








Taking A Break

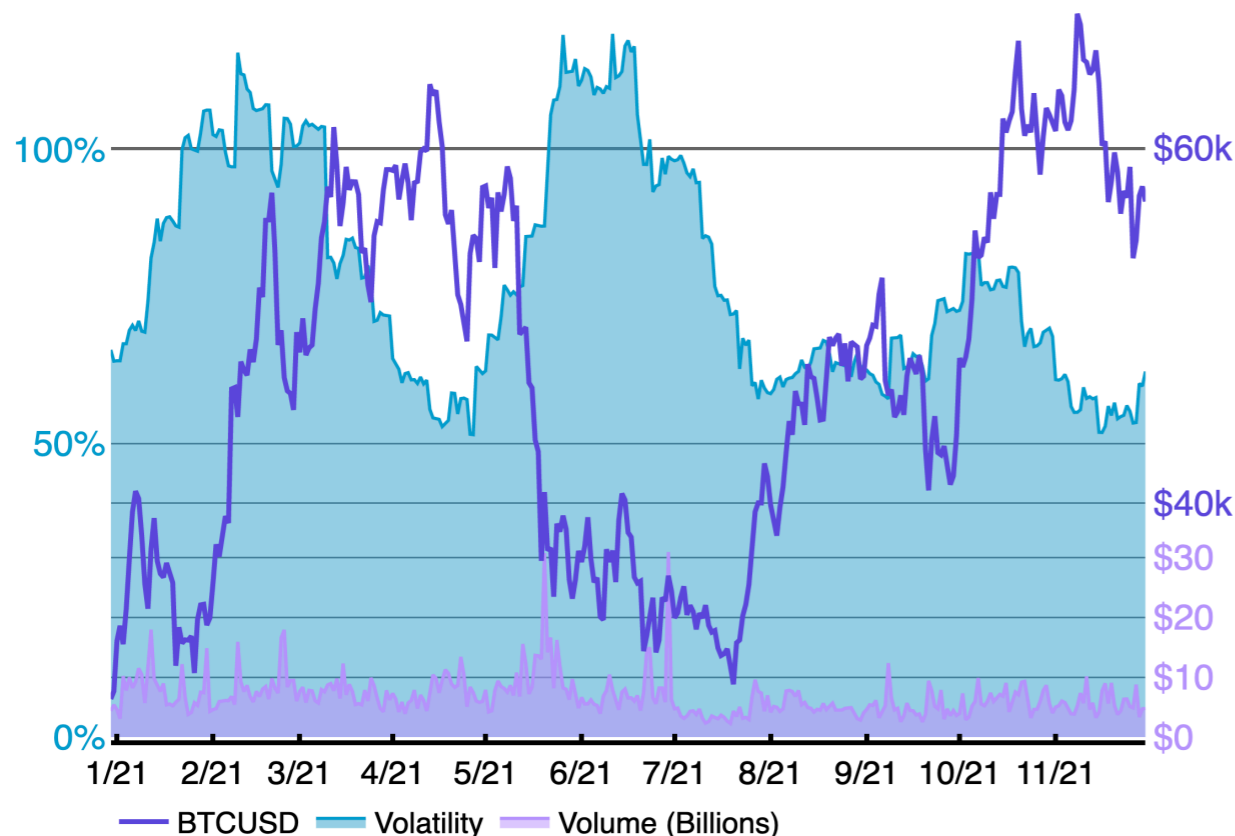
November 2021 Market Recap & Outlook

Nov. 2021 Takeaways

-  A broader market sell-off caused market sentiment to weaken substantially in Nov., leading some to think that BTC could break critical support levels and slip into a bear market. The concern didn't stem from BTC being at risk of falling through key support, but also open climbing to an all-time high and BTC retreating from an all-time high of \$69,000.
-  Following strong demand in Oct., interest in memecoins plunged as a loss of momentum and broader market weakness weighed on the sector. Meanwhile, the NFT sector was the best performing in Nov. with a return of +42%, marking 3 consecutive months of outperformance and a remarkable 3-month return of +171%. The relative outperformance can be explained, in part, by renewed demand for several NFT tokens that cater to "the metaverse," or what was one of the biggest themes of Nov.
-  Nov. concluded with BTC being only being modestly positively correlated with equities. However, with stock valuations near record highs, Omicron's impact remaining uncertain, and inflation fears at a multi-decade high, crypto remains vulnerable to derisking should equity markets correct in the coming month(s).
-  The number of BTC whales hit a near 2-month high, while the amount of BTC held by wallets fell modestly, suggesting that Nov's weakness may be explained by whales taking profit. Meanwhile, the number of ETH whales fell further in Nov. - which could be explained by ETH whales moving ETH between wallets for various ETH-based dApps or diversification. However, because the amount of ETH held by whales rose despite fewer ETH whales, those who remain interested in owning ETH in size opportunistically bought into last month's weakness.
-  Zooming out, one will find that SOL remains in a massive ascending broadening wedge. Should SOL reenter price discovery mode, one could expect SOL to climb up towards \$600 into 1Q2022.
-  With ETH residing between band 5 and band 6 of its Logarithmic Regression Rainbow and BTC remaining in a bull market uptrend, market participants could expect ETH to continue climbing to \$6,000 in the month(s) ahead as ETH tests band 6 as resistance.
-  Last month, BTC bounced off of its Bull Market Support Band. History suggests that the bounce marked the completion of an expected -20% bull market correction. However, the bulls will need to keep BTC above said band to remain in control.

Bitcoin (BTC) Nov. 2021 Recap

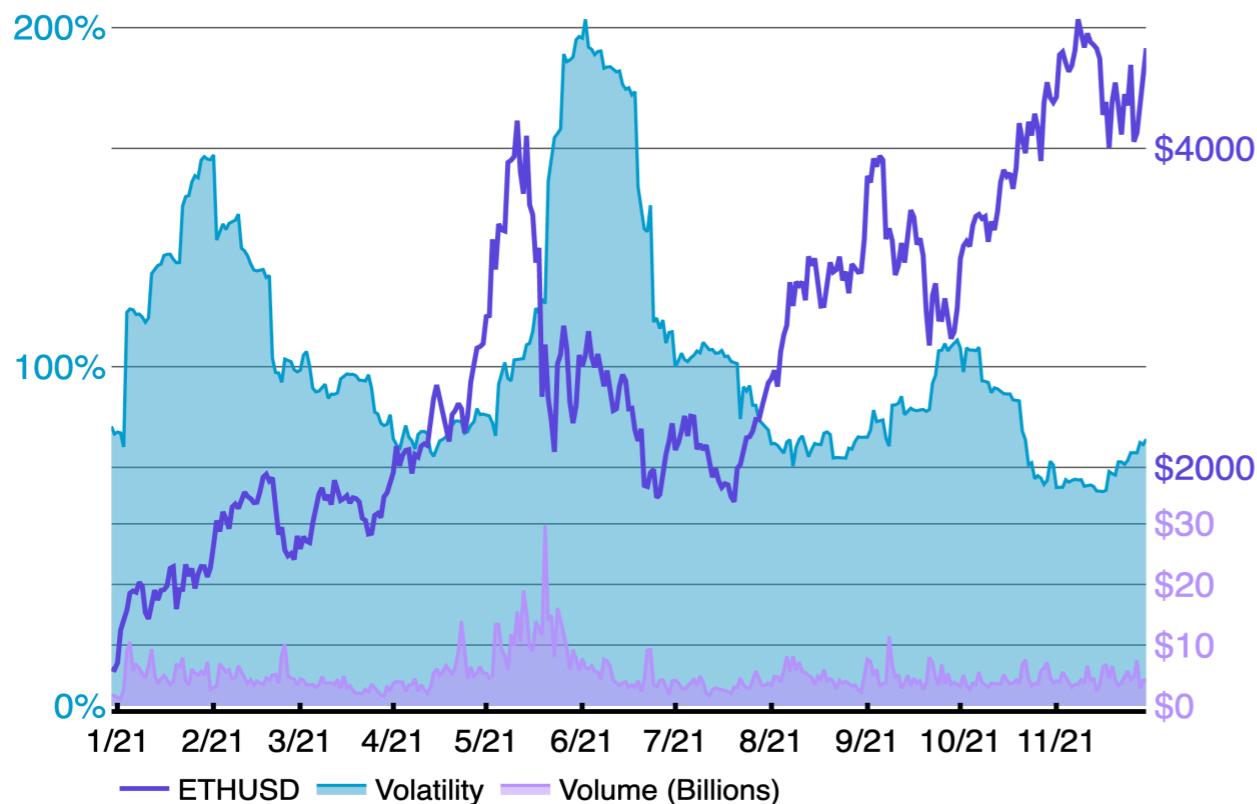
- After setting an all-time high just shy of \$67,000 in Oct., BTC was able to regain momentum in the first half of Nov. and climb to an all-time high of \$68,991 on Nov. 10. However, a loss of bullish momentum caused BTC to drift lower into month-end and hit a 53-day low of \$53,300 on Nov. 28.
- Softness into and throughout the second half of Nov. also caused BTC to fall back below its 50-day moving average for the first time since Sept. 30. Historically, a drop back below the 50-day moving average has foreshadowed a prolonged downtrend if not immediately reclaimed.
- Notwithstanding BTC's underwhelming performance, the 30-day moving average of BTC's hashrate hit a near 6-month high of 161.36 EH/s on Nov. 22. At the current pace, BTC will surpass its April 15, 2021 all-time high of 166 EH/s before end-of-year.
- Annualized volatility hit a 6-month low of 52% before springing higher in the last quarter of the month and finishing virtually unchanged month-over-month at 61%; a lack of volatility caused trading volume to fall -11% to \$170B.



Close Price	\$56,980.7
1 Mo. Return	-7%
3 Mo. Return	21%
2021 Return	97%
Monthly High	\$68,991.0
Monthly Low	\$53,300.0
Annualized Vol.	61%
Volume (Billions)	\$169.90
Annualized Velocity	6.08x

Ethereum (ETH) Nov. 2021 Recap

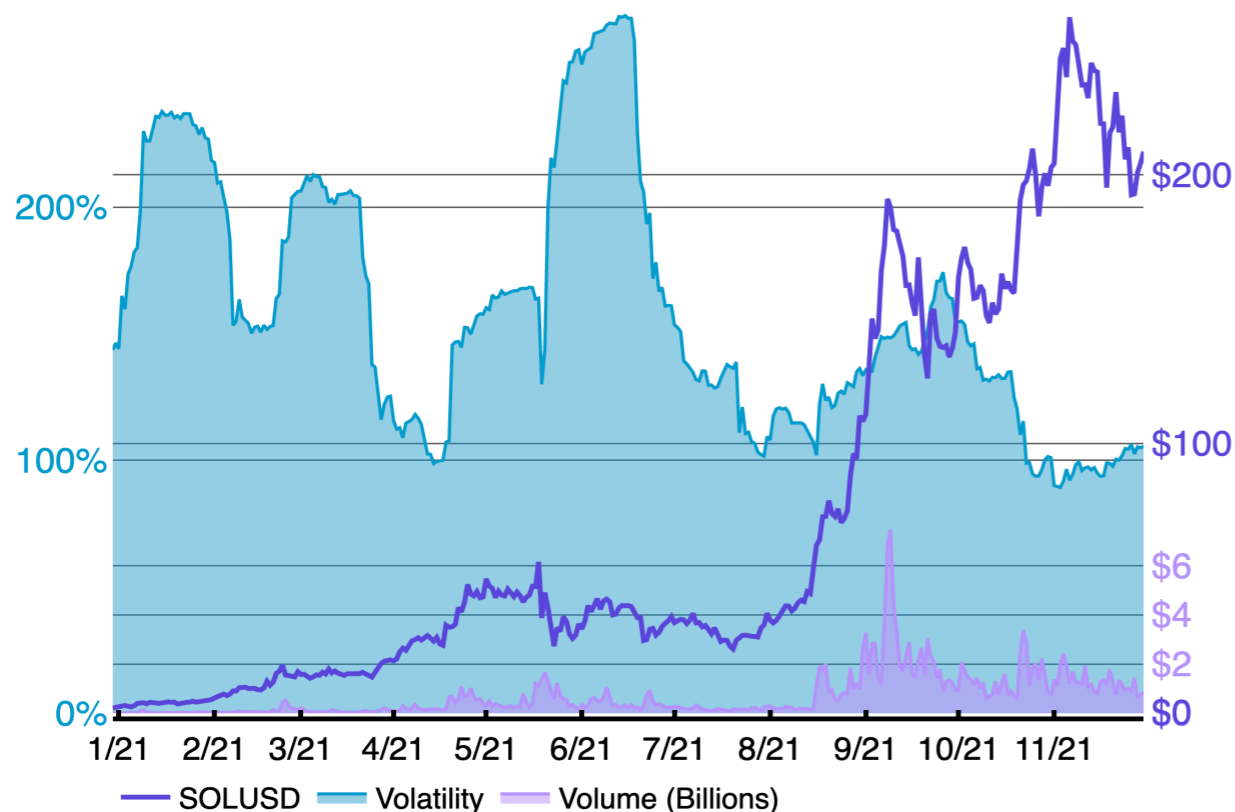
- A relentless Oct. rally persisted into the first few weeks of Nov. and drove ETH to an all-time high of \$4,867 on Nov. 10 before falling back below \$4,000 on Nov. 26 and finishing the month at \$4,630.
- Robust network demand caused the average transaction fee on the Ethereum network to climb as high as \$62.84 on Nov. 9, the second-highest reading behind May 12's all-time high of \$69.92, and hold above an intramonth low of \$36.28 set on Nov. 7.
- On Nov. 11, Sotheby's auction house announced support for live bidding increments in ETH for the sale of pseudonymous England-based street artist Banksy's "Trolley Hunters" and "Love Is In The Air" art pieces, which caused ETH supporters to double-down on their claims that "ETH is money." On Nov. 18, TIME Magazine said it would hold ETH on its balance sheet.
- Ethereum-based wallet MetaMask announced a +420% increase in the number of active users amid a surge in demand for network applications such as DeFi and NFTs; as of mid-Nov., the number of users had risen from 5 million to more than 21 million.
- CME announced it would launch its Micro Ether futures product on Dec. 6, pending regulatory review.



