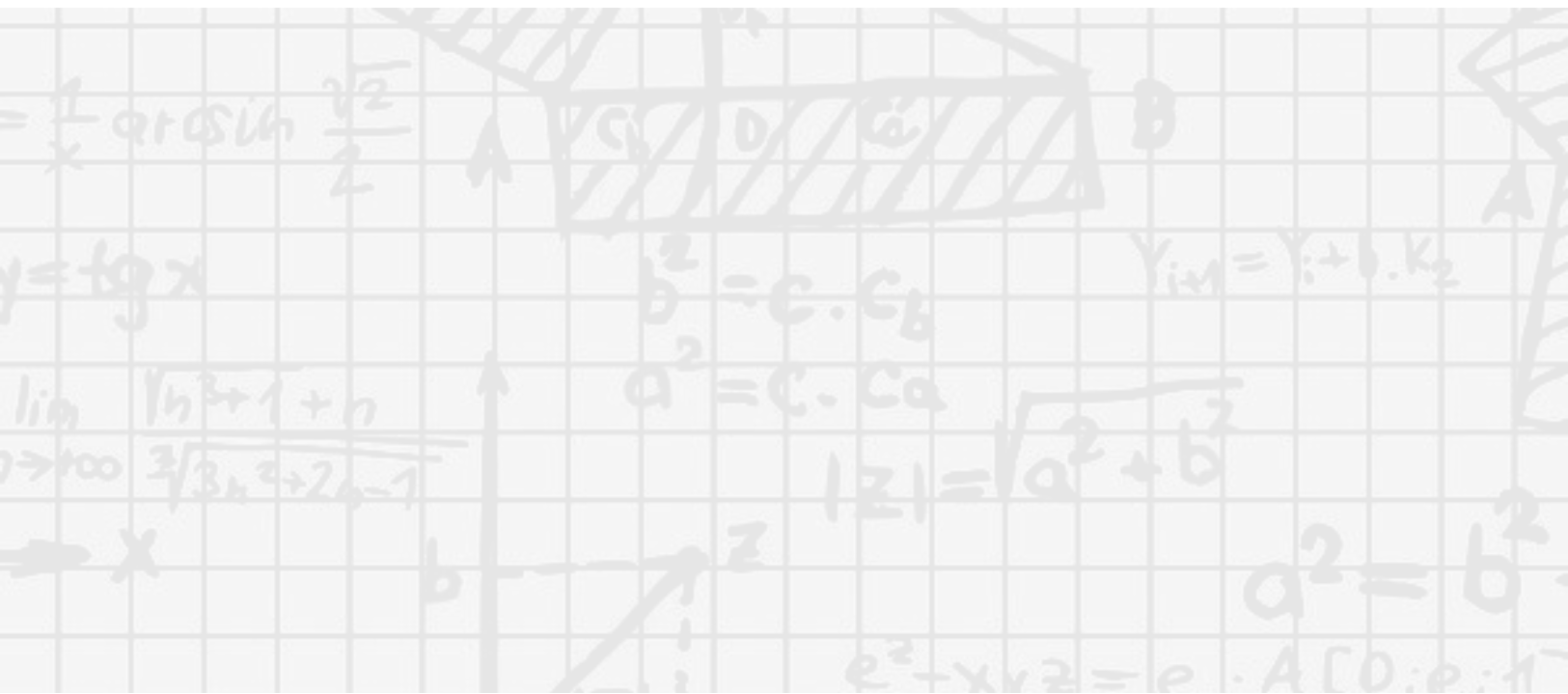


# Digital Asset Markets Report

November 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 continued to recover in November but remain down -14.72% and -6.8% YTD, respectively. NASDAQ -26.88% is on pace for its worst year since 2008 (-40.5%).
- Y/Y CPI data for October came in at 7.7%, under economists' expectations of 7.9% - the lowest rate of increase since January of 2022. M/M core pace of inflation also slowed to 0.3%.
- After a YoY increase of more than 20%, the Dollar Index has pulled back from its September high of 114.77 and is currently testing 104.96 levels.
- With optimism that inflation may have peaked, markets are pricing in a 73.5% chance of a 50 bps at the final FOMC meeting in December.
- The total market cap for digital assets fell from 1.03 trillion in November to 820.8 billion following the collapse of FTX.

## Macro Performance

Page 1

- GLD (Gold ETF) recovered in November but remains in negative territory at -0.3% YTD.
- Price cap sanctions on crude oil have applied downside pressure to the price, currently trading at \$81.34/barrel.
- Commodities have seen a drawdown in Q4 but continue outperforming indices, with the GSCI index +22.22% YTD.

## Momentum & Sentiment

Pages 2-3

- **S2F momentum model:** momentum remains negative after a short risk-on window at the beginning of November.
- **Alt-season indicator:** Our indicator has not yet confirmed strength in alts as the broader trend continues to favor BTC.
- **Delta risk:** Risk indicators for BTC and ETH have started to slowly decrease, while still remaining in the high risk zone.

## Bitcoin Historical Drawdowns

Pages 4-5

- We explore cyclical events that have catalyzed historically significant drawdowns in the broader crypto markets, which last an average of ~291 days. We are more than 200 days into the current cycle since the Terra/LUNA collapse.
- 2011 bear market resulted in a -89.4% cycle drawdown, the 2014 bear market led to a -86.9% decline, and the 2017 bear market saw a -83.8% decrease in price. Bitcoin has fallen -77.6% from ATHs in the current 2022 bear market.

