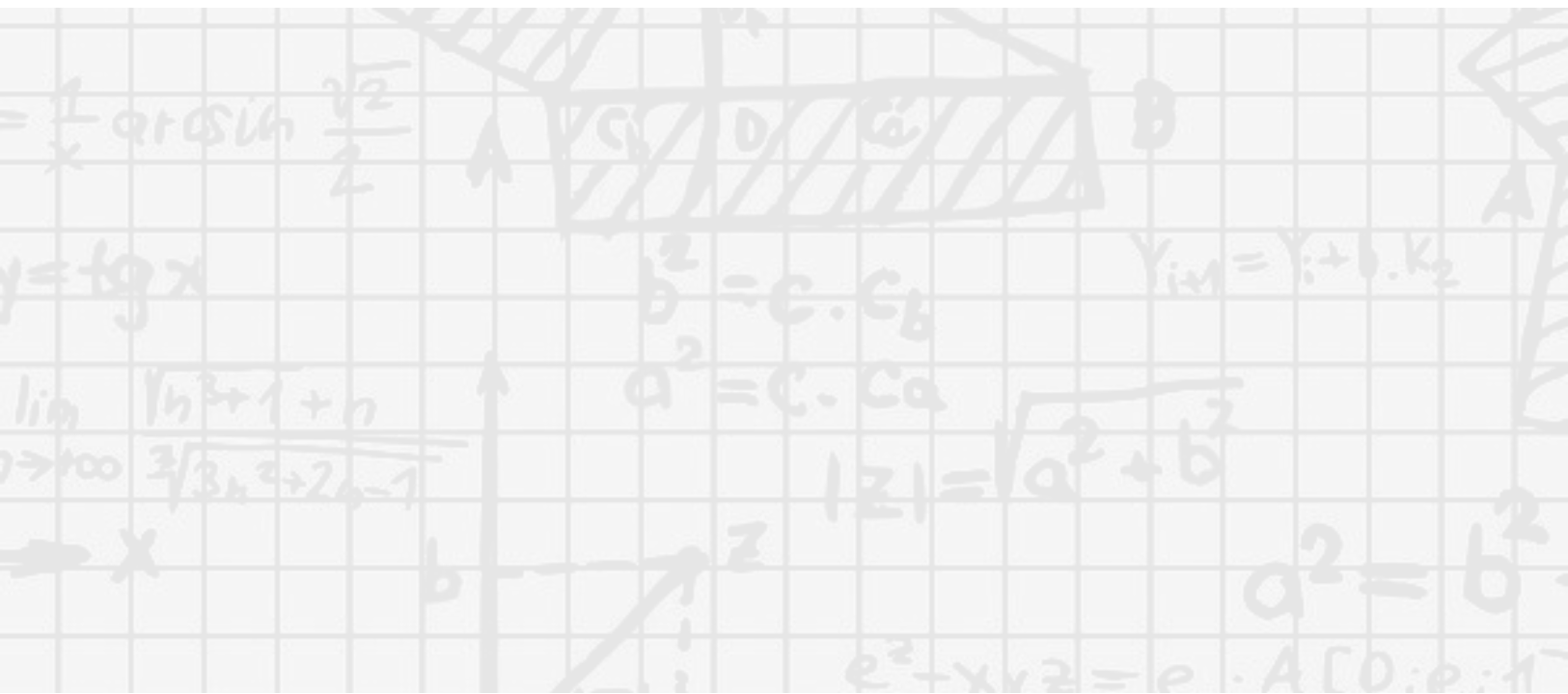S2F. | Intelligence

Digital Asset Markets Report

1H August 2022

Summary

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 indexes continue their recovery in August but remain -10.4% and -6.5% YTD. Driven by risk-off conditions, the NASDAQ index has outperformed to the downside -17.4% on the year. Markets reacted positively to lower-than-expected July CPI data (8.5% vs. 9.1% in June), which fell below economists' expectations of 8.7%.
- The recent Fed minutes projected a peak policy rate of around 3.4%. They suggested July economic data showed a slowing in aggregate demand - this softening of the economy could be beneficial in reducing inflation. As a result of recent Fed and CPI data, markets are now estimating a 69% likelihood of a 50 bps hike with a 31% chance of another 75 bps hike at the next FOMC meeting in September.
- U.S. Consumer Sentiment beat analyst's expectations (55.1 vs. 52.5) while University of Michigan 1-year inflation expectations also fell below expectations (5.0 below 5.1) which have complimented favorable economic data.
- The total market cap for digital assets has recovered to just above $1.15 trillion after falling to yearly lows of $800 billion. Ethereum has risen 16.6% in August after declining by ~76% at its lows in June; ETH remains -49.5% YTD.

Macro Performance

- The outlook for a potentially more dovish Fed monetary policy has elevated the Euro back to $1.02.
- Since establishing a lower high in June ($123/barrel), U.S. crude oil continues to decline and is now trading at $88.45.
- Gold remains in negative territory -4.27% YTD.
- Rising energy costs continue to pressure Europe as the cost for natural gas in Germany has risen by more than 200% YoY.
- Despite recent economic data, concerns regarding the inverted yield curve remain US2Y (3.25%) and US10Y (2.88%).
- According to realtor.com, the number of active listings nationwide for homes has increased by 31% (YoY).

On-Chain Analysis

- **Bitcoin Bottom Confirmation Cross :** Bitcoin has confirmed a bear market bottom cross during 2012, 2015, 2018, and the 2020 cycle bottom - the % in loss/profit has not crossed or touched on the current cycle but came within ~0.27% in June.

