AIN'T OVER 'TIL IT'S OVER

November 2021 Crypto On-Chain Digest

kraken INTELLIGENCE
ORDO AB CRYPTO

November 2021 Takeaways

- As suggested in our September and October on-chain reports, End of Summer Sale and Shocktober, a supply squeeze sent BTC and ETH to new all-time highs this month. However, the latest on-chain data suggests that the market isn't overheated either.
- As of November 21st, BTC sitting on exchanges fell -9.6% since June to a 3-year low of ₿2.426M ($139.8B) amid greater demand and dwindling immediately marketable supply.
- ETH balance on exchanges shows a more exacerbated supply crunch. At the time of writing, exchange holdings fell by Ξ8.41M (~$35B), or more than -37%, since August 2020 and are now back to levels last seen in early November 2018—meaning ETH's immediately marketable supply continues to shrink.
- Ethereum's scalability issues combined with this outsized demand caused transaction fees on the network to increase +100% to a record average transaction fee of $52.70 on November 4th, a +14.5% increase from a previous all-time high of $46 set on September 10th.
- Ethereum saw a whopping -92.9% net reduction in supply inflation over the last 30 days, thanks to relatively live demand for DeFi, ETH transfers, and stablecoins. SHIB's recent outperformance also ranked the memecoin in the top 10 projects by ETH burns, accounting for nearly $27M of the last month's burns (~3.4% of all ETH burned by the top 10 projects).
- Since July 3rd, BTC's hash rate has rallied almost +98% to 166.1 EH/s and is on track to revisit all-time highs by early December. The rebound in BTC's hash rate has also led to a record 9 straight positive difficulty adjustments as the network is becoming more fortified following China's mining crackdown in May.
- BTC's Puell Multiple also indicates that miners still have a ways to go before their incentives to sell increase materially.
- On-chain indicators such as ETH's MVRV Z-Score and BTC's Reserve Risk indicate that both cryptoassets are far from entering what has historically been considered "overbought" territory. Furthermore, both indicators suggest that long-term holders remain confident.
- Unprecedented network activity on LTC and several on-chain indicators suggest that renewed demand for LTC resembles the early innings of historical parabolic uptrends for the digital silver.

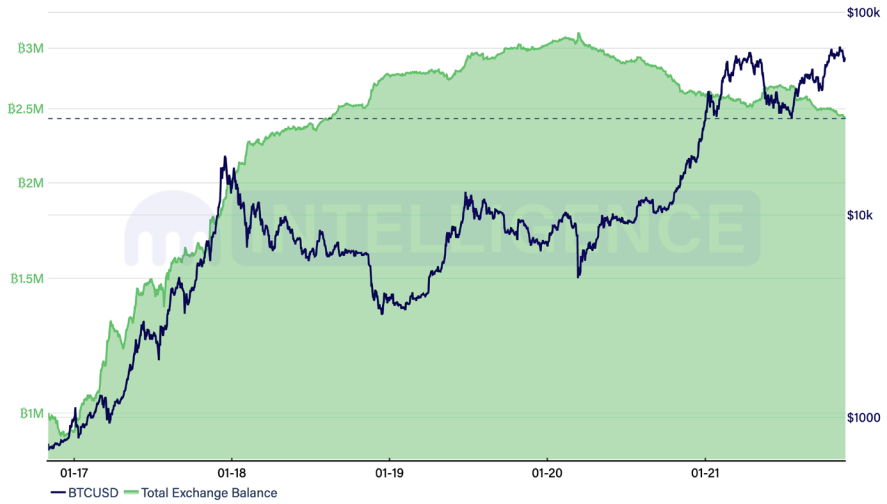
Supply Flying Off Exchanges

The amount of BTC and ETH on centralized exchanges continues to drop as both cryptoassets consolidate below all-time highs, suggesting that market participants continue to see incremental upside for both cryptoassets and prefer to hold coins in cold storage for an extended period. While we've acknowledged the possibility of a supply shock sending prices higher over the past few months, November on-chain data shows that sentiment remains bullish, and buy-side demand is outpacing sell-side interest. Should this trend continue, both assets will see immediately marketable supply continue to fall.

Total Exchange Supply

Since reaching an 8-month high of ₿2.683M ($154.6B) on June 23rd, 2021, after a crackdown in China drove the market lower, the amount of BTC on exchanges has fallen -9.6% to a 3-year low of ₿2.426M ($139.8B) on November 21st as demand increases and marketable supply decreases. Waning supply on exchanges typically means that market participants are moving BTC into cold storage because they see incremental upside for the foreseeable future. However, readers should note that supply leaving exchanges doesn't always mean BTC moves into cold storage. Market participants may be moving funds onto lending platforms, making a peer-to-peer sale, or tokenizing their BTC on other blockchains (e.g., WBTC). However, most coins moving off exchange are likely moving to cold storage for long-term holding.

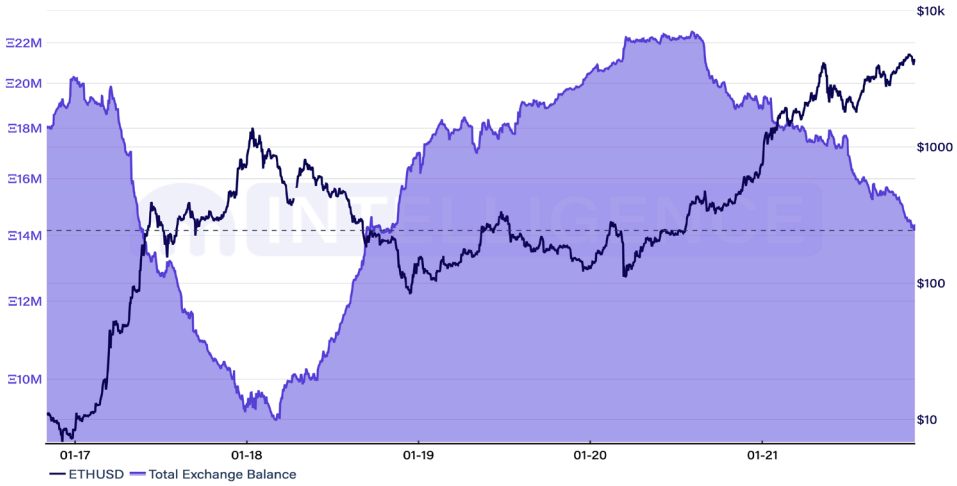
Figure 1: BTC on Exchanges



Source: Kraken Intelligence, Glassnode

Similarly, the amount of ETH on exchanges is falling, albeit much faster than BTC. Since last year, the number of ETH on exchanges has been downtrending and is now back to levels last seen in early November 2018. In what seems to be a spike in ETH interest, the supply sitting on all exchanges has dropped by more than Ξ8.41M (~$35B), or over -37%, since reaching a top of Ξ22.577M (~$93.7B) in early August 2020.

