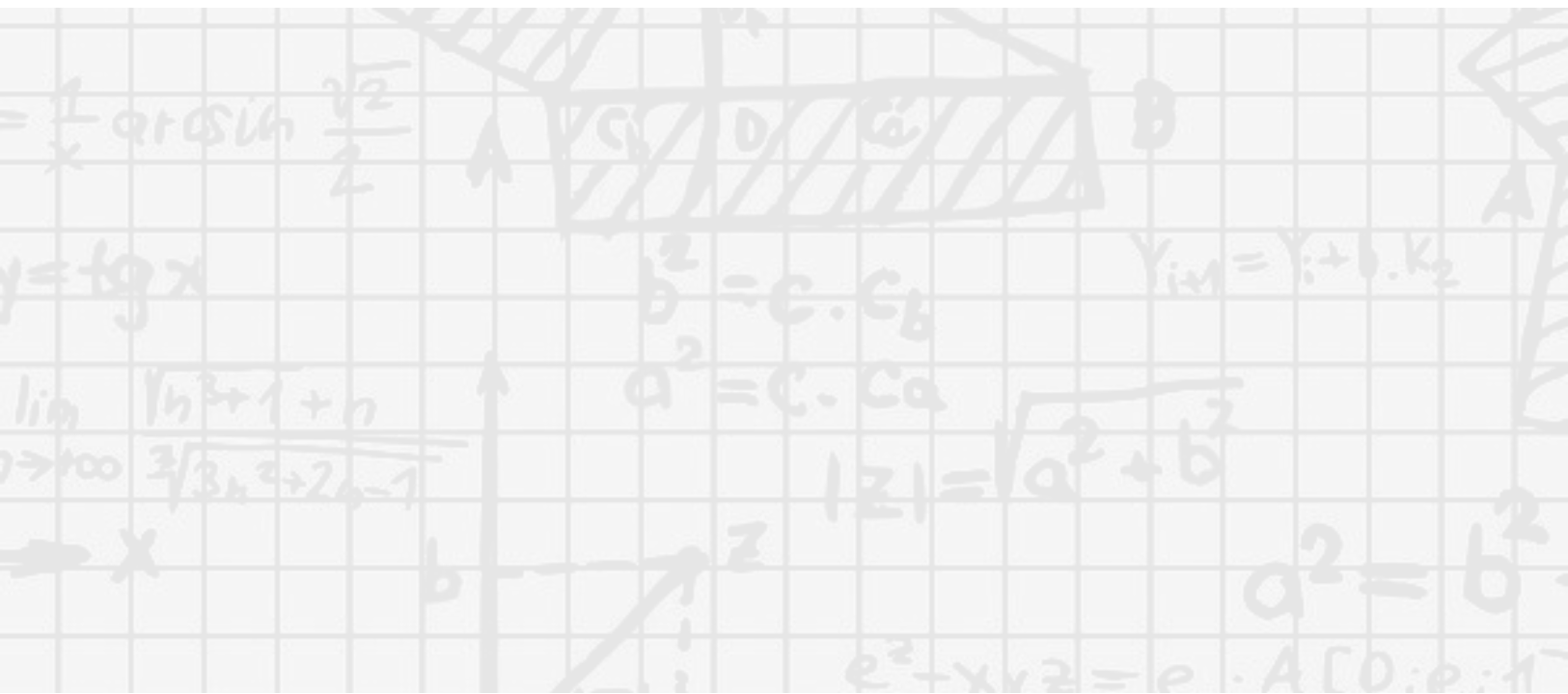


# Digital Asset Markets Report

February 2023



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

- S&P500 and Dow indices are currently 4.1% and -1.3% YTD, respectively, while the NASDAQ is up 8.8%.
- PBoC offered 835¥ billion Yuan (\$121 billion) in reverse repurchase contracts - the largest injection of single-day capital since 2004.
- Positive but overheated January PCE, PPI, CPI, and consumer January data threaten the disinflation trend.
- Fed members continue reiterating support for a 50 bps increase, with bond markets no longer projecting a cut in terminal rates in 2023.
- CME Group Fed Funds futures are pricing in a 71.6% likelihood of a 25 bps hike and a 28.4% chance of a 50 bps increase at the March FOMC.
- The US10Y and US3M inversion yield has recovered to -0.91 after reaching extremes of -1.32 in January.

## Macro Performance

Page 1

- Digital assets' total market cap continues to hold above the 1 trillion level after extending as high as 1.1 trillion this month.
- GLD (Gold ETF) has retraced its positive performance and is slightly down -0.7% on the year.
- US SPR will fall below 1983 levels with the scheduled sale of 26 million barrels; currently the price is \$79.83/barrel.
- The GSG commodity index has declined -3.4% YTD as it continues to underperform against traditional indices.

## On-Chain Analysis

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- **LTHs in Loss vs STHs in Profit:** A sharp rise in the profitable supply of Bitcoin held by STHs and a gradual decline in LTH supply in loss can signal that bear market conditions are potentially nearing the end of the current cycle.
- **Stablecoin Supply Ratio (SSR):** SSR divides the market cap of BTC by the total market cap in stables (denominated in BTC) and can help identify purchasing strength/weakness in stables - however, headwinds for BUSD (\$11.7B MC) could skew current ratio extremes.