- **ETH MVRV Multiples:** The ETH MVRV (market value divided by realized value) indicator came close to reaching oversold levels before recovering to its equilibrium level. Whether this level serves as resistance or support could determine price action's ability to test higher towards the MVRV momentum region as the highly anticipated PoS merge approaches.

Technical Levels

- **Bitcoin**: Selling volume increased as BTC fell below the 50d moving average, potentially resulting in a sweep of the $20-22k range. While the recent relief rally has been a positive sign for a macro bottom, we remain wary of bear market rallies.

- **Ethereum**: Ethereum reclaimed the 50d MA but was unable to sustain support above $2k - while network fundamentals signal strength leading into the merge, traditional market headwinds are preventing ETH from challenging its 200d MA.

Momentum & Sentiment

- **pMV momentum model**: Recently rebalanced from a heavier weighted ETH allocation to entirely cash.
- **Alt-season indicator**: The indicator is currently signaling that market momentum favors altcoins.
- **Delta risk**: The indicator managed to get to the lowest risk level for both BTC and ETH - this signals that statistically, this is likely a good time to buy.

Money Flows & Themes

- **Miner Extractable Value (MEV):** Arbitrage bots or "MEV searchers" have generated more than $672 million+ since Jan 2020 - the systematic process involves Searchers, Block Builders, and Block Proposers. Post-merge, the role of block proposers will transition from miners to validators - MEV, along with transaction fees, will aid in boosting staking APY while the annual issuance in ETH's circulating supply reduces by 90%.

- **EIP 1559 Impact + Protocol Revenue:** EIP 1559 was an upgrade to improve the Ethereum network's fee model, which introduced the Basefee - the minimum fee (gwei) required for a t/x to be included in an ETH block. The burning mechanism of this basefee creates a feedback loop where more ETH are burned during periods of high transaction activity resulting in significant protocol revenue generated for the network.
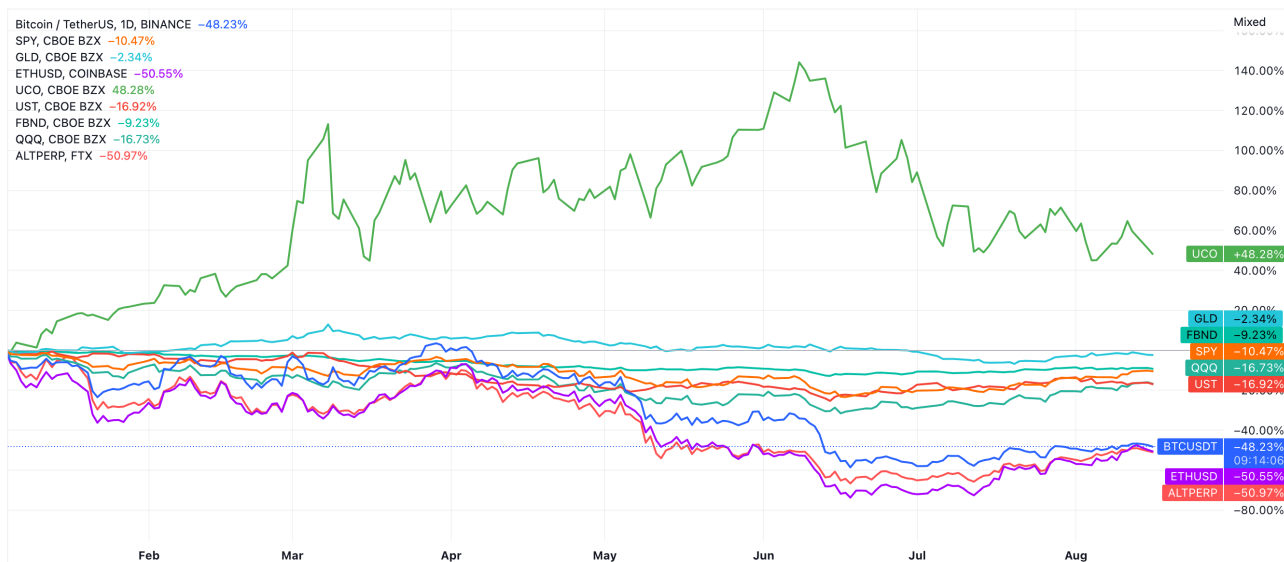
Notable News

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

2022 Asset Returns

Bitcoin / TetherUS, 1D, BINANCE −48.23%
SPY, CBOE BZX −10.47%
GLD, CBOE BZX −2.34%
ETHUSD, COINBASE −50.55%
UCO, CBOE BZX 48.28%
UST, CBOE BZX −16.92%
FBND, CBOE BZX −9.23%
QQQ, CBOE BZX −16.73%
ALTPERP, FTX −50.97%

