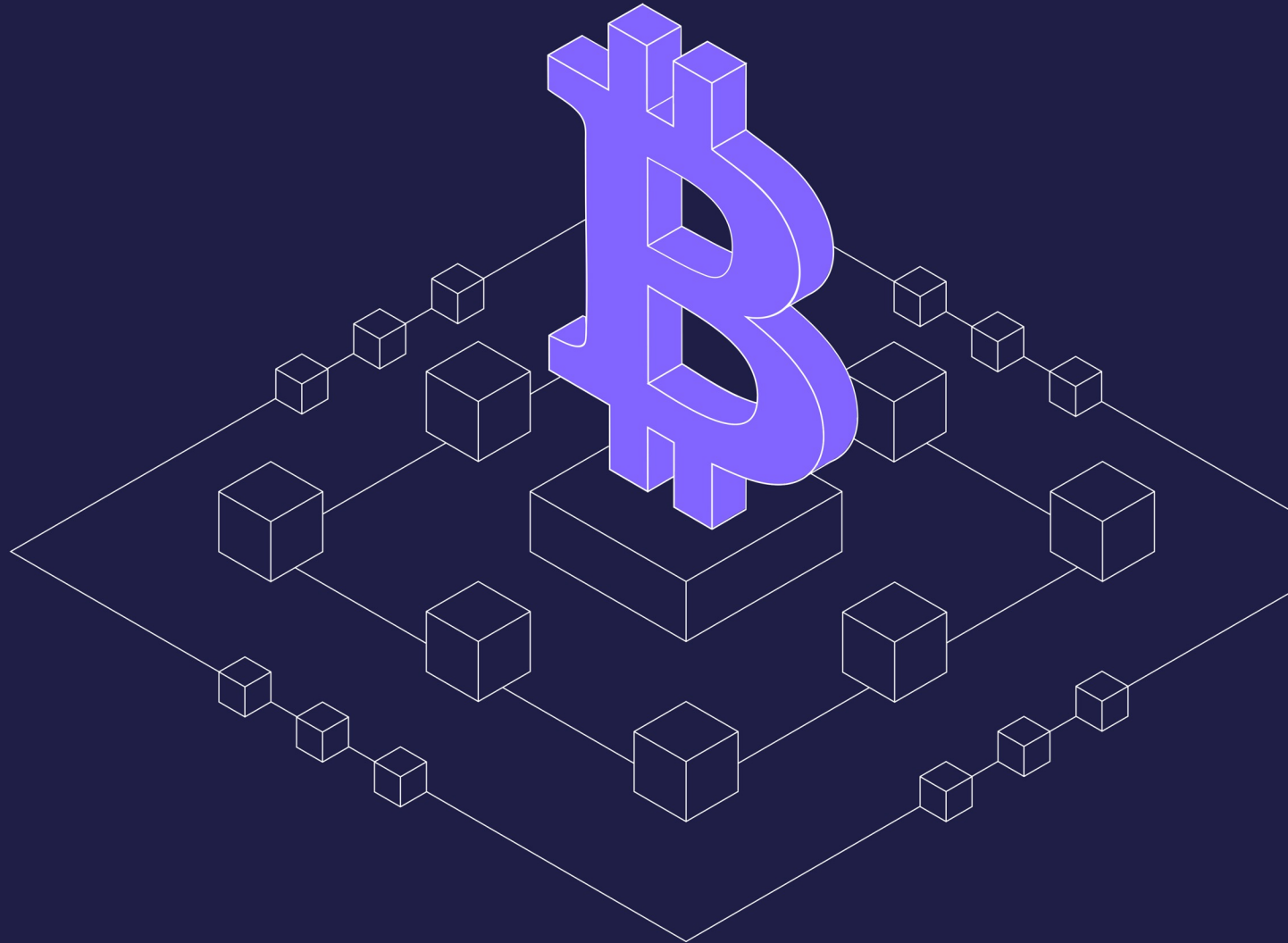




As of February 28, 2023

THE BITCOIN MONTHLY

**BATTLING THE 200-WEEK
MOVING AVERAGE**



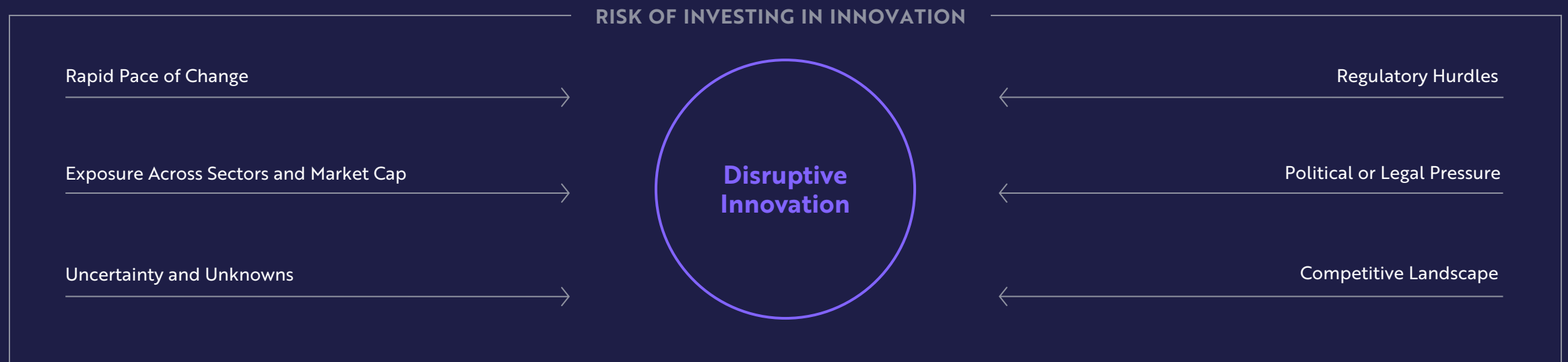
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RISKS OF INVESTING IN INNOVATION

Please note: Companies that ARK believes are capitalizing on disruptive innovation and developing technologies to displace older technologies or create new markets may not in fact do so. ARK aims to educate investors and seeks to size the potential investment opportunity, noting that risks and uncertainties may impact our projections and research models. Investors should use the content presented for informational purposes only, and be aware of market risk, disruptive innovation risk, regulatory risk, and risks related to certain innovation areas.

Please read risk disclosure carefully.



→ **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)**



SECTIONS

01

Market Summary

02

Stable Holders And Increased Network Activity

03

Macro Remains Uncertain

04

Appendix: Glossary Of Terms



Section 01

Market Summary





Bitcoin Faces Critical Resistance: The 200-Week Moving Average

Stable Holders And Increased Network Activity

- The new Ordinals protocol enables the Bitcoin network to support non-fungible tokens on-chain, increasing demand for Bitcoin block space dramatically.
- Short-term holders are as profitable today as they were in late 2021.
- Long-term holders' realized profits remain below their breakeven point. A move above the breakeven point would confirm sustained bullish momentum for bitcoin.

Macro Uncertainty

- The current inflationary regime, which is suggested by increasing monetary velocity, continues to battle the risk of recession, as suggested by an inverted yield curve. That battle exacerbates and intensifies the uncertainty of monetary policy.
- The recent rebound in long-term Treasury yields is a headwind to long-duration assets.

ARK'S KEY TAKEAWAY

- In February, bitcoin increased 0.08%, bucking the setback in equities and closing the month at \$23,145, which was above its \$19,850 market cost basis.
- Bitcoin now faces critical resistance: the 200-week moving average.
- The US Securities and Exchange Commission (SEC) cracked down on staking and stablecoins, forcing crypto exchange Kraken to discontinue its staking-as-a-service program and Paxos to wind down BUSD, Binance's native stablecoin. Despite the regulatory uncertainty, bitcoin appears to be weathering the storm.