## Bitcoin Fundamentals

Pages 6-7

- **Bitcoin Cost Accumulation:** Identifies conditions when BTC short-term holders' realized cost basis is lower than long-term holders' realized cost basis - historical average window of 238 days.
- **Dynamic NVT Ratio:** The "PE Ratio" of Bitcoin is trending into oversold territory signaling the network is discounted relative to the value of transactions sent across it.
- **Network Address Growth > 0.1 BTC:** Adoption in addresses holding > 0.1BTC is occurring at one of the highest growth rates, seconded only by 2017.

## Looking Forward

Page 8

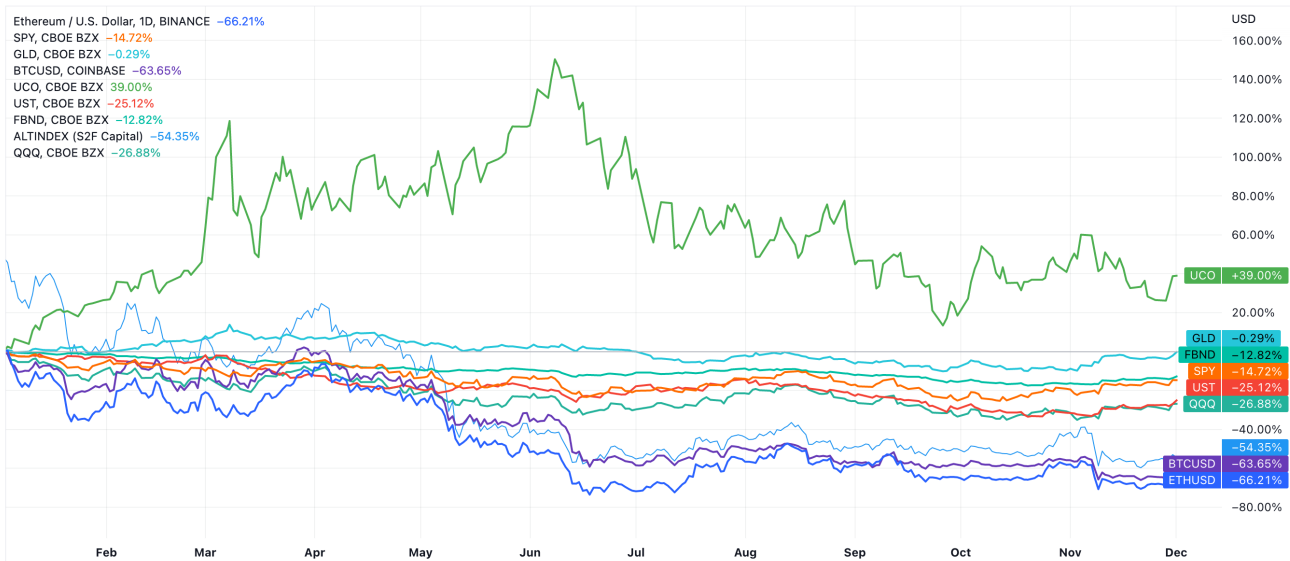
- **The Power Law model:** Provides a roadmap for the potential future - accounting for drawdowns and the probability for statistical outlier events. The model suggests a future 2024 halving market cap of \$1.52 trillion or \$77,392/BTC.
- **The Power Law Channels:** Identifies only three other occasions when price has reached current outlier channel extremes.