Close Price	\$4,630.31
1 Mo. Return	8%
3 Mo. Return	35%
2021 Return	528%
Monthly High	\$4,867.0
Monthly Low	\$3,920.0
Annualized Vol.	79%
Volume (Billions)	\$136.60
Annualized Velocity	7.15x

Solana (SOL) Nov. 2021 Recap

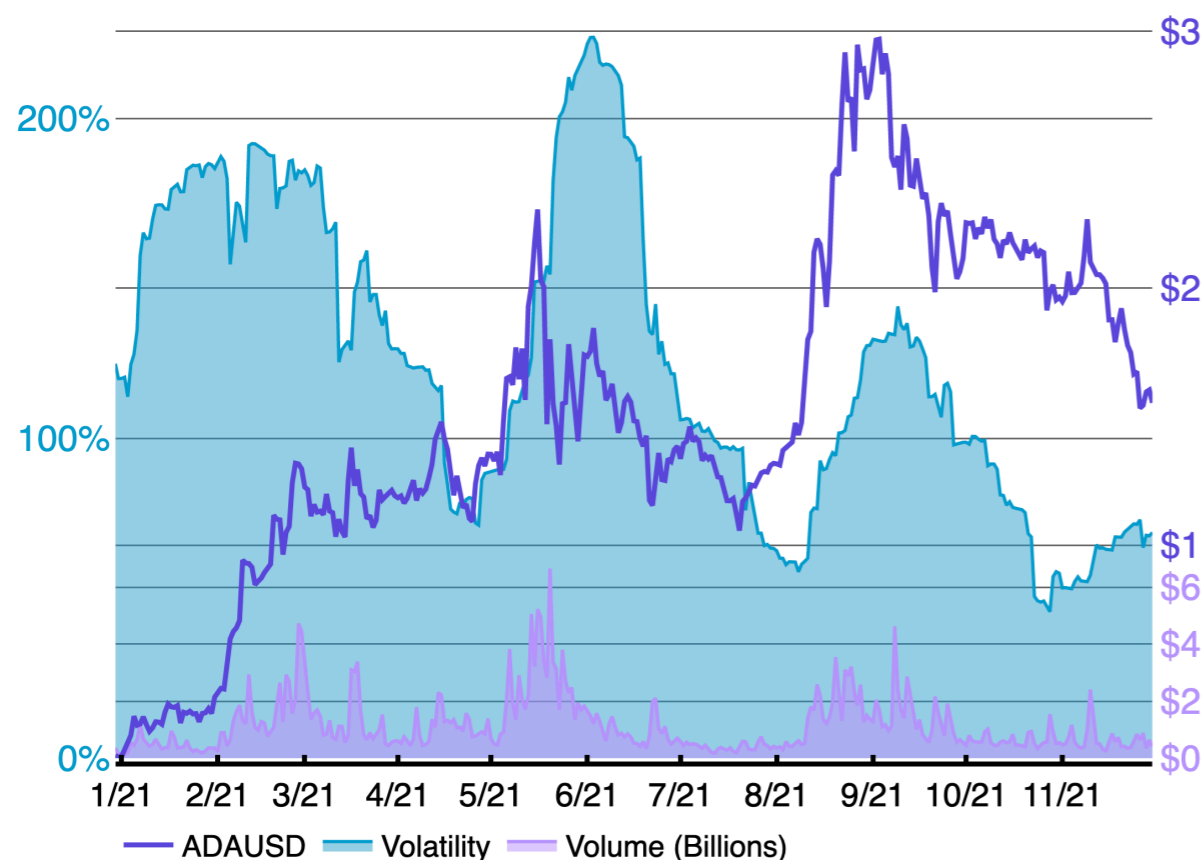
- Although posting a measly +3% return in Nov., SOL was the second-best performing large-cap altcoin behind ETH. SOL's ability to finish in the green despite falling as low as \$181 intramonth explains volatility going from 89% to 103% month-over-month.
- Brave and Solana Labs announced on Nov. 8 a joint integration where the privacy-focused browser will add support for Solana wallets in early 2022. Brave CEO, said, "With more and more users and creators requiring tools for fast and affordable access to the decentralized Web, this integration will seamlessly pave the way for the next billion crypto users to harness applications and tokens."
- A report released by the Solana Foundation on Nov. 25 claimed that a transaction on the Solana network takes less energy than a Google search and 24x less energy than charging your phone. The report also claimed that while a single Solana transaction uses 1,837 Joules worth of energy, ETH transactions currently require 692.8M Joules.
- U.S. investor and co-founder of Reddit Alexis Ohanian announced that his venture firm Seven Seven Six teamed up with Solana Labs for a \$100M investment fund focused on decentralized social projects.



Close Price	\$208.58
1 Mo. Return	3%
3 Mo. Return	93%
2021 Return	13713%
Monthly High	\$260.0
Monthly Low	\$181.0
Annualized Vol.	103%
Volume (Billions)	\$38.00
Annualized Velocity	N/A

Cardano (ADA) Nov. 2021 Recap

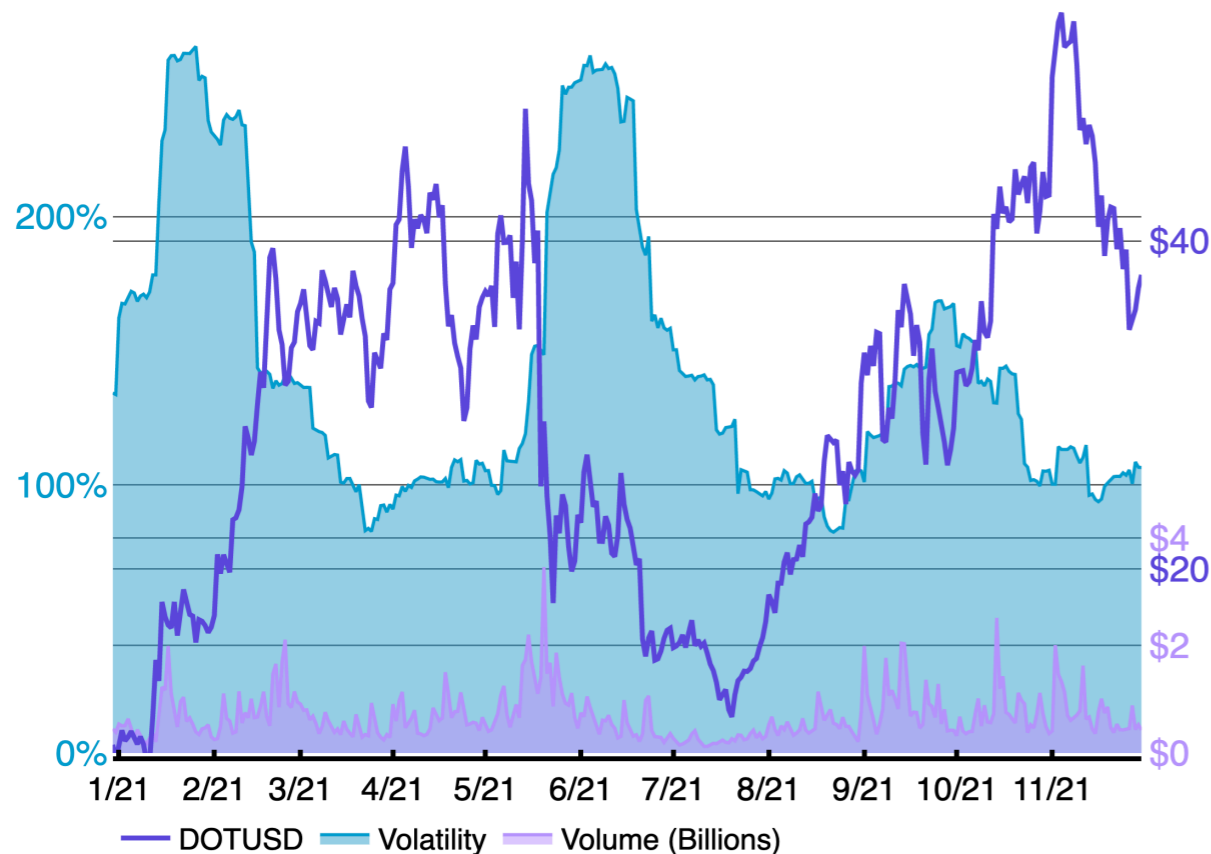
- ADA's poor -21% return in Nov. placed it as the worst-performing large-cap altcoin over the past 3-months (-44%); the decline also resulted in ADA setting a 110-day low of \$1.42 on Nov. 28 and falling back below its 200-day moving average for the first time since July.
- On Nov. 5, Cardano's R&D group IOHK tweeted, "We have just released a beta version of the integrated PAB and have now invited our developer community to try it out on the Cardano testnet, put it through its paces and provide us with their feedback." The announcement marks yet another major step in the upcoming release of Plutus Application Backend (PAB), which will provide the components and an environment to help developers create and test DApps on the Cardano network.
- On Nov. 22, the Cardano network processed a record 500,000 daily transactions, nearly doubling the prior all-time high of 246,638 set on Nov. 15. That same day, Cardano surpassed 20M transactions since having gone live more than 4 years ago.
- Market participants grew fearful in late Nov. after eToro said it will no longer support trading or staking rewards for ADA starting 2022. The exchange stated, "These changes are due to business-related considerations in the evolving regulatory environment."



Close Price	\$1.55
1 Mo. Return	-21%
3 Mo. Return	-44%
2021 Return	755%
Monthly High	\$2.38
Monthly Low	\$1.42
Annualized Vol.	70%
Volume (Billions)	\$19.90
Annualized Velocity	67.61x

Polkadot (DOT) Nov. 2021 Recap

- Excitement at the start of the month over forthcoming parachain auctions caused DOT to soar to an all-time high of \$55 on Nov. 4. However, weak market conditions and a classic case of “buy the rumor, sell the news” caused DOT to retreat lower into month-end and finish down -11%.
- Last month, Polkadot’s first parachain slot auction began with Moonbeam initially outbidding Acala, before flipping in favor of Acala and the project subsequently securing the very first parachain slot auction on Nov. 18. However, with Moonbeam having already attracted a significant number of DOT earlier in the month, the Polkadot smart contract platform was able to win the second parachain auction on Nov. 25 after raising more than \$1.4B in DOT.
- As of month-end, more than 53% of all eligible DOT tokens were staked on the Polkadot network amongst more than 17,700 stakers, thereby making DOT the 6th most staked cryptoasset amongst the top 10 Layer 0 & Layer 1 blockchains; the amount of DOT staked and the number of stakers rose from 13% and 17,424 stakers in Oct.