Figure 2: ETH on Exchanges

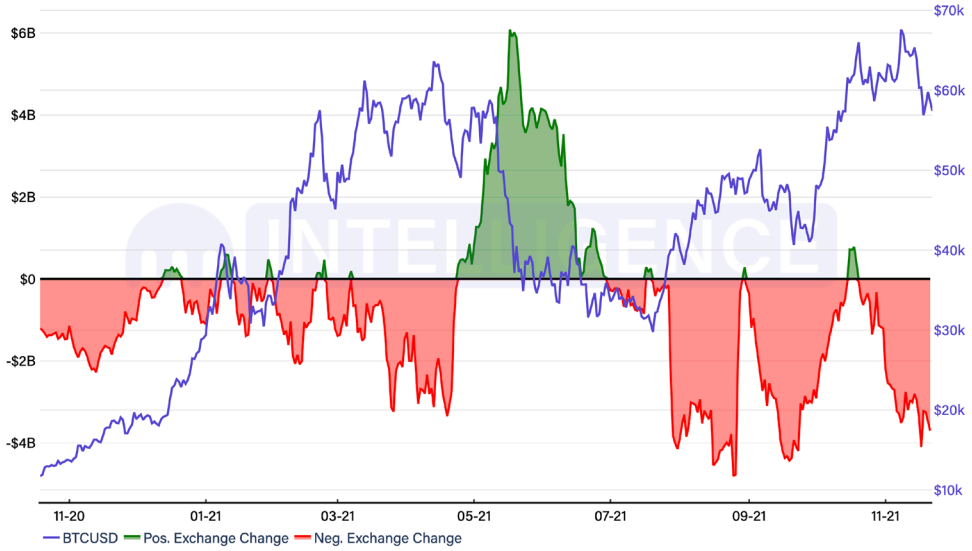


Source: Kraken Intelligence, Glassnode

Exchange Net Position Change

Exchange net position change, which measures the 30-day change of supply sitting on exchanges, provides a more granular view of how exchange net flows have been trending. Daily BTC net flows have accelerated downward throughout November after briefly breaking through to the positive last month, which proved to be part of a normal pullback following a significant run-up in price. Notably, the total exchange net position change for BTC is at -$3.7B, implying that market participants are potentially moving plenty of BTC into cold storage for long-term holdings, -19% lower than when BTC hit a prior all-time high of $65,000 in April 2021. Therefore, it appears that BTC's climb to a new all-time high comes off the back of even greater demand from long-term holders—meaning sentiment is perhaps even more bullish than the prior all-time high.

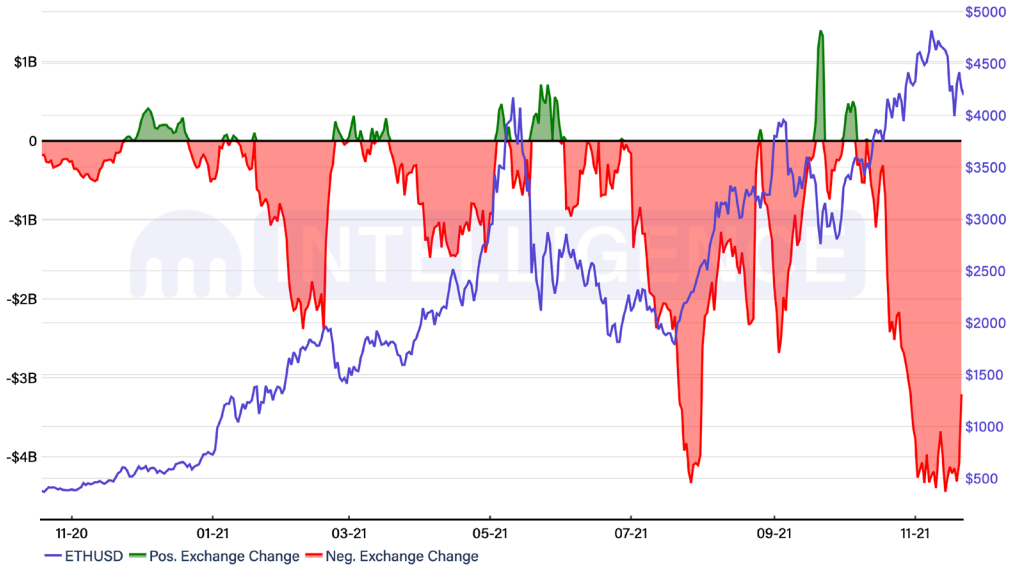
Figure 3: Exchange Net Position Change for BTC (7-Day Moving Average)



Source: Kraken Intelligence, Glassnode

ETH's exchange net position change has followed a similar pattern: an accelerated downtrend throughout November after briefly turning positive last month, which, like BTC, proved to be a mean reversion higher before resuming the trend. But unlike BTC, ETH's exchange net position change is orders of magnitude smaller than the last time ETH hit an all-time high of $4,172 in late-April. Though the cryptoasset market pulled back -9% on November 16th, the retracement ostensibly affected ETH holding conviction positively as it coincided with a jump in exchange net outflows to an all-time high of -$4.44B. Because net outflows were over +630% more than when hitting record levels in late-April, there was potentially more bullish conviction and demand for ETH in the latest push to a new all-time high than the prior record set roughly 6-months ago. Moreover, continued outflows in the face of this macro uptrend indicate that market participants are perhaps more confident in ETH's forward prospects.