## Technical Levels

Page 3

- **Bitcoin:** Price continues to hold above the 200d SMA while \$25,000 remains key structural and psychological resistance for market participants - reclaiming the 50d SMA would signal strength in the YTD trend.
- **Ethereum:** ETH failed to find support at its 50d SMA while \$1700 continues to serve as high time frame resistance. Unlike BTC, ETH has yet to trade above its 2022 summer highs this year.

## Momentum & Sentiment

Pages 4-5

- **S2F momentum model:** The model rebalanced to a full allocation in the market with a heavier weighting toward ETH.
- **Alt-season indicator:** The indicator shows the broader trend pivoting towards a more neutral zone between Alts and BTC.
- **Delta risk:** The risk value started to grow around mid February on both BTC and ETH, but later pivoted to the downside. ETH readings suggests a low risk still present in the market.

## Market Radar

Pages 6-7

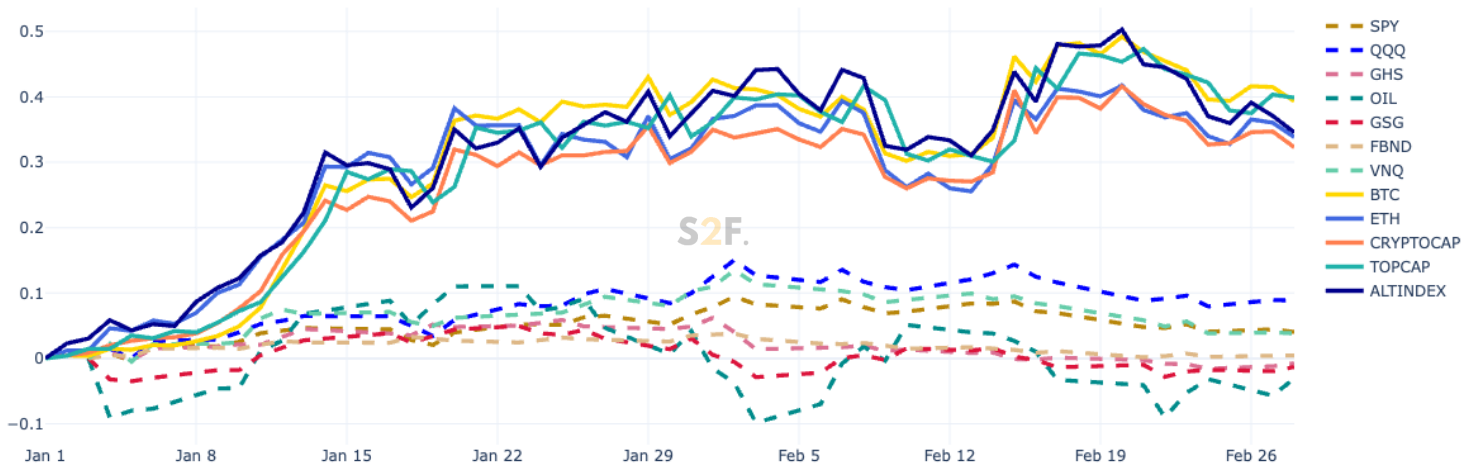
- **Shanghai ETH Upgrade :** Since Q4 2020, Ethereum's Beacon chain has amassed > 17.5 mm ETH in deposits (\$29+ billion). With the Sepolia testnet scheduled for the end of February, unlocking this staked supply could happen before the end of Q1.
- **Staking Landscape:** ETH staking markets are dominated by Liquid Staking Derivative (LSD) tokens which account for 33.2% of the total supply of staked ETH. In contrast, the three largest exchanges (Coinbase, Kraken, and Binance) account for 26.8%.
- **Selling Pressure Fallacies:** Under extremes, staking rewards could produce 100,000+ ETH in potential sell-side pressure (not including Lido Finance) with the greatest outflow in validator rewards more likely to occur in the days that follow.
- **Potential Scenarios (Positive, Neutral, Negative) :** An unlock of 17 million+ staked ETH sounds like a major selling event but could also result in a better distribution of validators and protocol security improvements that benefit market participants.

