

Digital Asset Markets Report

2H September 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

- S&P 500 and DJIA indices broke their June lows -25.1% and -20.9% YTD, while NASDAQ is currently -28.9% heading into Q4. Q2 GDP data for the US was negative 0.6%, coupled with revisions in forward-looking projections confirmed investors' fears of a softening economy.
- Fed Chair Powell's hawkish remarks at the September FOMC led to further downside pressure in traditional markets. Monetary policy forecasted a 4.4% Federal funds rate by yearend (+100 bps from June projections) with median estimates of 4.6% in 2023 before potentially reducing to 3.9% in 2024 and 2.9% in 2025.
- The Fed's discouraging outlook of a near-term pivot in monetary policy has prompted an outflow of capital seeking more structurally risk-free assets - market demand for short and longer-term maturities has grown significantly.
- Despite yields between the US10Y and US2Y remaining at inverted extremes, global demand for US dollars remains elevated, pushing the DXY to new yearly highs of 114.7+ - a level not seen since 2001.
- August U.S. existing home sales declined 0.4% from July and -19.9% YoY.



Macro Performance

Page 1

- Germany's YoY September CPI hits 10.9% - the highest since World War II.
- BoJ intervenes and purchases Yen for the first time in 24 years - JPY performance -20.56% YTD vs. the dollar.
- GBP trading halted after it experienced a temporary currency selloff of \$1.035 vs. USD - the lowest level since 1985.
- Downside pressure on the € euro vs. dollar has recovered and is currently trading back above parity at \$1.02.
- Gold extends further into negative territory -8.8% YTD.
- Oil tumbled below \$80/barrel for the first time since January - currently trading at \$83.80 down from \$120+ summer highs.
- Commodities saw a correction -8.04% in September - the GSCI commodities index remains +20.63% YTD.



On-Chain Analysis

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- **Bitcoin Profit/Loss Cross Confirmation:** During the June lows, the profit/loss confirmation cross came within ~0.27% of touching - but did not cross. On Sept 6th and just recently, on Sept 20th, we observed an official profit/loss cross.
- **Ethereum Profit/Loss Cross Confirmation:** The profit/loss cross has aligned with significant adverse events in ETH - the DAO hack in 2016, the ICO bubble capitulation in 2018, and the multi-billion dollar OneCoin investor scam. In June, following the collapse of the Terra UST ecosystem and during the height of institutional liquidations, we observed a profit/loss cross.



Technical Levels

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- **Bitcoin:** Post-Sept FOMC data, the price remains below the 50d MA. Until the 50d MA is re-established as support and critical levels of price structure are reclaimed, we remain cautious of false upside momentum.
- **Ethereum:** The Merge narrative led ETH to outperform BTC from July to September - the correlation has since returned along with price sensitivity to monetary policy and equity market turmoil.



Momentum & Sentiment

Pages 4-5

- **pMV momentum model:** momentum starting to build on BTC. Still sidelined on ETH.
- **Alt-season indicator:** Our indicator continues to suggest weakness in alts while the trend for Bitcoin increases.
- **Delta risk:** remains in the risk-off zone, delivering substantially high readings for both BTC and ETH.



Money Flows & Themes

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- **Treasury Demand + Impact of Strong Dollar:** Central banks worldwide continue to impose restrictive economic policies - the FED has led the charge on this front. While this has resulted in an increased demand for dollars in fixed-income markets, this degree of strength in the dollar can have adverse consequences.
- **Federal Reserve Liquidity + Risk-On/Risk-Off Assets:** As Federal Reserve Net Liquidity expands and contracts, we observe the divergence between fixed-income assets and the confluence in overall trends it shows with risk-on assets.