## Notable News

Page 9

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

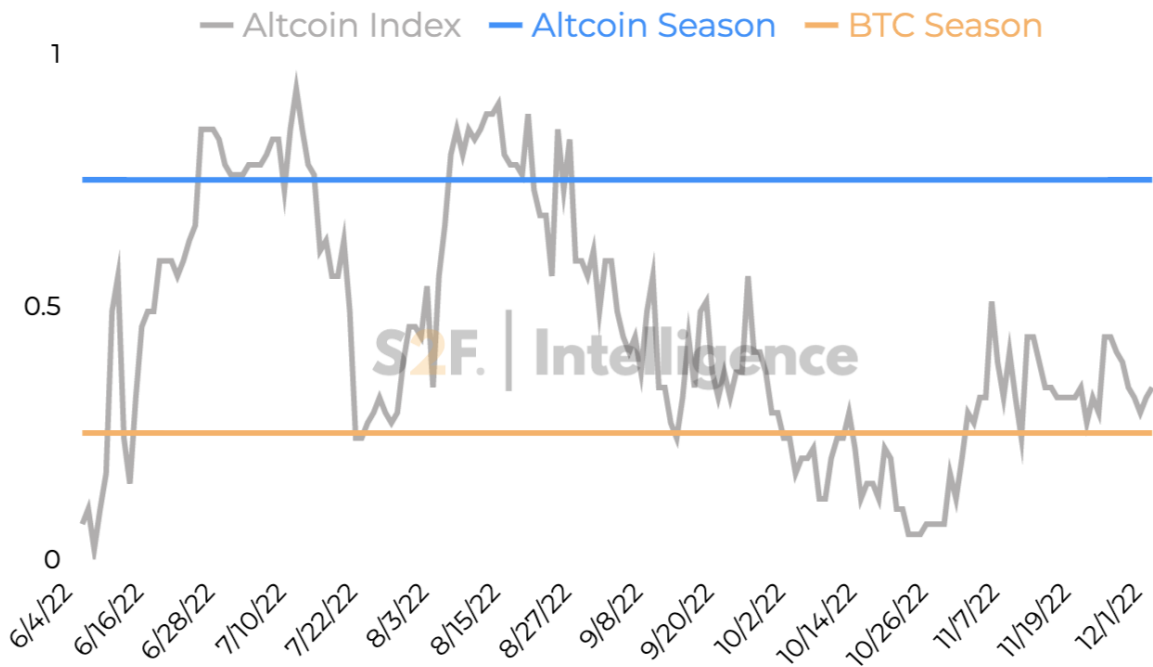
2022 Asset Returns



Asset	MtD*	QtD	YtD	Volatility (annualized)*	Sharpe (annualized)*	Correlation (to Bitcoin)**
Bitcoin	-16.1%	-11.0%	-63.6%	65%	-1.34	1.0
Ethereum	-17.9%	-1.1%	-66.2%	89%	-0.96	0.88
Altcoin Index	-19.7%	-4.7%	-54.4%	86%	-1.15	0.85
SPY	6.0%	11.2%	-14.72%	25%	-0.63	0.84
QQQ	7.2%	10.7%	-26.8%	31%	-0.63	0.89
GLD	7.4%	4.0%	-0.3%	15%	0.79	0.85
UCO	-5.2%	9.1%	39.0%	79%	0.79	0.62
FBND	3.4%	2.1%	-12.8%	8%	-1.75	0.79
UST	6.8%	0.9%	-25.1%	20%	-1.75	0.80

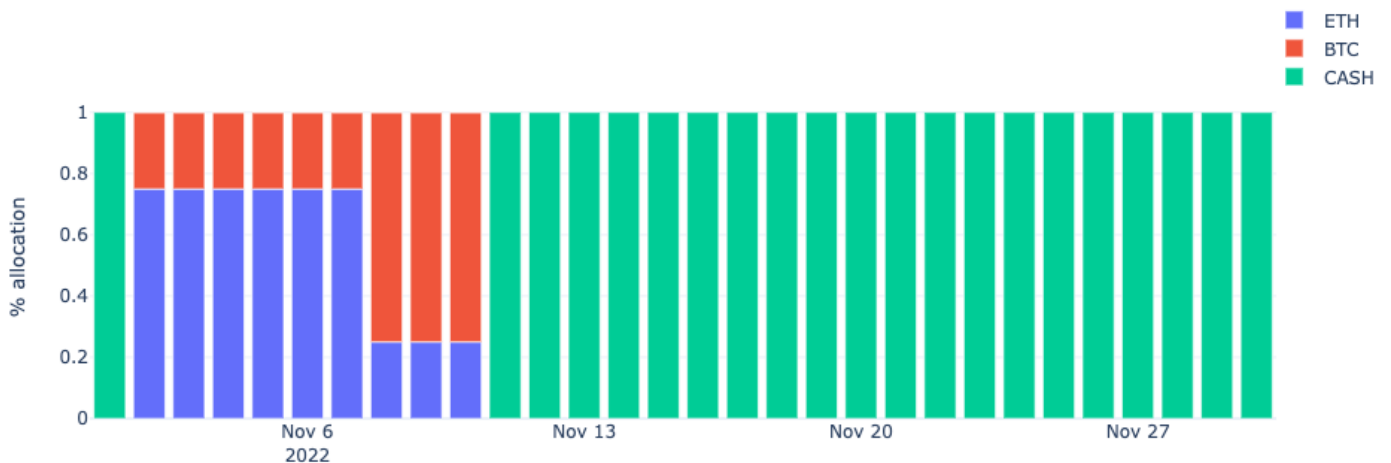
Sources: AlphaVantage, FTX  
 Assets: SPY = S&P500, QQQ = NASDAQ, GLD = Gold, UCO = Crude Oil, FBND = Total Bond Market, UST = 7-10 YR Treasury, Alt-Perp (FTX) = Altcoin Index  
 \*as of November 30, 2022  
 \*\*last 90 days