News Of The Month

| | |
|---|--|
| <u>Coinbase Unveils Its Ethereum Layer 2 Network That Won't Have A Token</u> | |
| <u>Kraken To End On-chain Staking Services For US Clients</u> | |
| <u>Paxos to Stop Minting Stablecoin BUSD Following Regulatory Action</u> | |
| <u>Bitcoin NFT Mints Surpass 200K</u> | |
| <u>Former FTX Exec Nishad Singh Charged By The SEC For Defrauding Investors</u> | |
| <u>LocalBitcoins Shuts Down After A Decade In Operation</u> | |
| <u>Spotify Starts Testing Ways To Access Music Via NFTs</u> | |
| <u>PayPal Pauses Stablecoin Project Amid Paxos Probe</u> | |
| <u>Binance Deploys Zk-SNARKs On Proof-of-Reserves System</u> | |
| <u>Lido Presents Plan For Version 2, Adding Staking Withdrawals And More</u> | |
| <u>Polygon Labs Cuts Staff By 20% In Consolidation</u> | |
| <u>Robinhood Rolls Out Self-Custody Crypto Wallet To iOS Customers Globally</u> | |
| <u>SEC Charges Terraform And Do Kwon Post Terra Collapse</u> | |
| | |
| | |



Holder Behavior And Network Are Positive On Balance

| | Bitcoin Metrics ¹ | Unit | February 2022 | 1M Change | 1Y Change | ARK's View | Upgrade/Downgrade ³ |
|------------------|--|---|---------------|-----------|-----------|------------|--------------------------------|
| Network Security | <u>Mining Difficulty</u> | Exahash/sec ¹ (Thousands) | 184.9 | +9.4% | +53.9% | Bullish | No Change |
| | <u>Miner Revenue</u> (7-Day Moving Average) | USD (Millions) | \$21.4 | -6.1% | -36.6% | Neutral | ↓ |
| Network Usage | <u>Active Owners</u> ² (Active Entities, 7-Day Moving Average) | Thousands | 271.8 | +2.1% | +1.6% | Bullish | No Change |
| | <u>Transaction Volume</u> ² (7-Day Moving Average) | BTC (Thousands) | 130.4 | +6.6% | -15.9% | Neutral | No Change |
| Holder Behavior | <u>Long-Term-Holder Supply</u> ² (Coins Held for 155 Days+) | BTC (Millions) | 14.1 | +0.2% | +6.2% | Bullish | No Change |
| | <u>Locked Supply</u> ² (Illiquid Supply) | BTC (Millions) | 15.06 | +0.08% | +7.2% | Bullish | No Change |
| | <u>Time-Weighted Turnover</u> ² (Coindays Destroyed, 7-Day Median) | Coindays (Millions) | 7.95 | -5.02% | -16.5% | Bullish | No Change |

[1] For more information on these metrics and their units of account, please read the Appendix: Glossary of Terms on page 20 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. One arrow denotes a 1-tier change, and two arrows denote a 2-tier change. Source: ARK Investment Management LLC, 2023. Data sourced from [Glassnode](#). Some data may be subject to change over time since they are entity-adjusted in real time. Information as of February 28, 2023. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency.