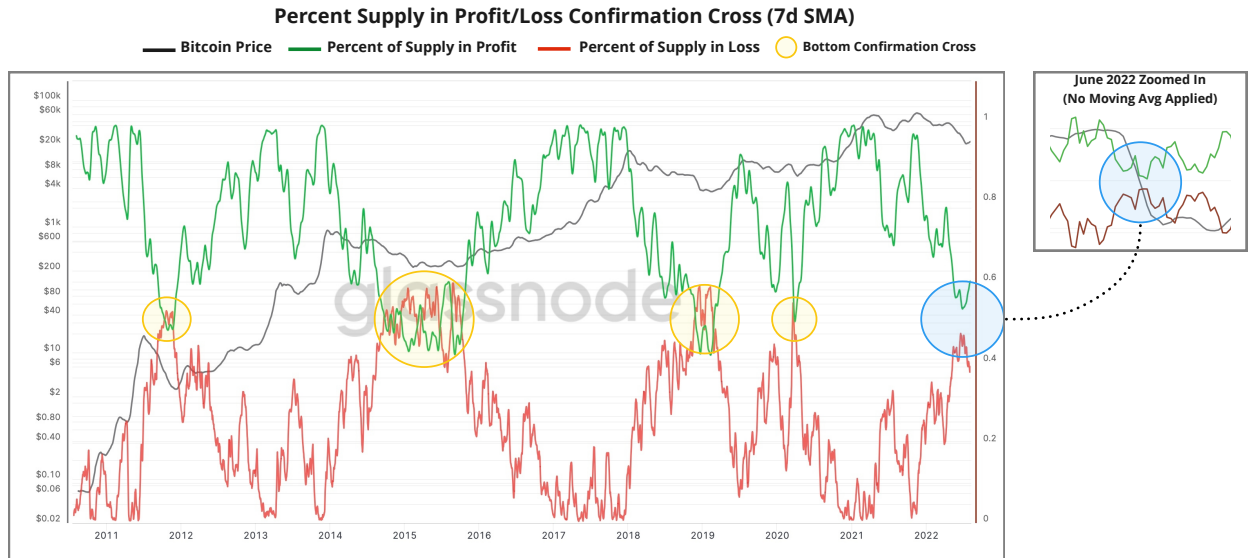| Asset	MtD*	QtD	YtD	Volatility (annualized)*	Sharpe (annualized)*	Correlation (to Bitcoin)**
Bitcoin	3.6%	24.9%	-48.2%	68%	-1.34	1.0
Ethereum	16.6%	79.2%	-50.5%	90%	-0.76	0.84
Altcoin Index	9.8%	42.1%	-50.97%	80%	-1.15	0.86
SPY	4.4%	12.5%	-10.5%	24%	-0.63	0.51
QQQ	5.7%	15.7%	-16.7%	31%	-0.63	0.30
GLD	0.4%	-1.6%	-2.3%	15%	-0.16	0.59
UCO	-5.4%	-20.1%	48.3%	83%	1.27	0.53
FBND	-0.3%	2.3%	-9.2%	7%	-1.90	0.45
UST	-3.1%	1.2%	-16.9%	19%	-1.59	0.19

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
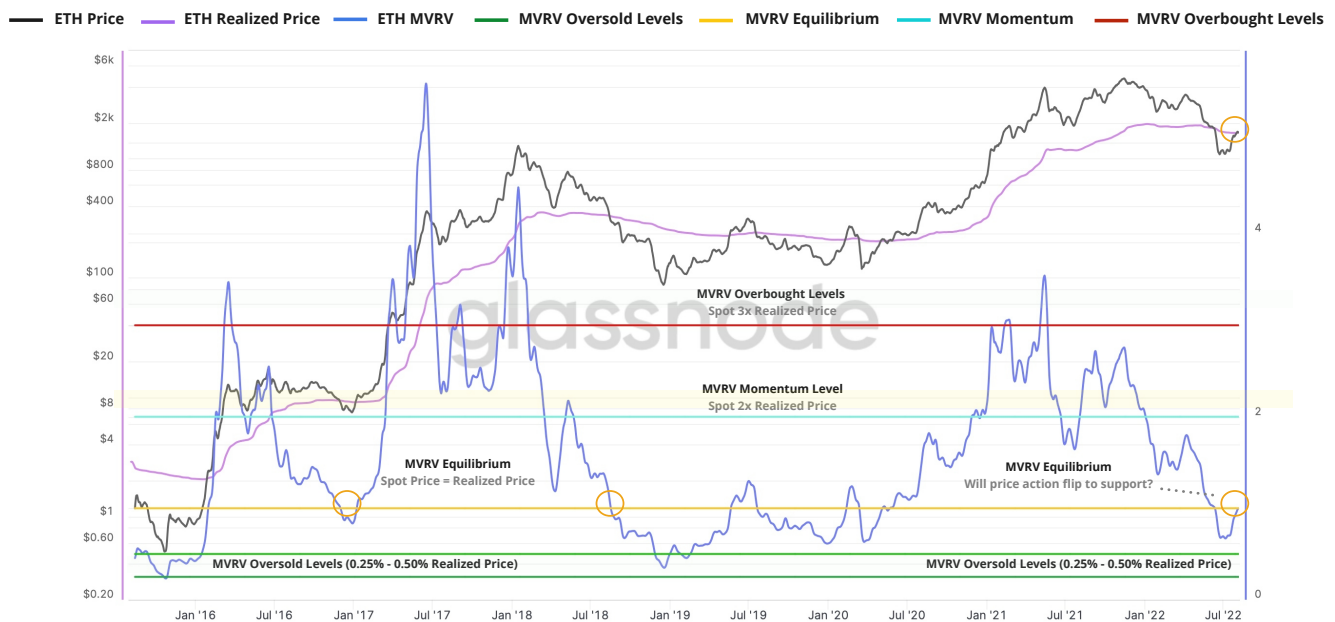*as of August 15th, 2022
**last 90 days

Historically, Bitcoin cycle bottoms have correlated with a confirmation cross (yellow) where the **percentage of supply in profit drops to meet the rising % of supply at a loss.**

Percent Supply in Profit/Loss Confirmation Cross (7d SMA)

— Bitcoin Price — Percent of Supply in Profit — Percent of Supply in Loss ◯ Bottom Confirmation Cross

June 2022 Zoomed In
(No Moving Avg Applied)

- The chart above applies a 7d moving average to these indicators and shows that the confirmation cross occurred during 2012, 2015, 2018, and 2020 cycle bottoms. The percentage of supply in profit/loss has not crossed or touched yet in the current cycle.