Close Price	\$37.94
1 Mo. Return	-11%
3 Mo. Return	21%
2021 Return	309%
Monthly High	\$55.0
Monthly Low	\$32.23
Annualized Vol.	106%
Volume (Billions)	\$22.40
Annualized Velocity	N/A

What Happened In Crypto?

- The NFT sector was the best performing in Nov. with a return of +42%, marking 3 consecutive months of outperformance and a remarkable 3-month return of +171%. The relative outperformance can be explained, in part, by renewed demand for several NFT tokens that cater to “the metaverse,” or what was one of the biggest themes of Nov. For instance, SAND posted a +330% return in Nov. thanks to not only its Nov. 29 alpha release, but also interest in the metaverse.
- After being tied for the second-best in Oct., ETH and SOL came out on top in Nov. as the best performing large-cap altcoins. In terms of risk-adjusted returns (Sharpe ratio), ETH far outperformed SOL with a ratio of 1.9 vs. 0.5.
- Meanwhile, DeFi was the worst-performing sector with a -5% return and Sharpe ratio of -1.2. The poor performance from DeFi marked an end to what was a 6-month losing streak for privacy coins. Although privacy coins remain the worst-performing sector (-5%) over the past 3-months, DeFi isn't far behind with a +7% return.
- Despite BTC’s tendency to outperform in a macro downtrend, BTC’s dominance fell to a near 2-month low of 41.7% on Nov. 25 after climbing to 44.6% on Nov. 10. The drop after hitting a local high of 47.7% on Oct. 20 convinced market participants that altcoins will outperform in the forthcoming months before BTC inevitably reclaims market share as market participants rotate out of riskier alts and back into BTC. For now, the key level to watch is 40% dominance - a level of support last tested in May and Sept. 2021.

	YTD Return	3M Return	1M Return	Volatility	Sharpe Ratio	Beta
BTCUSD	+97%	+21%	-7%	62%	-2.2	1
Altcoins	+585%	+24%	+3%	65%	0.8	0.95
CEX Coins	+574%	+15%	+3%	72%	0.9	0.99
DeFi	+353%	+7%	-5%	78%	-1.2	1.03
DEX Coins	+739%	+41%	+6%	84%	1.3	1.16
NFTs	+10330%	+171%	+42%	80%	10.1	0.75
Privacy Coins	+194%	-10%	+6%	102%	1	1.2
Smart Contracts	+1947%	+42%	+8%	77%	1.9	1.11
ETHUSD	+528%	+35%	+8%	79%	1.9	1.17
SOLUSD	+13,713%	+93%	+3%	103%	0.5	0.97
ADAUSD	+755%	-44%	-21%	72%	-5.6	0.89
DOTUSD	+309%	+21%	-11%	89%	-2.5	1.12
DOGEUSD	+4,450%	-23%	-23%	69%	-6.6	0.98

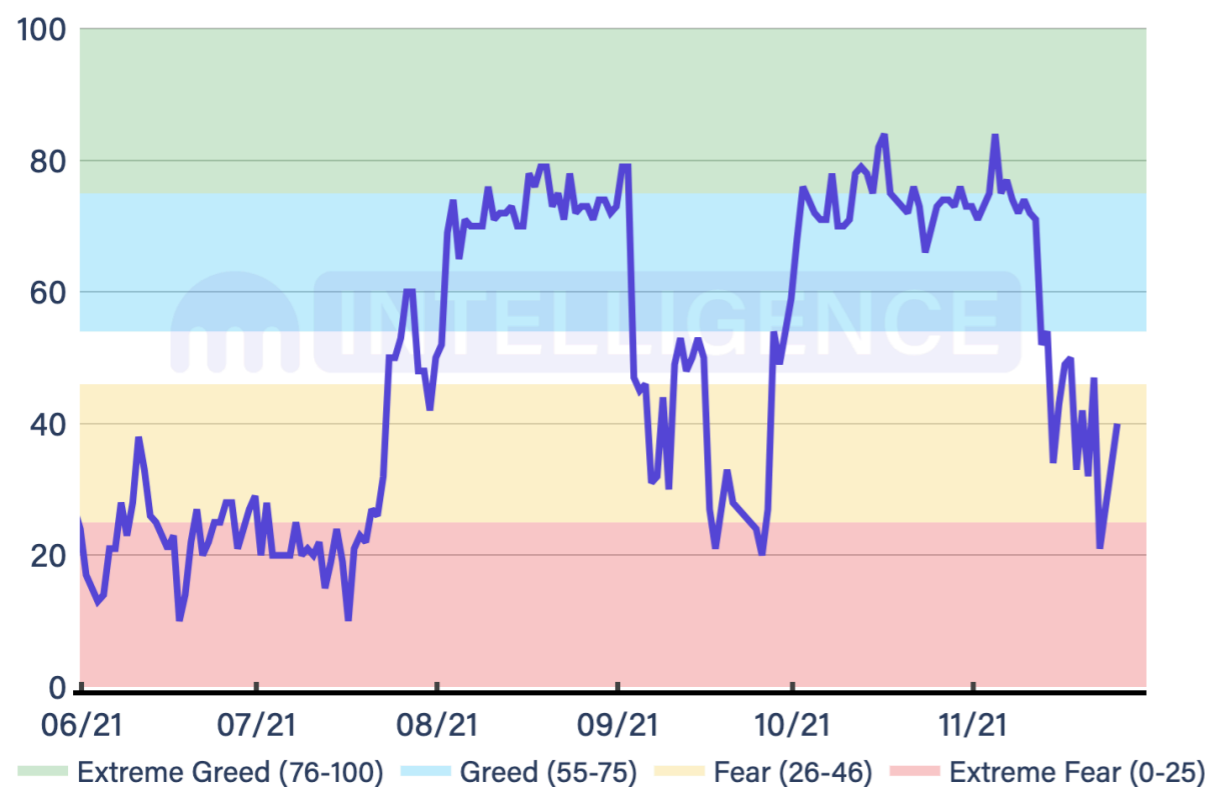
BTC Dominance vs. BTCUSD



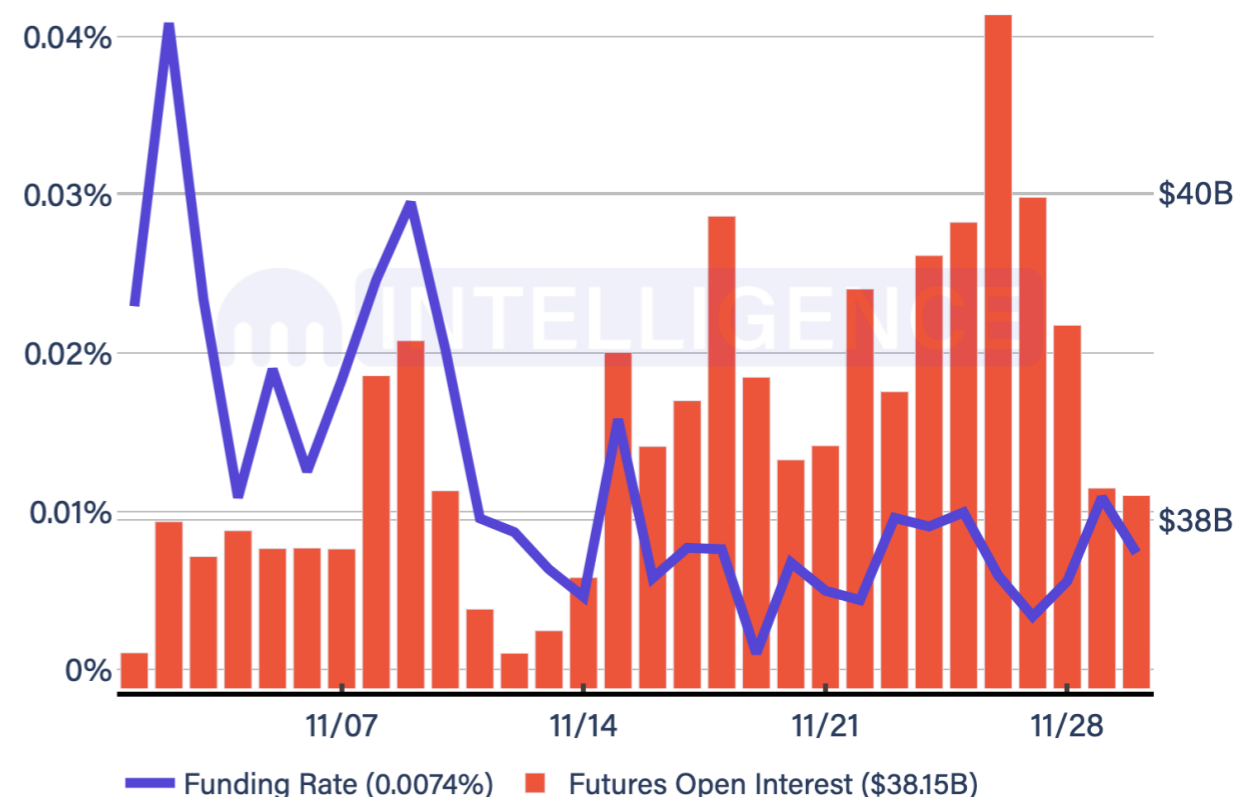
What Happened In Crypto? Pt. 2

- A Nov. sell-off across the broader market caused market sentiment to weaken substantially in Nov., leading some to think that BTC could break critical support levels and slip into a bear market. Such is evidenced by the Crypto Fear & Greed Index dropping to a 2-month low of 21 in late Nov., or “Extreme Fear.”
- Market participants’ concern of BTC falling substantially lower didn’t just coincide with the digital gold testing critical support levels, but open interest climbing to an all-time high amid BTC’s retreat from \$69,000. Many were speculating on BTC plunging lower as a result of cascading stop losses due to the market deleveraging.
- Although open interest remains relatively high as of month-end at \$38.2B and could fuel a correction in the month(s) ahead, Nov. concluded with open interest back at levels last seen on Nov. 7 when BTC was trading at roughly \$63,300. The drop in open interest alongside the somewhat menial decline in price tells us that leverage was able to be cleared out of the market without derailing the latest rally. Furthermore, a positive futures funding rate of 0.0074% as of month-end indicates that the bulls remain in control of the market.

