



As of August 31, 2022

# THE BITCOIN MONTHLY

## ALL EYES ON THE MERGE

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→ Aim for a cross-sector understanding of technology and combine top-down and bottom-up research.

→ Aim to understand the regulatory, market, sector, and company risks. (See Risk and Disclosure Page)



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## Section 1

# Bitcoin Market Summary

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## Bitcoin Market Summary | August 2022

### ARK'S KEY TAKEAWAYS

1. Bitcoin depreciated 13.9% from \$23,307 to \$20,023 during August, breaking below its 200-week moving average.
2. Bitcoin's on-chain activity is at major support levels.
3. The Treasury Department's crackdown on Tornado Cash sets a problematic precedent for cryptocurrency privacy controls.
4. In September, all eyes will be on Ethereum's transition to proof-of-stake, the largest technical crypto upgrade in network history.

#### Market Sentiment

ARK's View: Neutral



With futures in backwardation and options open interest at an all-time high, ether is the most hedged asset in the crypto market as it transitions to proof-of-stake in September.



In August, OFAC sanctions against Tornado Cash increased concerns about Ethereum's decentralization, as the majority of validators under proof-of-stake would have to comply.

#### On-Chain Activity

ARK's View: Neutral



Price is trading above its investor cost basis at \$19,360, which is now its major level of support.



Long-term-holder behavior is increasing, as supply held by long-term holders is on pace to reach an all-time high.



Network activity is stagnant as measured by the number of active owners' transactions.

#### Macro

ARK's View: Neutral



The Fed is between the rock of inflation and the hard place of recession. Despite signs the economy is in a recession, the Fed remains committed to tightening rates to curb inflation.



## News Of The Month

- [US Treasury Sanctions Cryptocurrency Mixer Tornado Cash](#)
- [BlackRock To Offer Crypto Access To Institutional Clients Through Coinbase Deal](#)
- [Ethereum Foundation Confirms September Dates For The Merge](#)
- [Genesis CEO Michael Moro Steps Down From Role Effective Immediately](#)
- [Galaxy Digital Terminates Its Acquisition Of BitGo](#)
- [Three Arrows Capital Liquidators Get Approval From Singapore High Court On Liquidation Order](#)
- [Michael Saylor To Step Down As MicroStrategy CEO, Shift To Executive Chairman Role](#)
- [BlackRock Launches Private Trust Offering Direct Bitcoin Exposure](#)
- [Aggregate Open Interest Of Ether Options Hits All-Time High](#)
- [NFT Lender BendDAO Votes To Change Protocol Amid Liquidity Crisis](#)
- [Robinhood To Lay Off "Approximately 23%" Of Employees](#)
- [Helium Developers Propose A Full Migration To The Solana Blockchain](#)

Information as of August 31, 2022.

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## Section 2

# Bitcoin Continues To Consolidate Around Its On-Chain Support

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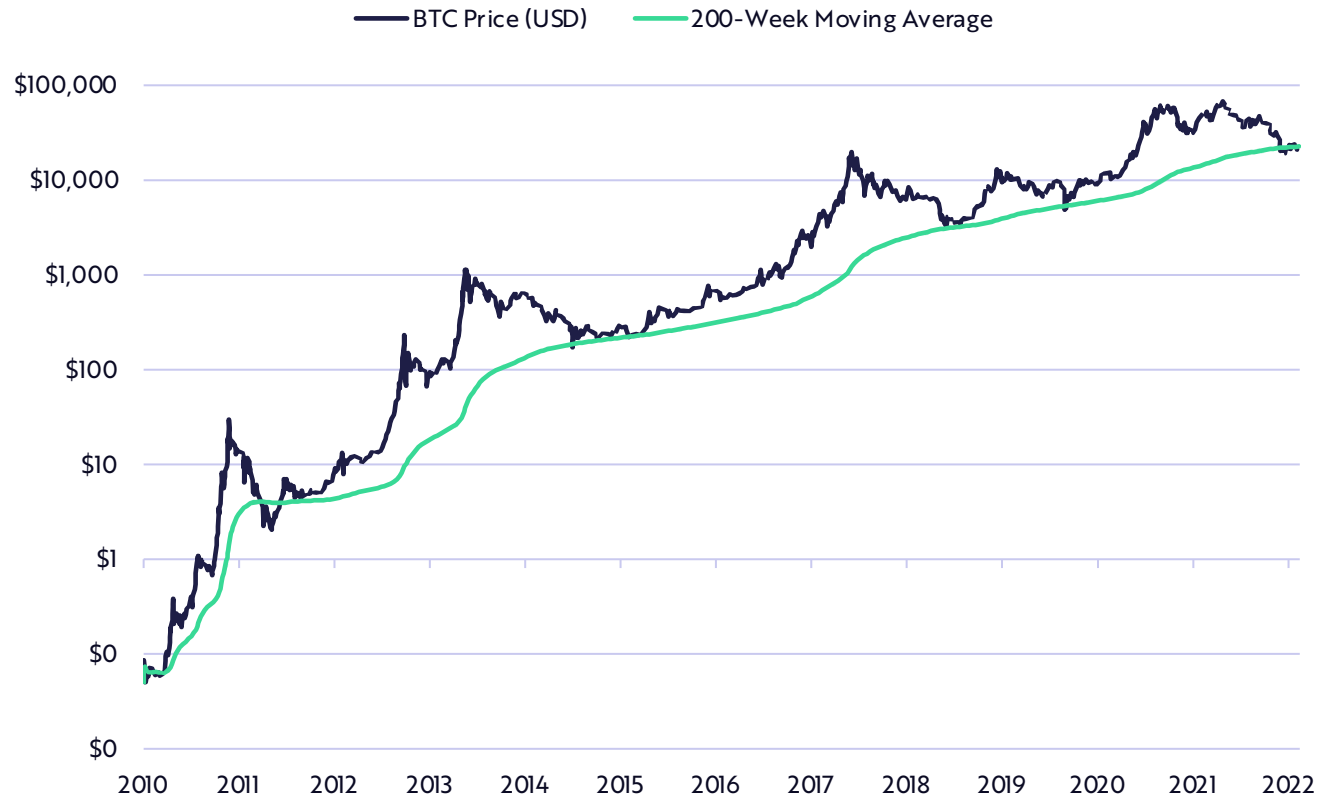
## Bitcoin Continues To Consolidate Around Its 200-Week Moving Average

### ARK's View: Bearish

After closing above its 200-week moving average in July,<sup>1</sup> bitcoin's price reversed and slipped below it in August.