## Notable News

Page 8

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

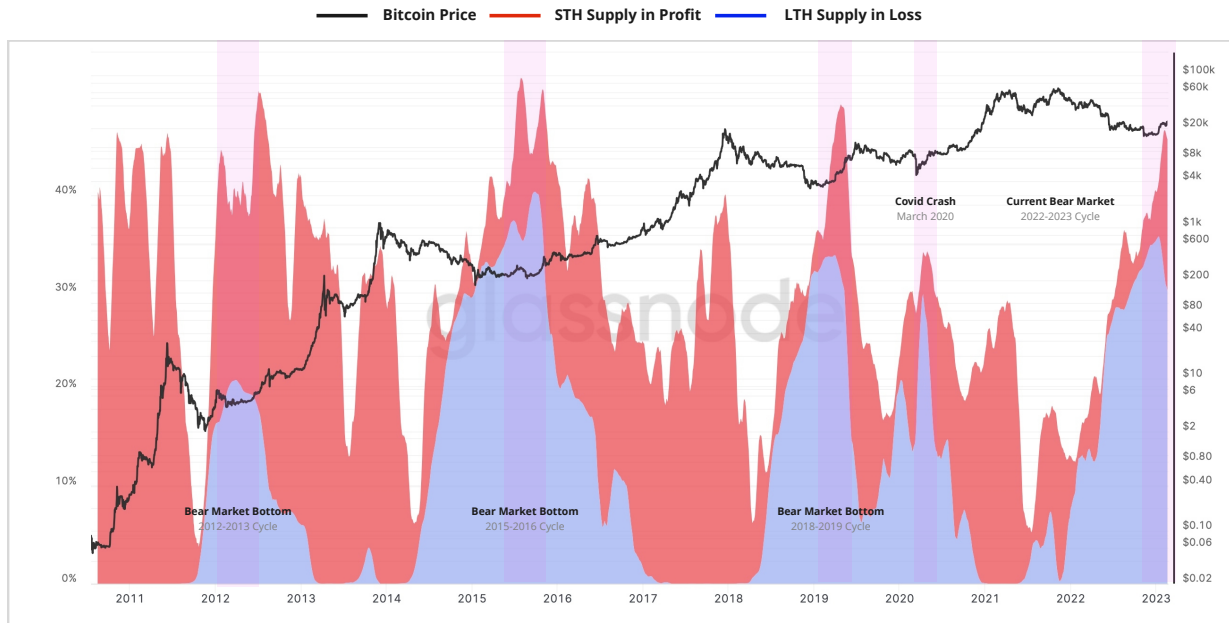
## 2023 Asset Returns



Asset	MtD*	QtD	YtD	Volatility (annualized)*	Sharpe (annualized)*	Correlation (to Bitcoin)**
Bitcoin	-2.3%	39.3%	39.3%	0.48	4.59	1.0
Ethereum	-2.1%	33.8%	33.8%	0.52	3.63	0.98
Altcoin Index	-4.5%	34.6%	34.6%	0.57	3.44	0.94
TopCap	2.7%	39.9%	39.9%	0.45	2.48	0.98
CryptoCap	-2.0%	32.3%	32.3%	0.42	2.29	0.99
GLD	-6.5%	-0.7%	-0.7%	0.16	1.90	0.57
UCO	-1.5%	-3.1%	-3.1%	0.59	-0.16	0.18
FBND	-3.0%	0.5%	0.5%	0.08	1.27	0.46
GSG	-1.8%	-1.3%	-1.3%	0.22	-0.79	0.11
VNQ	-6.4%	3.8%	3.8%	0.24	1.27	0.81
SPY	-3.5%	4.1%	4.1%	0.20	0.95	0.75
QQQ	-3.3%	8.8%	8.8%	0.26	1.43	0.84

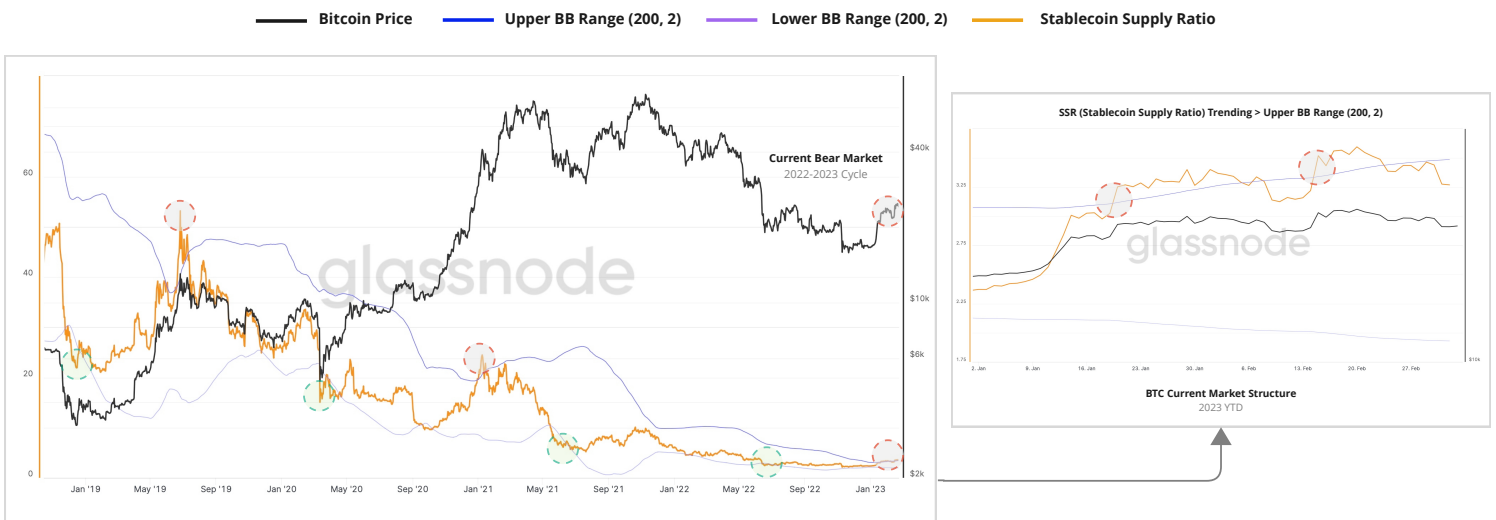
Sources: AlphaVantage, TradingView  
 Assets: SPY = S&P500, QQQ = NASDAQ, GLD = Gold, UCO = Crude Oil, FBND = Total Bond Market, VNQ = Vanguard Real Estate Index Fund ETF, GSG = S&P Commodity Indexed-Trust, S2FALTINDEX = Altcoin Index, TopCap = Marketcap of top 20 coins excluding stablecoins and wrapped tokens, CryptoCap = total crypto sector  
 \*as of February 28, 2023 - last 90 days

## LTH Supply in Loss v. STH Supply in Profit (30d)



- We see bear market bottom conditions (light pink) occur when there is a sharp spike in **Short Term Holder (STH) BTC supply in profit (red)** while the **Long Term Holder (LTH) BTC supply in loss (blue)** reaches its top.
- Following the collapse of FTX in Q4 2022, we have seen an exponential increase in the percentage of BTC held by STHs in profit while the supply held by LTHs at a loss gradually declines.