Figure 4: Exchange Net Position Change for ETH (7-Day Moving Average)



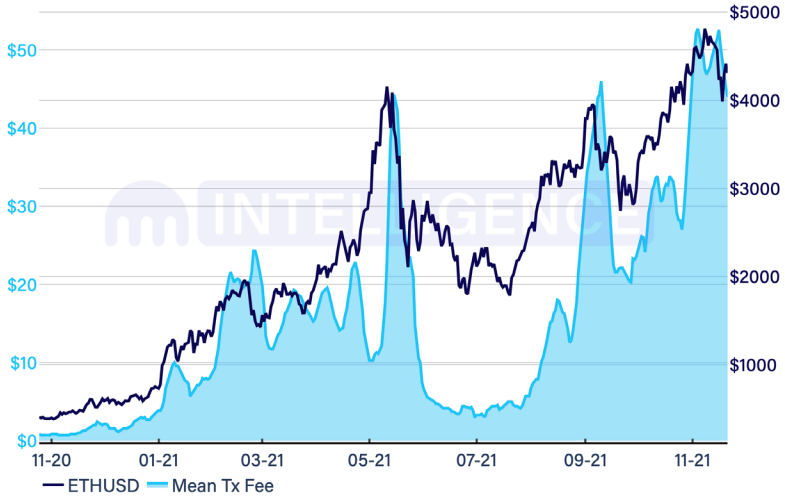
Source: Kraken Intelligence, Coin Metrics

Ethereum Demand Clogs Up The Works

Transaction Fees

Not only has ETH recently risen to all-time highs, but so has the network's transactions fees as Ethereum continues to grapple with increasingly greater network demand. Month-to-date, the average ETH transaction fee has risen nearly 2x and recently hit an all-time high of $52.70 on November 4th, which marks a +14.5% increase from the previous all-time high of $46 set on September 10th when ETH was about $3,200. Should network fees remain abnormally elevated, demand for ETH may soften and subsequently drive market participants to diversify into ETH competitors with little-to-no scalability issues.

Figure 5: ETH Mean Tx Fee (7-Day Moving Average)



Source: Kraken Intelligence, Coin Metrics

ETH Burns

Thanks to the EIP-1559 upgrade, which enabled a mechanism that dynamically adjusts ETH fees based on block demand and burns most of the transaction fees, it's simple to determine what's behind this solid demand for Ethereum. While new ETH is issued every block, the upgrade means that ETH's supply inflation drops with Ethereum demand and is reflected in transaction fees. On-chain data shows that the amount of ETH burned due to EIP-1559 equates to nearly 93% of the newly issued ETH supply since October 22nd, or $1.6B worth of ETH. For context, this accounts for more than 38% of the Ξ976,384 (~$4B) burned since EIP-1559 went live on August 5th, 2021. Because EIP-1559 made ETH disinflationary, many market participants claim

that an increase in the burn rate is inherently bullish for ETH since it supports the narrative that ETH may prove a "scarce asset."

Figure 6: ETH Burn Overview (30D)

Burned	Ξ371,862 ($1.6B)
Rewards	Ξ400,208 ($1.7B)
Tips	Ξ49,816 ($209M)
Net Issuance	Ξ28,347 ($119M)
Net Reduction	92.91%

Source: Kraken Intelligence, Watch The Burn

While DEXs, ETH transfers, and stablecoins made up the bulk of the network's demand, readers should note that SHIB's recent market action caused the memecoin to become the 8th biggest contributor of the Ξ371,862 ($1.6B) burned over the past 30 days. This is likely not a huge surprise as SHIB's market cap briefly flipped DOGE after entering into a parabolic uptrend to record levels earlier this month. Moreover, though OpenSea was last month's third-largest contributor of ETH burns and is the all-time largest contributor, on-chain data shows that NFTs continue to soften as USDT surpassed the leading NFT marketplace on the leaderboard.

Figure 7: ETH Burn Top-10 Leaderboard

Category	Project	ETH Burned
DEXs	Uniswap V2 (Router 2)	Ξ54,666 ($229M)
Ethereum transactions	ETH transfers	Ξ41,270 ($173M)
Stablecoins	Tether (USDT)	Ξ23,689 ($99M)
NFTs	OpenSea	Ξ22,074 ($92M)
DEXs	Uniswap V3 (Router)	Ξ15,271 ($64M)
DEXs	Metamask (Swap Router)	Ξ9,990 ($42M)
Stablecoins	USD Coin (USDC)	Ξ8,164 ($34M)
Ethereum transactions	Shiba Inu (SHIB Token)	Ξ6,378 ($27M)
DEXs	1inch V3	Ξ5,231 ($22M)
DEXs	SushiSwap (Router)	Ξ5,116 ($21M)
	Total:	**Ξ191,850 ($802M)**

Source: Kraken Intelligence, Coin Metrics

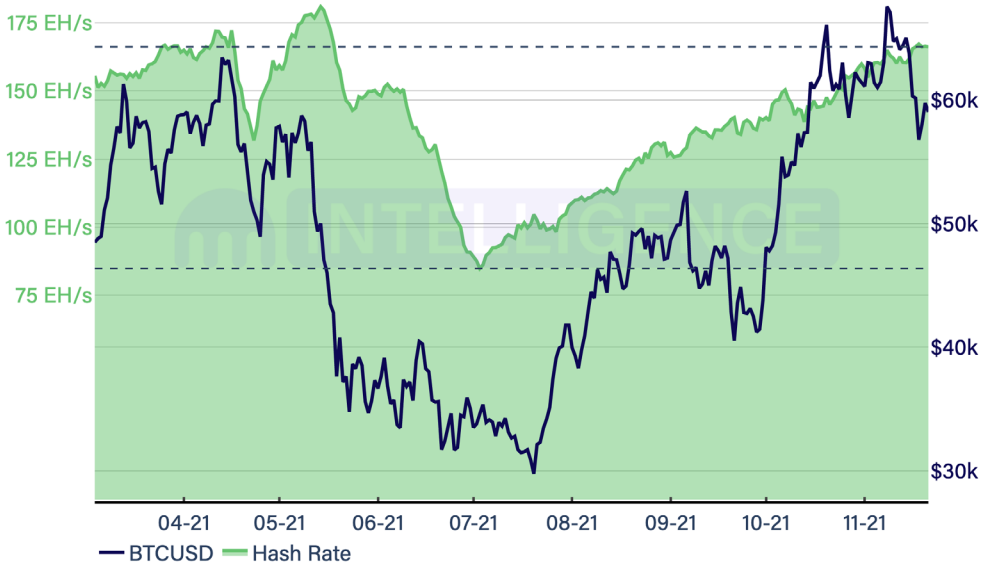
Miners Exceed Expectations

Aside from BTC's immediately marketable supply falling, on-chain data also suggests that BTC miners have grown increasingly more optimistic. Though it's no surprise that miners have been confident in BTC's uptrend for several months, on-chain metrics, such as hash rate, difficulty, mining revenue, and the Puell Multiple, suggest that miner demand is rising faster than many expected. At the current pace, the network's hash rate is on track to make a full recovery sometime in the next couple of weeks, roughly 5 months after ostensibly bottoming out in July.

Hash Rate

As of the time of publication, the 7-day moving average of hash rate has climbed nearly +98% to 166.1 EH/s after falling to a near 2-year low of 84.1 EH/s on July 3rd. In other words, Bitcoin's current hash power must rise another +8.9% to revisit all-time highs of 180.8 EH/s last seen in May 2021. On-chain data shows that computational power deployed to the network is likely to continue heading higher and might hit a new all-time high in early December. While many expected hash rate to hit an all-time high at the tail-end of December, the network is now pacing to beat expectations amid an ongoing surge in demand from miners.

