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Analyst Retrospective November 2021



How much gunpowder is left in cryptocurrency markets for 2021?

We have no crystal ball. What we do have is data. In our September Analyst Retro, Copper correctly predicted that Bitcoin would likely recover to the \$60k mark in October. We also predicted a market reversal a week before the bottom in July. We're not saying this to toot our own horn but to highlight that despite volatility, fundamental data is most telling. While predictions have been challenging, 2021 price swings have given investors new data points that finally add up. Copper looks for the simplest answer in this analyst retrospective and finds that Bitcoin might currently be undervalued relative to supplies.

Although exchange Bitcoin reserves are at a three-year low, this factor alone is not enough to buoy markets higher and higher. When Bitcoin hit its previous all-time-high in April, exchange reserves were also at a near three-year low. The price of Bitcoin then plummeted 50%.

Although this might sound like we're raining on the parade, what we really wish to highlight is that Bitcoin is by far one of the most transparent supply and demand plays across every single imaginable asset class. All someone really needs to do is look at the blockchain.

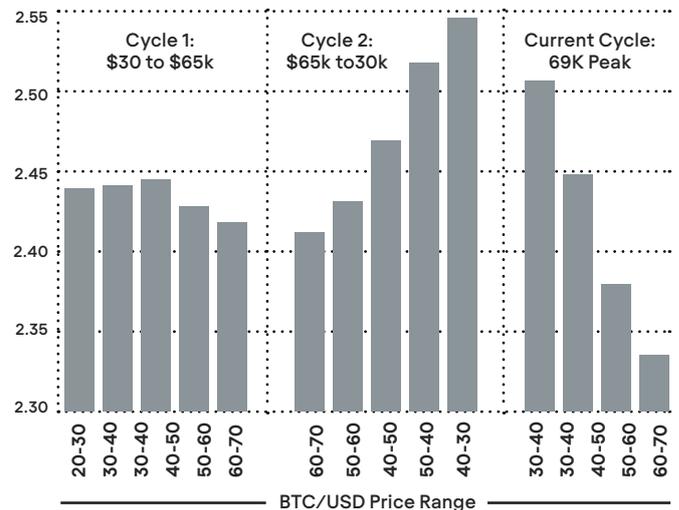
With that said, investors can see how much Bitcoin is available for sale. And while there are always an equal number of buyers and sellers, the difference is measuring who is more enthusiastic, resulting in price pressures in either direction. But what's most important to figure out is what long-term holders are doing as this fundamentally affects the available supply for sale.

2021 volatility has given investors some data points for the first time that can at the very least tell whether or not markets are running efficiently. And there is very reasonable symmetry to market price and supply that strongly suggests that Bitcoin is actually now undervalued relative to supplies seen at every price level range (see charts 1 & 2).

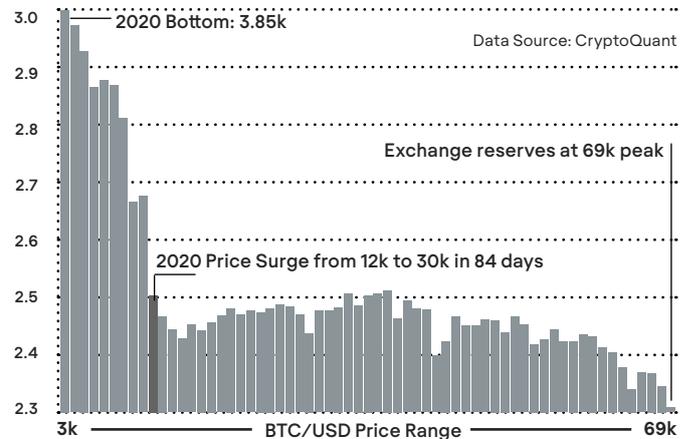
This year has seen Bitcoin go from \$30k to \$60k in two cycles. What's interesting is that exchange supplies in both cycles were roughly the same at the respective price level (see chart 3).

It would be hard to say this symmetry is coincidental. And should these price to reserve levels continue to play out, Bitcoin should be valued at \$120k if supply does not re-enter the exchange marketplace.