## Stablecoin Supply Ratio (SSR)



- The **SSR (orange)** is a metric used to help identify purchasing power strength and weakness in stablecoin markets relative to Bitcoin - calculated by dividing the total market cap of Bitcoin by the total market cap of stablecoins (denominated in BTC).
- An **Upper BB (Bollinger Band) Range (blue)** and **Lower BB Range (purple)** are applied to the 200d MA of the SSR ratio - under extreme market conditions, the SSR can trend below the BB Range (green circles).
- Currently, the SSR is trending above the Upper BB (red circles) which could signal cautionary conditions, but stablecoin markets (especially BUSD) have come under regulatory scrutiny, which could be compressing market cap valuations, thus skewing the ratio.

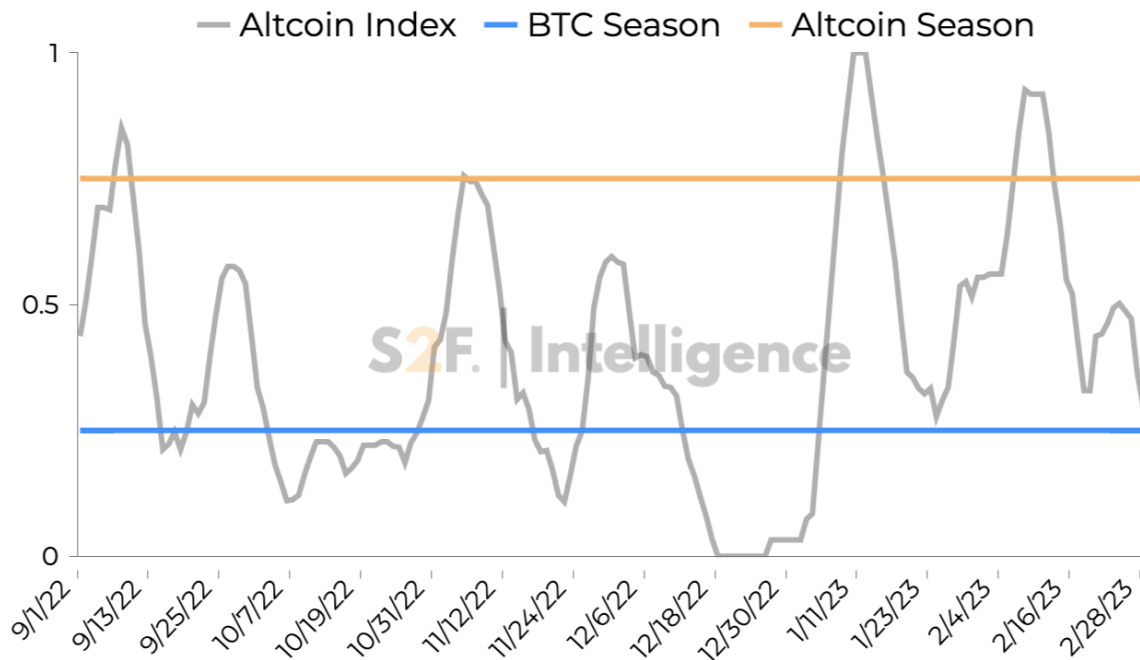
- Bitcoin continues to trade above the **200d MA** but failed to find support at its **50d MA**.
- In Feb, BTC traded above last year's summer highs, but the \$25K price point continues to serve as psychological and structural resistance.
- Reclaiming the **50d MA** would help restore optimism for the recent YTD uptrend. Unknown February labor and inflation data continue to promote uncertainty surrounding the Federal Reserve's Reserve's outlook on monetary policy.



- Ethereum support remains above the **200d MA**, but recent price action has been unable to reclaim its **50d MA**.
- As the total amount of ETH staked surpasses 17.5 million, concerns remain over the anticipated sell-side pressure from validator rewards heading into the Shanghai withdrawals unlock.
- Ethereum price action continues its underperformance vs. Bitcoin's YTD - ETH market dominance remains flat in 2023 +0.6%.