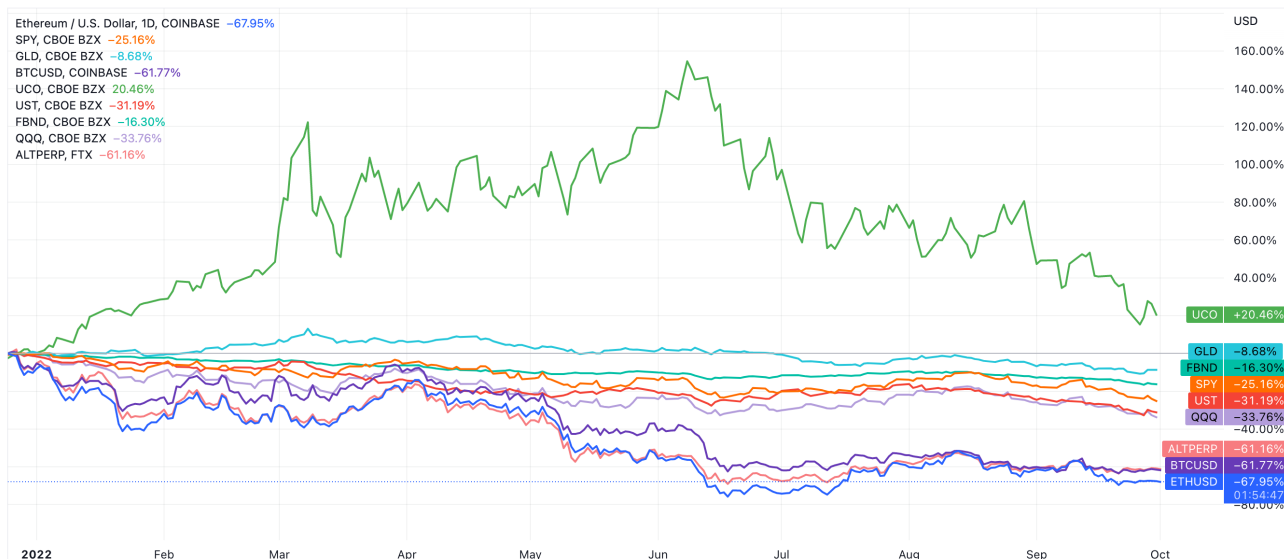


Notable News

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

2022 Asset Returns



Asset	MtD*	QtD	YtD	Volatility (annualized)*	Sharpe (annualized)*	Correlation (to Bitcoin)**
Bitcoin	-3.3%	0.6%	-61.77%	67%	-1.53	1.0
Ethereum	-16.3%	24.9%	-67.95%	89%	-1.15	0.69
Altcoin Index	-1.2%	20.9%	-61.16%	78%	-1.15	0.69
SPY	-9.5%	-5.9%	-25.16%	24%	-1.43	0.74
QQQ	-8.8%	-5.3%	-28.90%	30%	-1.43	0.82
GLD	-2.0%	-8.1%	-8.68%	14%	-0.79	0.77
UCO	-18.2%	-38.9%	20.46%	82%	0.63	0.60
FBND	-3.7%	-4.6%	-16.30%	7%	-2.86	0.81
UST	-8.8%	-14.2%	-31.19%	20%	-2.38	0.77