Crypto Fear & Greed Index



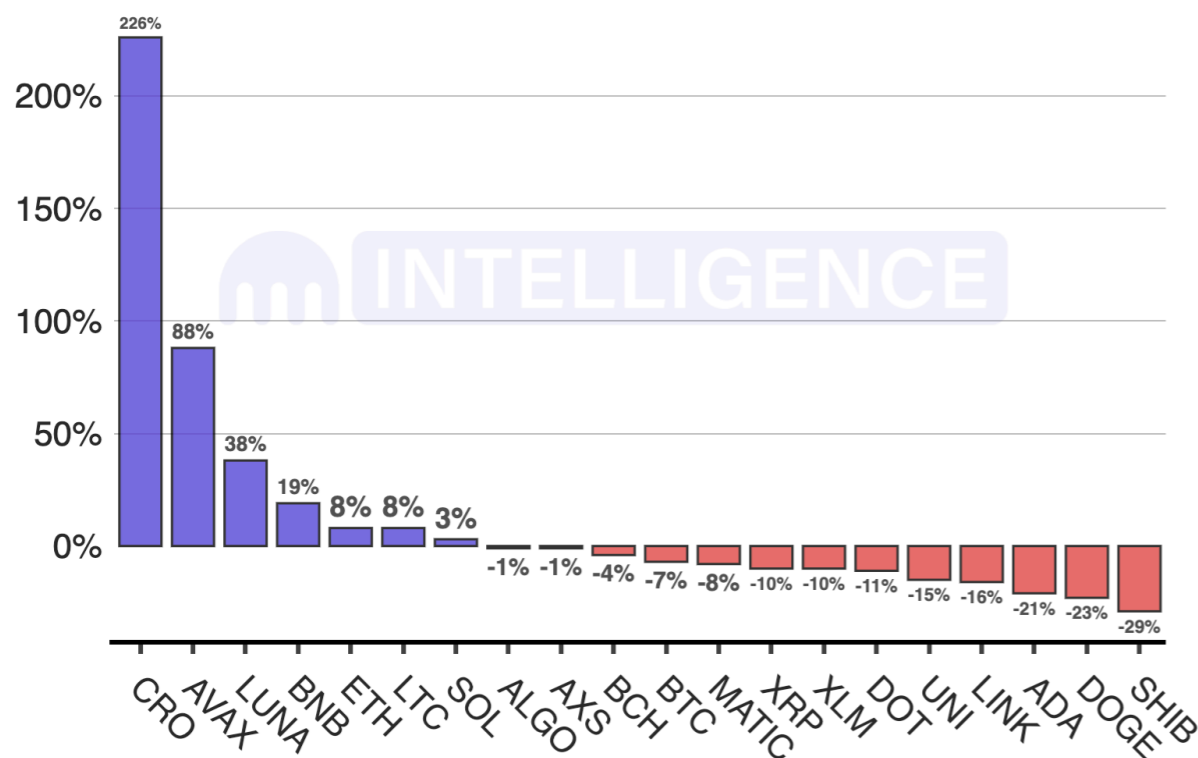
BTC Futures Funding Rate & Open Interest - Nov. 2021



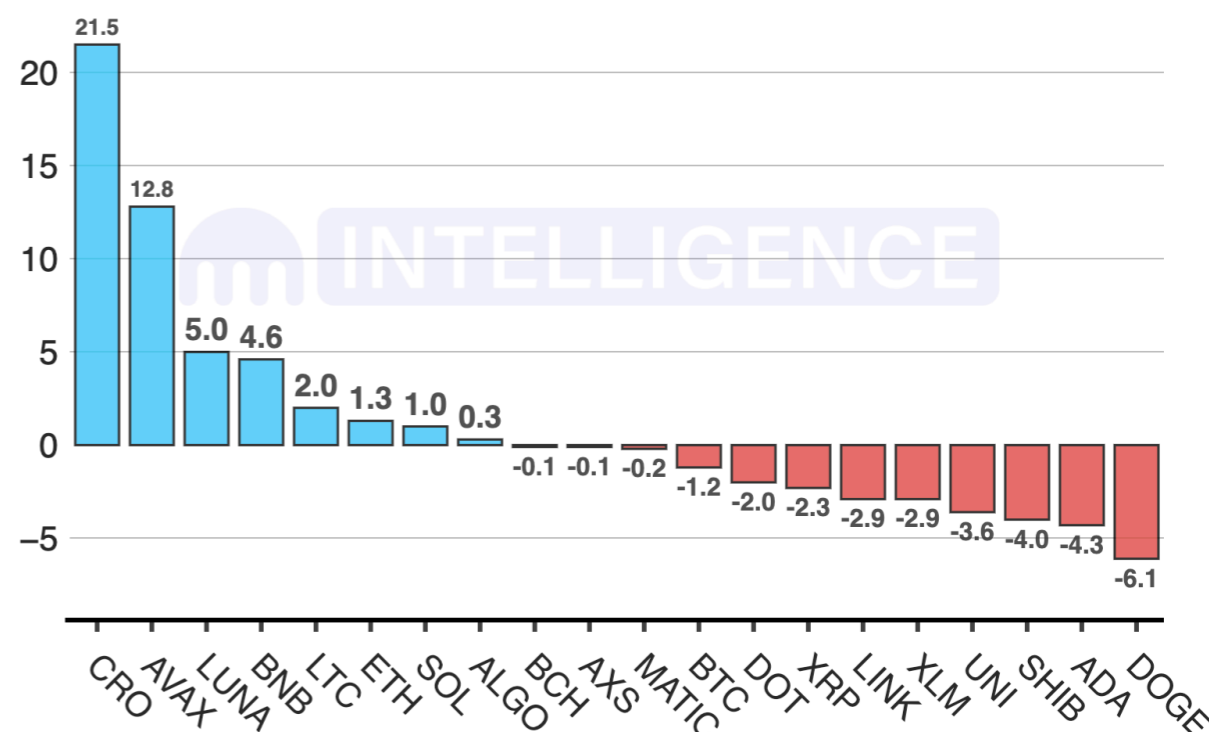
What Happened In Crypto? Pt. 3

- When looking at returns amongst the top 20 cryptoassets by market cap, one will find that the vast majority of cryptoassets finished the month in the red; BTC was a middle-of-the-pack performer with a monthly return of -7%. Meanwhile, the month's outperformers were CRO and AVAX with a return of +256% and +88%, respectively.
- However, when looking at YTD performance, one will find that BTC stands as the third-worst performing with a return of +97%, with BCH (+67%) and LTC (+66%) being the two worst performing of the bunch.
- In terms of risk-adjusted returns that account only for downside volatility (Sortino ratio), the month's outperformers amongst the top 20 cryptoassets were CRO (21.5), AVAX (12.8), and LUNA (5) - all of which came in well ahead of the month's average and median reading of 1.13 and -0.55, respectively. BTC came in below both readings with a Sortino ratio of -1.2.
- Looking as far back as Jan. 1, BTC stands as the 4th worst performing cryptoasset in terms of risk-adjusted returns; BTC's Sortino ratio of 2x places it well below the average and median reading of 6.09 and 4.4, respectively.

Returns - Nov. 2021



Risk Adjusted Returns (Sortino Ratio) - Nov. 2021



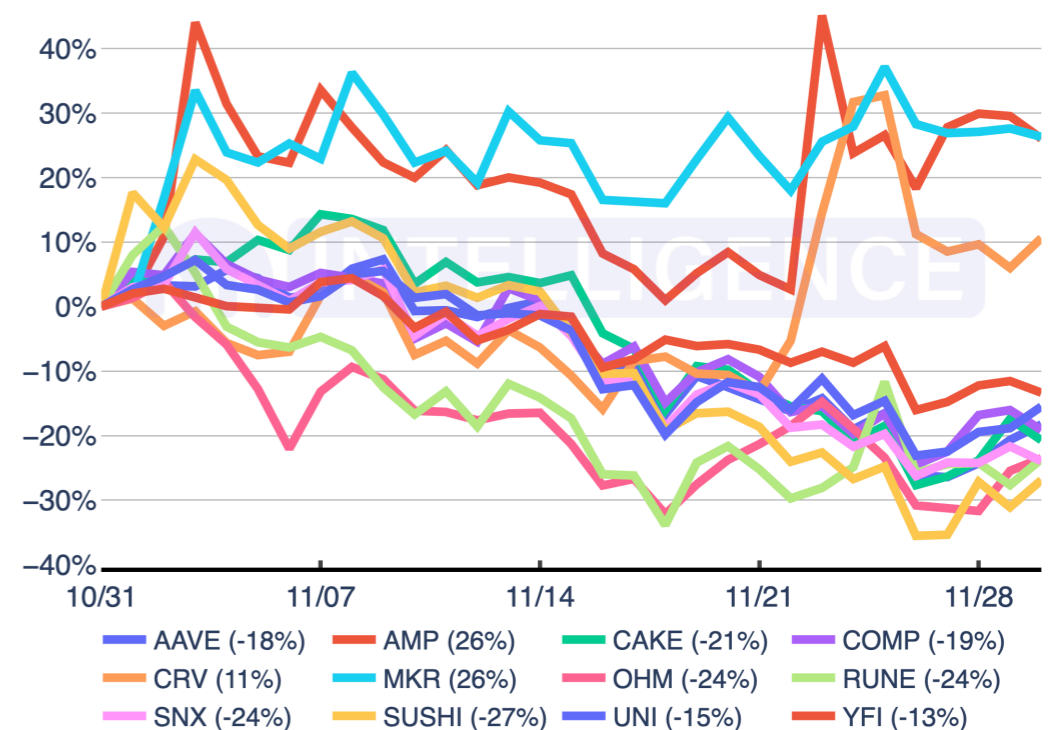
What Happened? - DeFi

- Aave, MakerDAO, and Curve took rank as the top 3 DeFi protocols by total value locked (TVL). However, Curve, Balancer, and Venus were most “undervalued” when looking at Market Cap/TVL. Looking at P/S ratios, Sushiswap was the “cheapest” protocol at 314x, below the average and median reading of 2,059x and 743x, respectively.
- Excluding AMP (+26%), CRV (+11%), and MKR (+26%), the largest DeFi tokens finished Nov. down anywhere from -13% to -27%.
- Headwinds:** Polygon & BSC-based lending protocol bZx was hacked for \$55M due to a private key leak, and Curve invoked an emergency DAO proposal to block Mochi Finance from taking over governance.
- Innovation & Developments:** A governance proposal showed that Aave is ready to launch its V3 upgrade, Axie Infinity released its own decentralized exchange (Katana) on its Ronin sidechain, Uniswap announced plans to rebrand and clarified the distinction between its Uniswap DEX Protocol and Uniswap Labs development studio, SushiSwap launched liquidity mining incentives on the Moonriver blockchain to bring cross-chain liquidity to the Polkadot and Kusama ecosystems, DeFi protocol ShapeShift DAO announced the launch of its dollar-pegged stablecoin (oneFOX), ConstitutionDAO formed to buy one of eleven remaining original prints of the U.S. Constitution at a Sotheby’s auction, ETH-based yield tokenization protocol Pendle launched support for the Avalanche network to enable users to speculate on the future yields and underlying asset values associated with interest-bearing tokens and liquidity provider (LP) positions, and play-to-earn (P2E) NFT collection Wolf Game saw \$52M volume in sales after launching a risk-based DeFi game.

DeFi Metrics - Nov. 2021

Project	TVL	Market Cap	Market Cap/TVL	P/S Ratio	30D Revenue	Rev. Change
Aave	\$10.51B	\$4.35B	0.41x	1431.2x	\$32.42M	148%
MakerDAO	\$8.61B	\$3.14B	0.36x	2133.1x	\$13.96M	38%
Curve	\$7.4B	\$0.55B	0.07x	12582.5x	\$3.32M	25%
Compound	\$7.4B	\$2.04B	0.28x	857.4x	\$38.92M	-24%
PancakeSwap	\$6.64B	\$2.67B	0.4x	N/A	N/A	N/A
Uniswap	\$5.32B	\$10.87B	2.04x	628.6x	\$283.2M	145%
Yearn	\$3.47B	\$1.5B	0.43x	N/A	N/A	N/A
SushiSwap	\$3.45B	\$1.78B	0.51x	313.8x	\$71.25M	111%
Balancer	\$2.41B	\$0.32B	0.13x	2639.0x	\$9.43M	72%
Venus	\$2.16B	\$0.31B	0.14x	N/A	N/A	N/A
Average	\$5.74B	\$2.75B	0.48x	2058.6x	\$45.25M	51%
Median	\$5.98B	\$1.91B	0.38x	743.0x	\$11.69M	32%

