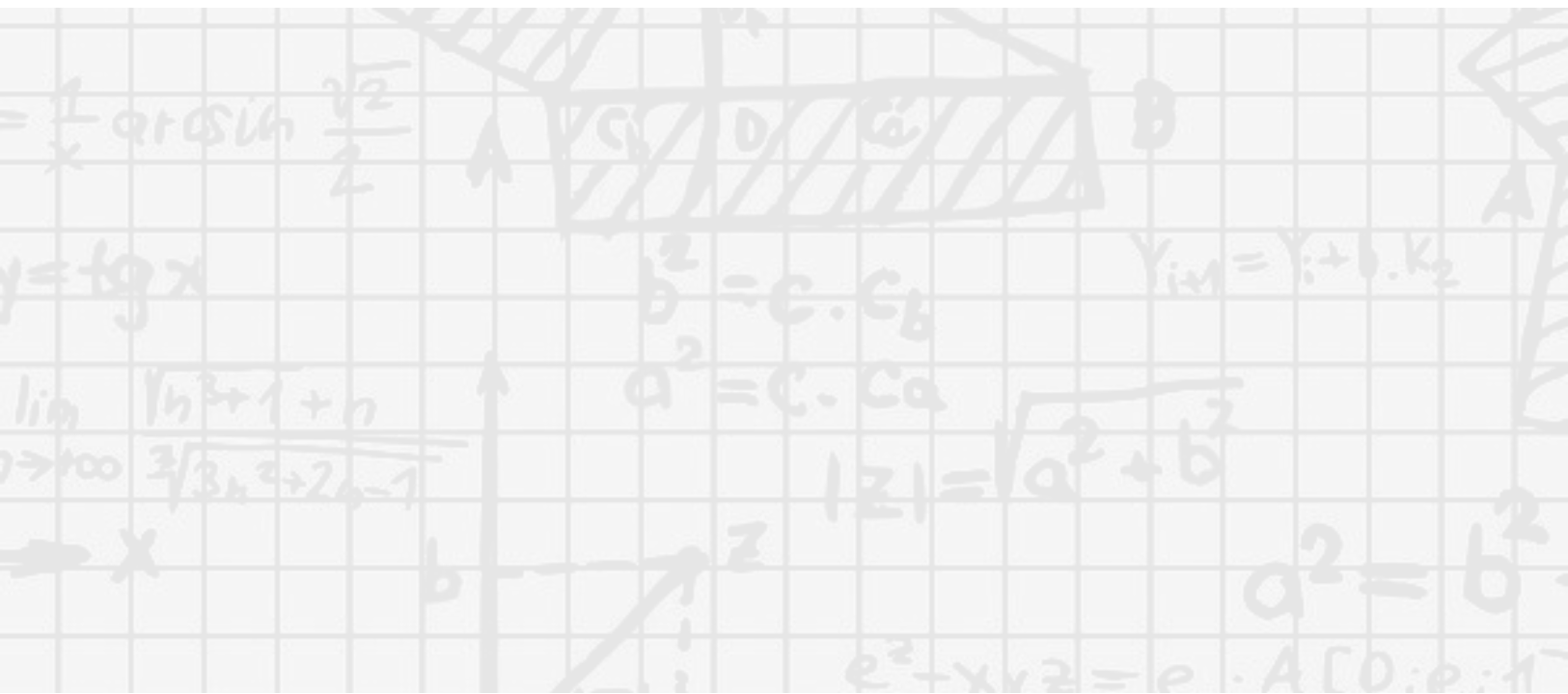


# Digital Asset Markets Report

2H July 2022



The S2F Intelligence report examines network fundamentals using on-chain analysis, technical tools, and proprietary indicators. We aim to provide insight into how digital assets perform during these unprecedented times. By recognizing trends in both momentum and volatility, we seek to identify opportunities while navigating uncertain market conditions.



## Macro Overview

- The S&P 500 and DJIA indexes were positive during July but remained -13.5% and -10.3% YTD, while the NASDAQ has declined -20.4% on the year. The Federal Reserve increased US interest rates by 75 bps at the July FOMC meeting setting 2.25% to 2.5% as the new target for the federal funds rate. Chairman Powell stated that moving forward, the **Fed's monetary policy decisions will be data-dependent** which could place **greater weight on the remaining two CPI reports** before the next September FOMC meeting.
- Chairman Powell did not believe the US was in a recession - citing the unemployment rate, job gains, and wage growth.
- The US Consumer Sentiment index rose month over month to 51.5 in July, since reaching a new all-time low in June of 50.
- Markets are pricing in an 72% likelihood of 75 bps with a 28% chance of only a 50 bps hike at the September FOMC.
- July became Bitcoin's best performing month of 2022, rising 20.75% after registering several months of aggressive declines - the asset remains in negative territory YTD -50.3% in 2022.



## Macro Performance

Page 1

- The ECB's less aggressive monetary policy continues its pressure on the Euro which has risen back above \$USD parity - \$1.01.
- U.S. crude oil fell more than 10% in July with the price per barrel currently trading at \$94.49.
- Gold remains in negative territory -2.87% YTD.
- Commodities saw a decline of 6.2% during July, but the GSCI commodity index remains +28.8% in 2022.
- The yield curve remains inverted between the US2Y (2.89%) and US10Y (2.65%) which continues to signal recession concerns.
- Black Knight, mortgage data analytics firm, reports the annual rate of price appreciation for homes fell 19.3% to 17.3% in June.



## On-Chain Analysis

Page 2

- **Ethereum Realized Price:** This indicator helps calculate the average cost-basis for each Ethereum Token - the current Realized Price for ETH is \$1645.57. When spot price is below realized price, we have historically seen the realized price act as resistance.
- **LN Capacity Growth + Median Base Fee:** The base-layer of the Bitcoin protocol can only process 7 transactions per second while the Lightning Network can handle 1 million TPS. YTD we see the amount of BTC locked in the LN (capacity growth) is rising while the median base-fee (transaction fee for users to send BTC on LN) has declined to 0.00021 cents.