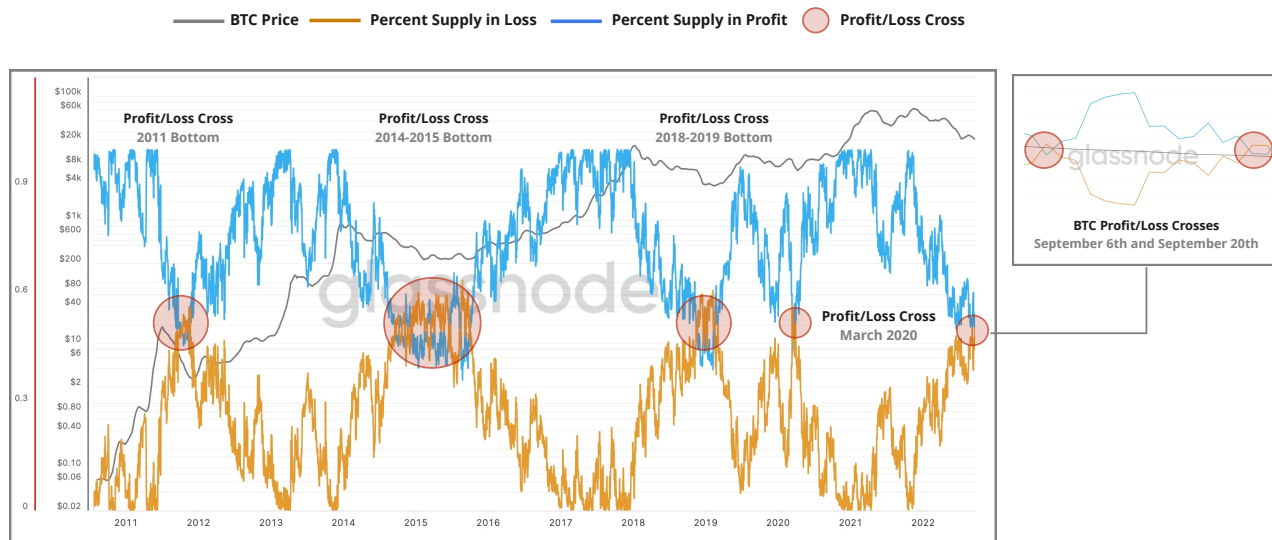
Sources: Glassnode, AlphaVantage

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 September 30th, 2022

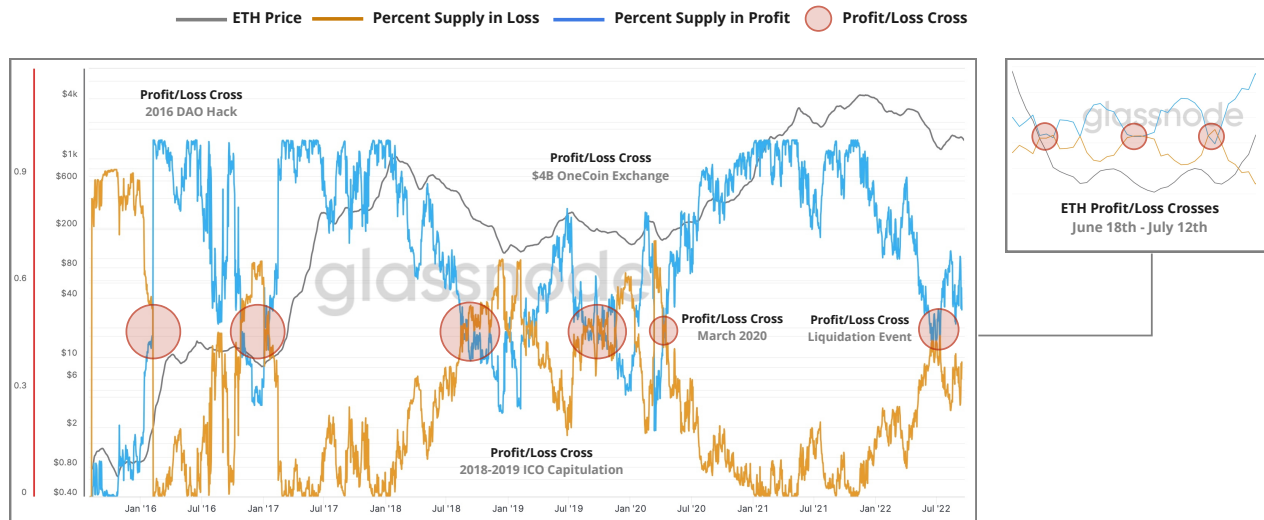
**last 90 days

Bitcoin Percent Supply in Profit/Loss Cross



- In our 1H August Intelligent report, we discussed a historical cycle bottom indicator - the Bitcoin percent supply in profit/loss cross - where the percentage of supply in profit (blue) declines to meet the rising percent of supply at a loss (orange).
- During the June lows in Bitcoin price, the profit/loss confirmation cross (red circle) came within ~0.27% of touching - but **did not cross**. However, on Sept 6th and just recently on September 20th, we have observed an official profit/loss cross. (top right chart)

Ethereum Percent Supply in Profit/Loss Cross



- Ethereum shows historical confluence between profit/loss capitulation signals (red circles) - where the percentage of supply in profit (blue) declines to meet the rising percent of supply at a loss (orange).
- The profit/loss cross aligned with significant selling events including the DAO hack in 2016, the ICO bubble caputlation in 2018, and the multi-billion dollar OneCoin investor scam.
- During June, Ethereum saw a massive liquidation event (3AC and other centralized lending platforms - Voyager and Celsius). Since the summer lows, Ethereum is up 52.78% and has not printed another profit/loss cross.

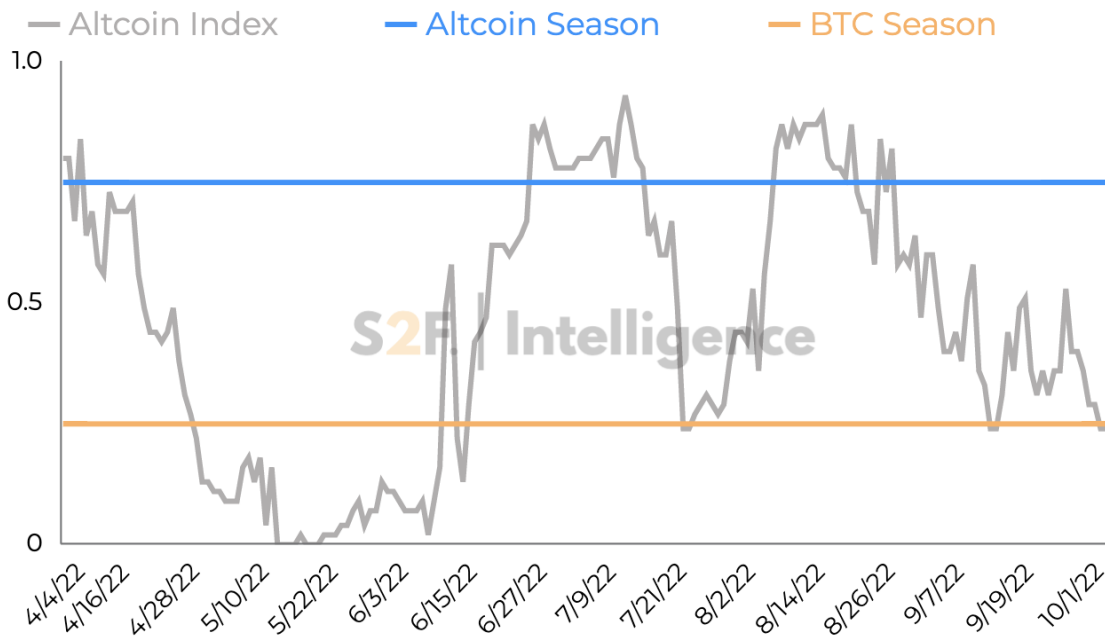
- **Bitcoin remains below the 50d MA (blue)** following the hawkish monetary outlook at September's FOMC.
- While high timeframe support remains near Bitcoin's 2017 ATH, strong selling activity in traditional markets continues to apply downside pressure to risk-on assets.
- We remain cautious of upside momentum until the 50d MA becomes support and critical levels of price structure are reclaimed.