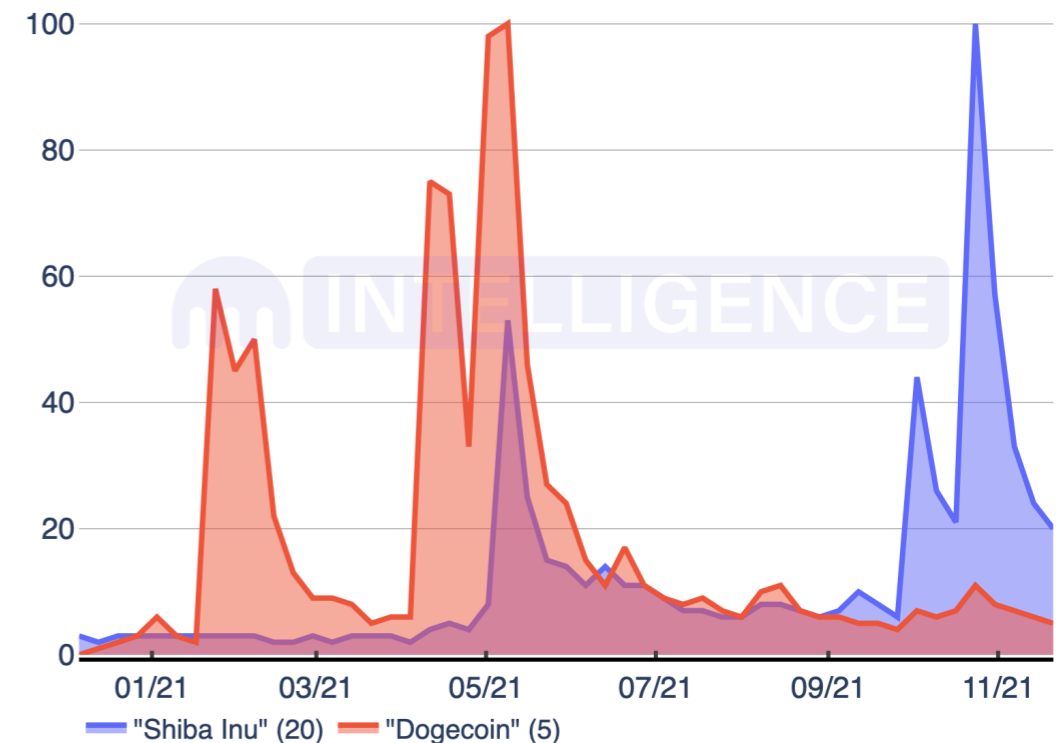
DeFi Performance - Nov. 2021



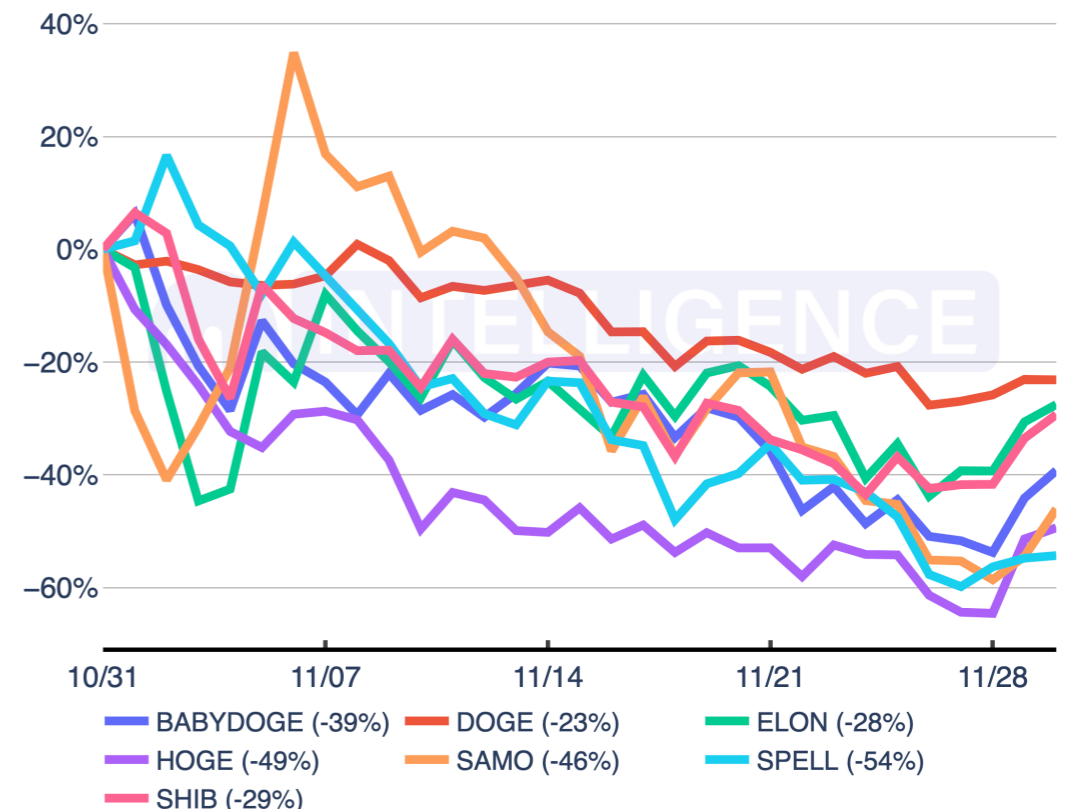
What Happened? - Meme Coins

- Following an explosive surge in demand in Oct., interest in memecoins/community coins dropped substantially as a loss of momentum and broader market weakness weighed on the sector.
- The loss of interest is visible when looking at the Google Trends Score for "Shiba Inu" and "Dogecoin" Google searches; after initially soaring in Oct., both keyword searches plunged in Nov. amid fading interest from market participants and outsiders looking in. However, when looking back to Jan. 2021, there are several instances where interest has rebounded - which suggests memecoins are here to stay.
- Virtually all large-cap memecoins finished Nov. down anywhere from -23% to -54%. However, DOGE (-23%), ELON (-28%), and SHIB (-29%) were the best performing of the bunch.
- Developments:** On Nov. 3, Floki Inu (FLOKI) announced, "Thanks to a strategic partnership with Shopping.io (SPI), you can now use your FLOKI tokens to purchase items from Amazon, eBay, Walmart, Home Depot, and Etsy — and eventually AliExpress — through the SPI platform." On Nov. 17, former FanDuel executives announced BetDEX, the world's first decentralized sports betting protocol, while securing the largest ever seed investment round by a UK startup. The startup stated that it would accept wagers in USDT, SOL, and Solana-based memecoin Samoyedcoin (SAMO) at launch. On Nov. 30, NewEgg, a leading tech-focused North American e-retailer, announced that it would accept Shiba Inu (SHIB) as payment on its platform in time for the holidays. On Nov. 29, Kraken [announced](#) trading support for Shiba Inu (SHIB) beginning Nov. 30.

Google Trends Score



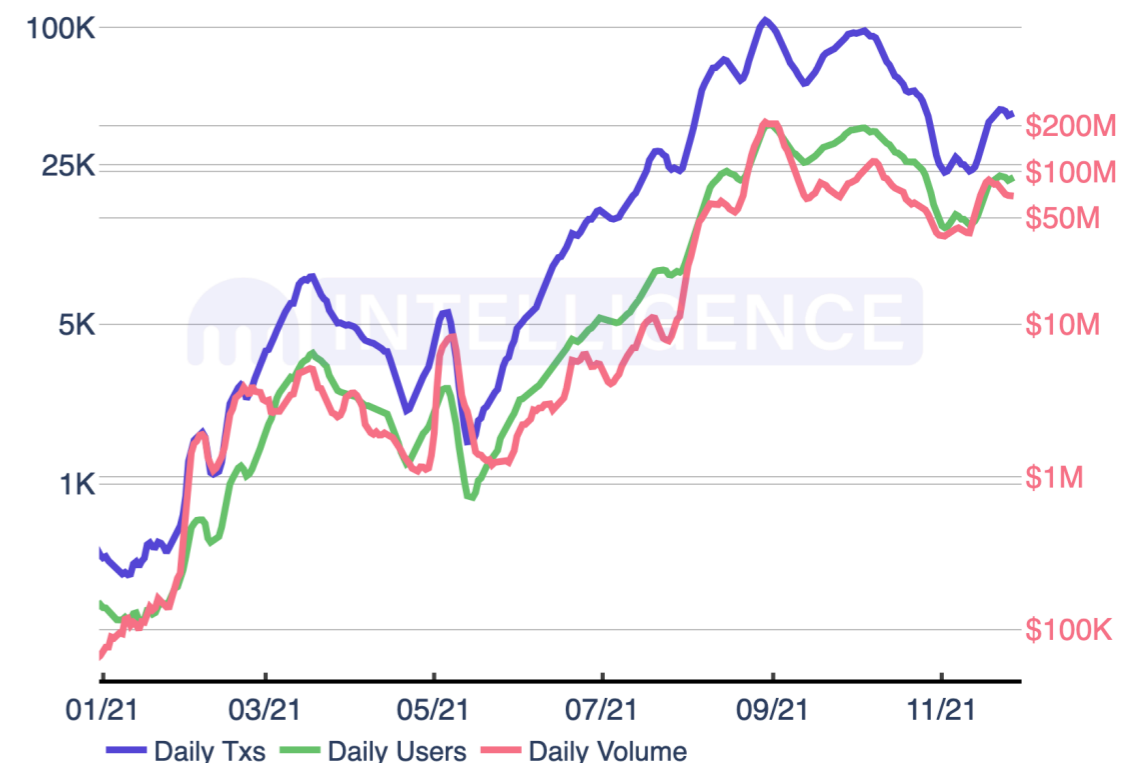
Memecoin Performance - Nov. 2021



What Happened? - NFTs & GameFi

- Activity in NFTs picked up steam in Nov. despite softening at the start of the month; the 7-day moving average of daily transactions, users, and volume on OpenSea, a proxy for NFT activity, hit a 3-month low before finishing the month at 42.1K transactions, 22K daily users, and \$69.1M in volume. The change may be due to market participants capitalizing on NFTs being priced lower in terms of USD.
- Innovation & Developments:** The UFC announced a new NFT series to include fight night paintings, event posters, championship belts, and more. Universal Music Group formed its Kingship metaverse band based on Bored Ape Yacht Club (BAYC) NFT avatars, and The Sandbox rolled out its alpha launch event on Nov. 29.
- Sales:** Quentin Tarantino announced an NFT collection of six uncut and never-before-seen scenes from his cult classic film Pulp Fiction, Tungsten DAO purchased an NFT of a 14.545 inch, 2,000 lb tungsten cube for $\text{Ξ}56.9$ (\$250,000), a RarePepe Nakamoto Card 1 NFT sold for \$500,000, and ETH-based CryptoDragons sold a "Legendary Egg" for $\text{Ξ}50$ (\$212,000) and 1,000 eggs for $\text{Ξ}559$ ETH (\$2.3M) in its presale.
- Capital Raises:** Sfermion raised \$100M for a new fund focused on the "experiential infrastructure that involves the NFT space," Sancto Capital raised \$20M for its inaugural fund to provide strategic capital and resources to GameFi, DeFi, and cross-chain infrastructure projects, The Sandbox raised \$93M, game studio Faraway raised \$30M to continue building Solana-based NFT browser games, Mythical Games concluded a \$150M funding round to bring its Mythical Platform to market, and Solana Ventures and Lightspeed Venture Partners announced a \$100M GameFi ecosystem fund.

OpenSea Statistics (7D Moving Avg.)