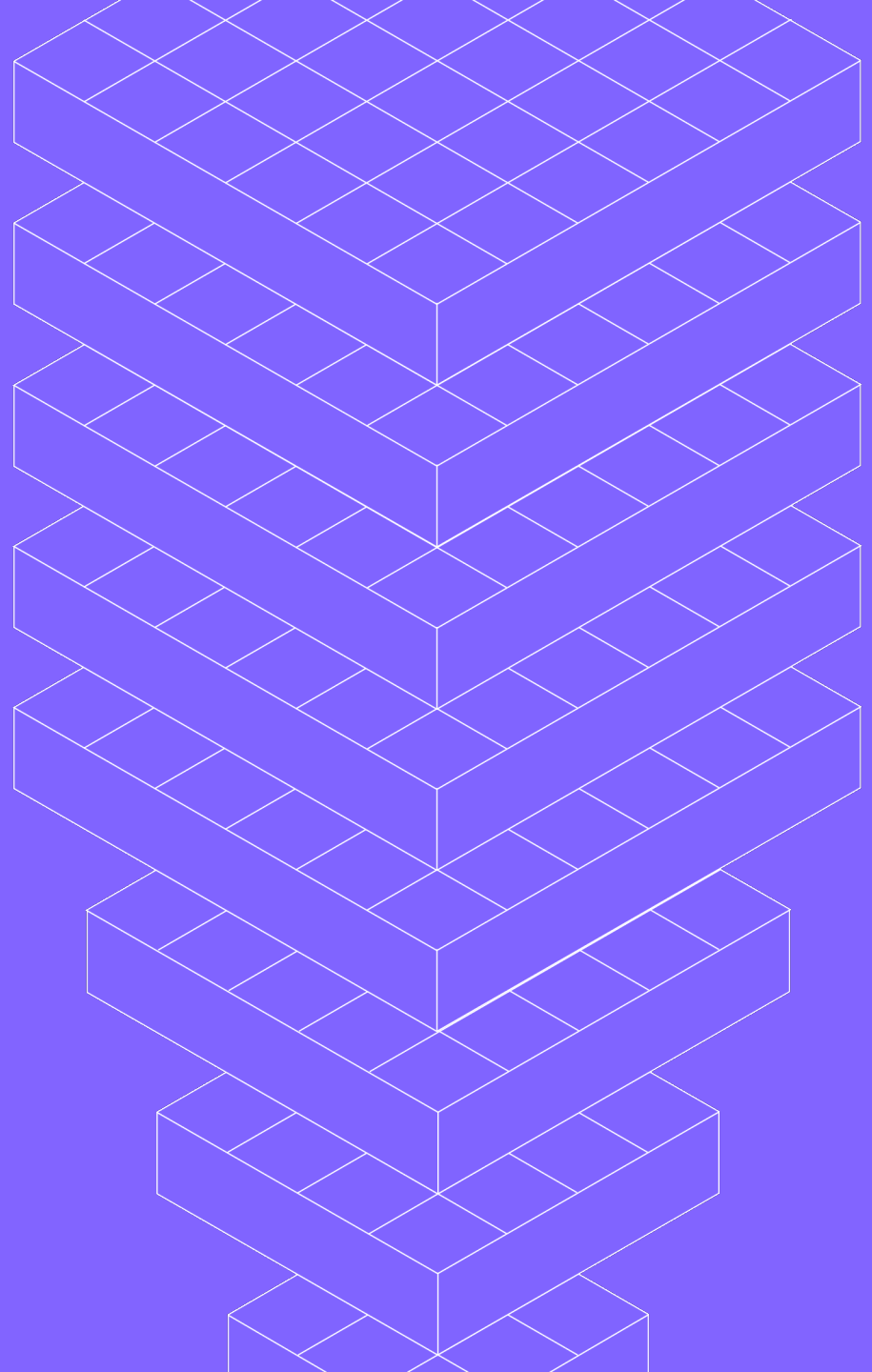


The Market Cost Basis Is Converging With The 200-Day Moving Average

| | Bitcoin Metrics ¹ | Unit | February 2022 | 1M Change | 1Y Change | ARK's View | Upgrade/ Downgrade ³ |
|-------------------------|---|------|---------------|-----------|-----------|------------|------------------------------------|
| Long-Term Valuation | <u>Market Cost Basis</u> (Realized Price) | USD | \$19,858 | +0.3% | -17.6% | Bullish | No Change |
| | <u>Percent Supply In Profit</u> | pp | 68.2% | -2.8 pp | -7.4 pp | Bullish | No Change |
| Short-Term Valuation | <u>Short-Term-Holder Cost Basis²</u> (STH Realized Price) | USD | \$19.834 | +4.2% | -58.2% | Bullish | No Change |
| | <u>Realized Market Returns²</u> (SOPR-1, 7-day moving average) | pp | -0.3% | -2.4 pp | +3.8 pp | Bullish | No Change |
| Market Sentiment | <u>Perpetual Futures Basis</u> (Binance, Estimated, 7-Day Exponential Moving Average) | pp | -0.04% | -0.02 pp | +0.01 pp | Bullish | No Change |
| | <u>Expiration Futures Basis</u> (Quarterly, All Exchanges, Annualized) | pp | 3.98% | +0.58 pp | +1.55 pp | Bullish | No Change |

[1] For more information on these metrics and their units of account, please read the Appendix: Glossary of Terms on page 20 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. One arrow denotes a 1-tier change, and two arrows denote a 2-tier change. Source: ARK Investment Management LLC, 2023. Data sourced from [Glassnode](#). Some data may be subject to change over time since they are entity-adjusted in real time. The perpetual futures basis was estimated internally on the basis of data from TradingView, and it is subject to change. Information as of February 28, 2023. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency.