Figure 8: Bitcoin Hash Rate (7-Day Moving Average)

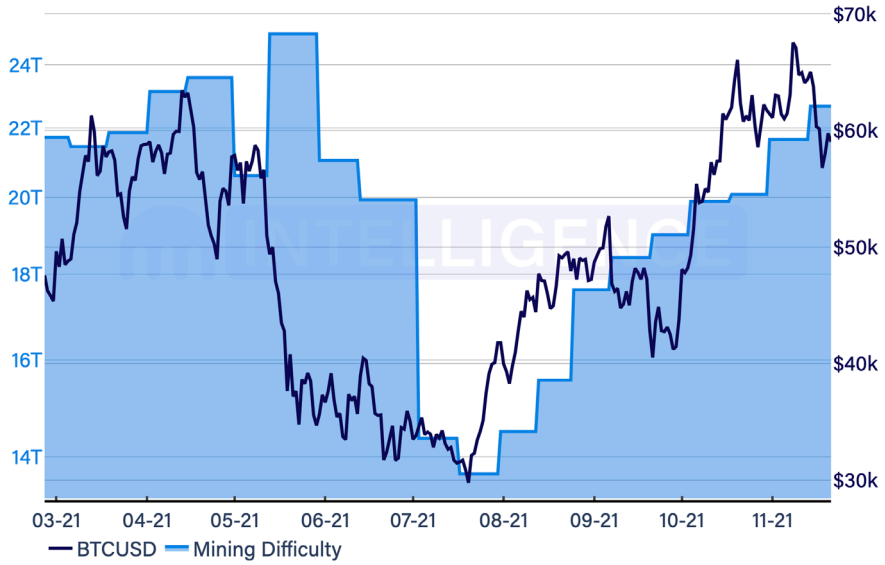


Source: Kraken Intelligence, Coin Metrics

Mining Difficulty

BTC's appreciation resulted in increasingly more hash power deploying on the Bitcoin network and a record-breaking 9 consecutive positive difficulty adjustments for a total +65.8% increase in mining difficulty and a 5-month high of 22.7T. Though the latest recovery in difficulty suggests miners have by and large completed their migration to overseas locations such as North America, Kazakhstan, and Russia after being prohibited from mining in China, it's also a testament to the confidence in the miners underpinning the network.

Figure 9: Bitcoin Mining Difficulty

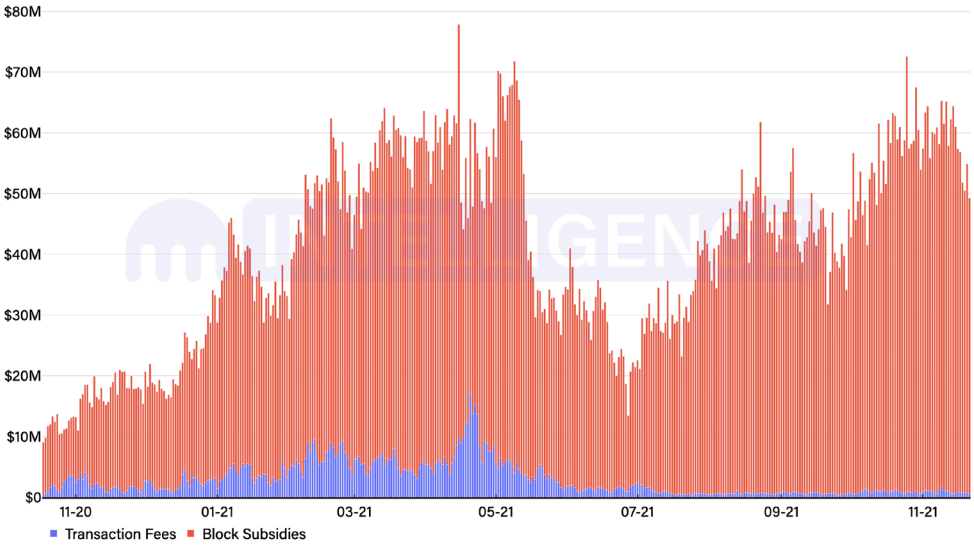


Source: Kraken Intelligence, Coin Metrics

Miner Revenue

Miner revenue is near all-time highs as well and continues to rise. Since lows of $13.4M in late June, BTC's daily miner revenue has rebounded to over $60M and is just below a record level of $76.5M set in April 2021. So long as BTC continues to rally and miner revenue remains attractive, one could expect more capital and computational power to flow into the network from both new and existing market participants. However, if the price of BTC were to enter into a correction, BTC miners could potentially begin taking profit as miner revenue softens. In this case, sell-side pressure from miners could follow and weigh on sentiment.

Figure 10: Daily BTC Miner Revenue



Source: Kraken Intelligence, Coin Metrics

Puell Multiple

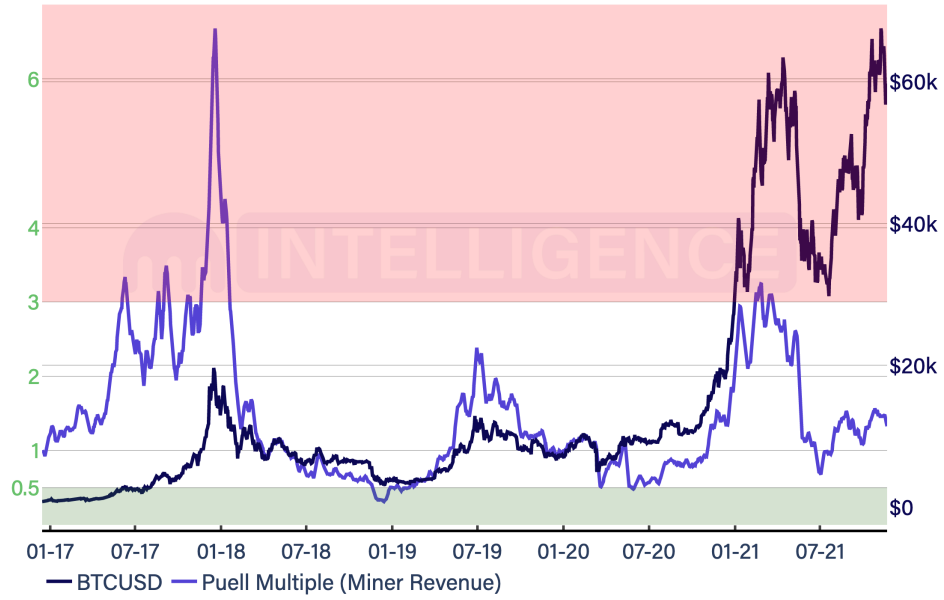
Because most miners are in the business of lowering their cost of production to mine BTC to the lowest cost possible, market participants can broadly interpret growing demand from miners as a bullish signal for BTC.