## 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

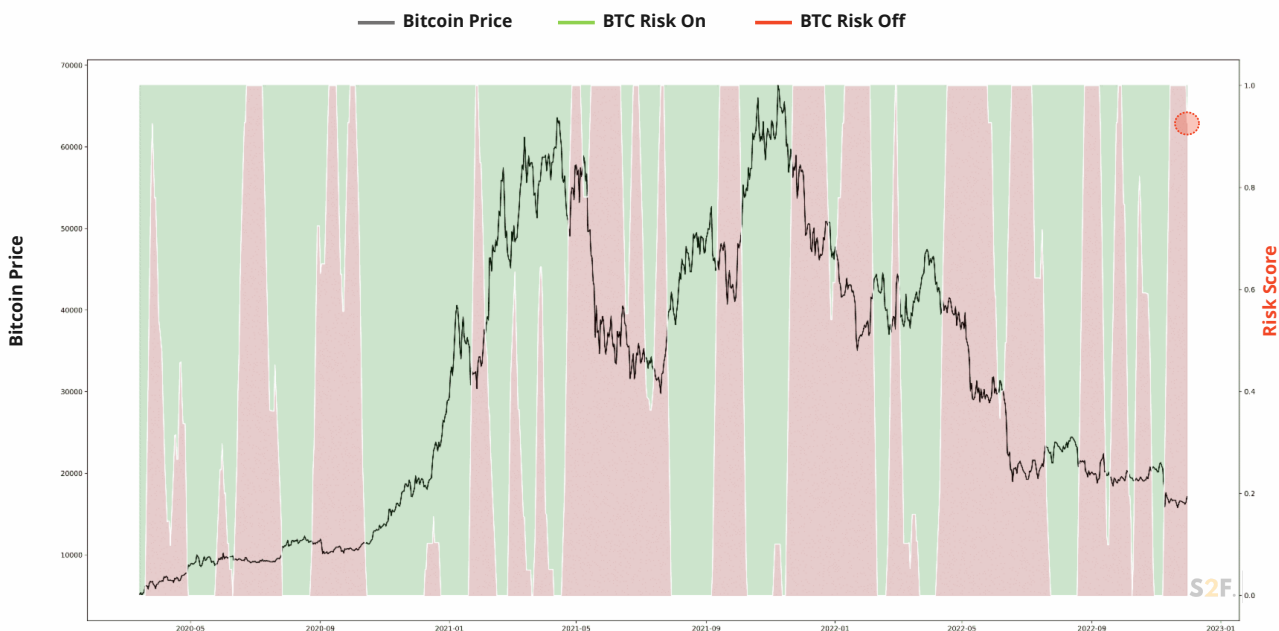


The S2F Momentum Model is a proprietary model for portfolio optimization. The **entry and exit signals rely on a risk indicator**, while the **ETH and BTC weights are based on price momentum**. The chart above shows the suggested daily allocation over the last 30 days.

## 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 (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

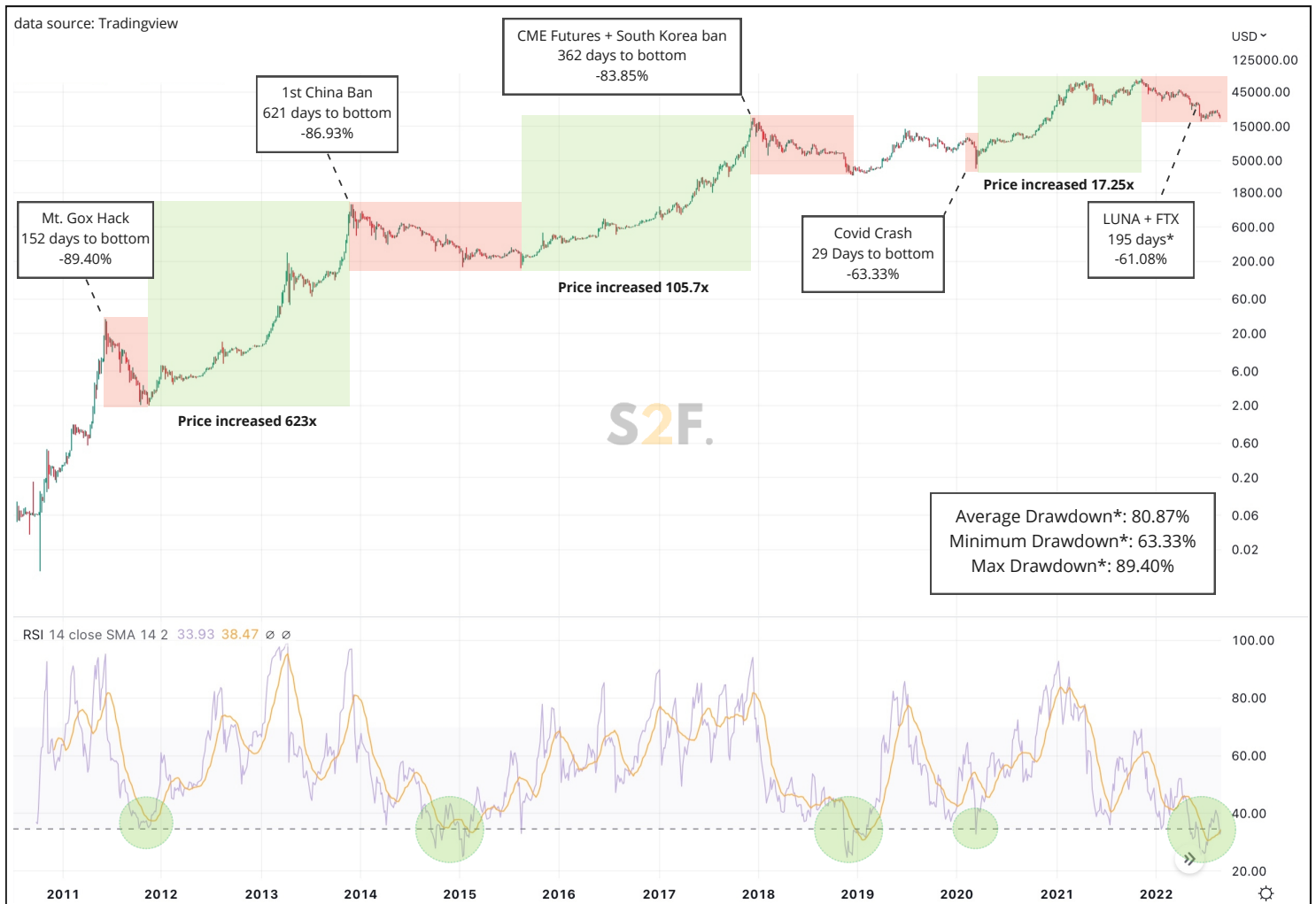


### Ethereum



On January 3, 2009, the Genesis block of Bitcoin, which contains the first recorded transaction, was created. This transaction ushered in a new asset class and the development of decentralized ledger technology. Later that year, on October 9, 1,309.03 BTC traded for \$1.00 (\$0.000763/BTC). Twelve years later, the market capitalization of Bitcoin had increased to \$1.28 trillion (\$69,045/BTC). Since the network's inception, this asymmetric return growth has outperformed every asset class, but sizable price declines have accompanied it. In our Historical Drawdown analysis, we investigate the effects of circumstances that, though they initially seemed to be irreversible setbacks for the industry, ultimately turned out to be generational buying opportunities.