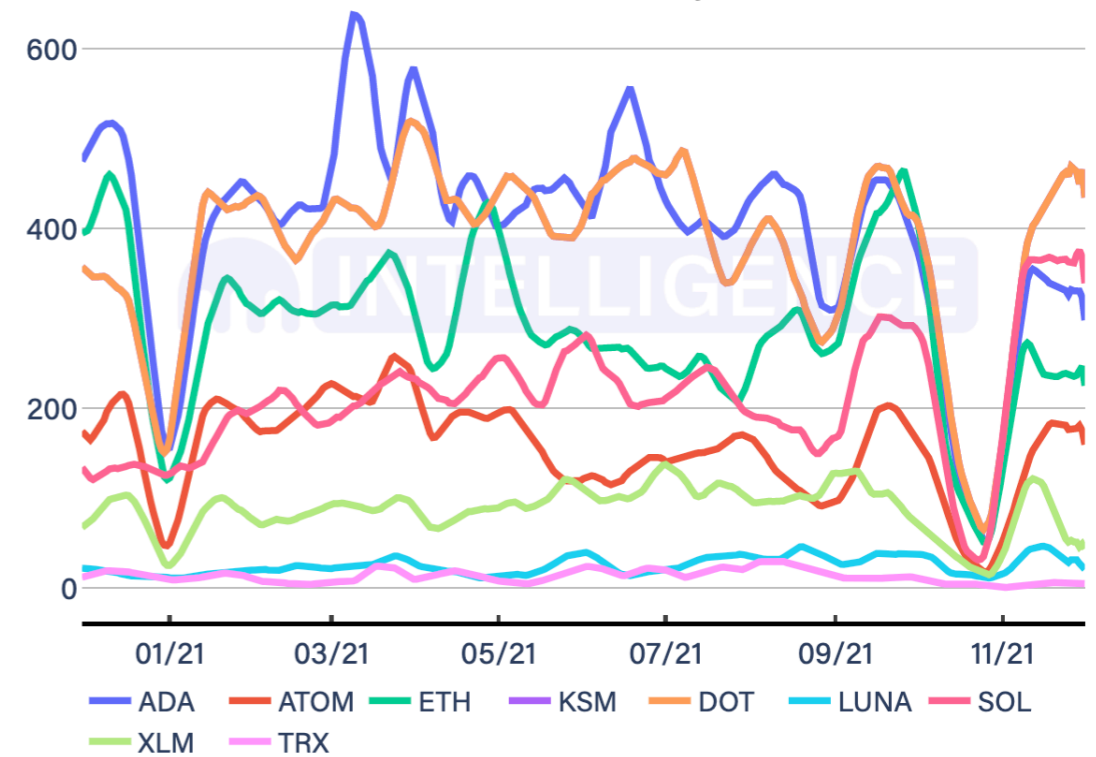
Nov. 2021 Top NFT Collections (ETH & SOL)

Collection	Rank (MoM Change)	Avg. Price	Market Cap	Floor	Supply	Blockchain
CryptoPunks	1 (-)	\$590,565	\$5,713M	\$298,155	9,999	ETH
BAYC	2 (-)	\$190,015	\$2,141M	\$174,597	10,000	ETH
VeeFriends	3 (-)	\$59,208	\$853M	\$58,059	10,255	ETH
Cool Cats	4 (+1)	\$55,702	\$512M	\$50,081	9,933	ETH
Meebits	5 (+1)	\$22,619	\$445M	\$16,916	20,000	ETH
MAYC	6 (+1)	\$23,134	\$347M	\$17,501	15,876	ETH
Loot	7 (+1)	\$68,170	\$253M	\$24,407	7,779	ETH
Solana Monkey Business	8 (-4)	\$48,992	\$251M	\$41,722	5,000	SOL
CyberKongz	9 (-)	\$94,300	\$242M	\$48,035	3,833	ETH
SupDucks	10 (-)	\$13,027	\$165M	\$11,236	10,001	ETH
CrypToadz	11 (-)	\$27,520	\$156M	\$25,730	7,024	ETH

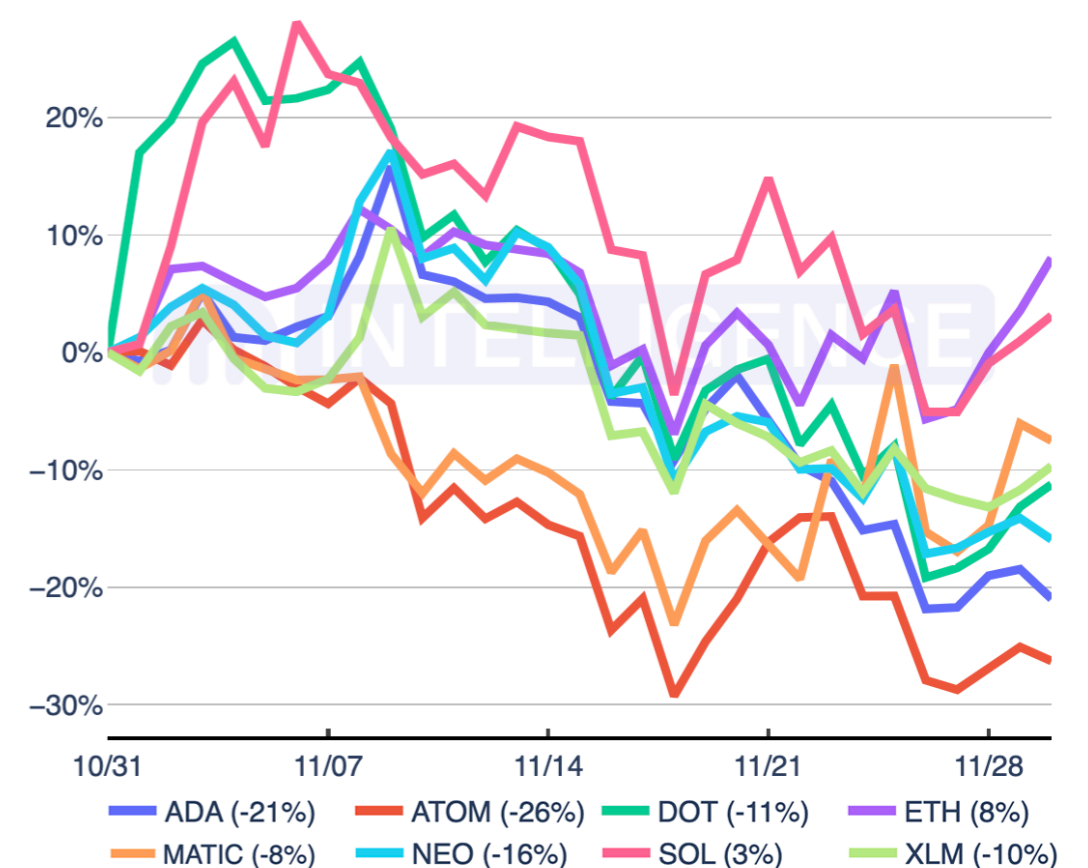
What Happened? - Infrastructure

- Looking at the 7-day moving average of development activity, DOT, SOL, and ADA were the most active, while development on TRX remained relatively underwhelming for yet another month.
- Of the various large-cap Layer 0, Layer 1, and Layer 2 blockchains, ETH and SOL were the only ones to finish higher in Nov., while ATOM and ADA were the worst-performing with a monthly return of -26% and -21%, respectively.
- Innovation & Developments:** A proposal to enable parachain registration and crowdloans on the Polkadot network was passed and Polkadot parachain auctions kicked off, Tether launched its USDT stablecoin on the Avalanche blockchain, Cosmos-based smart contract platform Agoric launched its mainnet after completing a \$32M private token sale, wallet provider Phantom announced a January 2022 release of its mobile wallet to enhance accessibility for the Solana ecosystem, Ethereum roll-up exchange ZKSwap started a new round of 30-day and 180-day Proof of Stake (PoS) liquidity mining events with a total reward of 3M ZKS tokens (\$1.8M).
- Capital Raising:** The Avalanche Foundation announced a \$220M fund to attract developers focused on DeFi, enterprise applications, NFTs, and more. Matter Labs, the firm behind ETH Layer 2 scaling protocol zkSync, raised \$50M in a Series B round to finance the expansion of its scientific and engineering teams. Neon Labs, responsible for building an Ethereum Virtual Machine (EVM) on Solana, raised \$40M in a private token sale to double its team size and launch its own mainnet "soon." Also, ETH Layer 2 developer Starkware raised \$50M in a Series C funding round at a \$2B valuation.

Infrastructure Development Activity (7D MA)



Infrastructure Performance - Nov. 2021



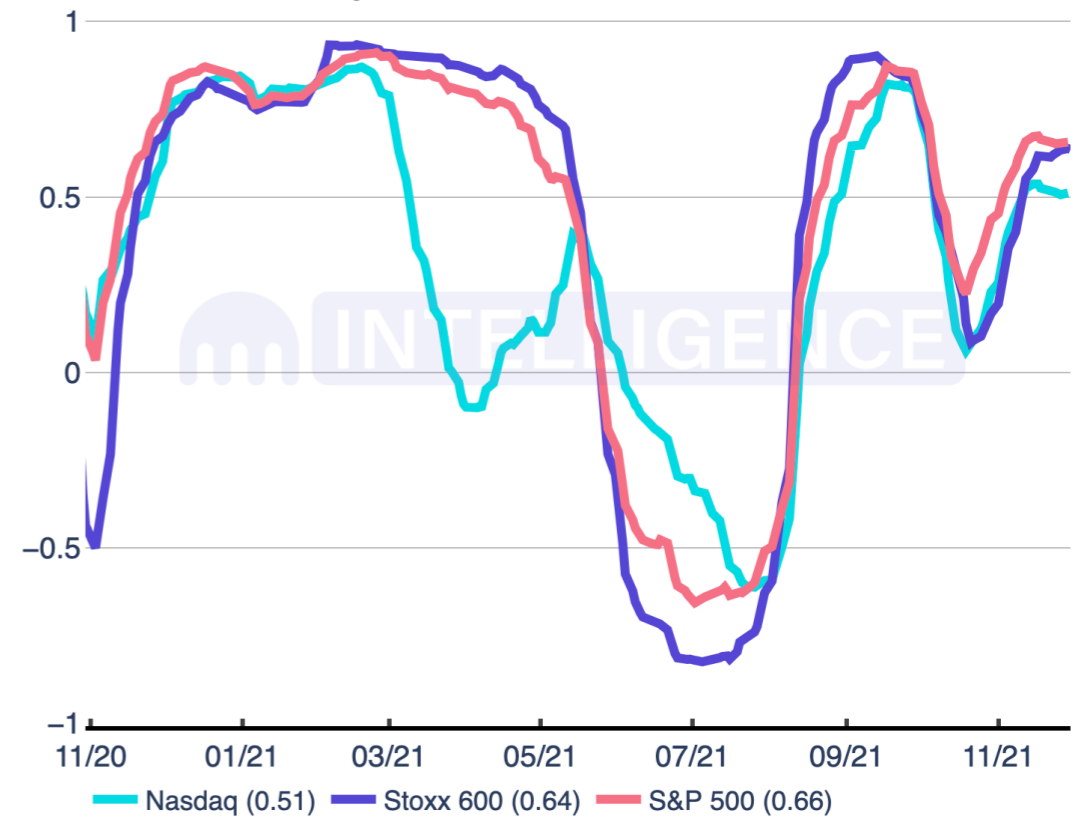
Industry Highlights & News

- **Nov. 1:** SoftBank and Alphabet Inc. participate in a secondary sale of Digital Currency Group (DCG) shares for \$700M, giving DCG a total valuation of \$10B. The Salvadoran government announces that it will use profits from its Bitcoin Trust account to construct 20 schools.
- **Nov. 2:** The Biden administration publishes stablecoin guidance that urges lawmakers to subject stablecoin issuers to the same strict oversight as banks. Customers Bank announces that it has onboarded numerous crypto trading firms with \$1.5B of zero-cost deposits in 3Q.
- **Nov. 4:** NYC Mayor-Elect Eric Adams says that he plans to take his first three mayoral paychecks in BTC.
- **Nov. 5:** Congress passes the controversial \$1.2T infrastructure bill that includes \$28B in taxes on digital assets.
- **Nov. 7:** NYC Mayor-Elect Eric Adams announces interest in educating youth about digital assets, "We must open our schools to teach the technology, to teach this new way of thinking."
- **Nov. 9:** A Civic Science Survey reveals that 4% of respondents either quit their job or know someone that did over the past year due to financial freedom earned through crypto investments.
- **Nov. 10:** The U.S. Labor Department reports that CPI (inflation) rose +6.2% in the 12 months through Oct., the highest since 1990.
- **Nov. 11:** ProShares' BTC Strategy futures ETF (BITO) surges to the top 2% of all ETFs in total trading volume with over \$1.4B worth of inflows. Miami Mayor Francis Suarez announces that the city will soon distribute BTC yield to citizens who stake the city's crypto token, MiamiCoin.
- **Nov. 12:** A survey of more than 10,000 Americans by The Pew Research Center found that 86% of respondents "have heard at least a little about crypto," almost doubled since 2015.
- **Nov. 14:** BTC Taproot upgrade activates at block 709,632. Paradigm Capital launches a new \$2.5B venture fund for crypto companies.
- **Nov. 17:** ETH incubator ConsenSys completes a \$200M funding round at a total valuation of \$3.2B.
- **Nov. 22:** President Biden renominates Jerome Powell as Fed Chairman due to his leadership through the COVID-19 pandemic. El Salvador says it will issue \$1B worth of BTC bonds to "accelerate hyperbitcoinization and bring about a new financial system on top of BTC." The ECB approves the expansion of its electronic payment instruments, schemes and arrangement (PISA) framework to cover digital assets.
- **Nov. 23:** The OCC, Federal Reserve, and FDIC releases a statement indicating that they plan to publish crypto guidance throughout 2022.
- **Nov. 25:** Russia's central bank publishes a report revealing that Russian citizens exchanged over \$5B in crypto transactions in 2021.
- **Nov. 29:** MicroStrategy says it purchased an additional 7,002 BTC (\$414M) at an average price of ~\$59,187 per BTC.