Because of the importance that miners play in the ecosystem, it's helpful to look at the Puell Multiple. This on-chain metric assesses miner profitability and their incentive to sell or hold to better understand where BTC might move. The Puell Multiple is calculated by dividing the USD value of daily BTC miner revenue by the USD value of the 365-day moving average of daily miner revenue.

$$Puell\ Multiple = \frac{Daily\ Miner\ Revenue}{Yearly\ Moving\ Average\ (Daily\ Miner\ Revenue)}$$

A reading below 0.5 has historically signaled BTC hitting a macro or micro bottom and mining profitability falling to unsustainably low levels. On the other hand, a reading above 3 has typically signaled a prime opportunity for profit-taking - as a reading above 3 has historically coincided with a market cycle top. With the Puell Multiple currently at a reading of 1.33, one could argue that miners are operating profitably yet haven't reached a level to signal a market top. To the extent miners follow this metric closely, they may choose to hold their BTC earnings rather than sell into the market.

Figure 11: BTC's Puell Multiple (7-Day Moving Average)



Source: Kraken Intelligence, Coin Metrics

State of the Run

As discussed last month, BTC and ETH might have approached record levels, but on-chain data signaled that the cryptoasset was far from entering into what is historically "overbought" territory. But with BTC and ETH soaring to new all-time highs earlier this month, market participants are now wondering where both cryptoassets stand in the broad scheme of things and how much room both might have to run higher.

ETH's Market Value to Realized Value Z-Score (MVRV Z-Score)

Based on historical data, ETH's MVRV Z-Score suggests that ETH is not "overbought" despite its latest rally. As a reminder, the MVRV Z-Score compares the difference between a cryptoasset's market cap and realized value relative to the standard deviation of its market cap to lend insight into how much ETH's market cap has deviated above or below its average market cap. MVRV Z-Score is calculated accordingly:

$$MVRV\ Z\text{–}Score\ =\ \frac{Market\ Cap - Realized\ Cap}{Standard\ Deviation\ (Market\ Cap)}$$

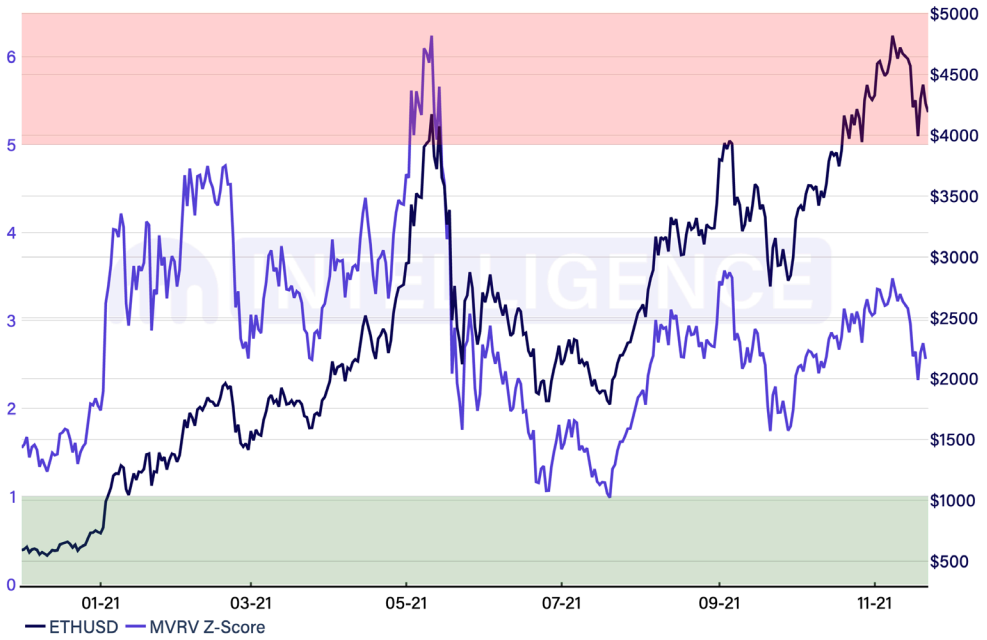
The three metrics that comprise the MVRV Z-Score include:

1. **Market Value (MV):** ETH's price multiplied by coins in circulation, i.e., market capitalization.
2. **Realized Value (RV):** The price of each ETH when it was last moved multiplied by coins in circulation.
3. **Z-Score:** A numerical measurement that explains a value's relationship to a group's average, measured in standard deviations. For example, a z-score of 0 means that a value is identical to the average, and a z-score of 1.0 means that a value is one standard deviation above the average.

Simply put, the MVRV Z-score helps us get a better sense of when ETH might be "overbought" or "oversold." A reading above 5 has historically indicated that ETH is "overbought," while readings below 1 have suggested that ETH is "oversold." Despite ETH rising to new all-time highs, the MVRV-Z Score is at a reading of 2.56 - below halfway between the "oversold" and "overbought" territories of 1 and 5, respectively. ETH's MVRV Z-score suggests that ETH still has

momentum at record levels. More interestingly, this data shows that ETH has significantly more momentum now than it did when it met all-time highs in May because ETH's MVRV Z-Score is currently about half of May's value.