Currently at \$22,680, the 200-week moving average now seems to be resistance, above which ARK would turn bullish.

### Bitcoin Falls Below Its 200-Week Moving Average



[1] The 200-week moving average here is calculated by taking the 1440-day moving average of values larger than 0, so that if the data are not available for a 1440 average, the calculation assumes a life-to-date average in the early years of bitcoin's history.

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## Strong Holder Behavior Appears To Counterbalance Diminished Network Activity

	Bitcoin Metrics <sup>1</sup>	Unit	August 2022	1M Change	1Y Change	ARK's View	Upgrade/Downgrade <sup>3</sup>
Network Security	<b><u>Mining Difficulty</u></b>	Exahash/sec <sup>1</sup> (Thousands)	133	+11.8%	+75.8%	Bullish	↑
	<b><u>Miner Revenue</u></b> (7-Day Moving Average)	USD (Millions)	\$20.44	-4.11%	-54.2%	Bearish	↓
Network Usage	<b><u>Active Owners</u></b> <sup>2</sup> (Active Entities, 7-Day Moving Average)	Thousands	237.8	-3.16%	-4.6%	Bearish	↓
	<b><u>Transaction Volume</u></b> <sup>2</sup> (7-Day Moving Average)	BTC (Thousands)	336.7	+42.72%	+176.8%	Bullish	No Change
Holder Behavior	<b><u>Long-Term-Holder Supply</u></b> <sup>2</sup> (Coins Held for 155 Days+)	BTC (Millions)	13.53	+1.6%	+4.2%	Bullish	↑
	<b><u>Locked Supply</u></b> <sup>2</sup> (Illiquid Supply)	BTC (Millions)	14.83	+0.77%	+6.14%	Bullish	No Change
	<b><u>Time-Weighted Turnover</u></b> <sup>2</sup> (Coindays Destroyed, 7-Day Median)	Coindays (Millions)	7.08	+6.65%	-12.68%	Neutral	↓

[1] For more information on these metrics and their units of account, please read the Appendix: Glossary of Terms on page 23 of this report.

[2] Data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm.

[3] Arrows displayed in the "Upgrade/Downgrade" column convey the change in our view of that metric compared to last month. For instance, if our view changes from bearish to neutral, the arrow will be green, and so forth.

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## Bitcoin Consolidates Slightly Below Its Market Cost Basis

	Bitcoin Metrics <sup>1</sup>	Unit	August 2022	1M Change	1Y Change	ARK's View	Upgrade/ Downgrade <sup>3</sup>
Long-Term Valuation	<b>Market Cost Basis</b> (Realized Price)	USD	\$21,595	-1.01%	+4.37%	Neutral	No Change
	<b>Percent Supply In Profit</b>	pp	52.08%	-9.1 pp	-31.7 pp	Bullish	No Change
Short-Term Valuation	<b>Short-Term-Holder Cost Basis<sup>2</sup></b> (STH Realized Price)	USD	\$25,190	-10.26%	-43.15%	Bullish	↑
	<b>Realized Market Returns<sup>2</sup></b> (SOPR-1, 7-day moving average)	pp	-4.02%	-0.51 pp	-13.66 pp	Neutral	↓
Market Sentiment	<b>Perpetual Futures Basis</b> (Binance, Estimated, 7-Day Exponential Moving Average)	pp	-0.06%	0 pp	-0.04 pp	Bullish	No Change
	<b>Expirational Futures Basis</b> (Quarterly, All Exchanges, Annualized)	pp	0.25%	-2.81 pp	-8.67 pp	Bullish	No Change

[1] For more information on these metrics and their units of account, please read our Appendix: Glossary of Terms on page 23 of this report.

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Source: ARK Investment Management LLC, 2022. Data sourced from [Glassnode](#). Some data may be subject to change over time since they are entity-adjusted in real time. Information as of August 31, 2022. The perpetual futures basis was estimated internally on the basis of data from TradingView, and it is subject to change. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency. Forecasts are inherently limited and cannot be relied upon.