## Historical Downside Events



## Days until BTC reached a cycle low from a Black Swan event

MT. Gox Hack	China Ban	CME Futures Launch	Covid Crash	Luna + FTX	Average*
152 days	621 days	362 days	29 days	(195) days so far	291 days

\* Excluding the current bear market

## Bitcoin Bear Market History (2011-2015)



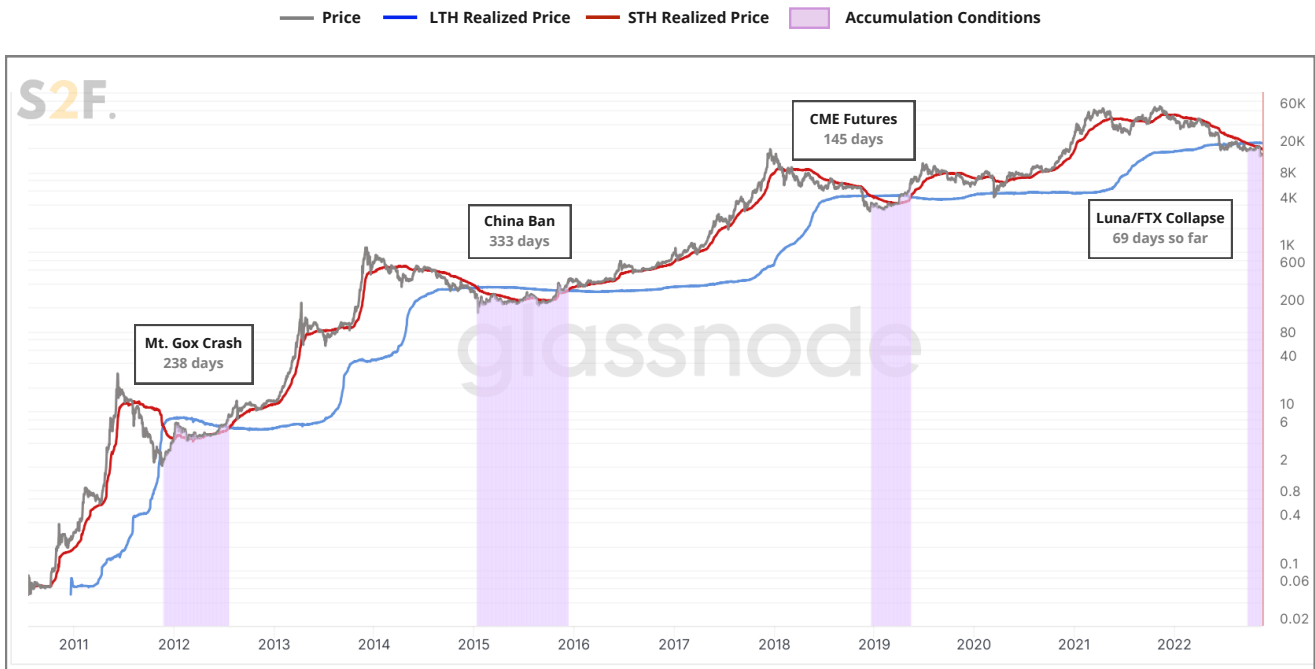
- In June 2011, a malicious actor prompted a fraudulent sell-side flash crash on Mt. Gox collapsing prices from \$17.50 to \$0.01. In the months that followed, Bitcoin's **price declined by (-89.40%) from its ATH.**
- In Dec 2013, the People's Bank of China enacted restrictive policy changes for institutions regarding BTC-related services. Soon after, Mt. Gox closed in February 2014 - 744,000 BTC were lost. Price **declined by 86.93% from its ATH in the next bear market.**