Figure 12: ETH's MVRV Z-Score



Source: Kraken Intelligence, Glassnode

BTC's Reserve Risk

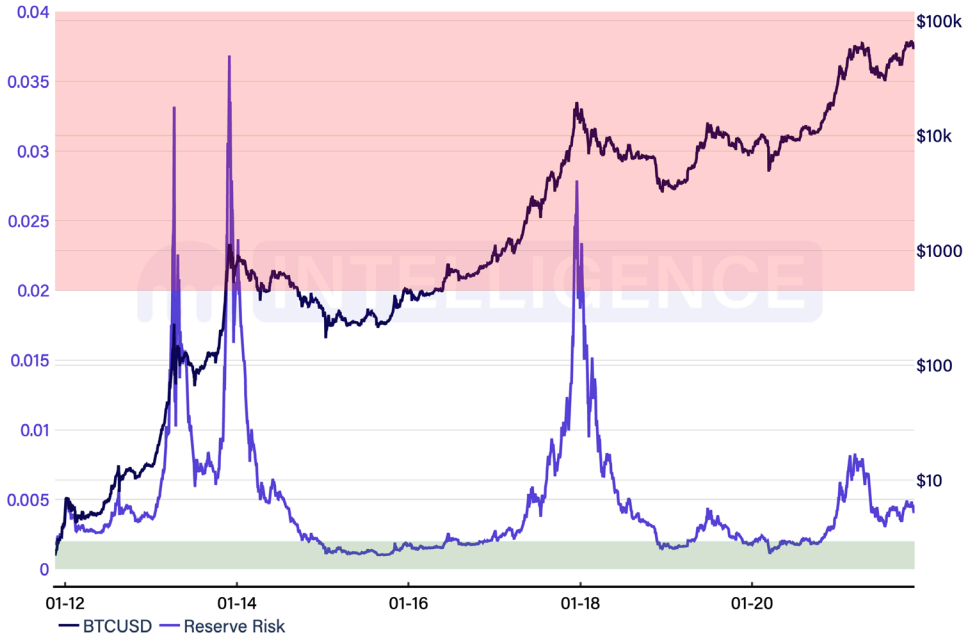
The Reserve Risk is an on-chain metric that assesses the confidence of long-term holders relative to the price of the native coin at any given point in time. The on-chain indicator is calculated by dividing price over BTC's "HODL Bank," or the cumulative opportunity cost of holding (summing the aggregate USD amount over time) rather than selling over the lifetime of the Bitcoin network. Readers should use the following principles to interpret Reserve Risk:

- Every unspent coin accumulates "coin-days" as each day passes, quantifying how long it has been dormant. Market participants often use this tool to measure the conviction of holders.
- The incentive to sell and realize profits follows price. As a result, holders typically spend their coins in late-stage bull runs.

- Stronger hands typically resist the temptation to sell, contributing to an 'opportunity cost.' Everyday holders that decide not to sell increase the cumulative unspent 'opportunity cost,' known as the "HODL Bank."
- Reserve Risk takes the ratio between the current price (incentive to sell) and this cumulative 'opportunity cost' (HODL Bank). Said differently, Reserve Risk compares the incentive to sell to the conviction of holders who refuse to sell in a bid to determine BTC's current risk/reward sentiment.

When price is low and confidence is high, there may potentially exist an attractive risk/reward (low Reserve Risk). If confidence is low and price is high, then the risk/reward could be unattractive (high Reserve Risk). BTC's current reserve risk is significantly below the levels witnessed when BTC initially reached $65,000 in May. History suggests that BTC's risk/reward is potentially biased to the upside versus May 2021, signaling room to run higher before entering "overbought" territory.

Figure 13: Bitcoin Reserve Risk



Source: Kraken Intelligence, Glassnode

LTC: Did You Forget Me?

Litecoin, or what many have referred to as "Digital Silver," has a rich history within the cryptoasset ecosystem and is widely regarded as one of the first and most successful forks of Bitcoin. Despite falling out of vogue over the past several years amid the rise of other Layer 1 blockchains, DeFi protocols, and other competing mediums of exchange, Litecoin is also known for rising to the occasion amid a bull market cycle and taking the spotlight when least expected. For instance, in November 2013, LTC surged from $5 to $63 in a matter of weeks. Four years later, another surge in demand for LTC in December 2017 pushed the cryptoasset from $50 to $369 in a month. In both instances, several on-chain indicators not only foreshadowed LTC's abrupt rise but also signaled the cryptoasset having reached "overbought" territory shortly thereafter.

Figure 14: LTCUSD (1W)

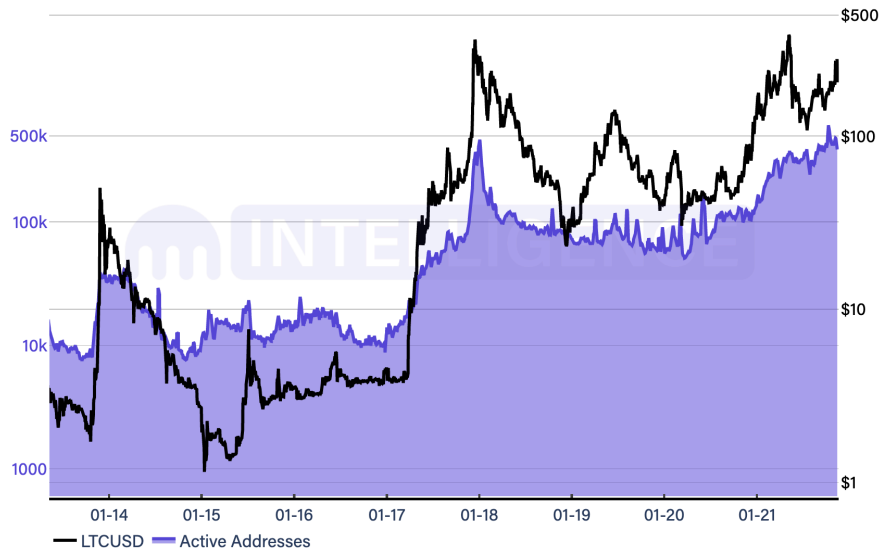
Source: Cryptowatch

With LTC having regained momentum, many market participants wonder if history will to repeat. On-chain activity shows that not only has network demand started to trend higher and enter into what might be the next "growth wave," but it also remains below "overbought" territory. By looking at some on-chain metrics, one will find that momentum is starting to enter back into the legacy cryptoasset and a repeat of 2013 and 2017 is something to keep an eye on.

On The Move

If we look at Litecoin's active addresses, or the number of unique addresses that were active in the network either as a sender or receiver, a few notable observations exist. First, the number of active addresses has been in a parabolic uptrend since December 2020, which indicates that the network continues to see increasingly greater activity amid the broader market's rally. Second, the number of active addresses has recently gone vertical, the sharpest increase in activity since April 2021, a sign of a sudden burst in network demand and activity. Lastly, the 7-day moving average of the number of active addresses recently hit an all-time high of 606,730 on October 10th, 2021, or what has historically been a prelude to Litecoin entering into "price discovery" mode.