- When we remove the moving averages and zoom in on the **potential June 2022 bottom** (blue circle) - we see the percentage of supply in profit and loss came within ~0.27% of touching - but did not touch. (*see chart on the upper right*)

Ethereum MVRV Multples

— ETH Price — ETH Realized Price — ETH MVRV — MVRV Oversold Levels — MVRV Equilibrium — MVRV Momentum — MVRV Overbought Levels

- ETH MVRV (blue) is calculated by dividing the current spot price of ETH (gray) by realized price of ETH (purple).

- When we observe ETH MVRV enter oversold territory (green) - the spot price of ETH is trading at 25-50% of the average on-chain cost basis. MVRV equilibrium level (yellow) occurs at 1.0 level when spot price = realized price - it can serve as resistance/support.

- The MVRV momentum level (teal) occurs when spot price is trading 2x the realized price - this level can potentially signal macro trend reversals or continuation. MVRV overbought territory (red) occurs when spots price is trading 3x the realized price.
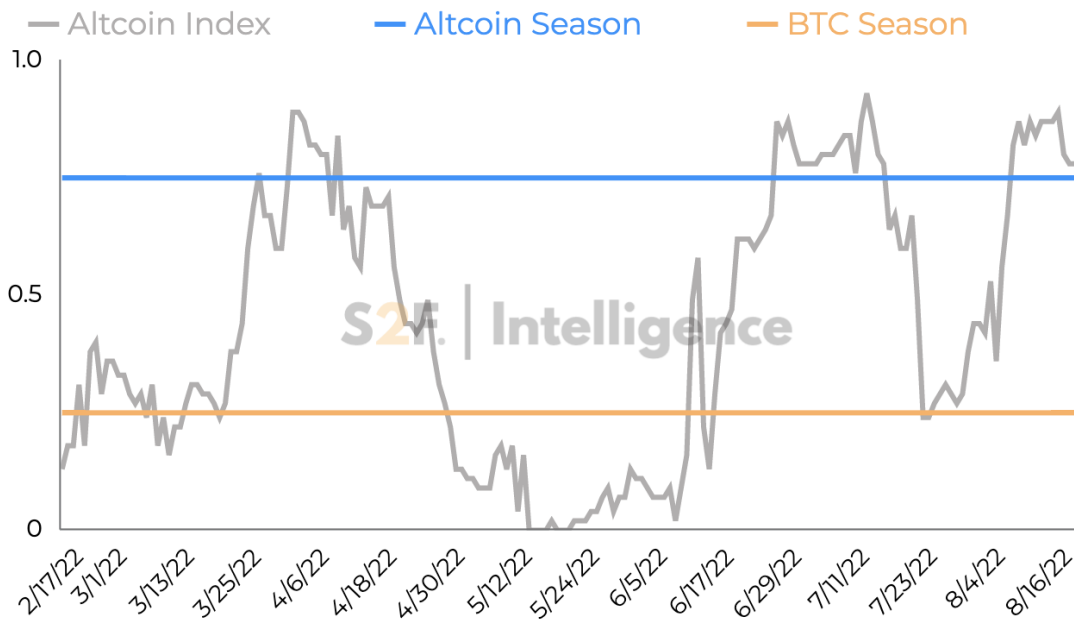
Technical Levels

- **After closing July in the green, Bitcoin has since lost the 50d MA (blue).**

- Price is currently testing the lower bounds of support around the $20-22k level.

- Bitcoin tapped the $25k level and was swiftly rejected. While markets have been experiencing a relief rally following months of downside, we remain cautious as Federal policy and economic activity will continue to impact most asset classes.

Bitcoin / U.S. Dollar, 1D, COINBASE   O23188.94 H23206.76 L21264.06 C21514.11 −1675.35 (−7.22%)
Vol 24.239K
MA (50, close, 0) 22249.15
MA (200, close, 0) 32548.80
VRVP (Number Of Rows, 300, Up/Down, 70) 13.68K 11.959K 25.639K

- **Ethereum has recovered at a faster rate than Bitcoin before its rejection at pre-Luna/UST liquidation levels.**

- Risk-off environments continue to apply downside pressure as the asset attempts to establish support above the **50d MA (blue)**

- ETH's structural challenge remains the **200d MA (gold)** at **$2.25k** despite merge hype taking full effect across the space.

Ethereum / U.S. Dollar, 1D, COINBASE   O1846.15 H1848.29 L1675.00 C1698.11 −147.79 (−8.01%)
Vol 376.061K
MA (50, close, 0) 1519.73
MA (200, close, 0) 2237.64
VRVP (Number Of Rows, 300, Up/Down, 70) 182.527K 193.469K 375.997K

Momentum & Sentiment

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 above the **blue line**, it generally signals strong momentum favoring Bitcoin vs. Altcoins.