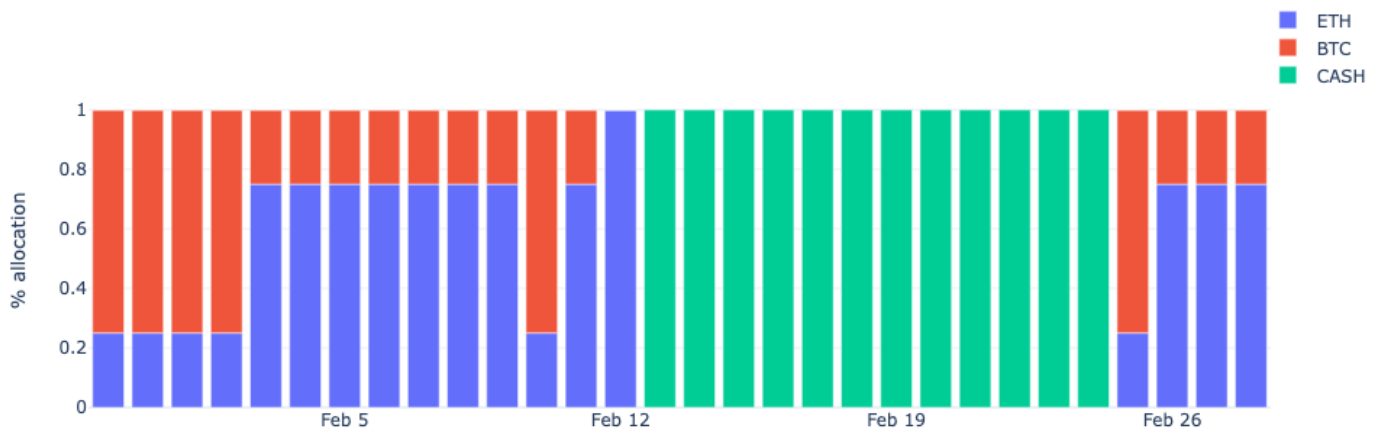


S2F Alt-Season Indicator



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.

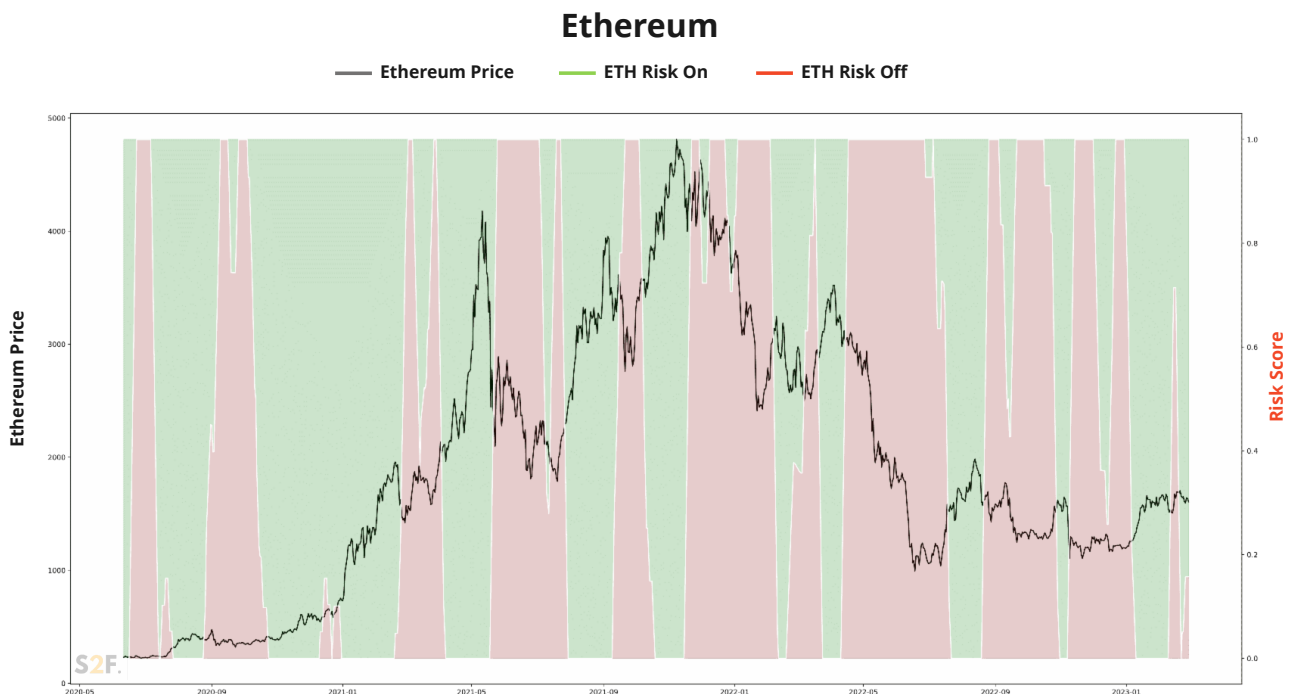
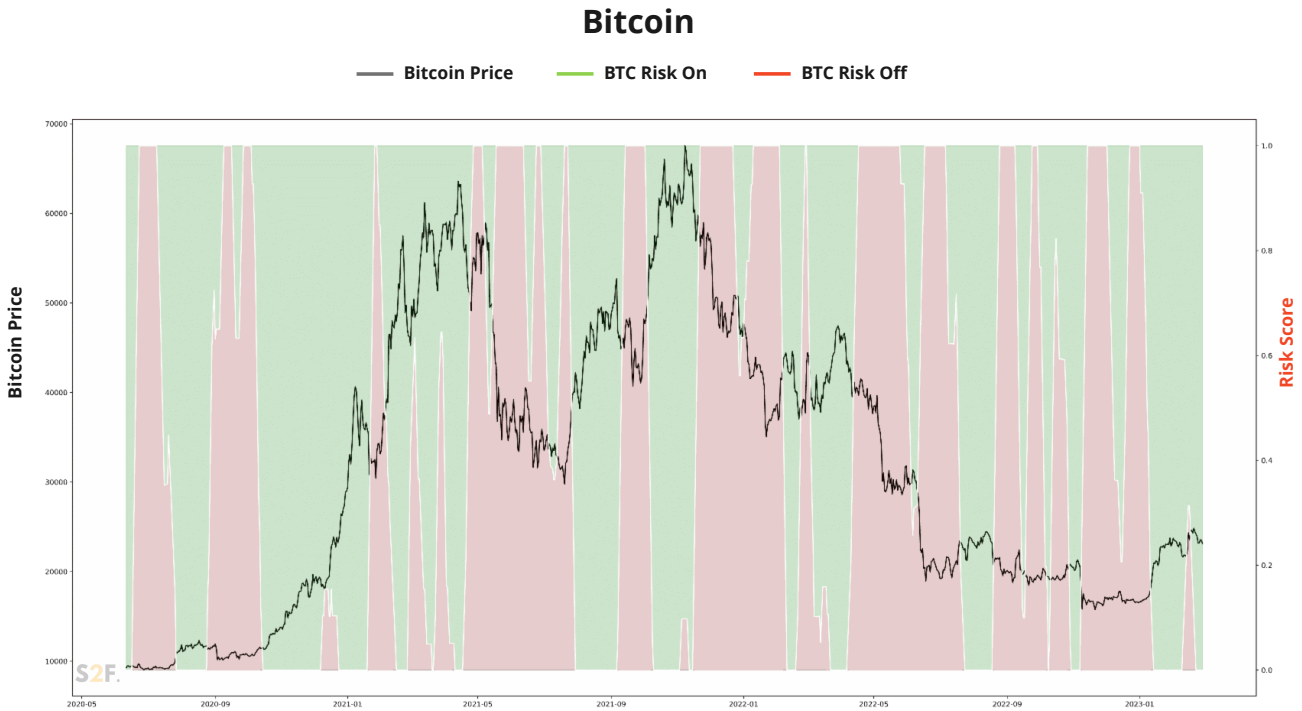
S2F Momentum Model