## Technical Levels

Page 3

- **Bitcoin:** Bitcoin closed its first green month since March and currently appears to have found support at the previous 2017 cycle ATH. A key level to watch is \$24.2k as BTC attempts to recover from the cascading liquidation events of June.
- **Ethereum:** Ethereum has broken through the 50d MA and has outperformed Bitcoin over the last month. If ETH can sustain support above \$1.5k, it could indicate significant demand heading into the merge.



## Momentum & Sentiment

Pages 4-5

- **pmV momentum model:** Remains fully deployed to BTC and ETH but favors a slightly higher weighting to the latter.
- **Alt-season indicator:** The indicator is presently signaling that markets remain in neutral territory.
- **Delta risk:** The indicator managed to get to the lowest risk level for both BTC and ETH - this signals that statistically, this is a good time to buy.



## Money Flows & Themes

Pages 6-7

- **ETH Custodial, Non-Custodial, and Liquid Staking:** Custodial staking services providers retain custody of users' private keys in exchange for providing staking services and distributing staking rewards, often collecting a % of these rewards. Non-Custodial service providers offer less convenience but allow users to maintain custody of their private keys. Liquid staking provides users an additional liquidity avenue for staked tokens typically subject to lock-up periods -- more than 4.5+ million ETH tokens have been deposited using liquid staking.
- **ETH 2.0 Supply & Demand Dynamics:** Under the current PoW consensus, around 12,000 ETH are issued daily to miners. With a successful ETH 2.0 merge, PoS will remove an estimated 10,720 ETH in potential daily sell-pressure from markets. The estimated ~90% decline in annual ETH token issuance and higher suggested staking APY rewards could impact supply and demand market dynamics.

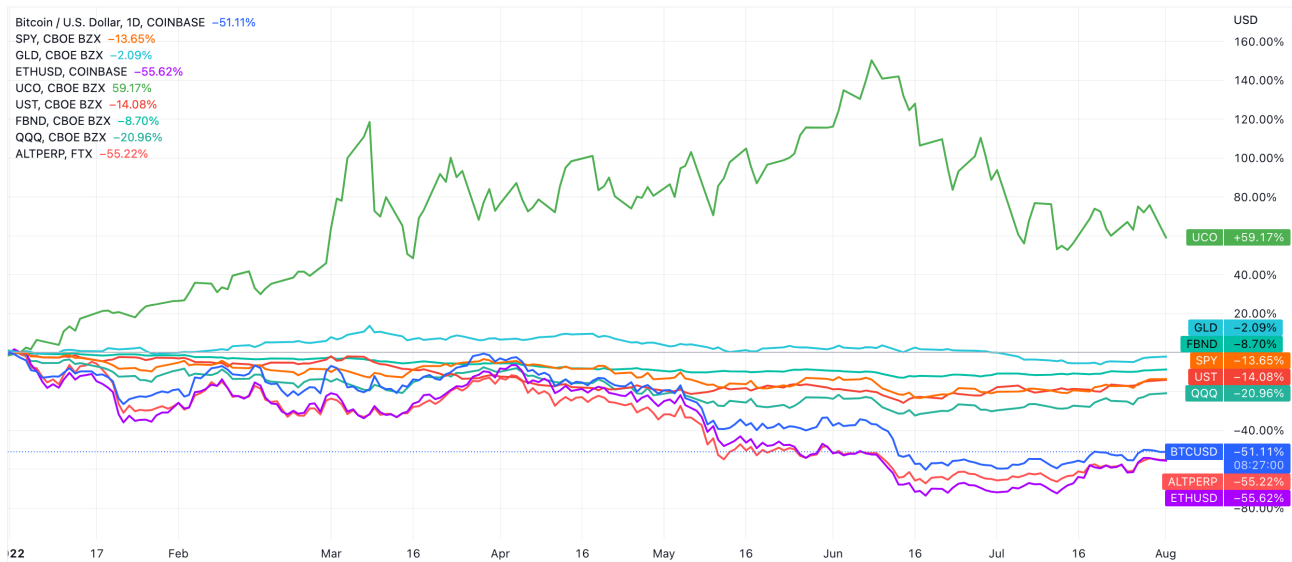


## Notable News

Page 8

- Bitcoin, Ethereum, Layer One, and Other Headlines.

## 2022 Asset Returns



Asset	MtD*	QtD	YtD	Volatility (annualized)*	Sharpe (annualized)*	Correlation (to Bitcoin)**
Bitcoin	20.8%	20.8%	-51.1%	70%	-1.53	1.0
Ethereum	58.1%	58.1%	-55.62%	91%	-1.15	0.96
Altcoin Index	30.9%	30.9%	-55.2%	82%	-1.34	0.96
SPY	8.1%	8.1%	-13.65%	25%	-0.95	0.79
QQQ	9.3%	9.3%	-20.96%	32%	-0.95	0.58
GLD	-2.5%	-2.5%	-2.09%	15%	-0.32	0.67
UCO	-9.3%	-9.3%	59.17%	83%	1.59	0.34
FBND	2.2%	2.2%	-8.70%	7%	-2.06	0.58
UST	3.9%	3.9%	-14.08%	19%	-1.43	0.15