Figure 15: Litecoin Active Addresses (7-Day Moving Average)



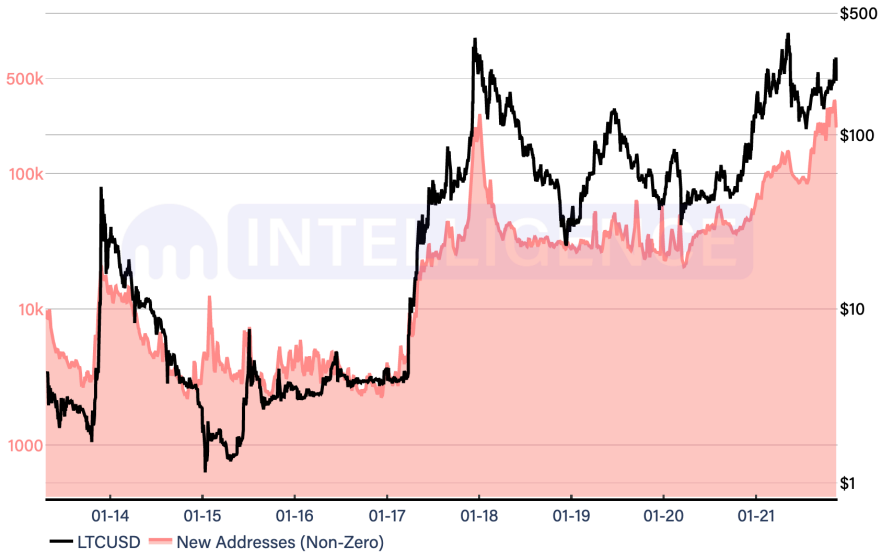
Source: Kraken Intelligence, Coin Metrics

For example, the 7-day moving average of active addresses hit an all-time high of 16,961 on April 8th, 2013, when LTC was at roughly $4.50. On November 12th, 2013, a new all-time high was set of 18,322. LTC went on to soar from $9.50 to a cycle high of $95 set on November 28th, 2013. Similarly, the 7-day moving average of active addresses surpassed a previous all-time high of 41,000 on May 16th, 2017, when it climbed to 41,125. LTC then rose from $23.50 to a cycle high of $369 set on December 17th, 2017.

Additionally, if we look at the number of new addresses (with non-zero balances), we'll see a similar trend that has historically foreshadowed market trends; the number of new

addresses eclipsing the previous bull market's all-time high before going parabolic as price begins to surge into unchartered waters. At the time of writing, the 7-day moving average of new addresses (with non-zero balances) stands at an all-time high of 308,827. The 7-day moving average of new addresses recently surpassed the prior all-time high of 270,000 on October 9th, 2021, continuing to rise into November.

Figure 16: Litecoin New Addresses (7-Day Moving Average)



Source: Kraken Intelligence, Coin Metrics

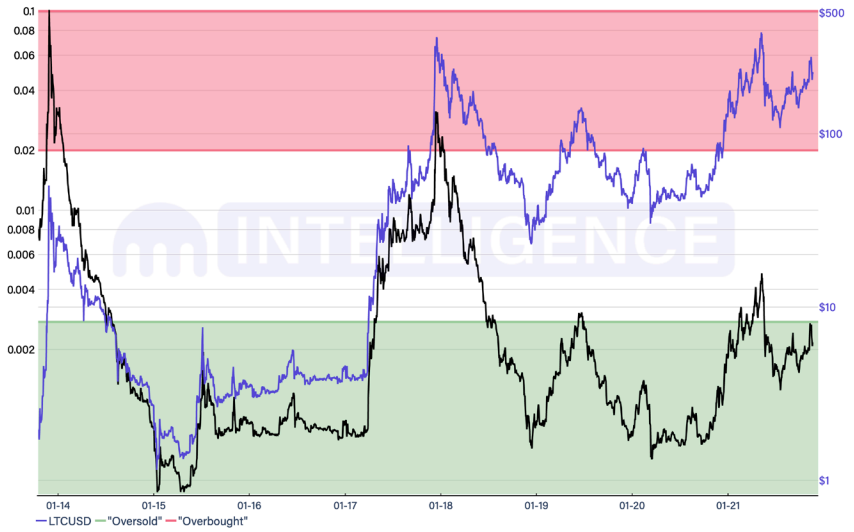
Historically, there is a positive correlation between the number of active addresses versus market action, and recent on-chain data points suggest Litecoin may take the greater spotlight from market participants.

Where Do We Stand?

On-chain data indicates that the Litecoin network is once again starting to see unprecedented demand and activity after having seen relatively underwhelming growth over the past several years. But while it appears as though the network is beginning to grow quite meaningfully once again and price looks to be in a new uptrend, it's unclear where LTC itself stands in the broader scheme of things. However, by looking at LTC's Reserve Risk ratio and its MVRV Z-score, we'll see that LTC has yet to reach levels that have historically signaled "overbought."

As shown in figure 17, there have been two instances since LTC's inception where the Reserve Risk entered into "overbought" territory shortly before hitting a market cycle top. At a current reading just below 0.003, LTC remains far from entering "overbought" territory, with this market indicator signaling LTC remains "oversold."

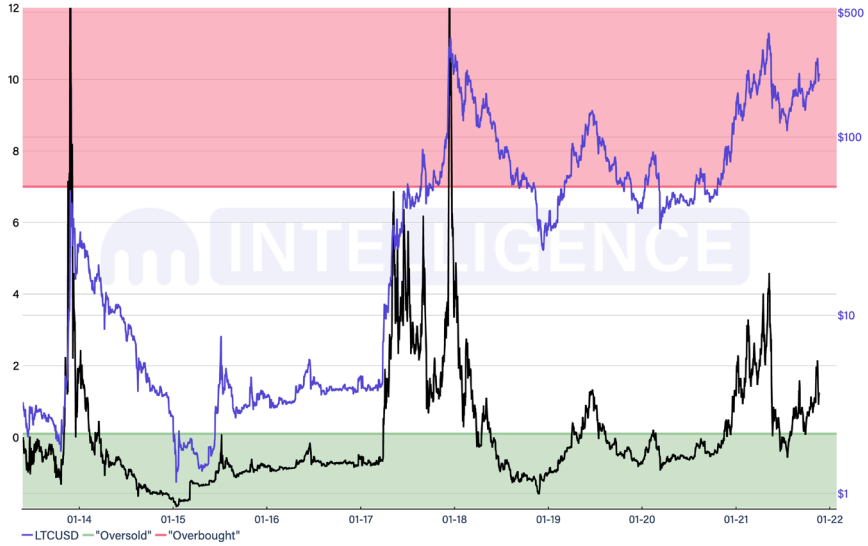
Figure 17: Litecoin's Reserve Risk



Source: Kraken Intelligence, Coin Metrics

LTC's MVRV Z-score also suggests that LTC's latest uptrend has yet to enter "overbought" territory. As shown in figure 18, LTC's current MVRV Z-score is slightly above 2 and will have to increase by 3.5x before hitting a reading of 7, or what has historically been considered "overbought."