## Bitcoin Bear Market History (2017-2022)



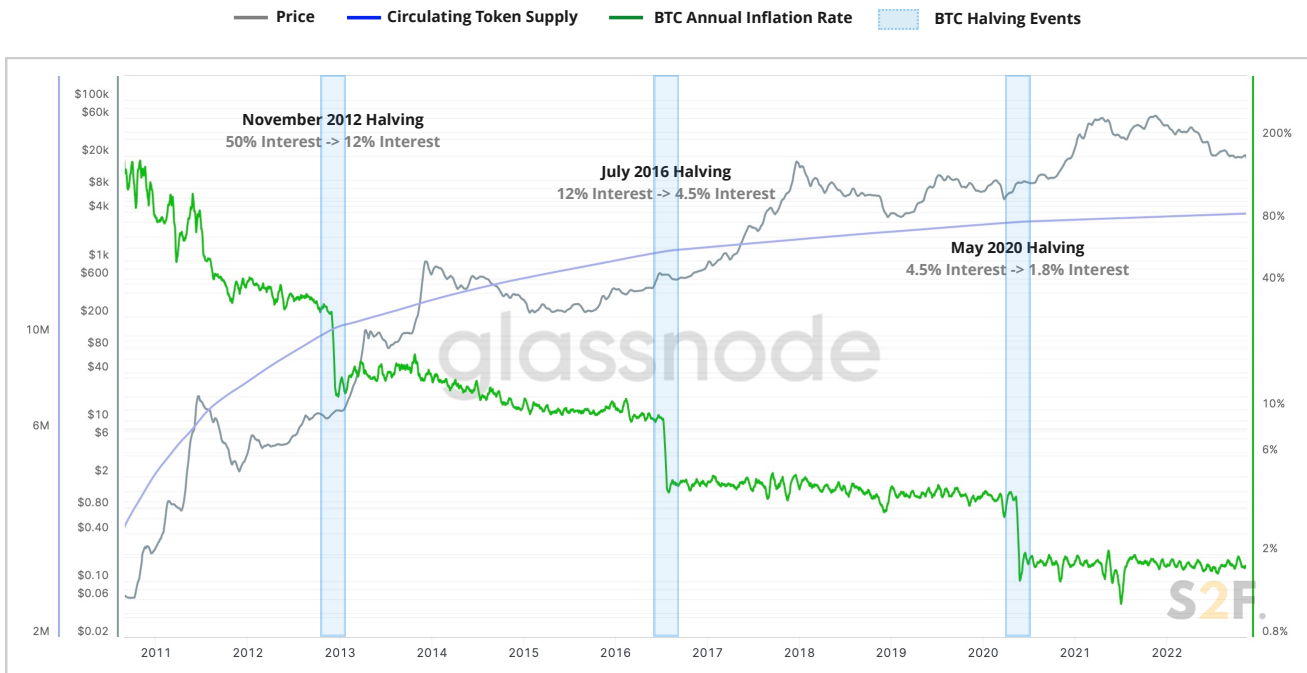
- After CME launched futures in Dec 2017, South Korea threatened to shut down digital asset exchanges marking the 2017 cycle top. Bitcoin price **declined by 83.85% from its ATH in the following bear market.**
- In May, Terra + UST (\$60 billion market cap) collapsed. Anchor protocol provided an unsustainable (16-20% APY) yield - lending platforms and institutional trading firms used leverage to capture this generous APY.
- Bitcoin has **declined 77.59% from its November 2021 ATH** and **ETH has fallen by as much as 81.89%**

Bitcoin Cost Accumulation



- BTC Cost Accumulation conditions arise when short-term (less than 155 days) holders' realized cost basis is lower than long-term holders' (greater than 155 days) realized cost basis - the average accumulation duration is ~238 days.

BTC Inflation + Circulating Supply Halving Metrics



- Since inception Bitcoin network block rewards have decreased from 50 BTC to currently 6.25 BTC - in 2024, they will decline to 3.125 BTC.
- The 2020 Bitcoin market cap grew by 1,223.82x since the 2012 BTC halving - \$129.12 million to \$158.02 billion.
- The forecasted market cap of Bitcoin in 2024 using the Power Law model is \$1.52 trillion which suggests a price of \$77,392/BTC.