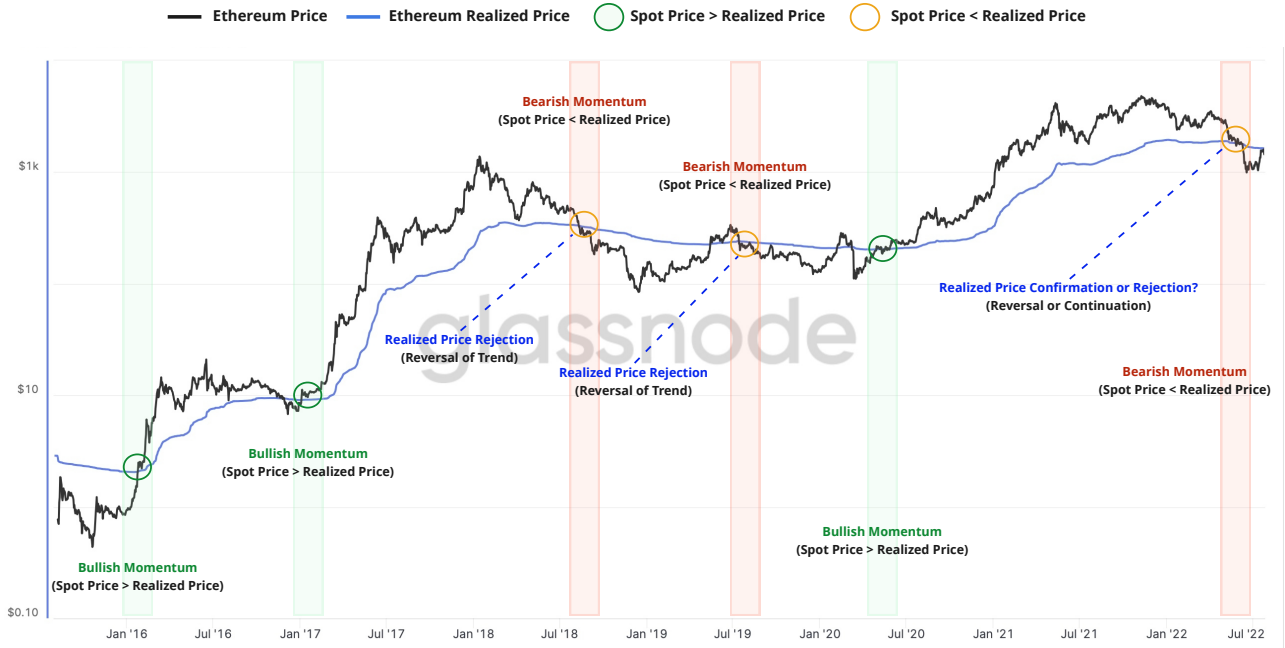
Sources: Glassnode, AlphaVantage

Assets: SPY = S&P500, QQQ = NASDAQ, GLD = Gold, UCO = Crude Oil, FBND = Total Bond Market, UST = 7-10 YR Treasury, Alt-Perp (FTX) = Altcoin Index

\*as of July 31st, 2022

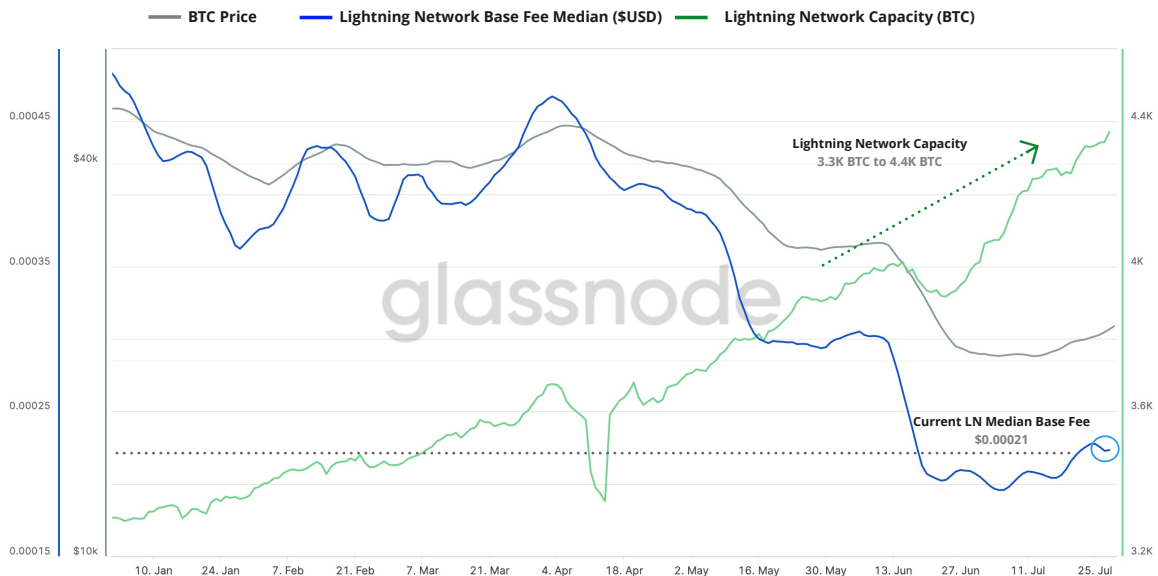
\*\*last 90 days

## Ethereum Realized Price



- Ethereum Realized Price (blue) takes the average price of unspent ETH on-chain at the time it last moved and divides it by the current supply; this helps us calculate the cost-basis for each Ethereum Token. The current Realized Price for ETH is \$1645.57.
- When Ethereum spot price (black) is above the Realized Price, it can potentially signal bullish momentum (green circles) as demand for the asset increases. However, when the spot price is below the realized price, it can potentially serve as resistance, signaling further bearish momentum (orange circles).