- **The Ethereum price remains well below the 50d MA (blue).**
- ETH outperformance from July to September was primarily driven by the Merge narrative. Since then, the correlation with BTC has remained high, and the price is sensitive to monetary policy and equity market turmoil.

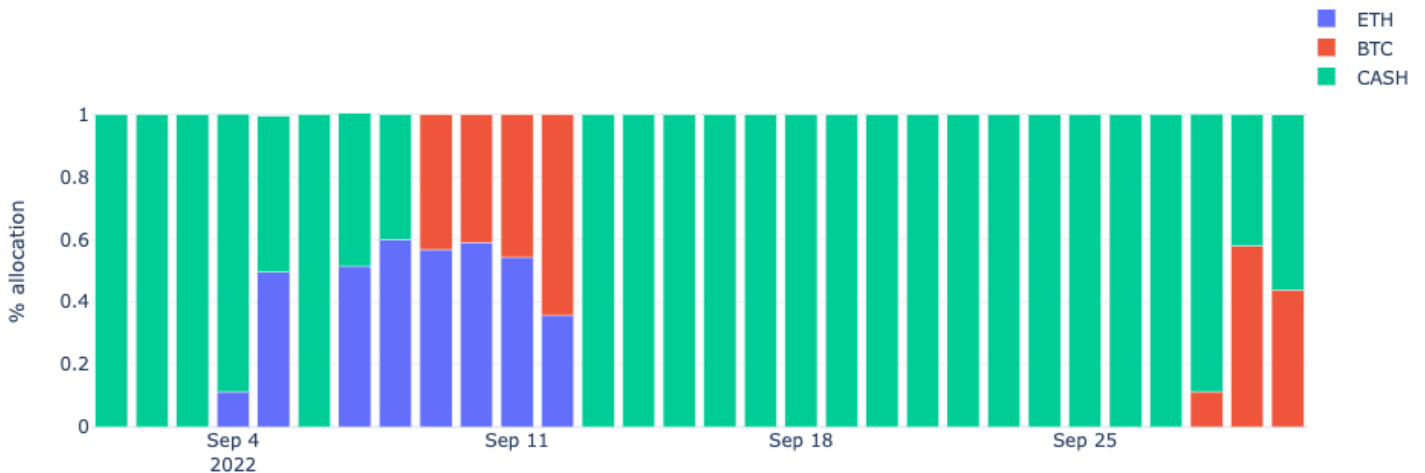


S2F Alt-Season Indicator



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.