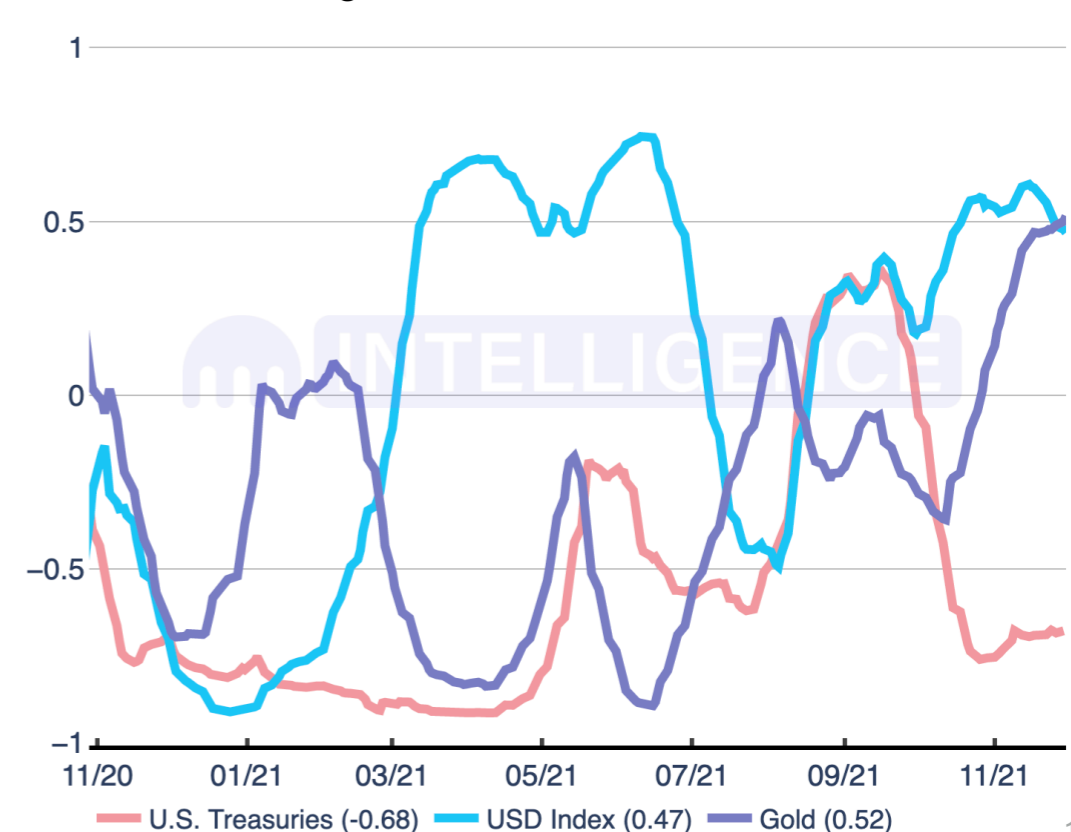
BTC Correlations

- Although trending in lockstep for the first part of the month, BTC's correlation with risk-on assets softened modestly after climbing to a 1-month high earlier in the month. While U.S. equities were able to stay afloat for much of the month, BTC trended lower before dropping considerably in the last week of Nov. as risk-on assets sold off following news of a new COVID-19 variant and fears of what impact the virus could have on the global economy. However, on the last day of the month, equities sold off further on Omicron fears while BTC and the broader cryptoasset market traded higher.
- With BTC being modestly positively correlated with equities while stock valuations sit near record highs (CAPE ratio of 38.6x vs. Dec. 1999 all-time high of 44.20), Omicron's impact remains uncertain, and inflation fears are near multi-decade highs, softness in the equity market could spill over into BTC if/when a correction comes.
- When looking at risk-off assets, one will see that BTC's 90-day correlation with U.S. Treasuries was largely unchanged month-over-month and remains strongly negatively correlated at a reading of -0.68 as of month-end. Similarly, BTC's correlation with the U.S. Dollar Index was largely unchanged month-over-month and finished at 0.47. Meanwhile, BTC's correlation with gold strengthened considerably in Nov. after the legacy store-of-value failed to break \$1,900 mid-month and retreated lower alongside BTC.
- While one could argue that BTC's correlation with both risk-on and risk-off assets remains spurious at best, a correction in traditional financial assets could cause correlations to strengthen, much like we saw in March 2020.

BTC 90D Rolling Correlation - Risk-On Assets



BTC 90D Rolling Correlation - Risk-Off Assets



History Says...

- BTC's disappointing -7% return in Nov. did not live up to expectations; Nov. came in well below the average and median readings of +48% and +14%, respectively, and marked the third worst-performing Nov. on record when looking as far back as 2011.
- Just as Nov. proved to be a worse-performing month than expected, it was also far from being considerably more volatile than Oct. BTC's volatility of 61% was essentially unchanged month-over-month and came in well below the month's average and median reading of 82% and 73%, respectively. Last month was the fourth least volatile Nov. in the past 11 years.
- Looking ahead, one will find that Dec. returns, on average, +13%. Dec.'s relatively uninspiring historical performance is perhaps the result of market participants selling for tax purposes and/or the month being a low trading volume environment given the holidays.
- Concerning annualized volatility, note that Dec. has average reading of 81% - making it the fourth most volatile month on average. However, when accounting for outliers like 2013's annualized volatility of 210% and 2017's annualized volatility of 149%, one will find Dec. has a median reading of 62% - the third lowest on record.
- Quarter-to-date, BTC is up +31%. This places 4Q2021 in the middle-of-the-pack and indicates BTC has yet to drastically outperform like many had expected at the start of Oct. Unlike last month, BTC's quarterly performance no longer possesses a strong, positive correlation with any of the other prior quarters. Said differently, BTC is no longer trending in a manner that is akin to any prior quarters.

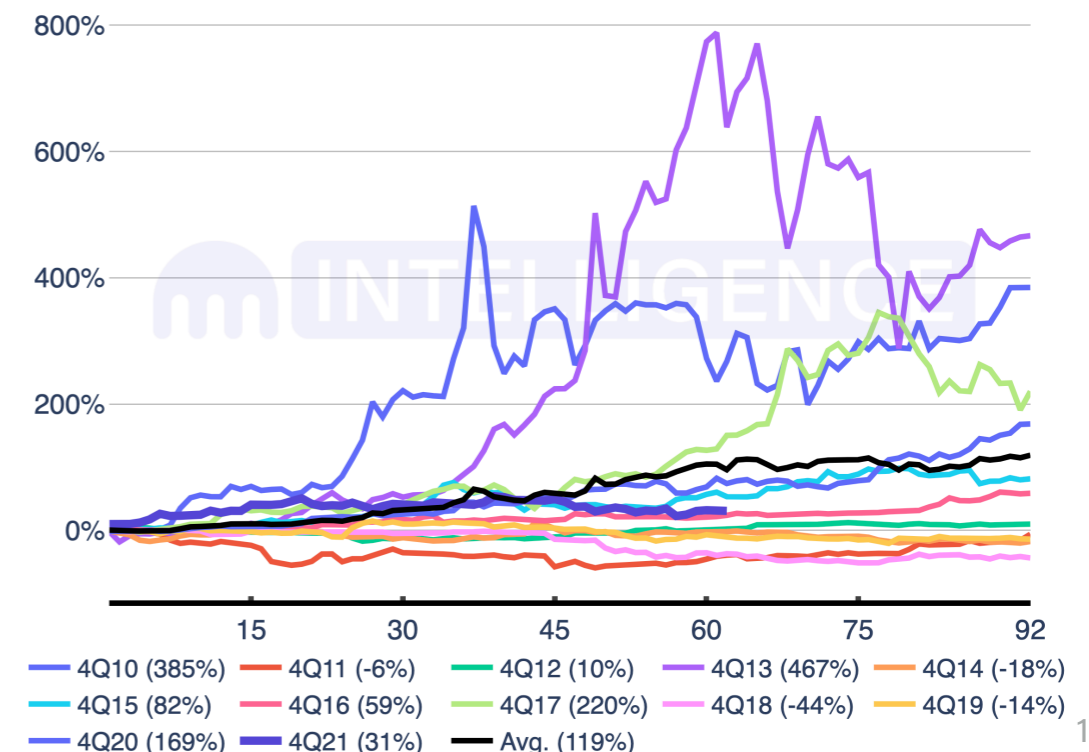
BTCUSD Monthly Returns

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2011	75%	22%	-15%	352%	182%	68%	-13%	-37%	-38%	-35%	-6%	53%
2012	5%	-20%	-1%	3%	4%	27%	41%	6%	24%	-10%	19%	8%
2013	54%	63%	171%	34%	-8%	-31%	18%	33%	-3%	59%	451%	-24%
2014	7%	-32%	-20%	-6%	36%	1%	-9%	-20%	-18%	-12%	17%	-15%
2015	-31%	12%	-6%	-4%	-1%	18%	10%	-18%	4%	32%	14%	19%
2016	-16%	18%	-4%	8%	17%	25%	-8%	-6%	6%	14%	2%	29%
2017	-3%	20%	-12%	27%	60%	2%	19%	74%	-12%	47%	49%	29%
2018	-25%	14%	-37%	36%	-18%	-15%	21%	-8%	-8%	-4%	-37%	-11%
2019	-10%	63%	7%	27%	61%	27%	-5%	-8%	-15%	10%	-18%	-5%
2020	30%	-9%	-25%	35%	10%	-3%	24%	3%	-8%	28%	43%	47%
2021	14%	37%	30%	-2%	-35%	-6%	18%	14%	-7%	41%	-7%	
Average	9%	17%	8%	46%	28%	10%	11%	3%	-7%	15%	48%	13%
Median	5%	18%	-6%	27%	10%	2%	18%	-6%	-8%	14%	14%	13%

BTCUSD Monthly Volatility

	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2011	146%	171%	60%	184%	232%	278%	69%	212%	161%	179%	124%	84%
2012	142%	95%	59%	35%	14%	46%	58%	164%	30%	47%	34%	25%
2013	40%	59%	109%	321%	90%	58%	99%	40%	33%	106%	168%	210%
2014	79%	85%	103%	115%	62%	52%	27%	54%	62%	61%	73%	46%
2015	149%	74%	61%	44%	27%	34%	47%	72%	26%	37%	93%	61%
2016	80%	40%	25%	25%	50%	90%	44%	57%	23%	27%	38%	37%
2017	92%	43%	97%	31%	88%	86%	129%	69%	109%	66%	88%	149%
2018	121%	137%	83%	86%	54%	69%	64%	55%	45%	27%	97%	85%
2019	50%	53%	24%	74%	92%	100%	93%	64%	57%	76%	51%	51%
2020	58%	52%	178%	74%	69%	51%	45%	44%	55%	36%	70%	63%
2021	106%	102%	64%	67%	112%	97%	58%	64%	74%	60%	61%	
Average	97%	83%	78%	96%	81%	87%	67%	81%	61%	66%	82%	81%
Median	92%	74%	64%	74%	69%	69%	58%	64%	55%	60%	73%	62%