## LN Capacity Growth + Median Base Fee



- Since the start of the year, we have observed steady growth in Bitcoin's Layer 2 Lightning Network's Capacity (green) - rising from 3.3K BTC in Jan to nearly 4.4K BTC.
- We also have observed a steady reduction in the median BTC Lightning Network Base Fee (blue) paid by users. The median fee users pay by leveraging the scaling solutions of the L2 Lightning Network is \$0.00021 vs. \$1.32 on the L1 mainnet.<sup>1</sup> L1 mainnet can handle a maximum of 7 transactions per second vs. 1 million transactions per second on the Lightning Network.<sup>2</sup>

<sup>1</sup> Y Chart, Bitcoin Average Transaction Fee [https://ycharts.com/indicators/bitcoin\\_average\\_transaction\\_fee](https://ycharts.com/indicators/bitcoin_average_transaction_fee)

<sup>2</sup> BitPay, What is the Lightning Network <https://bitpay.com/blog/what-is-the-lightning-network/>

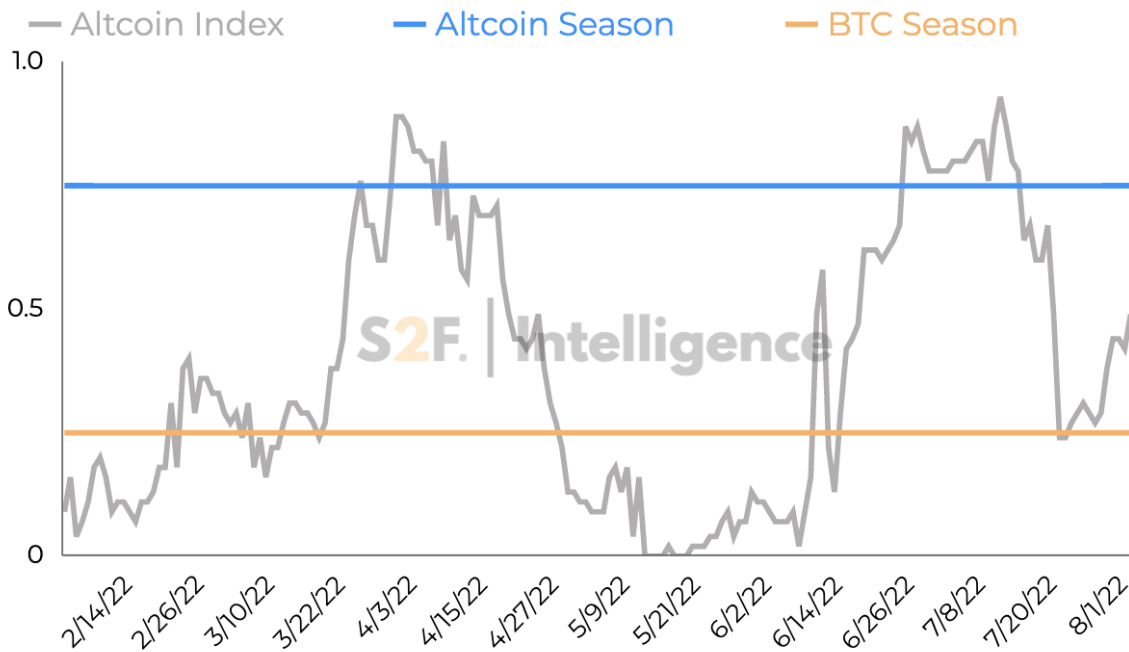
- **Bitcoin closed July in the green, the first time since March.** Price responded positively to last Wednesday's FED meeting and has reclaimed the **50d MA (blue)**.
- Bitcoin found support at the previous cycle's 2017 ATH on a monthly timeframe.
- Key levels of upside resistance remain at \$24.2k. While the recent price action has been encouraging, we remain cautious of potential bear market rallies that lure in buyers with false momentum.



- **Ethereum remained highly correlated to Bitcoin and broke above its 50d MA (blue).**
- Following the largest quarterly price decline since the protocol's inception, ETH has closed the month of July in the green and has outperformed BTC since falling below \$1k in mid-June.
- There is large sell-side pressure around the \$1,750-2,000 range, and we could see ETH continue to consolidate as the merge quietly inches closer.

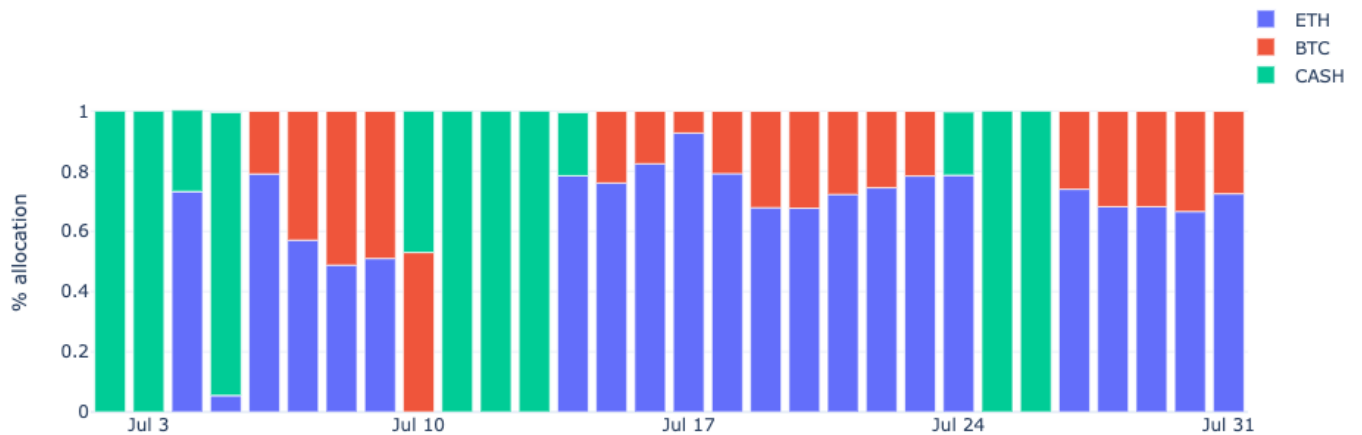


S2F Alt-Season Indicator



The S2F Alt-Season Indicator is a proprietary model that measures the capital flows between Bitcoin and a basket of major Altcoins. This indicator is especially helpful in **identifying where strength resides** in the cycle and can **potentially indicate what may happen next**. When the Index line (gray) is below the orange line, it generally signals strong momentum favoring Bitcoin vs. Altcoins.