## Bitcoin Continues To Trade Above Its Investor Cost Basis

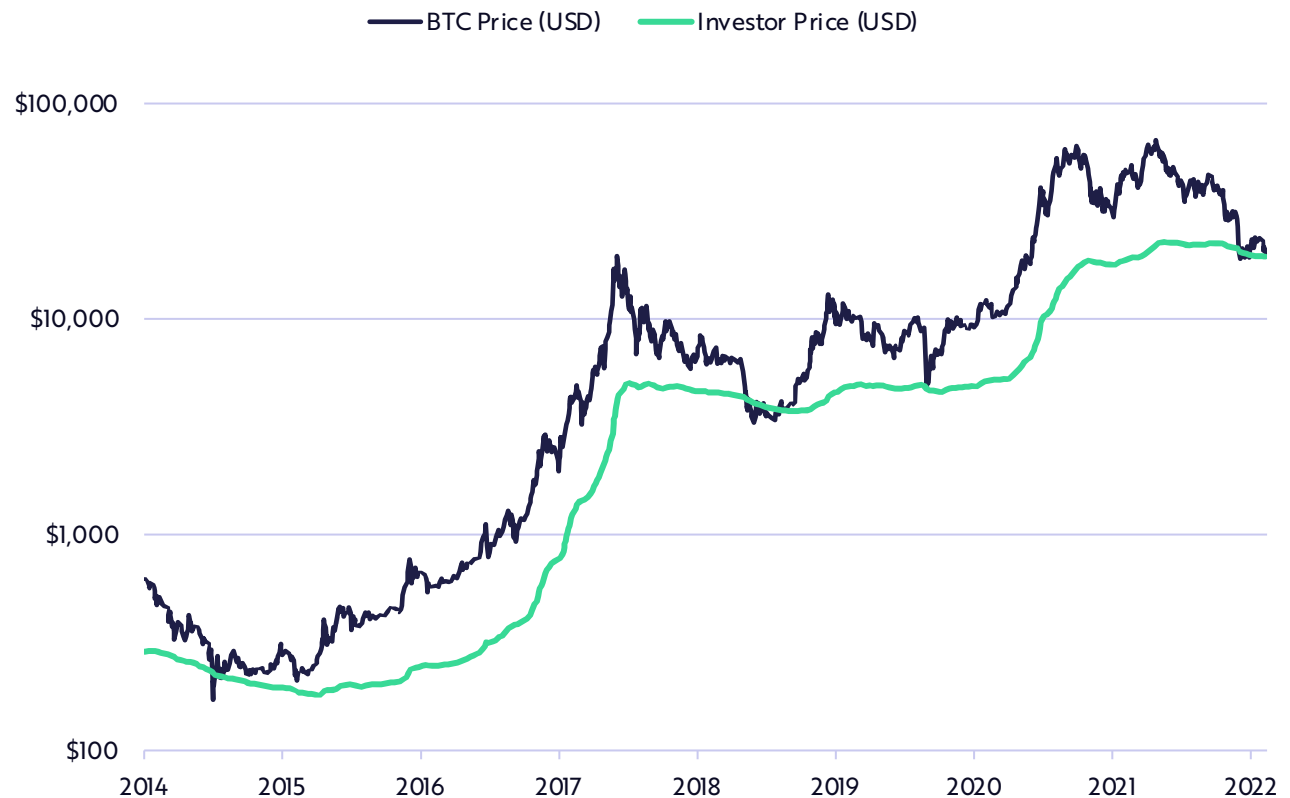
### ARK's View: Bullish

Bitcoin currently trades above investor cost basis at \$19,360, its strongest on-chain support level.

Importantly, throughout bitcoin's history, trading at investor price usually marks a bottoming process.

Investor price is calculated by subtracting the cost basis of miners from the general cost basis of the market.

### Bitcoin's Investor Cost Basis Stands At \$19,400





## Long- and Short-Term Cost Bases Appear To Be Crossing, Suggesting A Cyclical Bottom

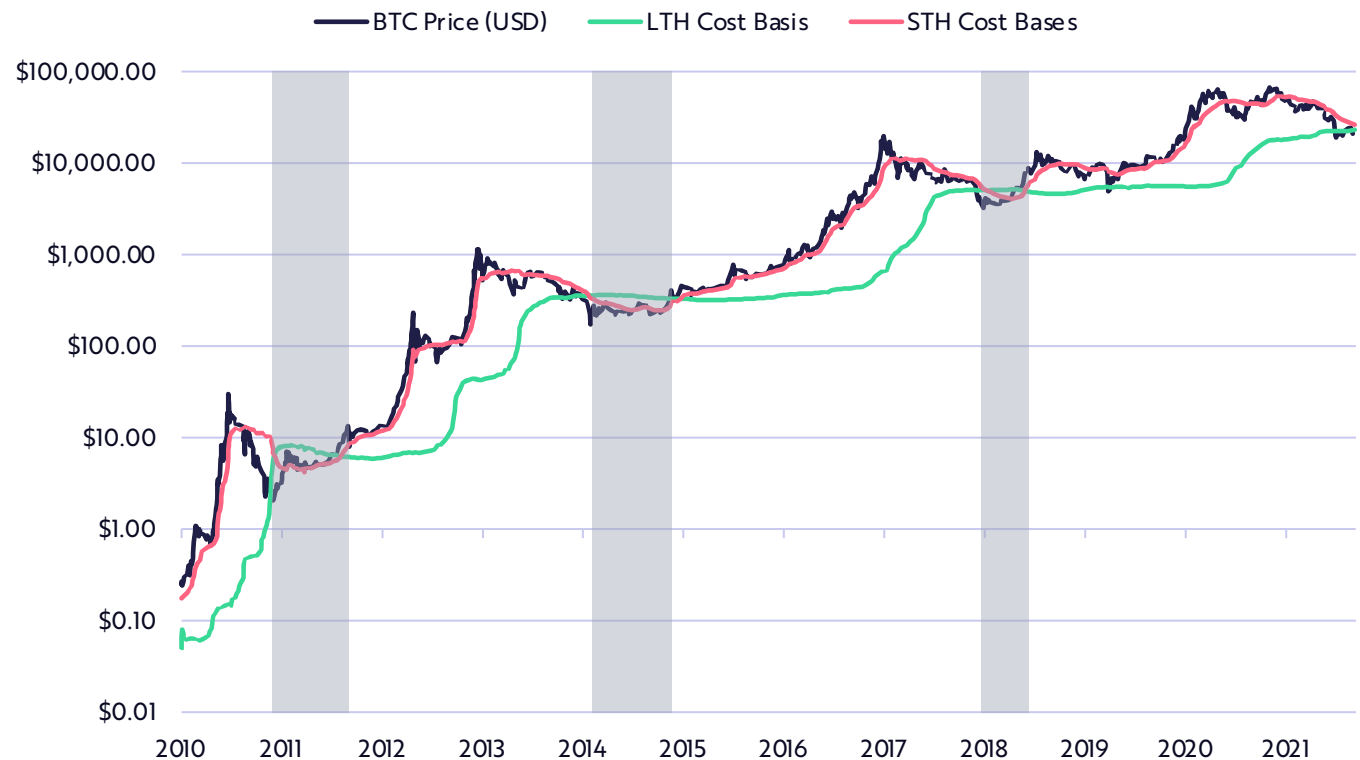
### ARK's View: Neutral

The short-term-holder (STH) cost basis is approaching its long-term-holder (LTH) cost basis<sup>1</sup>—an event that has marked cyclical bottoms in the past.

When short-term holders' cost basis crosses below long-term holders' cost basis, the market typically is capitulating and shifting back to long-term participation.

Since the end of July, the difference between short- and long-term holders' cost basis has shrunk from \$5,840 to \$2,500.