S2F Momentum Model (pMV)
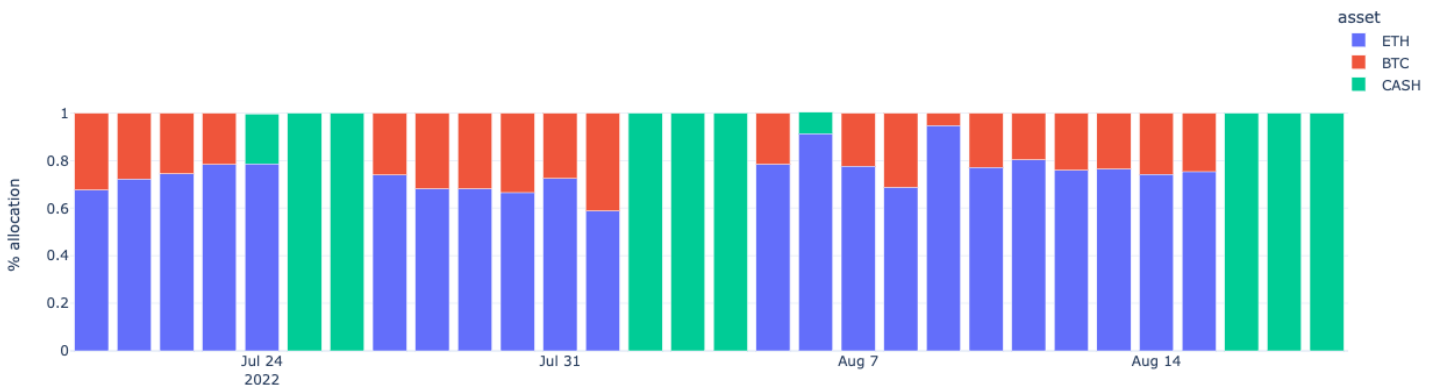
The S2F Momentum Model is a proprietary model that **compares the price momentum of BTC vs. ETH vs. USD** over a rolling window to suggest an optimal allocation of capital to each of these three assets. The entry and exit signals rely on two momentum indicators, one slow and one fast, to help determine 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
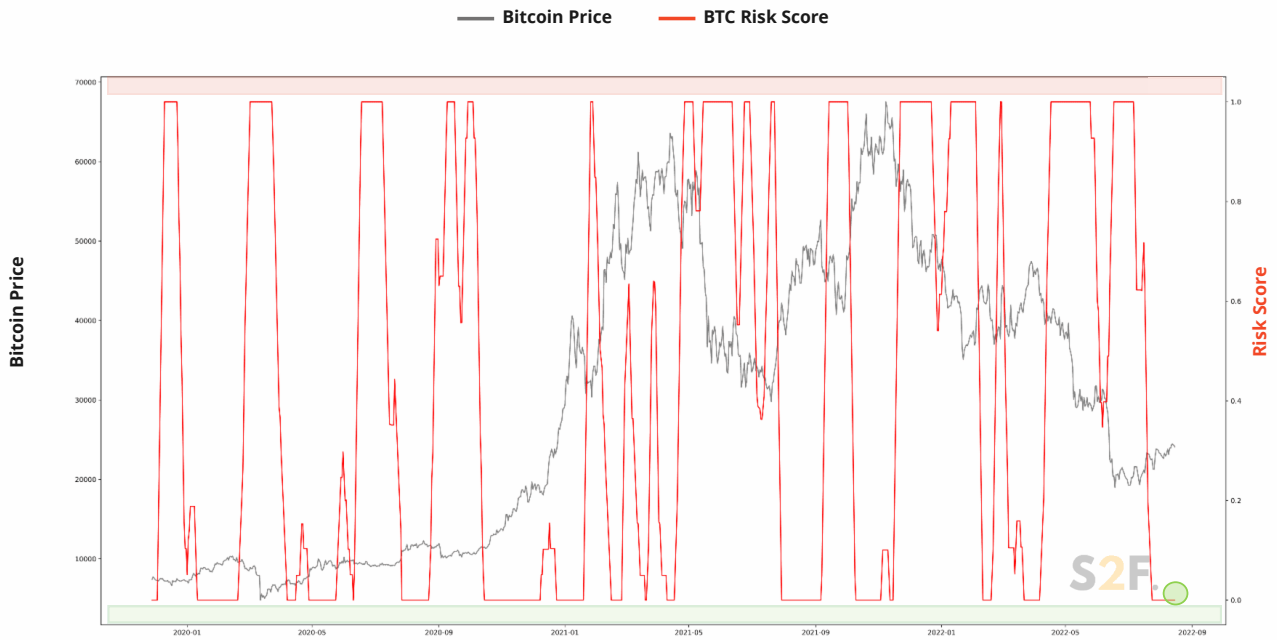
Ethereum
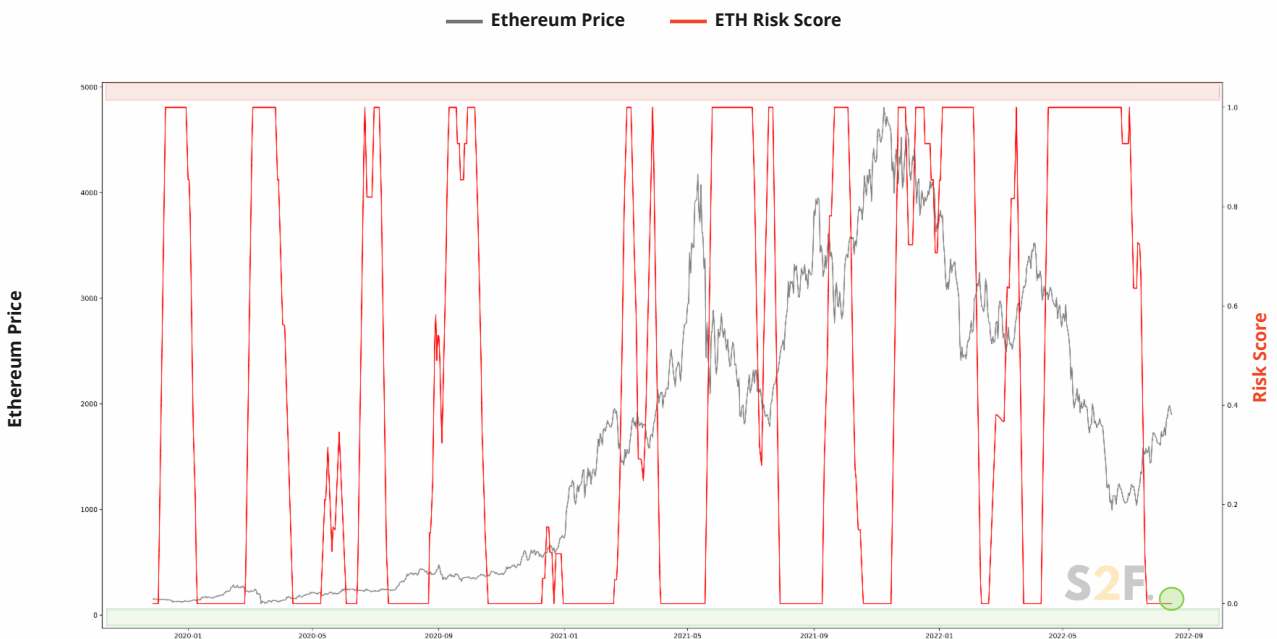
Miner Extractable Value (MEV)