S2F Momentum Model (pMV)

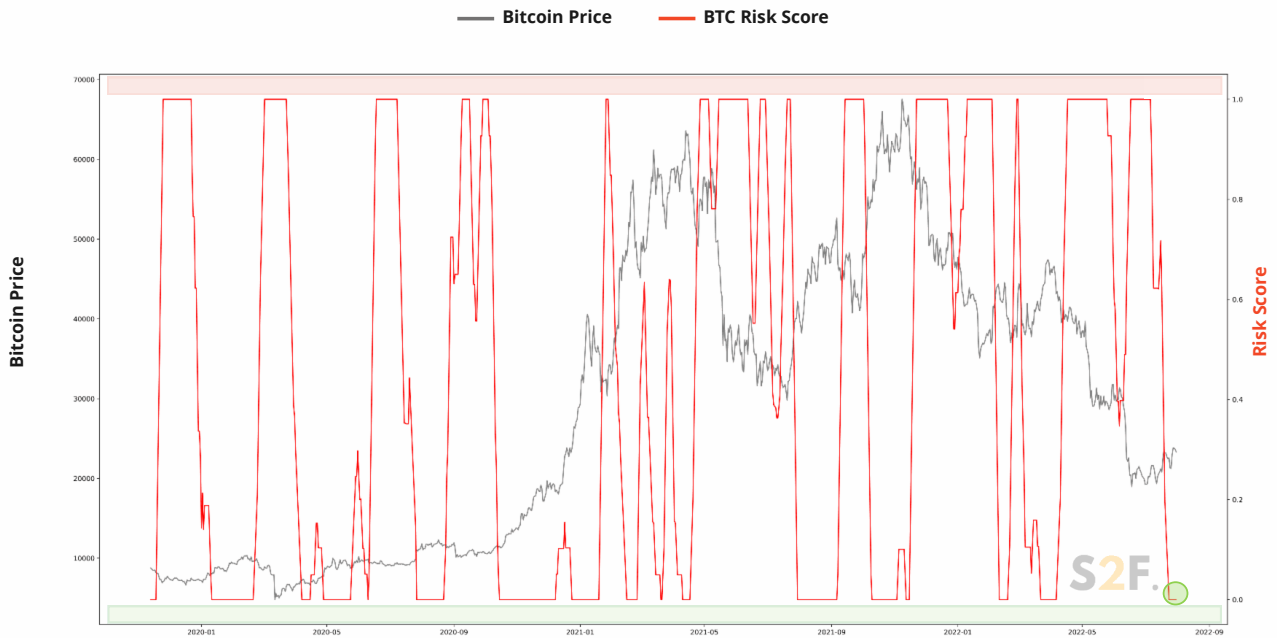


The S2F Momentum Model is a proprietary model that **compares the price momentum of BTC vs. ETH vs. USD** over a rolling window to suggest an optimal allocation of capital to each of these three assets. The entry and exit signals rely on two momentum indicators, one slow and one fast, to help determine portfolio over-or underweight-ness in each of the three assets. The chart above shows the suggested daily allocation over the last 30 days.

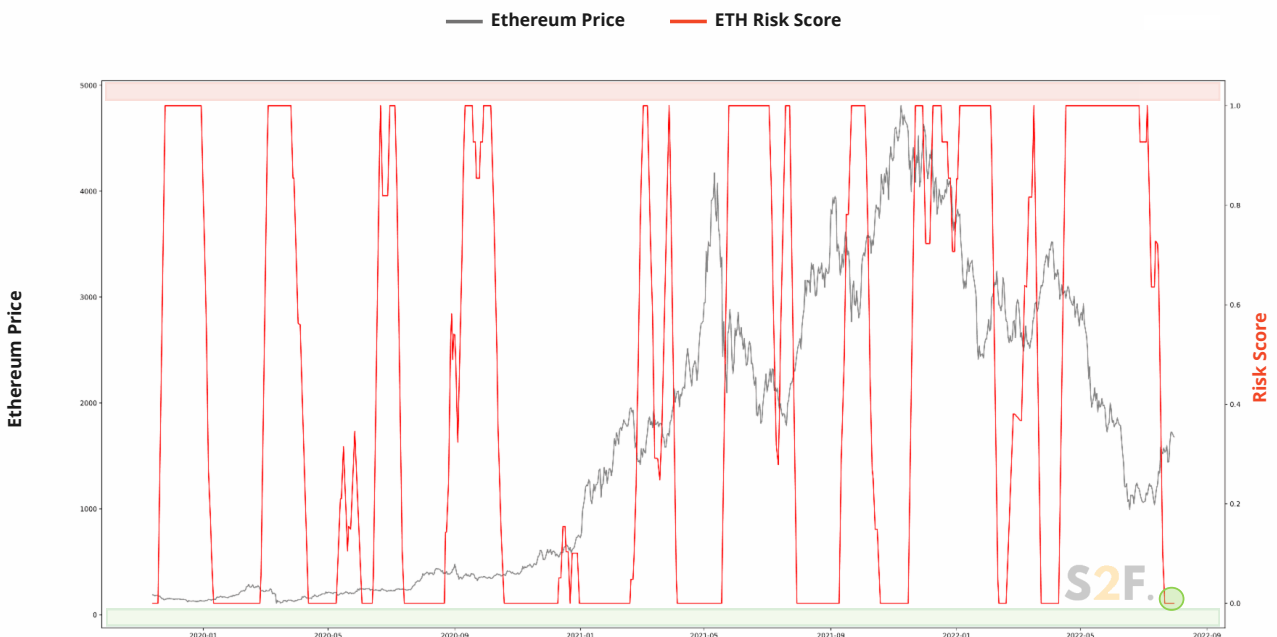
## Delta Risk Score

The Delta Risk Score is a proprietary model that **measures the probability of an imminent retracement in price**. The indicator's value (**red line**) oscillates between 0 and 1, with the former signaling low-risk while the latter determines high-risk conditions. The chart below shows both indicators and the underlying asset's price (**grey line**) since Q1 2020.