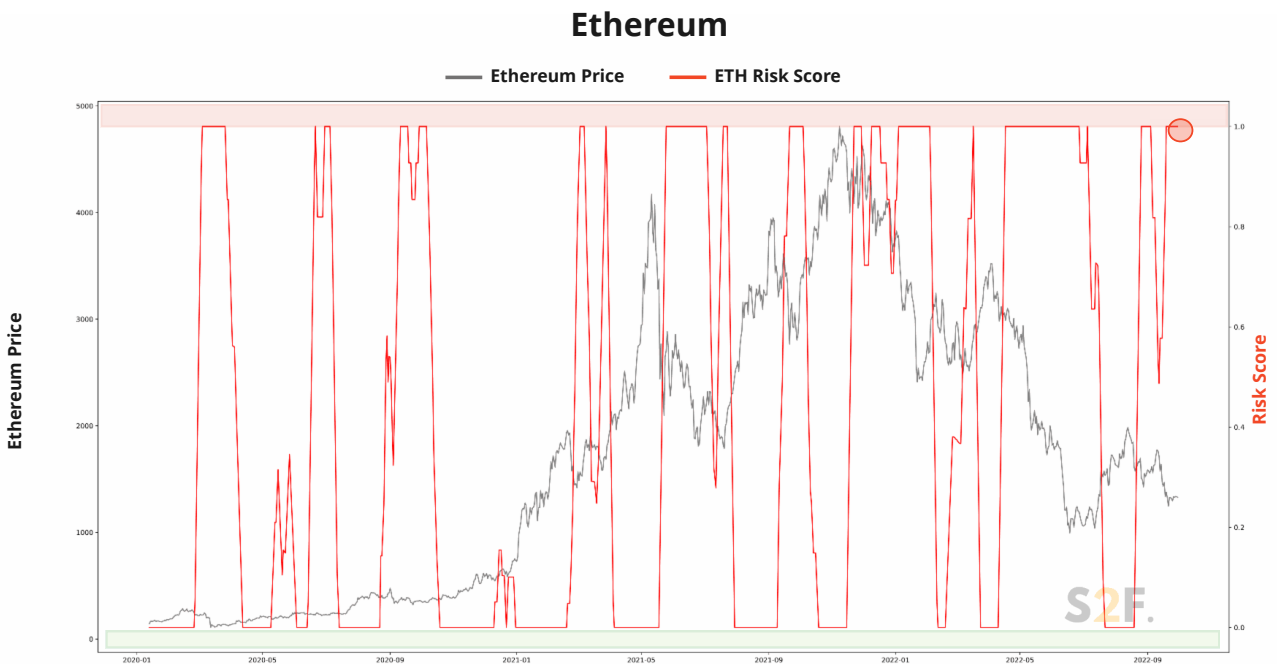
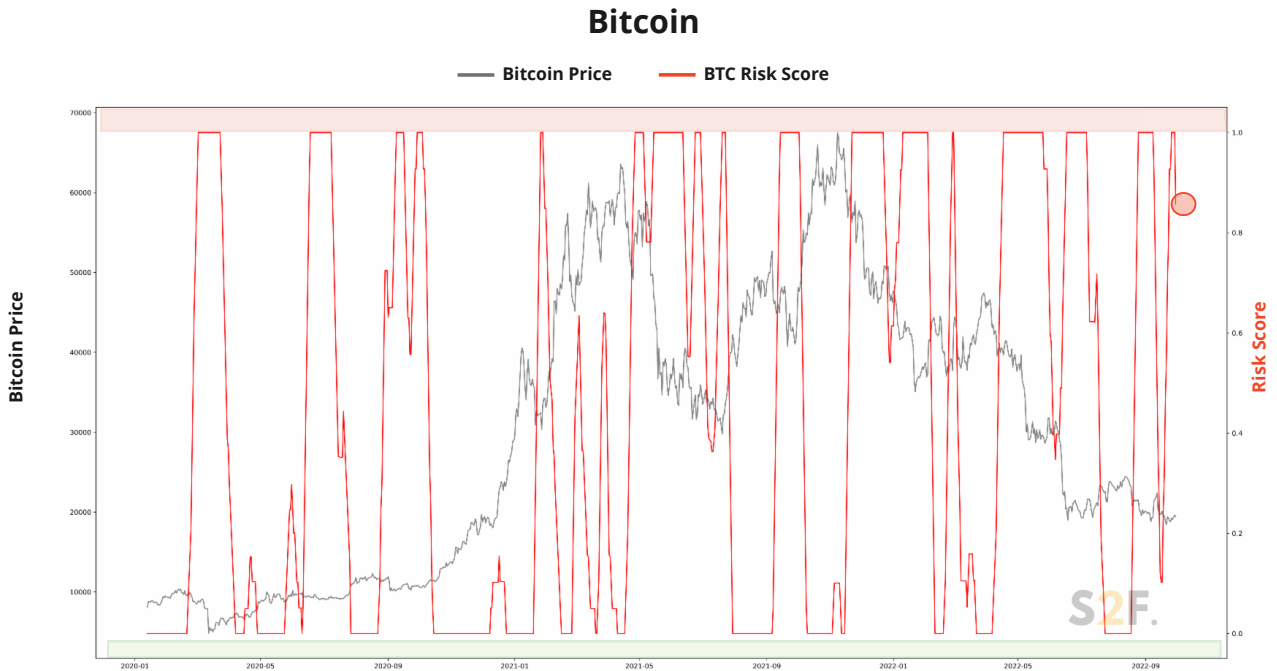
S2F Momentum Model (pMV)



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.