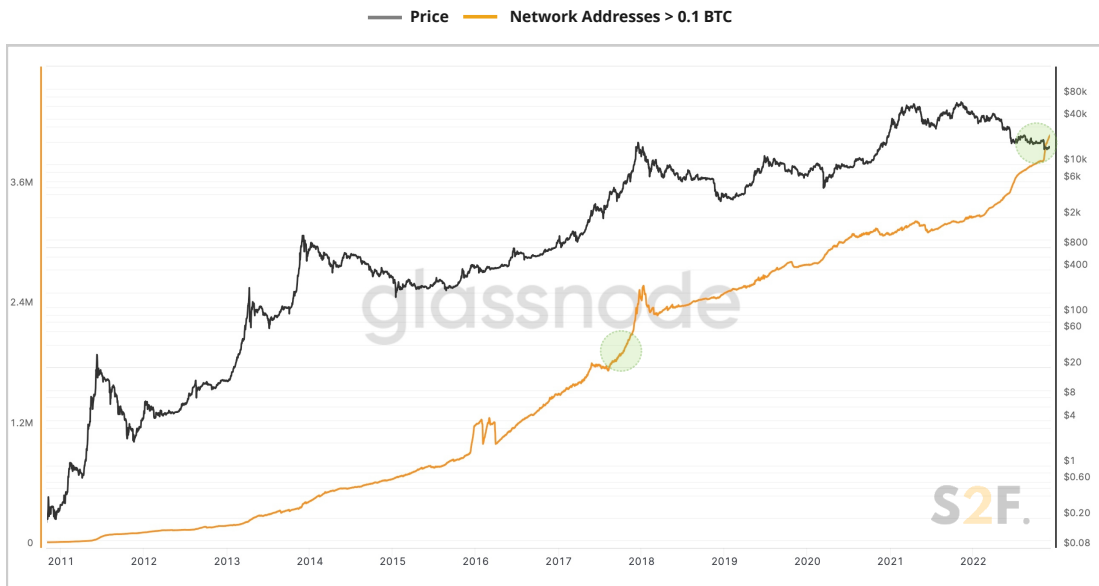


## Dynamic NVT Ratio



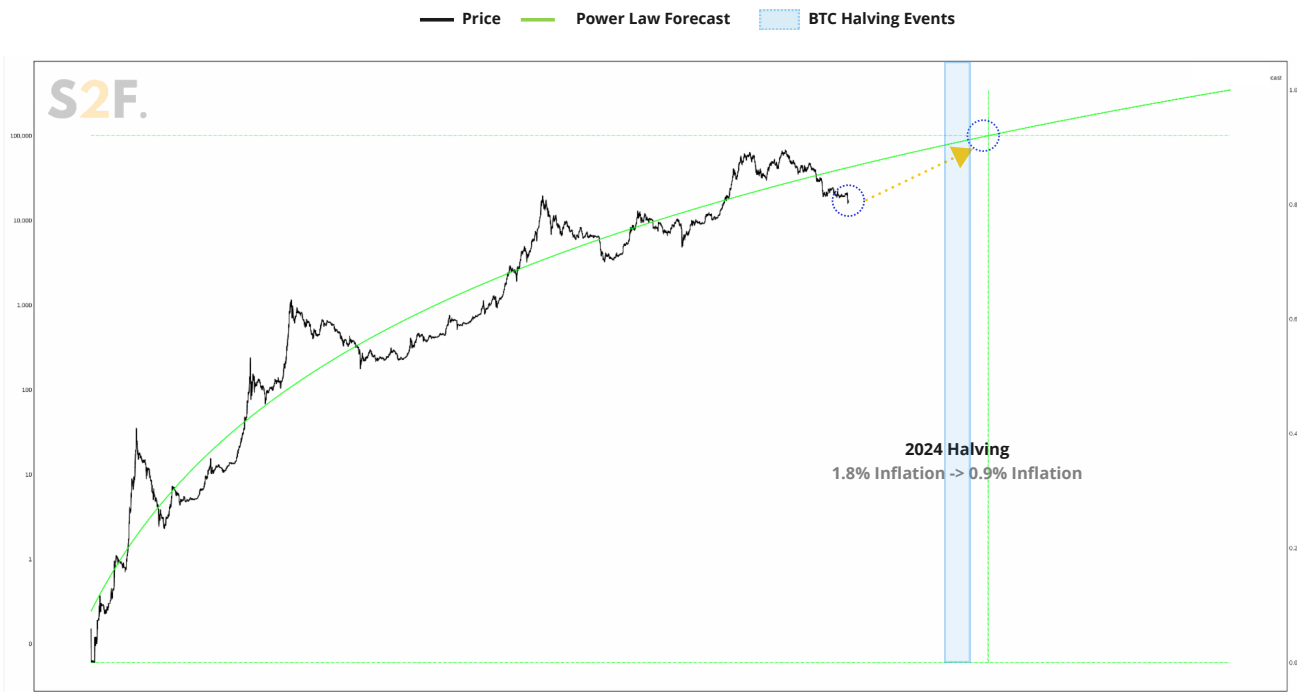
- Dynamic Range NVT for Bitcoin is comparable to the "PE Ratio" and is trending into oversold territory. We are once again in the green zone signaling the network is discounted relative to the value of transactions sent across Bitcoin.

## Network Addresses > 0.1 BTC



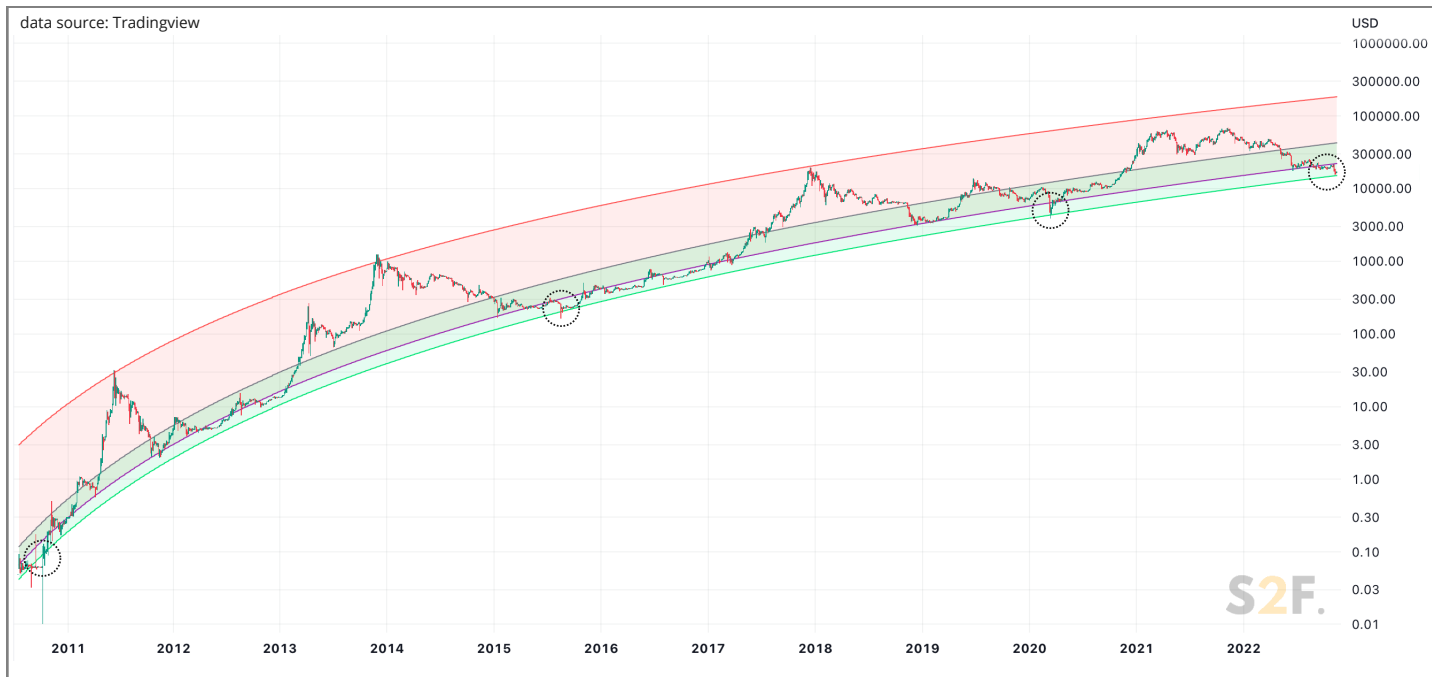
- Network addresses > 0.1 BTC have reached a new all-time high. Adoption is occurring at one of the highest growth rates, seconded only by 2017. Accumulation is accelerating as this threshold of address growth suggests capital from potentially new market participants are flowing into the Bitcoin network.