The S2F Momentum Model is a proprietary model for portfolio optimization. The **entry and exit signals rely on a risk indicator**, while the **ETH and BTC weights are based on price momentum**. The chart above shows the suggested daily allocation over the last 30 days.

## Delta Risk Score

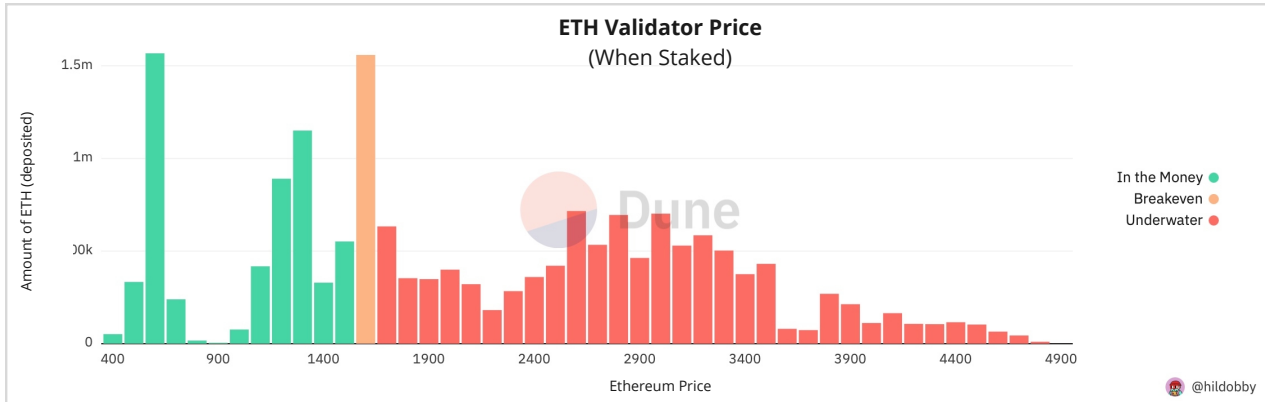
The Delta Risk Score is a proprietary model that **measures the probability of an imminent retracement in price**. The indicator's value oscillates between 0 and 1, with the former signaling low-risk (**green**) while the latter determines high-risk conditions (**red**). The chart below shows both indicators and the underlying asset's price (**black line**) since Q2 2020.



## Ethereum Hard Fork - Shanghai

The upcoming Shanghai hard fork will enable proof of stake validators to withdraw their ETH and collect staking rewards. Before the network upgrade is released on mainnet, withdrawal simulations must be successful on three testnets - Zhejiang, Sepolia, and Goerli.