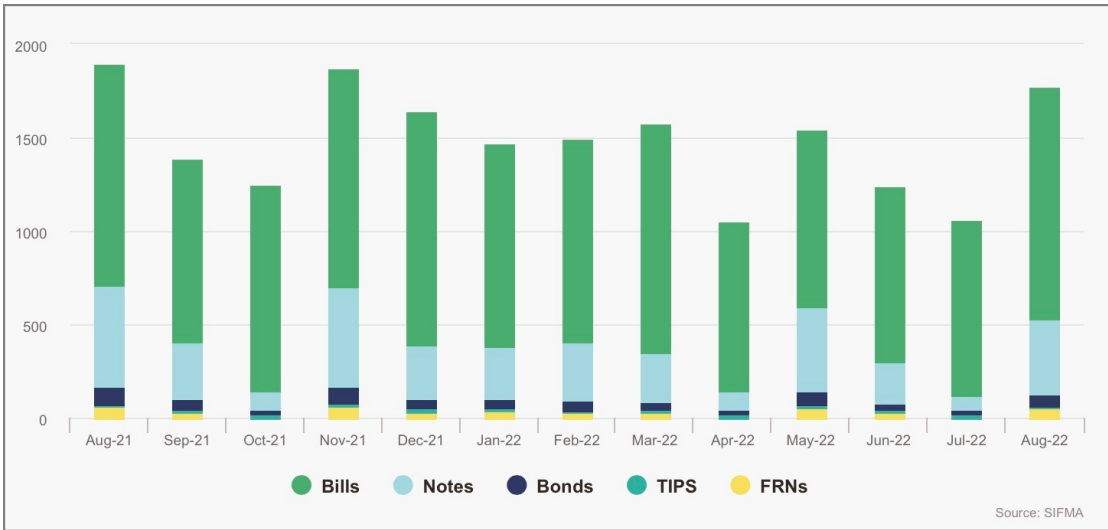


US Treasury Issuance

As market volatility remains elevated, the demand for risk-off investment assets is facing a potential supply shortage - rising interest rates in both short and long-term maturities have led the DXY to recently reach 20-year highs.

Inflation has prompted central banks worldwide to impose more restrictive economic policies, with the Federal Reserve leading the charge resulting in significant turbulence in currency and fixed income markets.

US Treasury Securities Issuance (\$B)



- Issuance (as of August) in US securities: \$11.2 trillion **-16.3% Y/Y**¹
- Trading (as of August) \$633.4 billion in average daily volume, **+2.2% Y/Y**¹
- Outstanding (as of August) \$23.7 trillion, **+8.0% Y/Y**¹

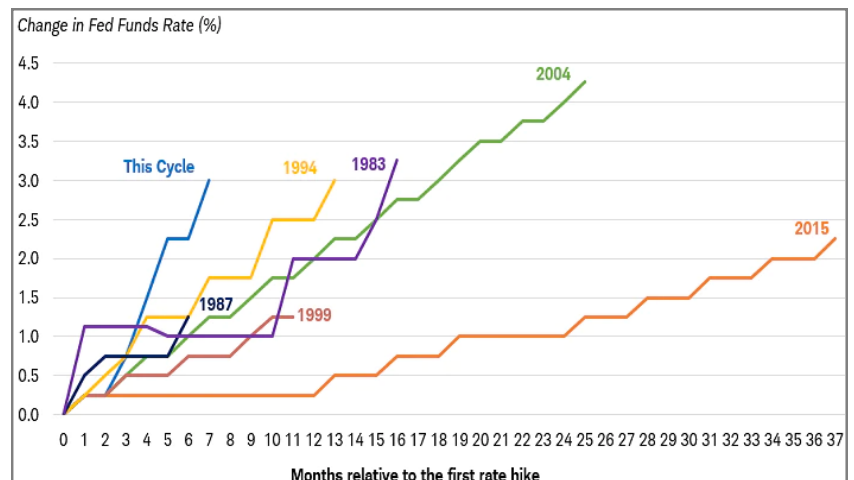
Monetary Policy + Dollar Strength

2022 has seen a historical rate of change in the effective Federal funds rate. Moreover, heavy-handed US fiscal policy and a growing contrast in bond yields denominated in the global reserve currency puts other nations in a difficult position - having potentially adverse consequences.

The IMF has said the dollar's strength would likely slow world trade, given that much of it is invoiced in the currency. Great Britain, the fourth largest economy in the world, recently experienced material risks to its financial sustainability due to the weakness in the GBP.

- Federal funds median rate projection for 2022: 4.4%³
- Federal funds median rate projection for 2023: 4.6%³
- \$USD strength can also impact local businesses, and multinational companies that rely on exports can reduce revenues and compress earnings per share.
- Import inflation pressures foreign nations, leading to eroded incomes - placing an unwanted strain on local currencies.
- Treasury-Inflated Protection Securities (TIPS) are also rising at historical rates - further signaling the constrictive nature of present monetary conditions.

Change In Federal Funds Rate Since Hiking Began



With few signs of a near-term reprieve in global CPI, real rate fixed income assets continue to attract short-term investor demand. When nations' top priority is lowering living costs, a strong dollar adds another layer of complexity to accomplishing these goals.

¹ Sifma, US Treasury Securities Statistics <https://www.sifma.org/resources/research/us-treasury-securities-statistics/>

