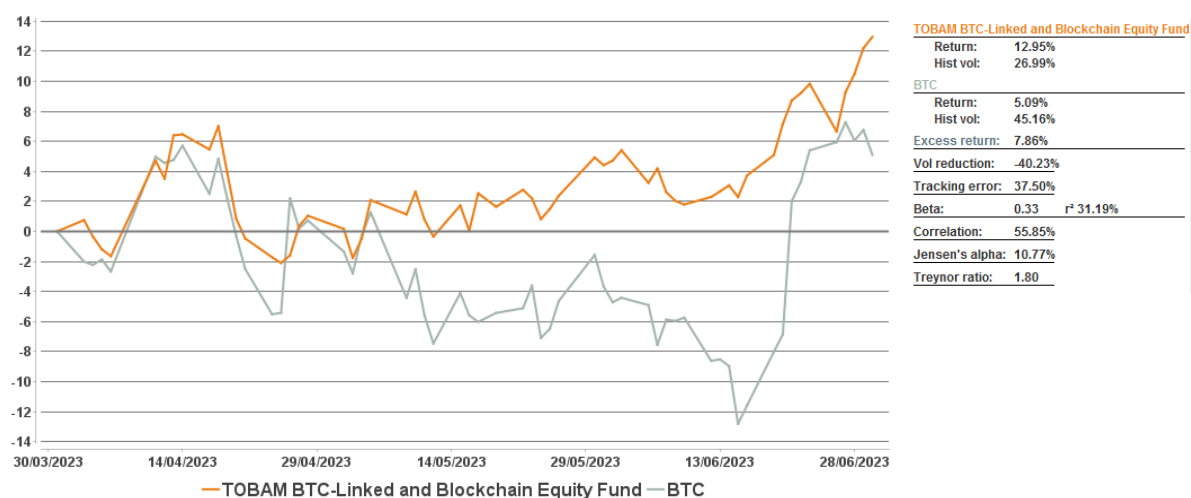
Total Return as of 30/06/2023 (in EUR)	1W	1M	QTD	YTD
BTC	-1.61%	13.57%	-1.15%	76.27%
Best Performers 1M				
OVERSTOCK.COM INC	35.82%	68.68%	61.45%	65.04%
HUT 8 MINING CORP	13.39%	56.87%	92.07%	280.59%
HIVE DIGITAL TECHNOLOGIES LT	11.66%	44.41%	44.84%	215.93%
COINBASE GLOBAL INC -CLASS A	16.06%	14.86%	11.39%	98.34%
MICROSTRATEGY INC-CL A	3.74%	12.35%	22.48%	137.29%
Worst Performers 1M				
RAKUTEN GROUP INC*	1.32%	-17.82%	-25.54%	-25.44%
ADVANCED MICRO DEVICES	3.24%	-10.71%	16.24%	72.53%
NUVEI CORP-SUB V	8.67%	-8.74%	-30.93%	14.07%
FLOW TRADERS LTD	-1.46%	-8.01%	-21.34%	-3.24%
CLEANSARK INC	-6.81%	-5.76%	60.48%	106.31%

Source : TOBAM, data as of June 30th 2023.

TOBAM's Bitcoin-linked and Global Blockchain Equity strategy lagged the BTC sudden rebound in late Q1. Q2 proved more favourable as it outperformed Bitcoin with a return of 12.95% compared to 5.09% during the quarter. This outperformance in Q2 is mostly attributed to the fund's exposure to some crypto mining companies such as HUT 8 MINING and also to some companies involved in artificial intelligence, such as NVIDIA.

HUT 8 MINING, which accounts for 8.1% of the portfolio as of June 30th, overperformed the BTC by 75.7% in the second quarter. Besides the strong performance of the crypto mining companies over the quarter, the exposure to stocks involved in the artificial intelligence space also contributed positively to the fund's performance, with NVIDIA overperforming the BTC by 46.8% QTD.

Figure 18: QTD Net Performance of TOBAM BTC-linked and BTC



Source: TOBAM, Bloomberg, data as of June 30th 2023. Net return in EUR.

VII. THIS QUARTER'S READING LIST

- SEC Files 13 Charges Against Binance Entities and Founder Changpeng Zhao
<https://www.sec.gov/news/press-release/2023-101>
- SEC Charges Coinbase for Operating as an Unregistered Securities Exchange, Broker, and Clearing Agency
<https://www.sec.gov/news/press-release/2023-102>
- Howey Test Definition: What It Means and Implications for Cryptocurrency
<https://www.investopedia.com/terms/h/howey-test.asp>
- The Surge in Liquid Staking
<https://insights.glassnode.com/the-week-onchain-week-27-2023/>
- Impact of USDC depeg on stablecoins
<https://mipasa.unbounded.network/publications/notebooks/Impact-of-USDC-depeg-on-stablecoins-Stablecoin-analysis-part-1>

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