## BTC Power Law Forecast



- The next halving is slated to occur during Q2 of 2024 and suggests a potential forecasted price of \$77,392 (May 31, 2024).
- The power law, which has historically been an accurate tool for predicting the price of BTC, suggests a potential target of \$100k with a rough timeline of late 2024.

## Power Law Channels



- The Power Law offers a roadmap for potential future price action as the network develops and expands. Including today, there have only been three other occasions when prices have reached this extreme outlier level.

## Bitcoin

- New York Gov. Kathy Hochul signed a law on Tuesday banning bitcoin mining operations running on carbon-based power for two years. Proof-of-work entities who do not utilize 100% renewable energy will not be ineligible to expand existing operations or renew permits.<sup>1</sup>
- United States senators Elizabeth Warren, Tina Smith, and Richard Durbin have renewed their calls for Fidelity Investments to reconsider offering a Bitcoin BTC-linked 401(k) retirement product.
- Shares of the Grayscale Bitcoin Trust, one of the world's largest bitcoin holders, with over 633K BTC in custody (~3% of total circulating supply), hit a record -42% discount to underlying BTC value per share.
- Wrapped Bitcoin (wBTC) sees a 1.5% discount as markets question 1:1 backing from custodian BitGo.

## Ethereum

- Ethereum's developers are making progress towards enabling Beacon Chain withdrawals for staked ETH with the multi-client launch of the Shandong testnet.<sup>2</sup>
- Rocket Pool staked ETH (rETH) deployed as a new collateral type on the Maker Protocol, allowing DeFi another liquid staking derivative token to promote decentralization.
- Beacon chain staking contract surpasses 15.4 million ETH in deposits while total token issuance post-merge becomes temporarily deflationary (-700 ETH vs. 900,000 new tokens issued under PoW).
- Flashbots releases block-building source code - allowing open source competition for MEV boost and diversity within the Ethereum ecosystem.
- Chainlink, the decentralized oracle network built on Ethereum, is set to launch staking on December 6th.

## Layer 1's

- After a tightly contested proposal vote, the Cosmos community has decided to reject a new tokenomics model outlined in the ATOM 2.0 white paper. The proposal was rejected on November, 2022.<sup>3</sup>
- Ardana, the Cardano-based stablecoin project, halts operations. The team stated that building on the ADA blockchain was "difficult" but would leave their project's code open source.
- OpenSea NFT platform expands to Binance Smart Chain (BNB) blockchain ecosystem.
- Huobi Partners with Tron blockchain to launch the first national token Dominica Coin (DMC) - initial issuance will be on the Tron network, but DMC will be cross-chain compatible with ETH and Binance Smart Chain.

## Other Headlines

- USDC stablecoin issuer Circle adds support for Apple Pay - USDC users will have the option to make in-app purchases via credit or debit card.<sup>4</sup>
- Distressed crypto firm BlockFi files for Chapter 11 bankruptcy following the implosion of FTX - the filing includes 100,000 creditors with liabilities and assets ranging from \$1 billion to \$10 billion.
- The U.S. Patent and Trademark Office (USPTO) has approved a trademark for "J.P. Morgan Wallet," putting the nation's largest bank in position to expand the crypto services it provides.<sup>5</sup>
- Fidelity officially opens retail cryptocurrency trading accounts - customers with an existing Fidelity brokerage account would be needed to open a new Fidelity cryptocurrency account.
- Genesis and Gemini Earn halt user withdrawals as FTX contagion spreads.

1 CNBC, New York governor signs first-of-its-kind law cracking down on bitcoin mining <https://www.cnbc.com/2022/11/23/new-york-governor-signs-law-cracking-down-on-bitcoin-mining.html>

2 The Defiant, Ethereum Foundation To Test Withdrawals of Staked ETH <https://thedefiant.io/ethereum-foundation-testing-withdrawals>

3 Blockworks, No With Veto: Cosmos Community Rejects ATOM 2.0 White Paper <https://blockworks.co/news/no-with-veto-cosmos-community-rejects-atom-2-0-white-paper>

4 CoinTelegraph, Crypto stablecoin issuer Circle adds Apple Pay support <https://cointelegraph.com/news/crypto-stablecoin-issuer-circle-adds-apple-pay-support>

5 Banking Dive, JPMorgan's crypto wallet trademark is approved <https://www.bankingdive.com/news/jpmorgan-chase-crypto-wallet-trademark-approved-uspto-jamie-dimon-opinion-fraud/637203/>

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