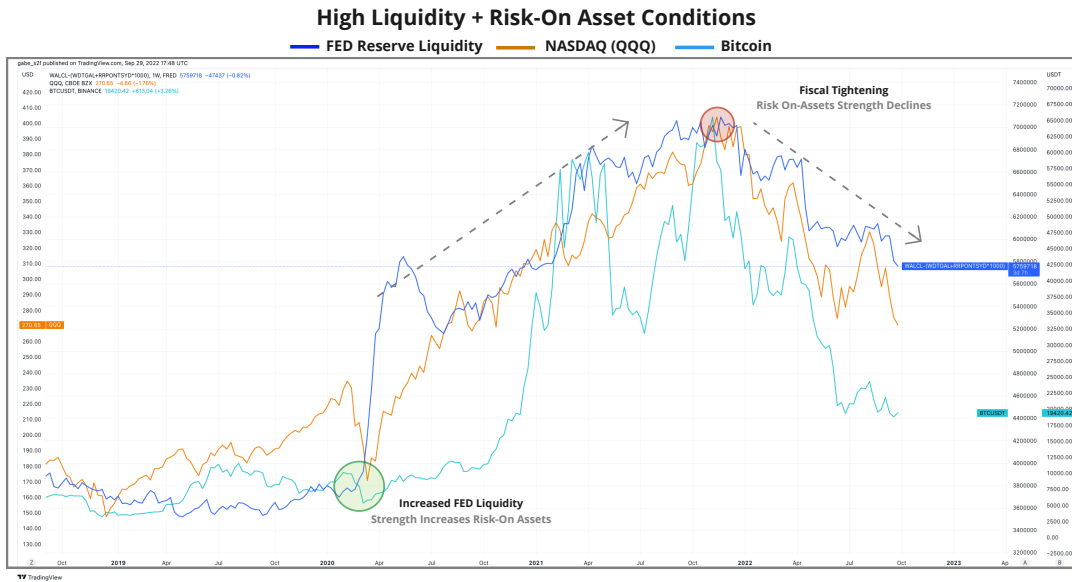
² Yahoo, The surge in the dollar is slowing global trade and worsening debt crises around the world, the IMF warns <https://money.yahoo.com/surge-dollar-slowing-global-trade-152837322.html>

³ FRED Economic Data, FOMC Summary of Economic Projections for the Fed Funds Rate, Median <https://fred.stlouisfed.org/series/FEDTARM0>

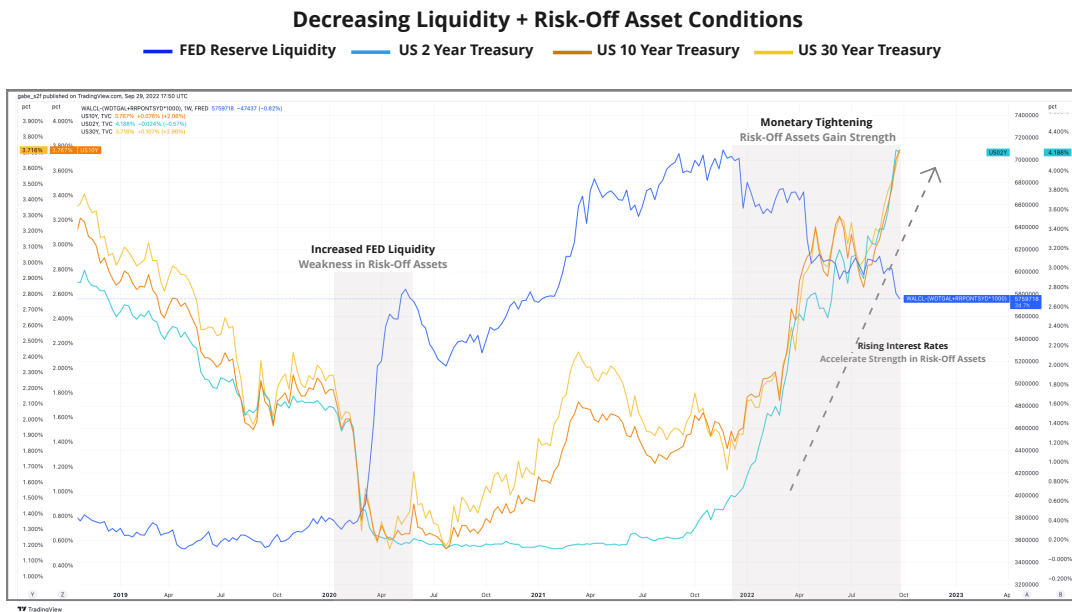
US Federal Reserve Liquidity Constriction

As the rising dollar-denominated yields continue to attract risk-off capital, what impact does the constriction of liquidity at the Federal Reserve have on markets? Let's explore the correlation between high/low liquidity conditions and risk-on/risk-off assets.

Federal Reserve Net Liquidity = Total Fed Balance Sheet Assets - (Liabilities/Capital Liabilities + Overnight REPO agreements)



- As **Federal Reserve Net Liquidity (dark blue)** increases, we can see **QQQ (orange)** and **Bitcoin (light blue)** move in tandem.
- In Q4 2021 -Q1 2022, as monetary policy tightens, risk-on assets begin to follow the downtrend in liquidity conditions.



- As **Federal Reserve Net Liquidity (dark blue)** picks up in Q4 2021, we can see a divergence form in the trend for treasuries - **US2Y (light blue)**, **US10Y (orange)**, and **US30Y (yellow)**.
- In 2022, as hawkish monetary policies led to rising interest rates, another divergence forms between Fed Reserve Net Liquidity decreasing and treasuries increasing.