When users complete a trade on Uniswap or purchase an NFT on OpenSea, their transactions can impact asset listings across the broader ETH markets. As a result, the slightest shift in asset prices can result in market inefficiencies that become MEV bots' opportunities. These arbitrage bots or MEV searchers have generated more than **$672 million+** since Jan 2020.[1]

Cumulative Extracted MEV - Gross Profit

$672,917,881
Total Extracted MEV

$8,656,550
Last 30 days Extracted MEV

$145k
Last 24h Extracted MEV

Cumulative Extracted MEV - Gross Profit
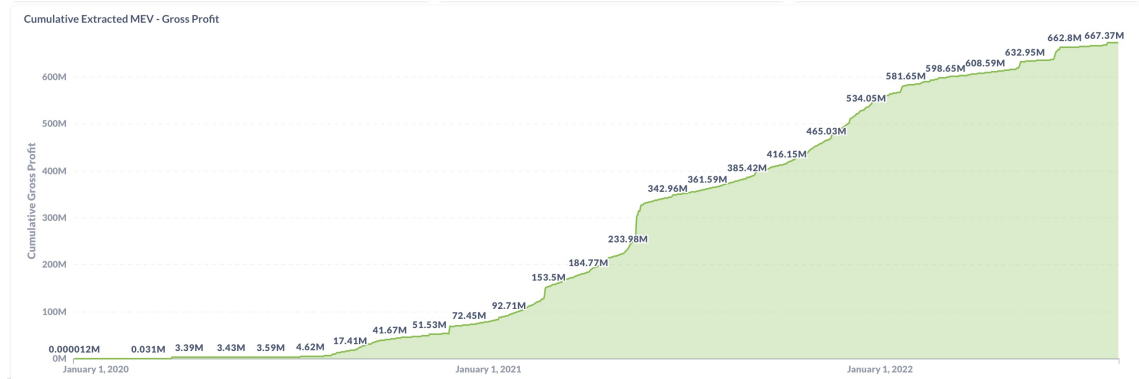
- Under extreme network conditions, arbitrage bots help stabilize markets by harvesting arbitrage opportunities. MEV seekers are akin to high-frequency traders in traditional markets - they play a valuable role in creating more efficient markets. How does it work?

MEV Searchers + Block Bundling + Block Proposers

- Transactions on Ethereum either include a priority fee (premium to include transactions in the block) or may contain implied MEV value. **MEV searchers** identify these opportunities.

- MEV algorithms begin bundling blocks once they identify an efficiency - aiming to compile the desired set of transactions necessary to capitalize on the arbitrage opportunity. The order and inclusion of specific transactions within the block are required to capture MEV - once optimized, they forward the bundle with an enticing bid to a block builder.[2]

- Once a **Block builder** receives the constructed bundle from an MEV searcher, they begin a transaction simulation process. A builder risks forfeiting the priority fee from the MEV searcher if it includes conflicting transactions within a bundle. By simulating all potential t/x outcomes, the builder ensures the block produced will be accepted. The builder then forwards the final product with an additional bid to incentivize the **block proposer** to include their block.

- Post-merge, the responsibility of proposing blocks will transition from miners to validators. As a result, MEV and network transaction fees will aid in boosting staking APY while the annual issuance in ETH's circulating supply reduces by 90%.


(Pre-Merge)

Block Builders + Block Proposers — **Proof of Work Miners** — **Current ETH PoW Blockchain**

(MEV Opportunities)

(Post-Merge)

Block Builders + Block Proposers — **Proof of Stake Validators (32 ETH)** — **ETH PoS Blockchain**