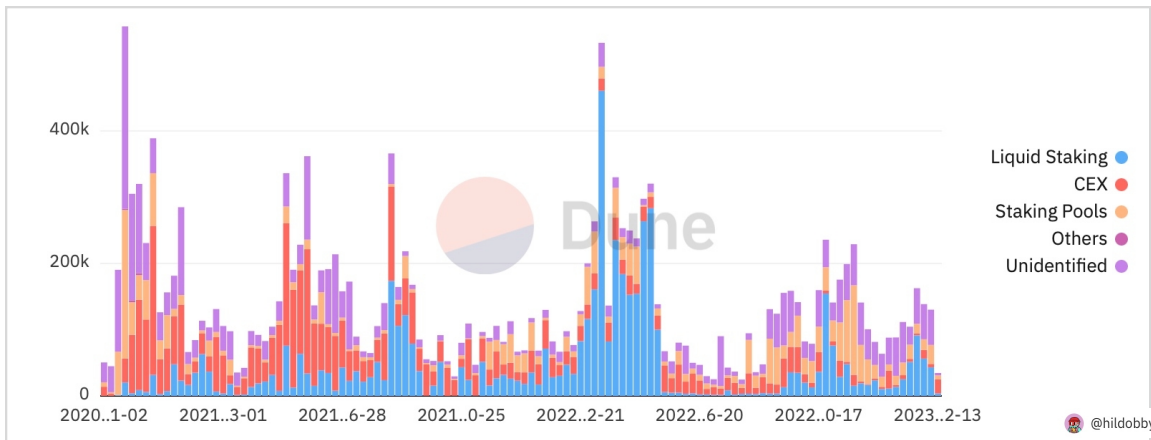
- Since its Q4 2020 launch, the Beacon chain has amassed more than 17,500,000 ETH in deposits (\$29 billion). With the Sepolia testnet scheduled for the end of February, Shanghai withdrawals could be implemented before the end of Q1.



- Market conditions have resulted in **78% of validators being underwater** from when they first deposited. While withdrawals could lead to strong sell-side pressure, there have also been significant improvements to the Ethereum protocol.
- Ethereum's PoW blockchain had a ~3.79% annual rate of inflation issued to miners, but post-merge has experienced a deflationary token issuance (-0.07%). Instead of almost 2,000,000+ ETH tokens issued to the open market, (-47,700K) have been removed.

## Staking Landscape

The current landscape of ETH staking markets are dominated by Liquid staking derivatives (LSD) tokens (blue) which currently account for 33.2% of total supply of staked ETH. The 3 largest exchanges (Coinbase, Kraken and Binance) account for 24.8% (red).



- Liquid Staking Derivatives represent a fungible token derivative for staked ETH. LSDs allow users to self-custody their assets while passively accruing staking rewards.
- Unlike the staking as a service products offered on centralized exchanges, LSDs can outperform traditional yields while eliminating counterparty risks.
- 4,700,000+ ETH unlocking on CEXs will impact the landscape of staking markets and could lead to a resurgence in DeFi, fueled by innovative market leaders like Rocketpool, Frax Finance, and Lido's LSD token (rETH, frxETH, and stETH).



## Validator Queue and Churn Limit

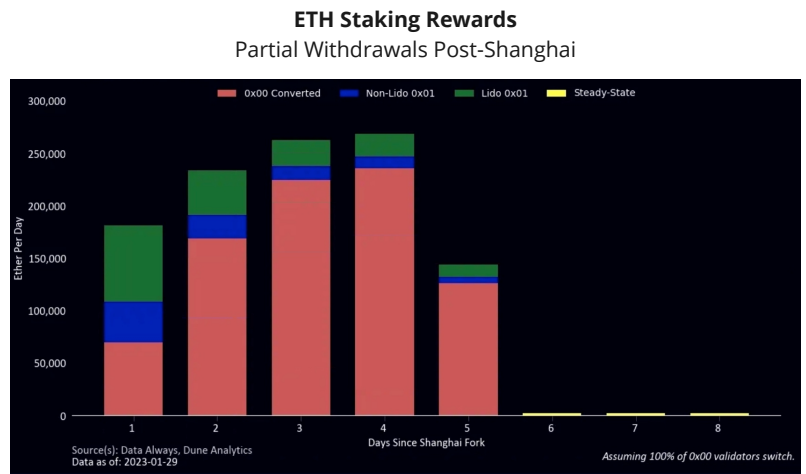
While partial withdrawal metrics are more speculative, full withdrawal outflows are defined by **validator queue and churn limit** protocol parameters – the maximum number of depositors and existing validators that can deposit or withdraw from the beacon chain.

- The daily queue limit +/- (max new 1800 validators) relative to the number of active validators.
- When the number of active validators surpasses 524,288, the new queue will result in a churn limit quotient of 8x or 57,600 ETH/day.<sup>1</sup>

## Sell Pressure Fallacy

Due to the technical complexities of ETH's protocol upgrade to proof of stake, the majority of depositors will be required to **update their deposit credentials from a 0x00 format to 0x01** before they can claim their staking rewards.

- **~61.80%** of depositors won't be eligible to claim their rewards on Day 1 until their credentials are updated.<sup>2</sup>
- The network can only process 16 credential upgrades per block. (every 12 seconds) This should suppress a large wave of perceived sell-side pressure.
- **Due to Lido's 93.8% LSD market share dominance**<sup>3</sup> (5.5mm staked ETH), the protocol's initial reward redemption will clog Day 1 partial withdrawals queue.



## Potential Scenarios

An unlock of 16 million+ staked ETH sounds like a major selling event but could also result in a better distribution of validators and protocol security improvements that benefit market participants.