### Bitcoin's Short-Term Cost Basis Is Approaching Its Long-Term Cost Basis



[1] The LTH cost basis accounts for coins unmoved for 155 days or more; the STH cost basis accounts for coins moved in the last 155 days.  
Source: ARK Investment Management LLC, 2022. Data from [Glassnode](#). Information as of August 29, 2022. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency. Forecasts are inherently limited and cannot be relied upon.



## Supply Held By Long-Term Holders Is On Pace To Reach An All-Time High

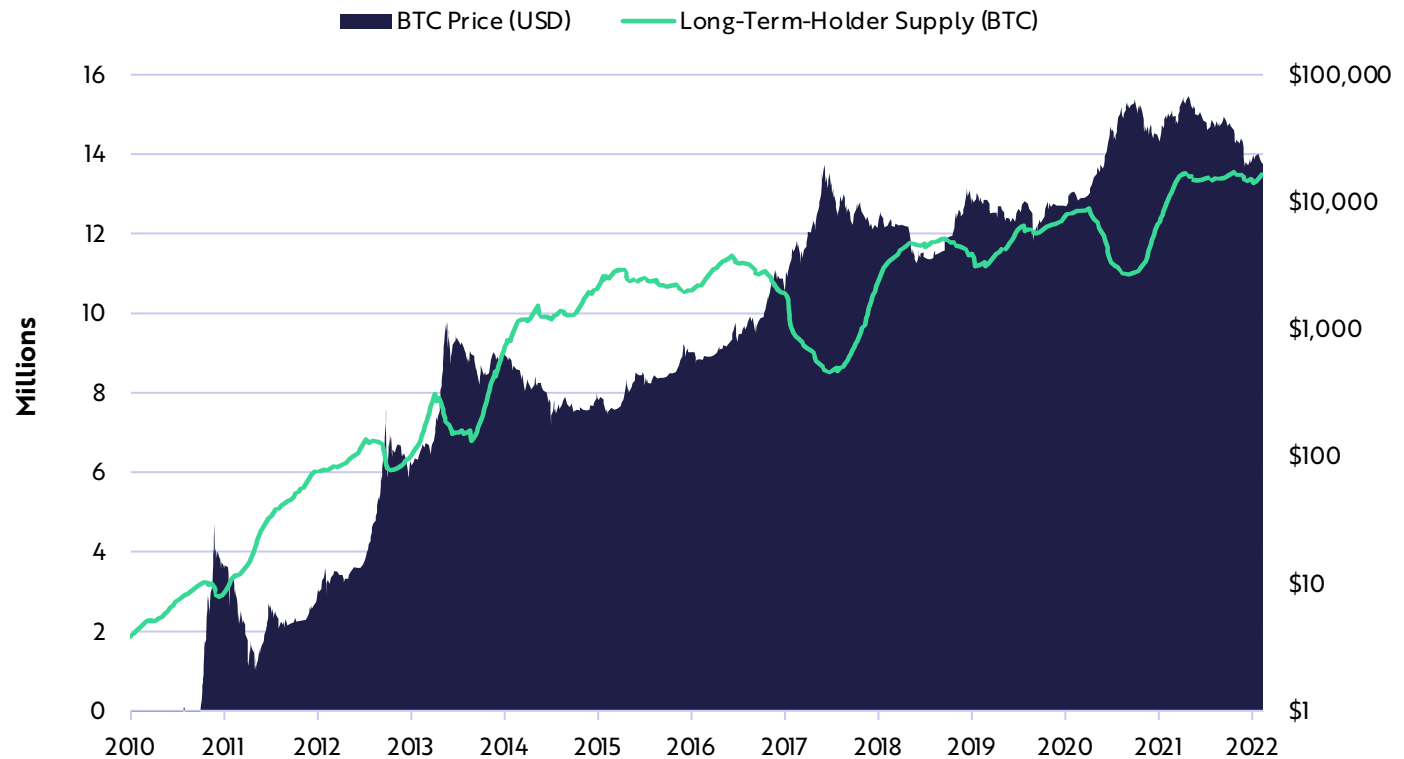
### ARK's View: Bullish

The supply held by long-term bitcoin holders is 34,500 coins away from reaching 13.55 million—its all-time high.

Long-term-holder supply constitutes 70.6% of total outstanding supply.

Long-term holder supply denotes the number of coins that have not moved in 155 days or more, the threshold at which the probability selling and spending in the future diminishes dramatically.

### The Supply Held By Long-Term Bitcoin Holders Stands At ~13.5 Million





## Section 3

# All Eyes Are On Ethereum's Upcoming Transition To Proof-of-Stake

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## The ETH/BTC Pair Continues To Outperform Bitcoin Ahead Of ETH's Merge