### Bitcoin



### Ethereum



## ETH 2.0 Capital Flows

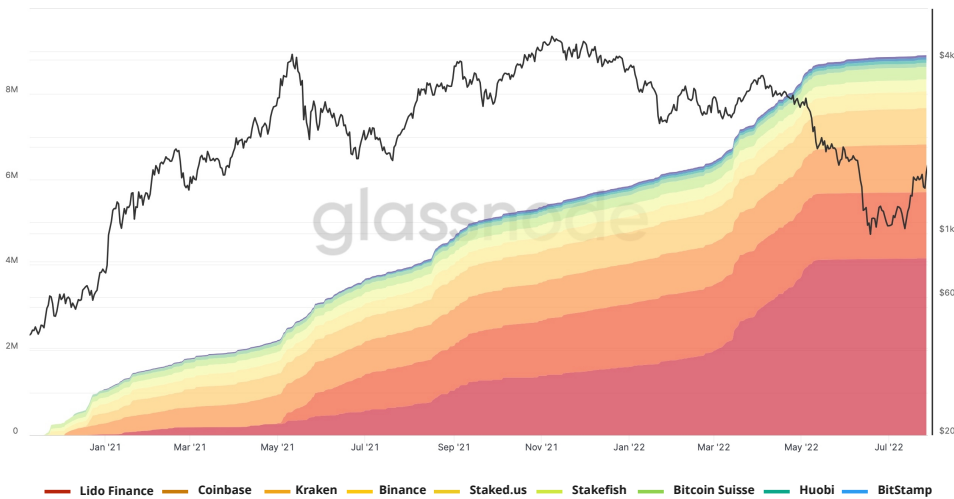
For the beacon chain to launch, 16,384 validators needed to stake a minimum of 32 ETH on the beacon chain, a milestone that occurred on November 24, 2020.<sup>1</sup> The ETH 2.0 code was then deployed on December 1, 2020.

- The initial 524,288 ETH required to bootstrap the security of the beacon chain has grown to nearly 13.2 million ETH currently deposited in the ETH 2.0 Staking contract (> 11% total circulating supply of Ethereum)
- Over 410,000+ validators currently secure the ETH 2.0 beacon chain as we near the final of 3 testnet merges before a potential Proof of Stake merge on mainnet.

## Custodial and Non-Custodial Staking

Many service providers, including exchanges, have lowered the technical barriers of entry for users who desire to participate in staking their ETH. - more than 8.5 million of the roughly 13.2 million ETH staked are deposited using these staking providers.

Ethereum 2.0 Staking Providers Total Value Staked (ETH)

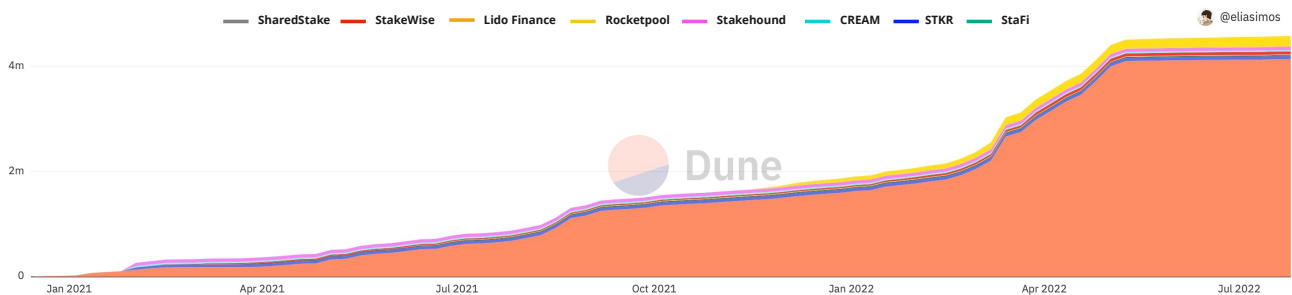


- When staking assets with a custodian, the platform retains custody of the users' private keys while collecting a %-fee of the staking rewards.
- **Coinbase, Binance, and Kraken, are examples of custodial staking** and account for more than 3.5 million ETH currently staked.
- **Non-Custodial staking is less convenient but allows users to maintain custody of their private keys.** Staked.us and Stakefish are examples of non-custodial providers and account for nearly 700,000 ETH currently staked.

## ETH 2.0 Liquid Staking Balances

When a user deposits ETH into the 2.0 staking contract, their tokens remain locked until after the merge when withdrawals are enabled. This illiquid downside gave rise to the popularity of liquid staking tokens. Liquid staking provides users an additional liquidity avenue for tokens typically subject to lock-up periods - more than 4.5+ million ETH tokens are currently deposited using liquid staking.<sup>2</sup>

ETH2 Liquid Staking (ETH)



- The most popular staking service provider is Lido Finance which accounts for almost 4,150,000 total ETH (31.47% of all ETH staked). Users receive the stETH token which earns ETH 2.0 staking rewards and is also compatible with many decentralized finance platforms that offer additional yield opportunities. stETH tokens are minted upon deposit and burned when redeemed.<sup>3</sup>
- Rocket Pool is another liquid staking provider which requires a minimum of 16 ETH to deposit (Lido has no minimum staking amount). Rocket Pool features a derivative token for stakers rETH that accrues staking rewards while representing a claim on staked ETH. Rocket Pool differs from Lido Finance in that protocol is permissionless - meaning anyone can operate and run a validator rather than LDO token holder governance making that decision.