(MEV Opportunities)
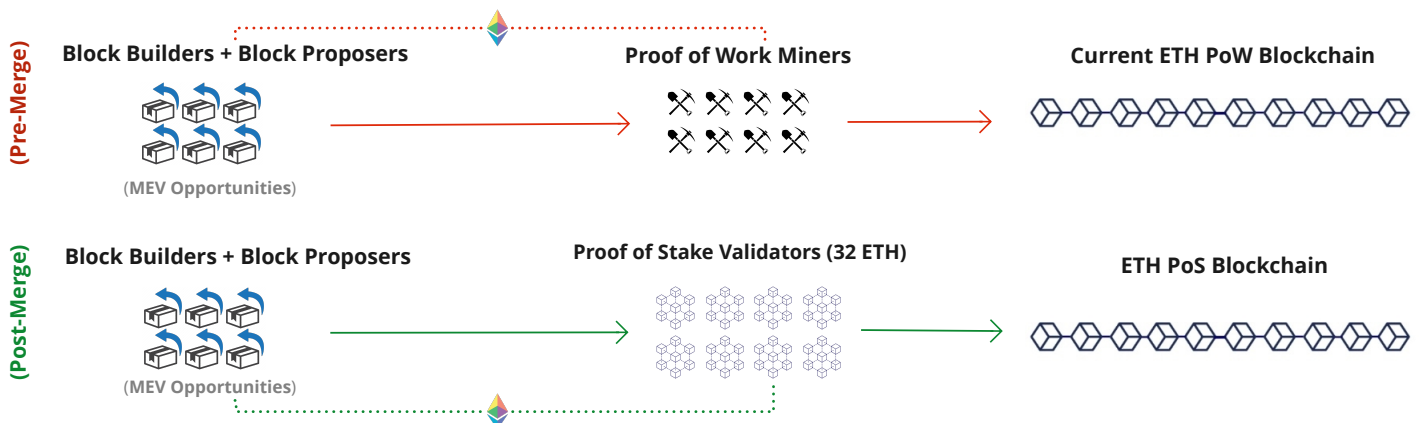
1   MEV-Explore v1 , MEV Over Time https://explore.flashbots.net
2   BANKLESS , The Ethereum Watershed https://newsletter.banklesshq.com/p/the-ethereum-watershedutm_source=substack&utm_medium=email&utm_content=share

Money Flows & Themes

EIP 1559 Impact + Introduction of Basefee

- EIP 1559 was an upgrade to improve Ethereum's fee model. Before 1559, users bid for blockspace using a first-price auction model - incentivizing miners to prioritize maximum profits and resulting in higher transaction fees.

- To improve these inefficiencies, 1559 introduced the Basefee[1]- a minimum fee (gwei) required for a t/x to be included in a block - this figure resets every block depending on how congested the ETH network is.

- As a result, the upgrade reduced delays in transaction confirmation and automated fee bidding which has led to more predictable gas prices (see chart).

- EIP 1559 also introduced the Mining Tip feature - users could pay a higher gas fee in addition to the basefee to prioritize their t/x in the next network block. Miners receive block rewards and mining tips and can extract MEV but to prevent miner collusion, the basefee mechanism.
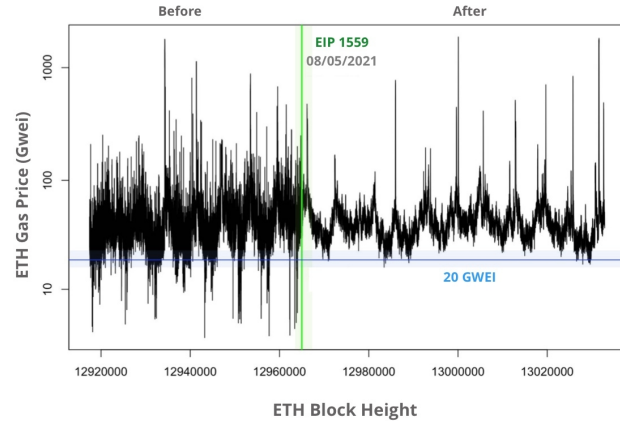
Post EIP 1559 we see a significant decline in network gas fee volatility.
While there are still spikes during high network activity, the rate of change is smoother.

Burn Mechanism + Deflationary Base Fee

- The burning mechanism creates a feedback loop where more ETH are burned during periods of high network activity - EIP 1559 has burned almost 2.6 million ETH ($4.9 billion value), directly impacting token supply. [2]

- Burning the base fee rewards ETH holders by making ETH more scarce - when block rewards + miner tips < basefee burned it can create deflationary conditions.

- There are currently 415,456 active ETH 2.0 validators so the ETH basefee threshold for ETH to be net deflationary post-merge ~15.40 GWEI.
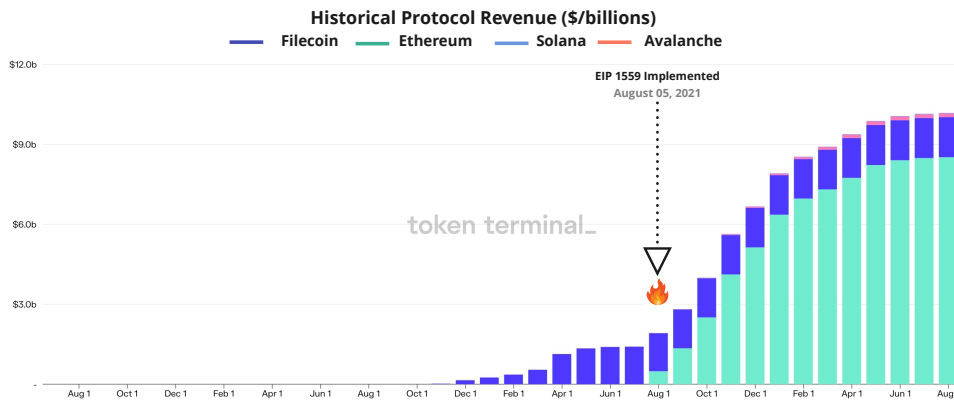
Ethereum Base Fee

😐 Low	🙂 Average	🙂 High
12 gwei	13 gwei	14 gwei
Base: 11 | Priority: 1	Base: 11 | Priority: 2	Base: 11 | Priority: 3
$0.47 | ~ 10 mins: 0 secs	$0.51 | ~ 3 mins: 0 secs	$0.55 | ~ 30 secs
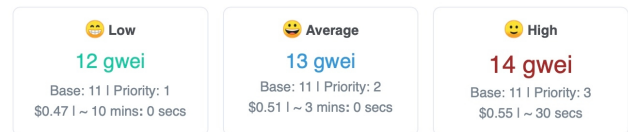
Ethereum Deflationary Threshold Calculation

$$\sqrt{\text{Active Validators (Beacon Chain)}} \times 0.0239$$

Protocol Revenue & Economic Sustainability

Historical Protocol Revenue ($/billions)

- Protocol revenue is the share of fees that goes to the protocol's treasury or directly to its token holders through, e.g., a burn mechanism.[3] The burning mechanism is similar to a stock buyback because it decreases the number of tokens in circulation. As user adoption grows, demand for Ethereum blockspace increases.