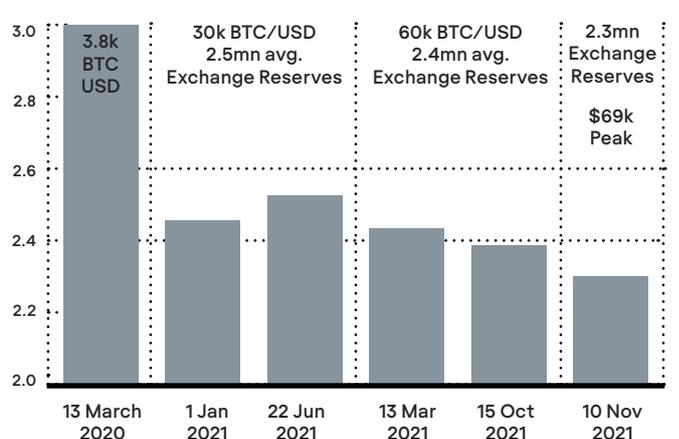
1: Avg. exchange reserves during 2021 cycles versus price range (mn BTC)



2: Average exchange reserves for 2020-21 relative to BTC/USD price



3: Rough symmetry: Bitcoin exchange reserve levels versus price





Since exchange reserves hit their peak in March 2020, nearly 700k Bitcoin's have been removed from available supplies. But there are some differences for 2021 which are important to take note of.

For 2020, reserves dropped by over 18% from 13 March (peak reserves, BTC/USD bottom) till the end of the year. For 2021, it's only been a third of that across both spot and derivative markets (see chart 4). Bitcoin is starting to get expensive.

What has dramatically changed however is the fact that 2021 has seen nearly double as much Bitcoin removed from spot markets than in 2020. On the flip side, derivative markets have seen an increase of 6.5%.

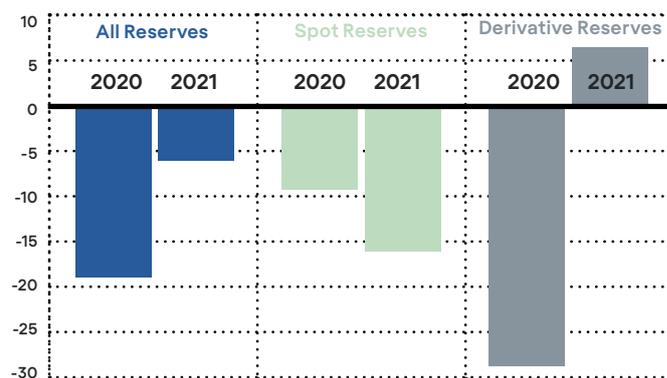
\$95-120k Bitcoin?

For the first time since 2020, markets are making sense. Supply is going down, prices are going up, contrary to 2017. Which is why markets are much different today than back in the 'Wild West' days. Basic economics is meeting the chaos of crypto markets.

While we've indicated that markets have been running efficiently (chart 3), this doesn't actually help with indicating true valuation. Bitcoin reserves at \$30k hobbled around the 2.5mn mark, and at \$60k the 2.4mn supply level on average. The fact that it met those price and supply levels twice this year shows market congruence.

But supply levels and price are giving us some data points that are lining up very nicely. Obviously, it doesn't mean that every 100k of Bitcoin removed from exchanges means an increase of \$30k. After all, 0.5mn Bitcoin withdrawals took us from an average of \$5k to \$30k in the period from 'Black Thursday until the start of this year. What is happening though is exponential growth, at least from the data we can assess.

4: Reserve change dynamics (%)



*2020 Assessed from 13 March 2020 which was peak reserves

This is why the rate of decline of exchange reserves is the most important data point that we can gather as of today. And clearly there is a market valuation gap with reserves now at the 2.3mn mark, 100k less than seen when Bitcoin was at \$60k.

Copper did some back of the envelope calculations to see how markets are valuing the decline in reserves, and the difference in the total supply (see table's below).

The data shows that between Bitcoin's bottom last year, and the price crossing the \$60k mark, there was a very similar multiple between reserve versus decline and price versus increase. This also implies that at current supply levels, Bitcoin would need to reach \$95k to meet the previously seen multiple (Table 1).

Another method was rounding up the figures and looking at the difference between the averages. Again, the historical data matches up for the cycles, but the upper-bound value would need to reach \$120k to match up to previous seen multiples (Table 2).

Tables: Finding Bitcoin's fair value by calculating reserve decline and reserve difference scenarios based on previous periods

Date	Notes	Price	Reserves	Reserve decline %	Price Increase %	Multiple
13 March, 2020	Peak Reserves, Market Bottom	3,858	2,999,081	18.1	651	36
1 January, 2021	2021 Year-Low	28,990	2,456,043			
1 January, 2021	Start of Year	28,990	2,456,043	2.7	107	39
18 October, 2021	Last time Bitcoin saw \$60k	59,887	2,388,694			
1 January, 2021	Start of Year	28,990	2,456,043	6.0	138	23
10 November, 2021	BTC All-Time-High	68,991	2,309,486			
Bitcoin's price to reach previously seen multiple (avg)		95,000	2,309,486	6.0	228	38

Date	Notes	Price (avg)	Reserves (avg)	Reserve Difference	Price Difference	Multiple
13 March, 2020	Peak Reserves, Market Bottom	5,000	3,000,000	20.0	500	25
1 January, 2021	2021 Year-Low	30,000	2,500,000			
18 October, 2021	Last time Bitcoin saw \$60k	60,000	2,400,000	4.2	100	24
Bitcoin's price to reach previously seen multiple		120,000	2,300,000			

We can't have it both ways

On the one hand, the data is showing that markets are running efficiently and pricing supplies correctly. On the other, the data is also saying that a fair price for Bitcoin for it to reach previously seen multiples is \$95k, meaning a 50% increase from the current levels.