1 Kraken , Ethereum Roadmap to 2.0 <https://www.kraken.com/en-us/learn/ethereum-2-0>  
 2 Dune Analytics , Eth2 Liquid Staking Balances <https://dune.com/queries/46101/90776>  
 3 Lido Finance , What is stETH <https://help.lido.fi/en/articles/5230610-what-is-steth>

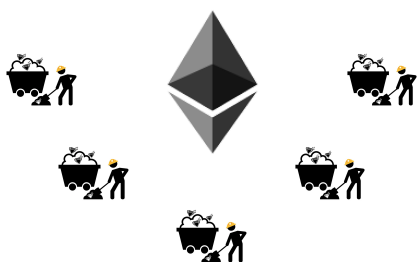


## ETH 2.0 Supply & Demand Paradigm

Ethereum's rate of token issuance post-merge paired with a different selling pressure paradigm could heavily influence price action. It could be perceived that Proof of Stake assets have a potential advantage over Proof of Work systems because they do not have constant miner selling pressure. Post-merge, the largest structural seller that has supplied buy-side demand for the last eight years of Ethereum's history, will vanish - below, we explore this new supply and demand dynamic and what could make the upcoming Ethereum merge so profound.

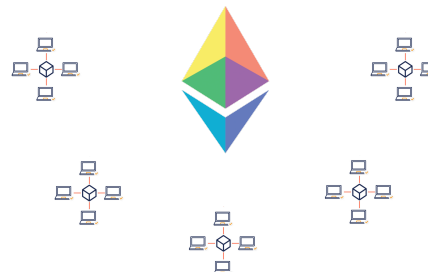
### Current PoW Token Issuance

Ethereum Blockchain



### Post-Merge Token Issuance

Ethereum 2.0



- **Around ~12,000 ETH** is currently issued daily to miners.<sup>1</sup>
- If miners sold 2/3 of daily ETH tokens, that creates ~8,000 ETH of daily sell-side pressure. Miners are forced to sell ETH tokens to offset business expenses: hardware and electricity costs.
- If ETH hypothetically was a \$1/token -> that would only amount to roughly~ \$8000/day of market demand to maintain a \$1 token price.
- However, if ETH were a hypothetical \$4K/token -> that's \$32 million in daily buy-side demand required to maintain a \$4,000 token price.

- **PoS will remove an ~estimated 10,720 ETH in daily selling pressure**, which will impact supply and demand dynamics.
- ETH annual token issuance is estimated to decline by around~90%, so validators will only be able to sell a maximum of 1,280 ETH/day.<sup>1</sup>
- Validators do not face the same input cost headwinds (electricity and ASIC hardware) that PoW miners have to generate revenue.
- Post-merge, if ETH were \$4K/token -> the market would require \$5.12 million in daily selling pressure -> *to prevent the price of \$4,000 from going up.*

## Staking Demand

Following a potentially successful implementation of the merge to PoS, we believe the Ethereum protocol could face an entirely new surge in staking interest and participation. More risk-averse and sidelined investors who wanted to wait for the execution of the merge before staking as well as entirely new investors could impact token demand for an entirely new Ethereum supply model.

### Suggested Ethereum Staking Rates (Post-Merge)

Total ETH Staked	Block Rewards/yr	Tips (ETH)								
		300,000	350,000	400,000	450,000	500,000	550,000	600,000	650,000	700,000
10,000,000	572,400	8.7%	9.2%	9.7%	10.2%	10.7%	11.2%	11.7%	12.2%	12.7%
12,500,000	640,000	7.5%	7.9%	8.3%	8.7%	9.1%	9.5%	9.9%	10.3%	10.7%
15,000,000	701,100	6.7%	7.0%	7.3%	7.7%	8.0%	8.3%	8.7%	9.0%	9.3%
17,500,000	757,300	6.0%	6.3%	6.6%	6.9%	7.2%	7.5%	7.8%	8.0%	8.3%
20,000,000	809,500	5.5%	5.8%	6.0%	6.3%	6.5%	6.8%	7.0%	7.3%	7.5%
22,500,000	858,700	5.1%	5.4%	5.6%	5.8%	6.0%	6.3%	6.5%	6.7%	6.9%
25,000,000	905,100	4.8%	5.0%	5.2%	5.4%	5.6%	5.8%	6.0%	6.2%	6.4%
27,500,000	949,300	4.5%	4.7%	4.9%	5.1%	5.3%	5.5%	5.6%	5.8%	6.0%
30,000,000	991,500	4.3%	4.5%	4.6%	4.8%	5.0%	5.1%	5.3%	5.5%	5.6%
32,500,000	1,032,000	4.1%	4.3%	4.4%	4.6%	4.7%	4.9%	5.0%	5.2%	5.3%
35,000,000	1,070,900	3.9%	4.1%	4.2%	4.3%	4.5%	4.6%	4.8%	4.9%	5.1%
37,500,000	1,108,500	3.8%	3.9%	4.0%	4.2%	4.3%	4.4%	4.6%	4.7%	4.8%
40,000,000	1,144,900	3.6%	3.7%	3.9%	4.0%	4.1%	4.2%	4.4%	4.5%	4.6%

■ Estimated ETH Staked @ "The Merge"
 ■ Annualized Tips Trailing 365 Days

Data as of 4/18/22  
Source: Glassnode & "ETH 2.0 Economics" (ethhub.io)

- Since the Beacon Chain launch, staking rewards have steadily declined from 9.9% at the start of 2021 to currently ~4% APY as more ETH finds its way into the 2.0 staking contract.
- Post-merge, staking yields project to increase as validators will now earn block rewards that miners used to receive (*Tips in above chart*)<sup>2</sup>
- If staking yields for ETH double to 8 or 9%+ APR, it could draw the attention of fixed-income investors - the dynamics in staking are heating up as we inch closer to the potential protocol upgrade from Proof of Work to Proof of Stake.