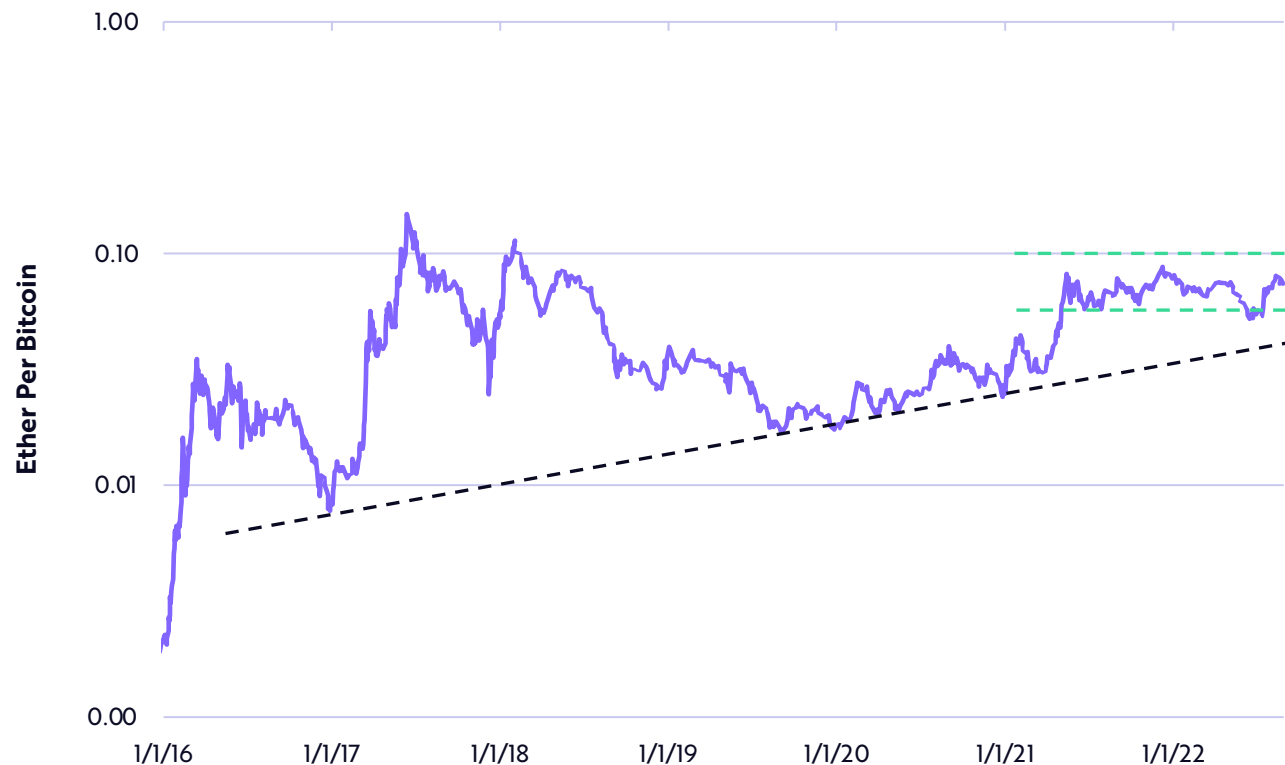
### ARK's View: Neutral

Investors are bidding up ether, perhaps expecting that Ethereum's transition to proof-of-stake this month will be successful.

In August, ether outperformed bitcoin by 7.6%.

Historically, ether has outperformed bitcoin during "risk-on" bull markets and underperformed during "risk-off" bear markets. We are monitoring the situation to discern whether or not the Merge will result in "sell the news".

### ETH/BTC Pair Appears Poised To Break Out From The Trading Range Established In January 2021





## Derivatives Traders Appear To Be Hedging The Merge

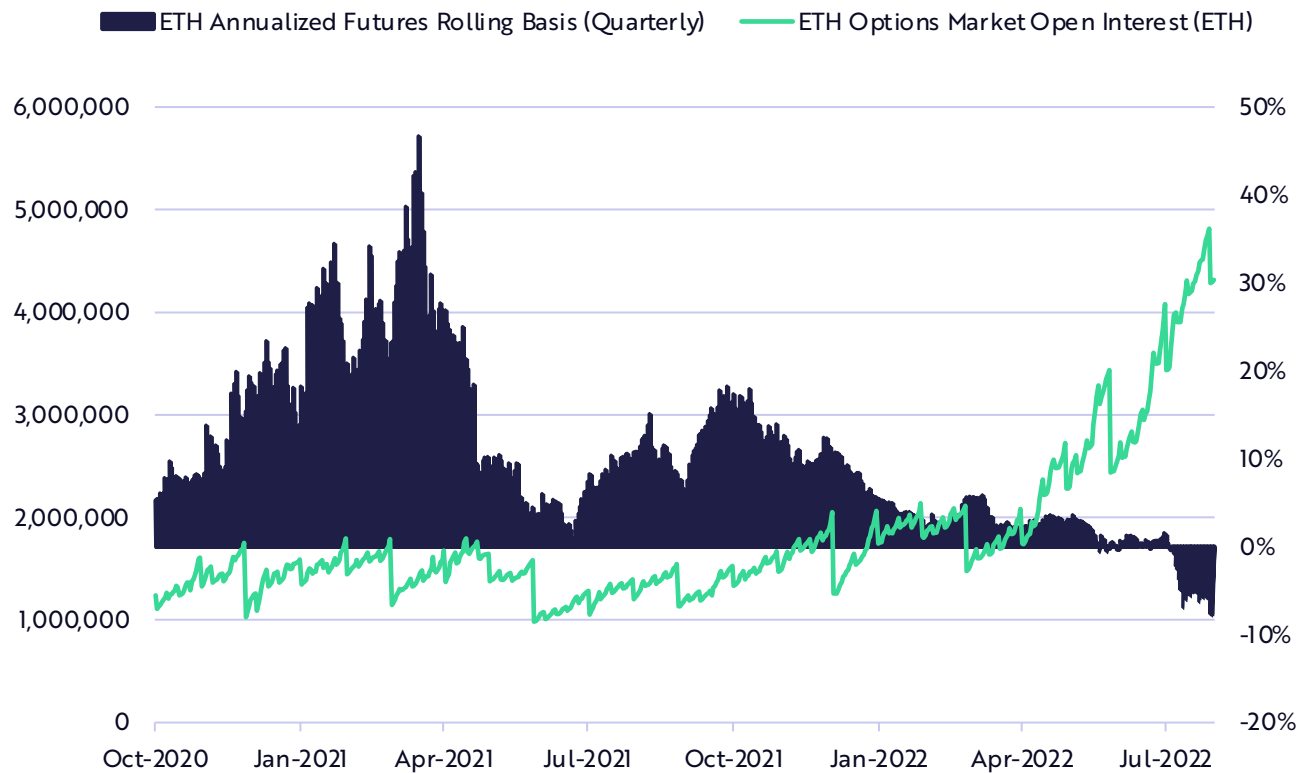
### ARK's View: Neutral

ETH future and options suggest significant hedging before The Merge.

ETH futures are in backwardation, suggesting that investors and speculators are selling contracts to hedge spot accumulation.

Options open interest (valued in ETH) has increased to nearly 3x its average during the period between late 2020 and all of 2021, suggesting interest in hedging exposure by going long volatility.