- Blockspace demand from users determines the economic sustainability of a network - if it remains constant or growing, the network won't need to inflate token supply. Demand allows Ethereum to reduce its annual issuance rate so dramatically.

- Protocols that rely on token issuance incentives must generate protocol revenue - **unlimited issuance of tokens is not an economically sustainable model.** If a protocol cannot generate revenue that exceeds its inflation rate, which encourages users to provide security, it will struggle to reduce its inflation rate.

1 GitHub , EIP/eip-1559 https://github.com/ethereum/EIPs/blob/master/EIPS/eip-1559.md
2 Ultra Sound Money , Burn Total https://ultrasound.money
3 Token Terminal , Methodology: Protocol Revenue https://tokenterminal.com/terminal/metrics/protocol-revenue

Notable News

Bitcoin

- After 33 years, co-founder Michael Saylor steps down as CEO at MicroStrategy and will serve as executive chairman. Saylor will continue to oversee MicroStrategy's Bitcoin acquisition strategy [1] - the company currently holds more than 129,699 Bitcoin, which was acquired for almost $4 billion.
- BlackRock announced its plan to launch a spot bitcoin private trust for US institutional clients - the trust aims to track the performance of Bitcoin.
- Coinbase partners with BlackRock to offer institutional clients of its Aladdin investment-management system access to Bitcoin.
- Bitcoin's layer 2 scaling solution Lightning Network reaches a new all-time high with 4,351 BTC locked in the network surpassing $100 million.

Ethereum

- Coinbase Prime announced it would offer Ethereum staking for institutional clients - the product provides a staking on-ramp for U.S. domestic clients.
- The third and final ETH merge on the Goerli testnet was successful - reaching finalization on the PoS network.
- Developers on the Consensus layer call announced the TTD (total terminal difficulty) for the mainnet merge. The block height specifies the network's target block, which will officially end the Ethereum PoW chain and is estimated to occur next month on September 15th - 16th.
- Prominent Ethereum miner Chandler Guo discusses support for ETHW - the proposed native token for the Ethereum PoW chain - a possible new hard forked chain secured by PoW post-merge.[2]
- Crypto exchanges Poloniex and Huobi Global announce support for the ETHW token hard fork post-merge, and derivatives platform Bitmex launches its ETHW futures contract.
- The Office of Foreign Assets Control ("OFAC") of the U.S. Department of the Treasury sanctioned Tornado Cash citing the platform had been used to launder more than $7 billion in virtual currency since 2019.

Layer 1's

- Nomad, the official bridge for EVMOS (Cosmos EVM) and Moonbeam (smart contract parachain on PolkaDot), was hacked for $190 million.
- More than 8000+ wallets on the Solana network were hacked, resulting in a loss of more than $8 million in user funds - accounts have been tied to the Slope mobile wallet app.[3]
- Retail trading giant Robinhood announced it would enable support for users to trade the Layer 1 blockchain Avalanche (AVAX) on its platform.
- Instagram's parent company Meta announced that its users can now post NFTs on the platform using the Flow blockchain.
- PolkaDot-based Acala Network suffered a DeFi exploit resulting in a $1.2 billion issuance of the ecosystem's native aUSD stablecoin resulting in a loss of the $1-peg - currently trading at $0.00987.

Other Headlines

- US Senator Toomey (PA) and Senator Sinema (AZ) introduce the "Virtual Currency Tax Fairness Act" bill. The newly introduced bipartisan bill would make it easier for merchants to accept crypto by providing tax exemptions to small transactions with bitcoin and other cryptocurrencies.
- A bipartisan group of Senators introduced the "Digital Commodities Consumer Protection Act of 2022 ("DCCPA") - which defines Bitcoin and Ethereum as digital commodities to be exclusively regulated by the CFTC.
- Coinbase reported a $4.98 loss vs. analysts' expectations of $2.65 on the company's recent Q2 earnings - revenue declined by nearly 64% with a $1.1 billion net loss vs. $1.59 billion in net income in Q2 of 2021.

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1   TechTarget , Saylor to step down as MicroStrategy CEO https://www.techtarget.com/searchbusinessanalytics/news/252523475/Saylor-to-step-down-as-MicroStrategy-CEO-after-33-years
2   Yahoo News, Chandler Guo on Supporting Ethereum Fork 'Again' https://news.yahoo.com/fm-0812-eth-142636065.html
3   Business Insider, Solana Hack that drained $8 million https://www.businessinsider.in/cryptocurrency/news/solana-hack-that-drained-8-million-is-linked-to-the-slope-mobile-wallet/articleshow/93363977.cms

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.

Miner Extractable Value (MEV): Maximal extractable value (MEV) refers to the maximum value that can be extracted from block production (excludes block reward and gas fees) - MEV is captured by changing the order of transactions and sometimes excluding transactions in a block. Ordering transactions in a block can create favorable conditions by ensuring that the block producers' transactions capture arbitrage opportunities.

MEV Searcher: An MEV Searcher is an automated and highly optimized algorithm that scans the blockchain and mempool for potential arbitrage opportunities and submits transactions that attempt to capture that opportunity when it's identified.

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.

Disclaimer & Disclosures