Positive Outcome	Neutral Outcome	Negative Outcome
<p>Long-term investors + LSDs compound and optimize staking yields.</p> <p>Number of Validators grows from roughly 500,000 to 2,000,000+</p> <p>7%+ staking rewards gradually decline as network security improves.</p> <p>Market demand from staking participants absorbs sell pressure, pushing price above technical resistance levels.</p>	<p>Staking distribution improves as 4.3 million ETH unlock on centralized exchanges.</p> <p>7%+ staking rewards gradually decline as network security improves with higher staking participation.</p> <p>Short-term sell-side pressure initially outweighs buy-side investor demand without breaking technical support.</p>	<p>Initial ETH inflows from validator rewards produces unbalanced sell-side pressure.</p> <p># of validators decrease and staking distribution becomes more centralized.</p> <p>7%+ staking rewards increase as network security declines rapidly.</p> <p>Strict staking regulations prompt CEXs to wind down their staking as a service products - creating additional selling pressure.</p>

<sup>1</sup> Galaxy Research, 100 Days After the Merge <https://www.galaxy.com/research/insights/100-days-after-the-merge/>  
<sup>2</sup> Tripoli: DataAlways, Napkin Math: 0x01 Partial Withdrawals (Ben Edgington) <https://dataalways.mirror.xyz/KxVXFnr6rS8aiiPPhsrwV79F1s4oXnQdPLMfG197bs>  
<sup>3</sup> Dune Analytics, Ethereum Staking <https://dune.com/hildobby/eth2-staking>

## Bitcoin

- Unique ordinal inscriptions surpassed 197,000 as demand for Bitcoin blockspace elevates both t/x fees and miner profitability while also increasing the average BTC block size above 3.75 MB.
- Nostr, an open protocol that offers users an alternative to centrally-controlled social networks like Twitter, is live after its approval from the Apple App Store with Damus.
- The Stacks Network (STX) and native token enter into the Top 50 digital assets by market cap - data is stored separately from the Bitcoin network allowing for smart contract and dApp development.
- Nautilus, one of the first nuclear-powered BTC mining operations in the US, is close to coming online - the operation expects to reach full capacity: 15,000 rigs and 1.6 (EH/s) of hashing power by Q1 this year.<sup>1</sup>

## Ethereum

- Coinbase announced the launch of their optimistic L2 rollup - BASE, which is a hard fork of Optimism's \$OP tech stack and will be secured on Ethereum.<sup>2</sup>
- Lido records 150K ETH in deposits, the largest single-day inflow from the market-leading LSD - the event triggered the activation of the protocol's Staking Rate limit safety feature.
- Kraken and Coinbase will support user deposits and withdrawals to/from the Arbitrum L2 ecosystem. Daily transactions on Arbitrum recently surpassed daily mainnet transactions on ETH L1 for the first time!<sup>3</sup>
- Polygon sets its mainnet zkEVM network launch date for March 27th while zK Sync rebrands its 2.0 rollup to "New Era."

## Layer 1's

- Decentralized wireless infrastructure blockchain Helium Network (HNT) announced its protocol would migrate to the Solana ecosystem.<sup>4</sup>
- The Filecoin blockchain (FIL) is preparing for its v18 Hygge upgrade, enabling programmability and smart contracts on top of the Filecoin Virtual Machine (FVM) on March 14th, 2023.
- Fantom (FTM) governance proposal to launch a gas monetization structure to reward dApps passes - builders can earn up to 15% of all gas spent on their contract as revenue.
- Avalanche (AVAX) introduced their HyperSDK - a software stack that provides a framework for developers to build high-performing virtual machines on the Avalanche blockchain.

## Other Headlines

- The SEC charged Singapore-based Terraform Labs PTE Ltd and Do Kwon with orchestrating a multi-billion dollar crypto asset securities fraud involving an algorithmic stablecoin and other crypto asset securities.
- A recent survey conducted by Morning Consult, on behalf of Coinbase, suggests 20% of Americans own crypto, with younger Americans — 36% of Gen Z and 30% of Millennials reportedly owning crypto assets.
- Notable crypto firms, including Paxos, Galaxy Digital, the Cboe Digital platform, and Coinbase, will no longer use Silvergate Bank to facilitate dollar payments for institutional customers.
- Hong Kong's Securities and Futures Commission (SFC) began its consultation process for Virtual Asset Service Providers (VASP) seeking a license to provide trading services for retail investors.<sup>5</sup>

<sup>1</sup> Decrypt, TeraWulf's Nuclear Bitcoin Plant Is Just One Piece of the Green Mining Puzzle <https://decrypt.co/122264/terawulfs-nuclear-bitcoin-plant-one-piece-green-mining-puzzle>

<sup>2</sup> TechCrunch, Coinbase's layer-2 blockchain may help expand scaling on Ethereum <https://techcrunch.com/2023/02/23/coinbases-layer-2-blockchain-may-help-expand-scaling-on-ethereum/>

<sup>3</sup> CoinDesk, Layer 2 Network Arbitrum Surpasses Ethereum in Daily Transactions <https://www.coindesk.com/tech/2023/02/22/layer-2-network-arbitrum-surpasses-ethereum-in-daily-transactions/>

<sup>4</sup> CoinTelegraph, Helium Network sets migration to Solana for March <https://cointelegraph.com/news/helium-network-sets-migration-to-solana-for-march>

<sup>5</sup> Bloomberg, Hong Kong's Crypto Hub Ambitions Win Quiet Backing From Beijing <https://www.bloomberg.com/news/articles/2023-02-21/hong-kong-s-crypto-hub-ambitions-win-quiet-backing-from-beijing?leadSource=uverify%20wall>

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