This can be attributed to a very important factor that no data provider can tell us. Market pressures from supplies that are actually sitting on exchanges. And it's happened before. A look at 2020 shows that price pressures coming from within exchange supplies can lead to a large market price lag resulting in 'parabolic' move (see chart 5).

Can it happen again? It's very possible. Even JPMorgan, infamously outspoken about crypto, has made a [\\$146k long-term price prediction](#). Fidelity's Director of Global Macro Jurrien Timmer [estimated a \\$100k Bitcoin by 2023](#). But it can all happen much sooner given the continuous supply decline.

Let us rain on the parade...again...

What we do know is markets are pricing exchange reserves. This much can be seen from the data and it's been fairly accurate too on the overall average.

But there is a caveat. The flipside, if you will.

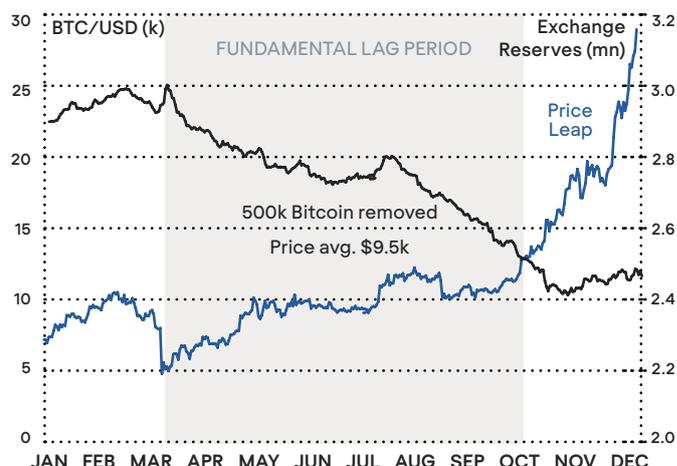
Should the price of Bitcoin trade exponentially, the purchasing power and thus the withdrawal rates are also going to face the same exponential pressure. And we can already see this happening in 2021 vs 2020 (see chart 4).

If Bitcoin does reach the \$95 to \$120k price range, based on the historical data of annual withdrawals which are currently at 6% and was at 18% in 2020, withdrawals could dwindle just as exponentially without any additional firepower from deep pockets.

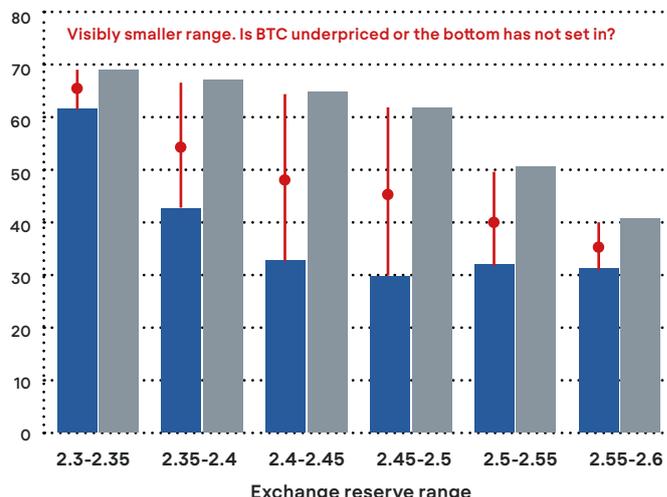
And so, a tricky balancing act of supply and demand will develop. An expensive Bitcoin might actually lead to a reduction in volatility. And investors who wish to see less chaos will have to pay a premium. For the time being though, Bitcoin will continue to be volatile. But those watching exchange supplies carefully can assess whether markets are undervalued or overheated.

The question however posed in this report was whether or not Bitcoin has any firepower left to push markets higher. This means we do need to assess other cryptocurrency market dynamics.

5: 2020 Bitcoin price lagged greatly behind massive withdrawals



6: Min and Max Bitcoin price based on exchange reserve range (\$k)



Riddle me this...

If Occam's Razor is A to B, Then what should the price of Bitcoin be?

If Bitcoin averaged \$5k when supplies were 3mn.
And \$30k when exchange supplies were at 2.5mn.
And \$60k when exchange supplies were at 2.4mn.

What should the price of Bitcoin be when
exchange supplies are at 2.3mn?