<sup>1</sup> Bankless, Don't Sleep on the Merge [LITE] <https://newsletter.banklessHQ.com/p/dont-sleep-on-the-merge-lite>

<sup>2</sup> Delphi Digital, Managing Expectations Heading Into "The Merge" <https://members.delphidigital.io/reports/managing-expectations-heading-into-the-merge>

## Bitcoin

- Authorities in Iran have revised some rules for the crypto mining industry in order to facilitate its access to green energy. Licensed miners will now be able to purchase electricity produced from renewable sources across the country at lower rates.
- Schwab Asset Management, a subsidiary of The Charles Schwab Corp., announced the launch of the Schwab Crypto Thematic ETF - "designed to deliver global exposure to companies that may benefit from the development or utilization of cryptocurrencies (including bitcoin) and other digital assets, and the business activities connected to blockchain and other distributed ledger technology."<sup>1</sup>
- Santander, the third largest bank in Brazil, will begin offering services for bitcoin and other cryptocurrencies in the coming months.
- In an interview with Coin Telegraph, Gibraltar's Financial Services Minister, Albert Isola, shared, "I buy Bitcoin for the benefit of my kids."

## Ethereum

- Iconic Jewelry dealer Tiffany & Co release what they're calling "NFTiffs" - diamond pendants that are "designed and crafted by Tiffany artisans" but would be "inspired by" CryptoPunk owners' own punk NFTs.
- The new EVM-compatible smart contract programming language called Huff was released- Huff is currently the most gas-optimized programming language available for developers.<sup>2</sup>
- GameStop announced early access to the newly integrated L2 GameStop wallet - the company's digital wallet was recently integrated with the Immutable X Link infrastructure, making the wallet natively compatible across the entire protocol.
- Ethereum Foundation publishes a new use case for Ethereum called Decentralized Science (DeSci). DeSci aims to create an ecosystem where scientists are incentivized to openly share their research and receive credit for their work while allowing anyone to easily access and contribute to the research.

## Layer 1's

- Aptos Labs raises \$150 million in funding to build a layer-1 blockchain in an investment round led by FTX and Jump Crypto.
- The prominent mining company, AntPool announces support for the Ethereum Classic ecosystem with a \$10 million investment as markets anticipate the ETH 2.0 transition from PoW to PoS.
- Interoperability protocol Synapse Protocol announces the launch of its new optimistic rollup (Synapse Chain), which aims to serve as a cross-chain execution environment between the digital asset ecosystem.
- Solana opens its first Solana Spaces - a high-end physical store in NYC introducing newcomers to the "Solana way of life."

## Other Headlines

- France-based BNP Paribas, the second largest global bank in Europe, announces a partnership with Swiss-based crypto infrastructure firm Metaco to offer digital assets custody services to its customers.
- The FDIC and Federal Reserve sent a letter to Voyager CEO Stephen accusing the crypto lender of misleading customers about protections on their assets by implying that they'd be covered by deposit insurance in the event of Voyager's collapse.
- Kraken, one of the world's largest cryptocurrency exchanges, is under federal investigation - the exchange is suspected of violating U.S. sanctions by allowing users in Iran and elsewhere to buy and sell digital tokens.<sup>3</sup>
- Crypto wallet, Swype announces support for DAO's Gnosis safe wallets to connect to FDIC insured protected bank accounts, wire transfers, and ACH payments.
- Tether Bitfinex and Hypercore launch Keet - platform for fully encrypted video calling.

<sup>1</sup> Bitcoin.com , Charles Schwab's \$655B Asset Management Arm to Start Trading Crypto-Related ETF This Week <https://news.bitcoin.com/charles-schwabs-655b-asset-management-arm-to-start-trading-crypto-related-etf-this-week/>

<sup>2</sup> TokenInsight, EVM Programming Language Huff Officially Released <https://tokeninsight.com/en/news/evm-programming-language-huff-officially-released>

<sup>3</sup> The New York Times , Kraken, a U.S. Crypto Exchange, Is Suspected of Violating Sanctions <https://www.nytimes.com/2022/07/26/technology/kraken-crypto-iran.html>

**Bitcoin Halving:** Is the process of halving the rewards of mining Bitcoin blocks. This event occurs after each set of 210,000 blocks is mined (blocks are mined every 10 minutes, so around 4-years).

**Bitcoin Hashrate:** The network hashrate measures the total computational power of a proof-of-work cryptocurrency network to process transactions in a blockchain - the higher the hashrate, the greater the network security.

**Consensus:** A consensus mechanism is a method for validating entries into a distributed database and keeping the database secure.

**Delta Gradient:** Metric measures the difference between the gradient of both spot price and the realized price. Shows the relative change in momentum between speculative value and true organic capital inflows.

**Ethereum Validator:** A validator is an entity that participates in the consensus of the Ethereum protocol. Users stake 32 ETH to become a validator. Validators are chosen at random to create blocks and are responsible for checking and confirming the network ledger.

**Liquidity Pool:** A liquidity pool allows depositors who provide digital assets to earn money from transaction fees generated by other users who buy and sell assets from the pool. Those transaction fees go back into the liquidity pool to further increase the value of your tokens and aid in growing the pool.

**Miner Capitulation:** Conditions where miners' input costs exceed the underlying value of the bitcoins they earn, resulting in miners being forced offline and a decline in network hashrate. During extreme price drops, a miner capitulation scenario may also include miners selling BTC from their reserves.

**Realized Price:** Measures the average price weighted by the supply of what all market participants paid for their coins. Realized price is calculated by dividing realized cap by total supply of tokens in circulation.

**Shadow Fork:** A shadow fork uses data from a testnet or a network's mainnet to test sync assumptions for a network upgrade so that developers can test features before deploying the actual upgrade to the mainnet. A shadow fork is a test limited to a smaller timeframe - usually no more than a few weeks.

**TVL (Total Value Locked):** Representation of the total value of a crypto-asset that is "locked" in a DeFi (decentralized finance) application or smart contract. TVL can directly affect the yield and usability of these applications.

**Unspent Transaction (UTXO):** An unspent transaction output (UTXO) is the technical term for the amount of digital currency that remains after a cryptocurrency transaction. UTXOs define where each blockchain transaction starts and finishes.

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