### ETH Futures Trade In Backwardation As Options Open Interest Nears All-Time Highs







## The Treasury Department's OFAC Sanctions May Be A Problematically Blunt Instrument

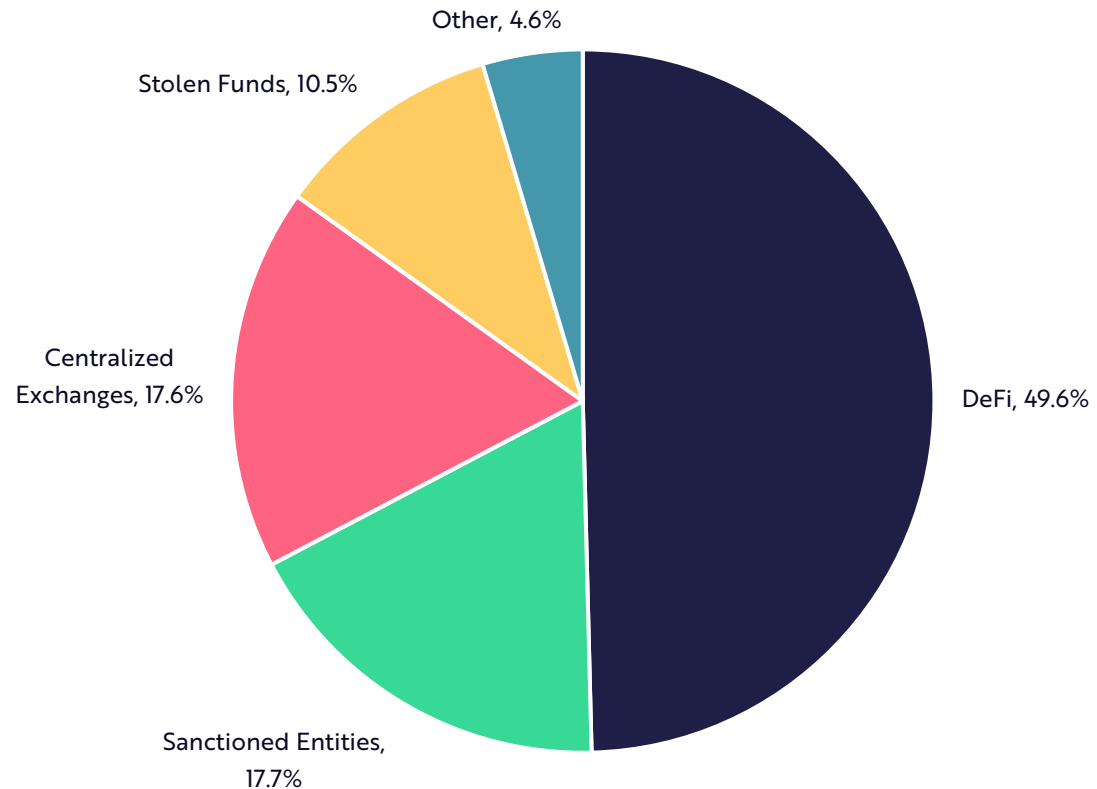
### ARK's View: Neutral

According to data from Chainalysis, while the share of illicit activity in total crypto transaction volume declined from 0.62% in 2020 to 0.15% in 2021, Tornado Cash had disproportionate exposure to crypto heists and to funds from sanctioned addresses.

More than 20% of the illicit funds came from North Korea's state-sponsored Lazarus Group's \$620 million hack of Axie Infinity's Ronin bridge—the largest DeFi hack to date.

If the Treasury Department's effort to impede North Korean hackers effectively bans open-source software, we believe its blunt instrument will set a dangerous precedent.

Tornado Cash Deposits By Source





## Sanctions Enforcement Could Prove Tricky And Test Ethereum's Resistance To Censorship

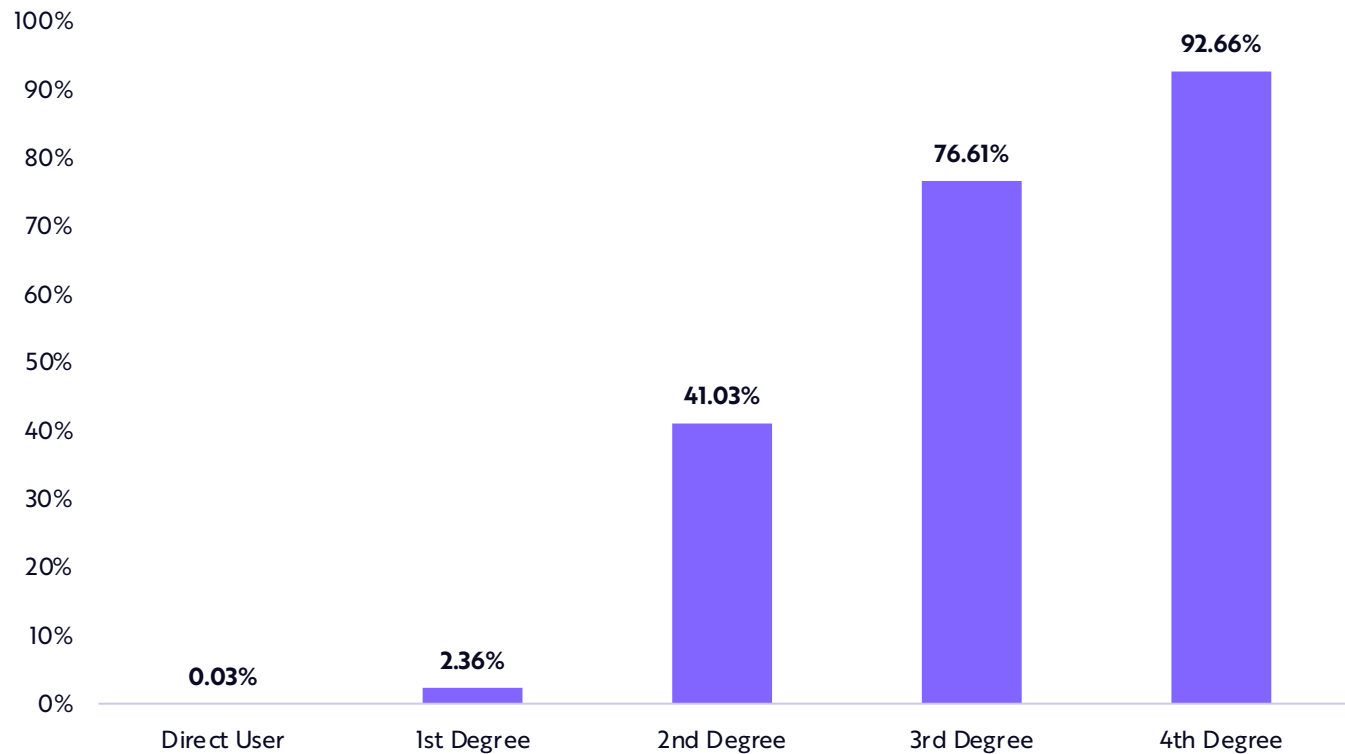
### ARK's View: Neutral

Because 40% of Ethereum addresses have indirect exposure to Tornado Cash funds that approximates two degrees of separation, attempts to block addresses with ties to sanctioned funds could be complicated.