(Exchange reserves at peak - 2.309mn)

USD-C Where we're going with this...

Stablecoins, popular discussion as it is, have thrown in a new data dimension for investors to sink their teeth in.

Exchange balances of the various dollar-pegged tokens have added another level of transparency for markets in relation to potential purchasing power. And it's not chump change.

At the bottom of markets seen this summer, stablecoin supplies could have usurped 20% of Bitcoin supplies. As of November, and peak Bitcoin price, purchasing power dropped to 12%. This is still more than double what could be seen at the start of the year.

Now this metric needs to be taken with a pinch of salt as to the overall accuracy. Stablecoins only really took off this year and the starting point might not be all that meets the eye. But from what we can see at least as of today, and with nearly \$20bn sitting on exchanges, there is a great deal of firepower left should markets take a dip.

What you wish you knew in 2021

Perhaps Bitcoin reserves need to dwindle further for markets to jolt up higher. At the current reserve decline rate (which would assume of course prices hoover in the same range), Bitcoin supplies would hit the 2.2mn mark by early July 2022.

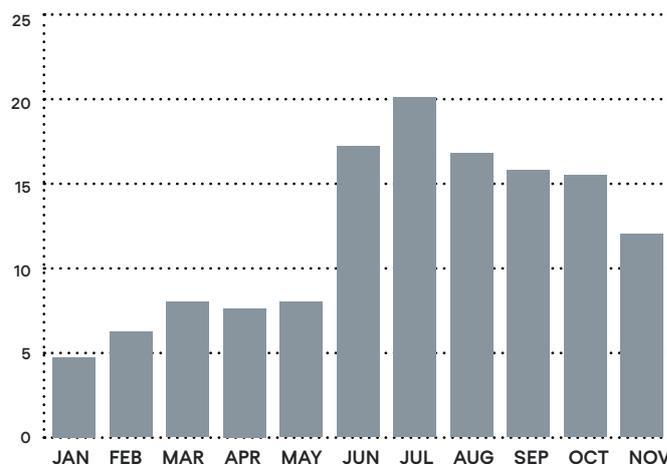
And we've seen that long-term investors are continuing to stack sats chipping away ever so slightly at the supply month-on-month (see August Analyst Retro).

But cryptocurrency is no longer a single siloed market for Bitcoin. The focus is heavily weighed on the king of cryptocurrencies mainly because of the endemic correlations that riddle the industry. Things could change rather rapidly, however.

With Ethereum showcasing the potential of decentralised financial applications, and other use cases, the Layer 1 protocol has seen its exchange supply cut by nearly a quarter this year alone, four times the rate of Bitcoin. Apart from October 2021, demand for Ethereum has outpaced Bitcoin significantly (see chart 8).

With that said, cryptocurrency markets could potentially be bolstered by other assets as investors become more and more aware of the supply and demand dynamics. We are now in an era where data is available and enough information can be gathered to make conscious long-term investment decisions. And by metrics seen in this report, markets are becoming more and more efficient. All we did was look for the simplest answer.

7: 2021 Purchasing power of stablecoins to Bitcoin reserves (%)



8: 2021 Month-on-month exchange reserve % change for BTC & ETH

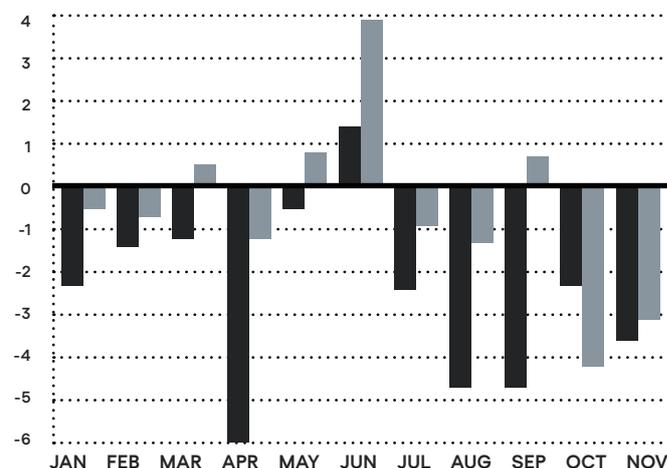


Table 3: Ethereum has a long-way to go to come close to staking levels seen on other blockchains

Chain	Staking Reward	Total Supply Staked
Solana	6.87%	78.05%
Cardano	5.76%	70.68%
Ethereum 2.0	5.18%	6.90%
Polkadot	13.75%	55.01%
Avalanche	9.56%	62.23%
Terra	4.44%	34.94%
Algorand	4.68%	48.40%
Binance Smart Chain	13.49%	79.73%
Internet Computer	10.45%	49.83%
Cosmos	10.39%	64.10%

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