Figure 18: Litecoin's MVRV Z-Score



Source: Kraken Intelligence, Coin Metrics

November On-Chain Overview

Cryptoasset Matrix

	Bitcoin (BTC)		Ethereum (ETH)		Cardano (ADA)		Polkadot (DOT)		Chainlink (LINK)	
	Monthly Avg	MoM Change	Monthly Avg	MoM Change	Monthly Avg	MoM Change	Monthly Avg	MoM Change	Monthly Avg	MoM Change
Onchain Economics										
Active Addresses	18.1M	6.6%	8.3M	17.7%	3.0M	2.0%	332.1K	37.7%	100.8K	-3.5%
Active supply 1 yr	8.6M	-0.2%	73.0M	-7.2%	26.9B	1.2%	834.0M	1.8%	390.8M	-0.7%
Active supply 30 days	1.9M	33.3%	37.4M	3.9%	9.7B	-0.1%	323.7M	17.9%	178.5M	-15.3%
Transactions	273.0K	1.8%	1.3M	11.1%	114.6K	45.5%	355.0K	100.6%	6.3K	-3.3%
Network Value										
Market Cap	1168.7B	19.4%	516.5B	28.7%	65.9B	-7.0%	51.1B	34.8%	31.3B	22.3%
Free Float Supply	14.5M	0.1%	111.8M	0.0%	30.9B	-0.1%	1.1B	0.9%	463.6M	1.5%
Total Issuance	58.6M	22.1%	58.7M	27.9%	-	-	23.1M	90.6%	-	-
Total Supply	18.9M	0.2%	117.5M	0.1%	32.7B	1.0%	1.1B	0.9%	1.0B	-
Transaction Fees (USD)	845.0K	3.5%	60.7M	73.3%	48.0K	31.6%	-	-	-	-
Transaction Fees (Native Units)	13.6	-11.8%	13,759	35.0%	23.9K	43.5%	-	-	-	-
Network Security										
Hash rate	160.8 EH/s	12.3%	0.8 EH/s	11.6%	-	-	-	-	-	-
Mean Difficulty	21.4T	9.8%	10.6T	12.4%	-	-	-	-	-	-
Miner Market Cap	$273.5B	18.1%	$100B	25.1%	-	-	-	-	-	-
Hodl Distribution										
Addresses with balances > $100	16.6M	5.3%	13.3M	20.4%	1.7M	1.4%	410.2K	22.2%	375.0K	7.7%
Addresses with balances > $1K	7.2M	7.7%	3.8M	19.4%	818.1K	-2.7%	133.6K	16.3%	182.0K	12.8%
Addresses with balances > $10K	2.4M	10.2%	774.7K	17.2%	237.2K	-6.2%	36.6K	26.1%	39.0K	15.0%
Addresses with balances > $100K	509.4K	13.7%	145.5K	21.9%	44.7K	-8.4%	7.2K	20.1%	7.2K	18.0%

On-Chain Highlights

On-Chain Economics

- Network activity in terms of active addresses grew materially for DOT (+37.7%), ETH (+17.7%), BTC (+6.6%), and ADA (+2%), but fell for LINK (-3.5%).
- Transaction count grew across the board except for LINK, which saw a -3.3% drop in transactions. DOT took the lead by a long shot with a 2x increase, while ADA (+45.5%), ETH (+11.1%), and BTC (+1.8%) followed. DOT's spike in network activity is likely driven by newfound demand thanks to the launch of Polkadot Parachain Auctions. For more information on parachains, check out Kraken Intelligence's Polkadot and Kusama Parachains Primer.

Network Value

- DOT was the best performer for the second consecutive month with a +34.8% rise in market cap. ETH (+28.7%), LINK (+22.3%), and BTC (+19.4%) followed.
- Oversized ETH demand caused a whopping +73.3% increase in transaction fees. While BTC outperformed ETH this month and both saw roughly the same growth in transaction count, transaction fees on Bitcoin increased by a lesser +3.5%.

Network Security

- BTC hash rate has continued its recovery with a +12.3% rise in the last 30 days and is on track to revisit record levels in early December.
- BTC difficulty has undergone 9 consecutive positive difficulty adjustments since hash rate reached a local bottom in late July and is up just under +10% for the last month.

Hodl Distribution

- Hodler strength grew significantly across all tracked cryptoassets except for ADA, which saw most cohorts drop by -3% to -8%. Smaller wallets with roughly $100 or more worth of ADA grew stood out from the others with a +1.4% rise. This is ADA's second lackluster month in a row after a stellar performance in September.
- DOT addresses grew significantly across all cohorts and outperformed all other tracked cryptoassets, which was likely a symptom of demand brought by parachain auctions. Hodler growth in ETH, BTC, and LINK followed, respectively.

Conclusion and Outlook

As foreshadowed in End of Summer Sale and Shocktober, BTC and ETH's latest rally coincides with an ongoing supply shock of immediately marketable supply. This may prove a rationale for BTC and ETH hitting all-time highs of $69,000 and $4,867, respectively, this month. While the crypto market is red hot, analyzing on-chain data helps us understand what's driving the momentum and where we might stand in the current bull market cycle.

We first looked at the supply of ETH and BTC on exchanges, which were both at multi-year lows and have seen significant net outflows over the past few months—suggesting high holding conviction. The data shows that market participants may be accumulating more supply, despite being presented with a healthy profit-taking opportunity. ETH led with a record -$4.44B in daily net outflows, while BTC trailed behind with roughly -$3.7B—indicating that ETH demand took precedence this month over BTC.

The growing demand on Ethereum drove a massive increase in transaction fees, causing a -92.9% net reduction in supply issuance over the past month. EIP-1559 burns show that DeFi, demand for ETH itself, and stablecoins led the recent strength. USDT surpassed OpenSea for most ETH burns this month as NFTs continue to soften. SHIB also played its part in the rise of ETH transaction fees after the memecoin sparked attention this month with its +57.6% month-over-month rise.

On-chain data also suggests miners remain bullish following the departure of miners out of China. While Bitcoin's hash rate was initially pacing towards an all-time high into year-end, a recovery suggests record levels are around the corner. The run-up in hash rate also coincided with a historic 9 consecutive positive difficulty adjustments, further emphasizing the revival of the mining industry—like a phoenix rising from the ashes.

Indicators including the Puell Multiple, MVRV Z-Score, and Reserve Risk suggest the BTC and ETH markets aren't overstretched either versus historical observations. We noted a recent surge in activity on LTC suggests that LTC could similarly regain market participant's attention rather abruptly like it did in 2013 and 2017. In sum, it appears that on-chain sentiment is largely unchanged month-over-month. However, it's important to remember that sentiment can change at the drop of a hat in crypto, and corrections are inevitable.

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