To protect themselves from legal action, some block creators might exclude Tornado Cash transactions from their blocks, effectively censoring transactions on the Ethereum network.

On the positive side, the Tornado Cash incident has motivated core developers and community members to redouble their efforts to improve the censorship resistance of public blockchains.

### Percent Of Wallets Within N-Degrees Of Separation From Tornado Cash





## Section 4

# Signs Of Recession Surface As The Fed Tries To Curb Inflation

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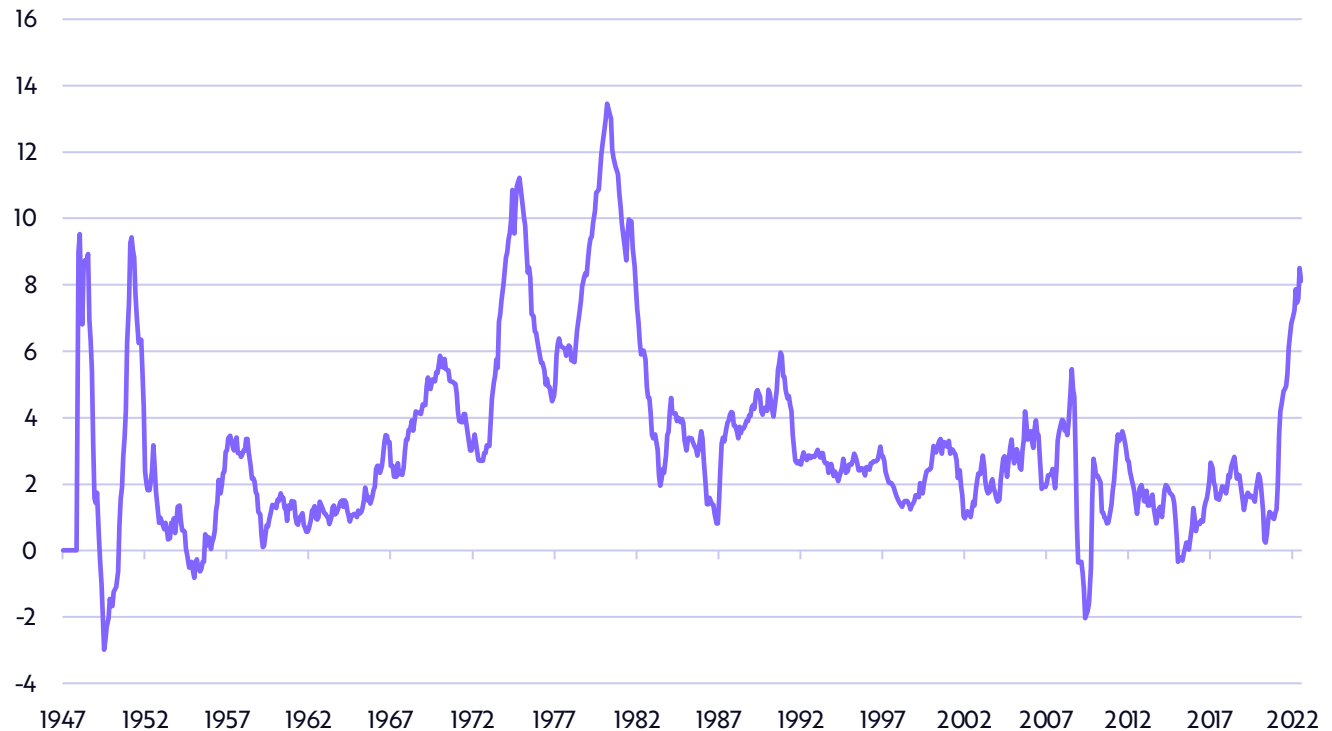
## The Consumer Price Index Reaches Highs Not Seen Since The 1980s

### ARK's View: Bearish

On a year-over-year (YoY) basis, inflation as measured by the Consumer Price Index (CPI) has accelerated to 8.5%.

As risk-on investors scan for signs of a pivot, the Fed's hawkish stance, exemplified by Chairman Powell's Jackson Hole statement, suggests a longer than expected wait.