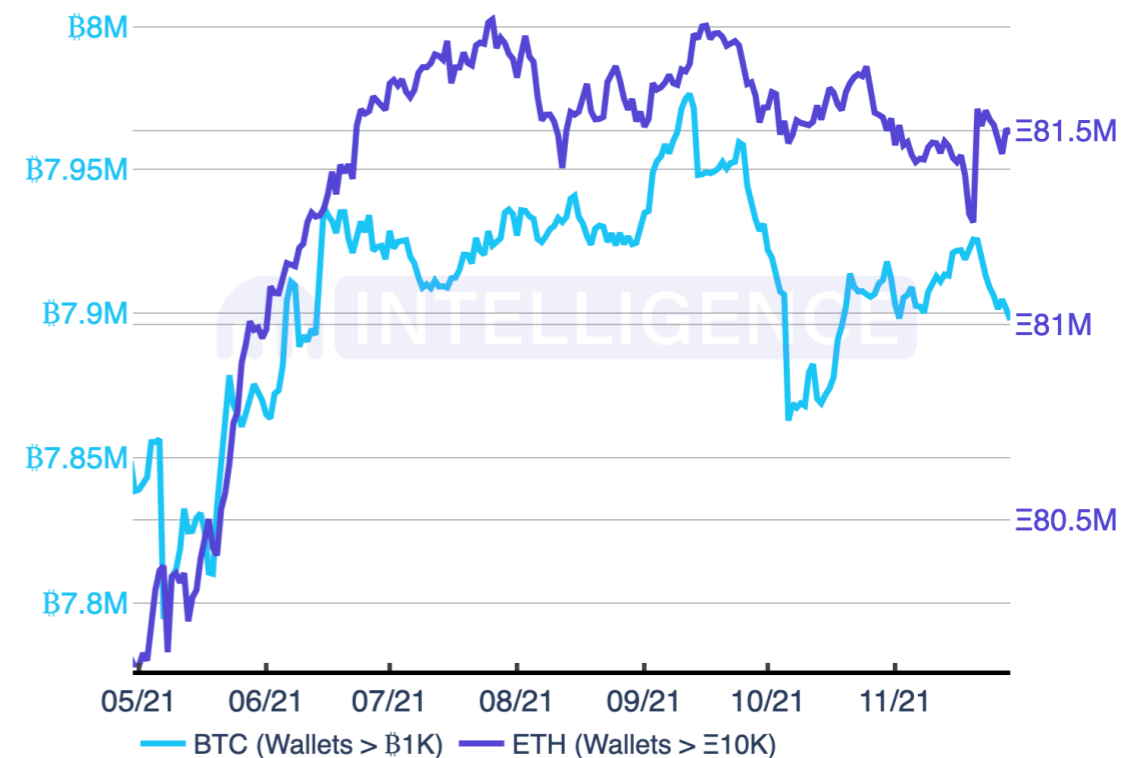
Historical 4Q Returns



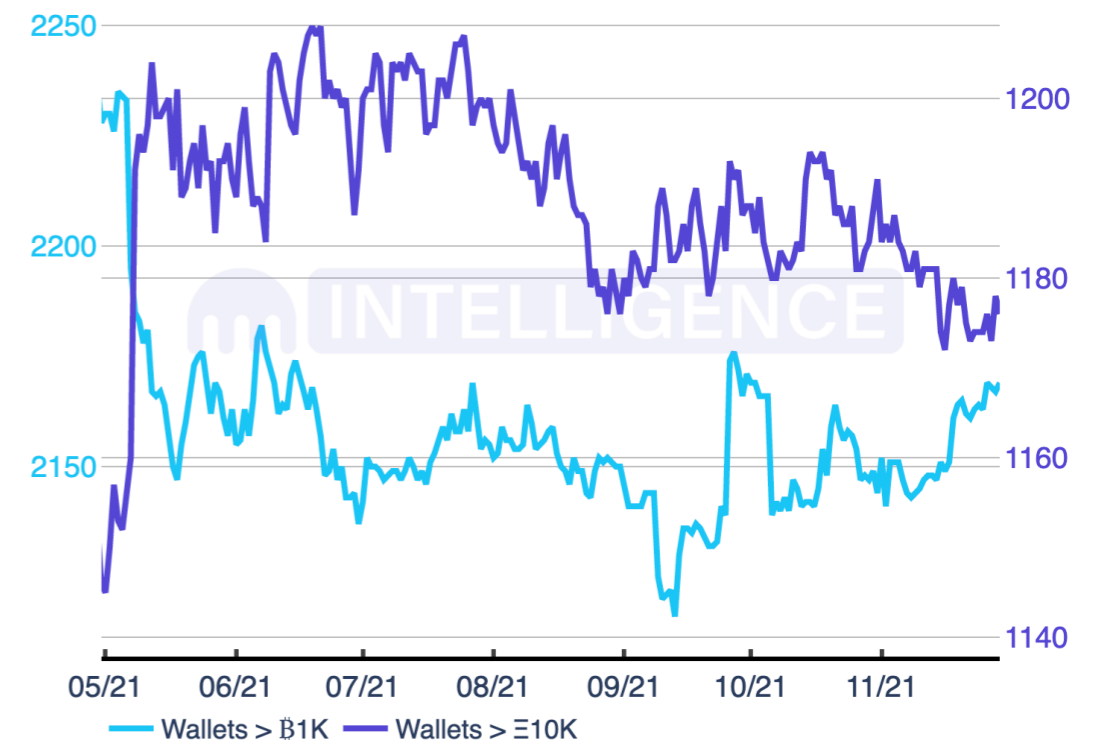
What The Whales Are Doin'

- To get a better sense of what whales did in Nov., as well as the overall relative level of interest that this cohort has, we can look at the amount of BTC and ETH in whale wallets. We can also look at the sheer number of whales that exist thanks to on-chain data. Note that we define a “whale” as a wallet with more than ₿1,000 or ð10,000.
- When looking at the number of whale wallets that exist, we’ll see that the number of BTC whales went from 2,141 to 2,169 in Nov., a near 2-month high. Although up modestly, note that the number of BTC whales has remained rangebound and has yet to surpass a local high of 2,176 set in late Sept. 2021. A breach may imply new demand is coming to market and/or smaller wallets have aggressively accumulated BTC.
- Staying true to its trend, the number of ETH whales fell from 1,184 to 1,176 and is now further away from an all-time high of 1,208 set June 2021. While the number of ETH whales could be explained by whales moving ETH between wallets for various ETH-based dApps, it could also be argued that ETH whales have diversified their holding and ETH’s rally over the past several months hasn’t necessarily been fueled by whales.
- While the number of BTC whales trended higher in Nov., the amount of BTC held by wallets fell from ₿11.912M to ₿11.87M, which could mean that Nov.’s weakness was due to whales taking profit. On the flip-side, the amount of ETH held by whales rose from 95.65M to 95.68M, indicating that despite fewer ETH whales, those who remain interested in owning ETH in size opportunistically bought into last month’s weakness.

BTC & ETH in Whale Wallets



Number of BTC & ETH Whales



SOL: To All-Time Highs?

- When looking as far back as 2020, one will see that SOL has been in a broadening ascending wedge. Not only that, but the 4th ranked cryptoasset appears to be in the early innings of its fourth wave of “price discovery.” Accordingly, it appears in the early innings of a fourth wave of price discovery, potentially continuing the trend along the wedge pattern.
- Looking at the 1-week chart, one will see that SOL’s Nov. softness resulted in SOL nearly backtesting the wedge’s uptrending support line. The bounce could be interpreted by many as not only just “bullish,” but also a sign that a test of the wedge’s resistance could follow in the month(s) ahead.
- As with many other chart patterns, the longer it takes for SOL to trend higher while also retaining the wedge’s uptrending line as support, potentially the higher SOL could travel before ultimately cooling off and entering into a downtrend. If SOL were to test the wedge’s resistance before EOY, one might expect a local top in excess of \$600.

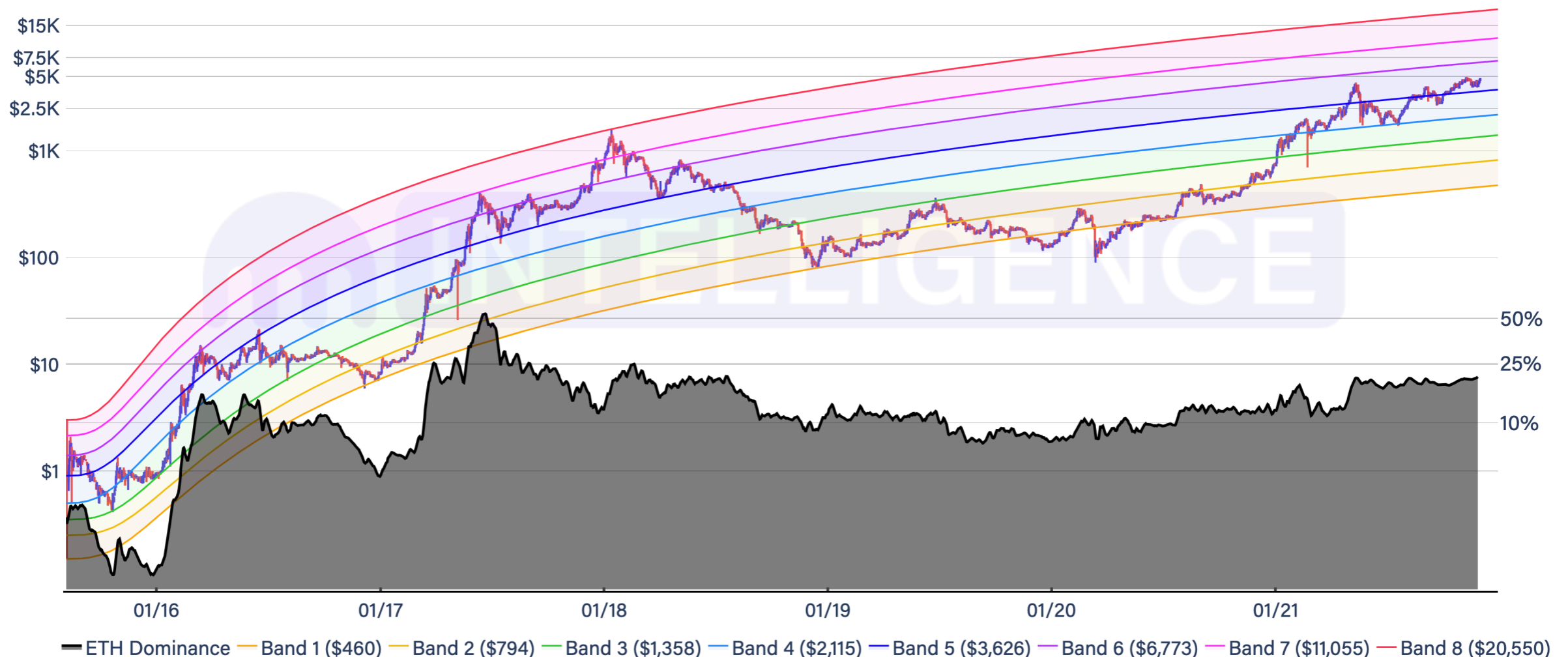
SOLUSD - 1W



ETH: Up To New Resistance?

- As of month-end, ETH stands dead center between band 5 and band 6 of its Logarithmic Regression Rainbow after successfully reclaiming band 5 as support in Oct. 2021.
- With ETH smack dab between what may be considered critical support and resistance, one could argue that ETH is headed either to band 6, a regression trend line last tested in 2018, or back down to band 5 to backtest critical support. A test of resistance would imply an incremental +46% return as of month-end. Meanwhile, a move back down to support, which could come to fruition should ETH fail to continue trending higher, would imply a -22% drop.
- The recent climb in ETH's dominance suggests that the second-largest cryptoasset has started to steal market share as of late. A continuation of said trend could foreshadow what some believe is an inevitable climb to \$6K and beyond.

ETHUSD - Logarithmic Rainbow Regression



BTC: Where Do We Stand?

- Looking at BTC's bull market support band, or what has historically dictated the macro trend, we'll see the BTC's move to an intramonth low of \$53,300 coincided with a retest of the upper support band in the second-to-last week of Nov.
- As we've seen several times before, BTC has a history of retesting said moving average(s) before ultimately resuming a broader move higher. Typically, when BTC moves below said support band, a bear market is on the horizon.
- That said, one could argue that Nov's weakness merely marked a very typical and expected bull market correction of roughly -20%. So long as BTC continues to hold above its Bull Market Support Band, the case could be made that BTC is well-positioned to trend higher into the new year and the bull market is still on.

BTC's Bull Market Support Band



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