Bitcoin

- On September 25, the Bitcoin network mining hash rate spiked to a new all-time of 226.633 EH/s based on the 30-day moving average.
- Hashdex Bitcoin Futures ETF receives SEC approval - the Bitcoin Futures ETF became available on NYSE under the ticker symbol "DEFI" on September 16.¹
- According to annualized data in a recent Cambridge Center for Alternative Finance report, Bitcoin miners' emissions are estimated to be 14.1% lower this year than in 2021.
- According to a recent filing with the SEC, Fidelity's Wise Origin Bitcoin index fund has purchased \$62.84 million worth of Bitcoin.²

Ethereum

- Infura, the default RPC for Ethereum's popular desktop wallet MetaMask, announces plans to decentralize its hosting network by incentivizing hardware infrastructure to secure the network.
- Grayscale plans to distribute profits from selling ETHW (PoW) fork tokens to ETHE trust and GLDC shareholders.
- Reserve Bank of Australia - CBDC eAUD deployed on permission implementation of ETH.
- Chipotle, partnered with Flexa, announced their "Proof of Steak" promotion - offering customers 99.95% off their orders when they pay with ETH in honor of the 99.95% energy reduction following the merge.
- Robinhood launches the beta version of its Web3 wallet on iOS - the application will first be hosted on Ethereum's side chain, Polygon - allowing users to trade and swap cryptocurrencies with no network fees.

Layer 1's

- The Helium hotspot blockchain, which enables users to own and operate a wireless network for low-power devices, announced its migration to the Solana blockchain.
- Cardano (ADA) completed the Vasil protocol upgrade - the hard fork is designed to help improve the ecosystem's scalability and general transaction throughput capacity.
- Algorand (ALGO) becomes the first blockchain to offer post-quantum security using state-proofs on its network.
- FIFA announces plans to launch an NFT marketplace built on Algorand - the partnership with FIFA will feature soccer-themed digital collectibles in anticipation of the upcoming 2022 World Cup.³

Other Headlines

- Charles Schwab, Fidelity, and Citadel Securities announce plans to launch a digital asset exchange delivering "safer, faster and more efficient cryptocurrency trading."⁴
- The second-largest U.S. stock market operator, Nasdaq, is starting a cryptocurrency custody service to meet market demand from institutional crypto investors.
- FV Bank adopts Circle's stablecoin, USDC, on its platform as an acceptance, processing, and settlement method.
- SWIFT announces partnership with blockchain oracle Chainlink to allow for cross-border payments - enabling the communication of SWIFT messages to instruct on-chain token transfers across the digital asset ecosystem.

¹ Finbold, Bitcoin mining hash rate reaches a record as shift to renewables accelerates <https://www.theblock.co/post/168621/white-house-report-proposes-possible-restrictions-on-proof-of-work-crypto-mining>

² Bloomberg, Bitcoin Mining Emissions Drop as Slump Spurs Rush to More Efficient Rigs <https://www.bloomberg.com/news/articles/2022-09-27/bitcoin-mining-emissions-drop-as-slump-spurs-rush-to-more-efficient-rigs?leadSource=verify%20wall>

³ Decrypt, FIFA Launches NFT Platform on Algorand in Run-Up to World Cup <https://decrypt.co/108894/fifa-launches-nft-platform-algorand-world-cup>

⁴ Wall Street Journal, Fidelity, Schwab, Citadel Securities Plan to Launch New Crypto Exchange <https://www.wsj.com/livecoverage/stock-market-news-today-09-13-2022/card/citadel-securities-fidelity-schwab-back-new-crypto-exchange-wiQjfsTo4g9UrdhyfBTz>

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).

Block Proposer: Post-merge, Ethereum stakers, or validator nodes will function as block proposers who propose blocks for inclusion in the blockchain. This is a part of the normal ETH staking process and is the last step before the next block is confirmed.

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

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.

Hard Fork: A hard fork is a radical change to a network's protocol that makes previously invalid blocks and transactions valid, or vice-versa. A hard fork requires all nodes or users to upgrade to the latest version of the protocol software - if users prefer to utilize the blockchain without protocol upgrades, a chain split can occur.

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.

Mempool: Short for (memory pool) is a smaller database of unconfirmed or pending transactions which every node keeps. When a transaction is confirmed by being included in a block, it is removed from the mempool.

Modular Network Scaling: The separation of a blockchain's functions - consensus, data availability, and execution takes place on separate network layers instead of executing all tasks on one base layer. This design approach allows for network scaling without sacrificing decentralization or security.

Slashing: Slashing occurs when the Ethereum network confiscates some or all of a validator's staked ETH for proposing or confirming fraudulent blocks. Validators stake ETH in the first place so that the network can confiscate the tokens if a validator acts maliciously towards the network.

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.

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.

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