### CPI YoY Percent Change





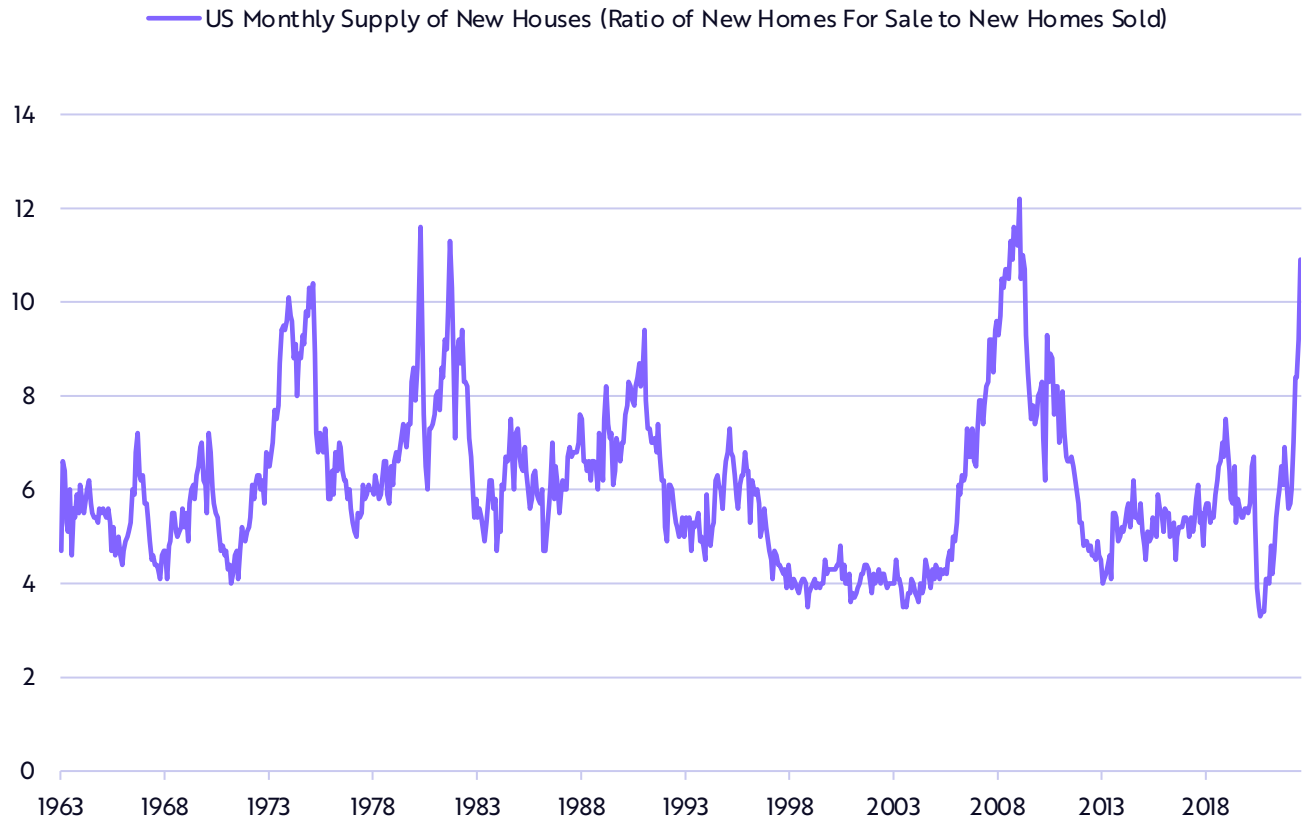
## Home Inventories Spike Relative To Home Sales, Indicating A Recession

### ARK's View: Neutral

The supply of new homes relative to new home sales has spiked to levels not seen since the 2008 housing crisis.

While the Fed stands between a rock and a hard place, negative real GDP growth and falling commodity prices could temper its hawkish stance.

### US Monthly Housing Supply



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## Section 5

# Appendix: Glossary Of Terms

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## Glossary Of Terms

- **Active Owners:** An individual or organization managing the same set of addresses sending and receiving funds. Also known as active entities.
- **Backwardation:** Describes when futures trade at a price lower than spot, denoting bullish market sentiment.
- **Contango:** Describes when expirational futures contracts are trading at a price higher than spot, suggesting a bearish market environment.
- **Delta Cost Basis:** An adjusted version of the market cost basis. It is calculated by subtracting the life-to-date moving average of bitcoin's price from its realized price. The measure is used to gauge the downside risk of a bear market. Also known as delta price or delta cap.
- **Difficulty:** Computational power required to validate transactions in the network. "Exa-" and "tera-" hashes per second refer to units of account to a factor of  $10^{18}$  and  $10^{12}$ , respectively. Higher difficulty implies higher network security.
- **Exchange Supply:** The number of bitcoins held in addresses controlled by exchanges.
- **Expirational Futures Basis:** The difference between the price of spot and the price of expirational futures contracts.
- **Futures Basis:** The difference between the price of spot and the price of a perpetual or expirational contract.
- **Investor Cost Basis:** An adjusted version of the market cost basis. It is calculated by subtracting the life-to-date cumulative miner revenue in USD (thermo cap) from realized price. Also known as investor price or investor cap.
- **Locked Supply:** The supply held by entities that have <25% probability of spending, as per their historical behavior. Also known as illiquid supply.
- **Long-term Holding and Holders (LTH):** Related to supply last moved 155 days ago or more, the cutoff point at which the possibility of a bitcoin to remain unmoved increases drastically.
- **Market Cost Basis:** The on-chain volume-weighted average price of the market, calculated by aggregating the value of all bitcoins in circulation at the time when they last moved. Also known as realized price or realized cap.
- **Miner Revenue:** The number of bitcoins (in USD value) block miners obtain for securing the network.
- **MVRV Ratios:** Market cap divided by different on-chain cost bases of the market, such as realized cap or short-term-holder realized cap.
- **Net Realized Profit/Loss (NRPL):** The difference between realized profit and realized loss, normalized by market cap.
- **Net Unrealized Profit/Loss (NUPL):** The difference between unrealized profit and unrealized loss, normalized by market cap. It measures current value relative to the aggregate cost basis (realized cap) of the market to determine how much the network is in profit or loss.
- **Perpetual Futures Basis:** The difference between the price of spot and the price of non-expirational futures contracts.
- **Puell Multiple:** Miner revenue (USD) divided by the 365-day moving average of miner revenue (USD). It measures miner earnings relative to their yearly average.
- **Realized Returns:** The ratio reached by dividing the average price of bitcoins spent that day by the average price when they last moved. In essence, it is the ratio of price sold and price bought for the coins that moved that day. Also known as spent output ratio, or SOPR.
- **Regional Cumulative Price Change:** The sum of month-over-month (30-day) price action during the business hours of the major financial hubs worldwide: New York for the US, London for Europe, and Hong Kong for Asia.
- **Short-term Holding and Holders (STH):** Related to supply that moved in the last 155 days, the cutoff point at which the possibility for a bitcoin to move again increases drastically.
- **Supply in Profit:** The percentage of bitcoins currently at a higher price compared to the price at which they last moved.
- **Time-weighted Turnover:** The number of bitcoins traded that day, multiplied by the amount of time each coin had remained dormant. Also known as coindays destroyed.
- **Transaction Volume:** The number of bitcoins that changed hands on any given day.

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