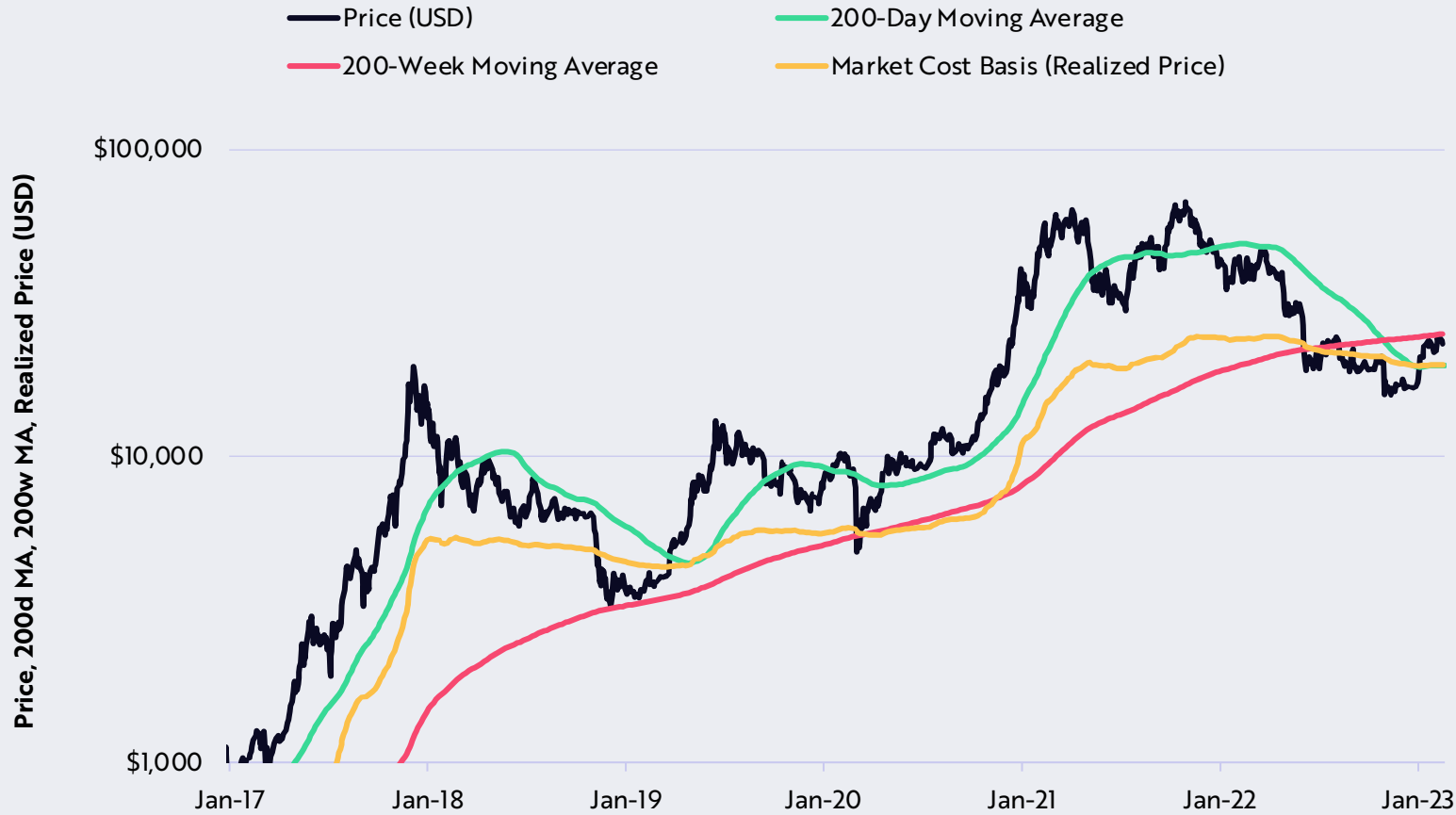
Stable Holders And Increased Network Activity





Bitcoin Traded Against Its 200-Week Moving Average For Three Weeks In A Row

Bitcoin 200d MA, 200w MA, and General Cost Basis



ARK'S VIEW: NEUTRAL

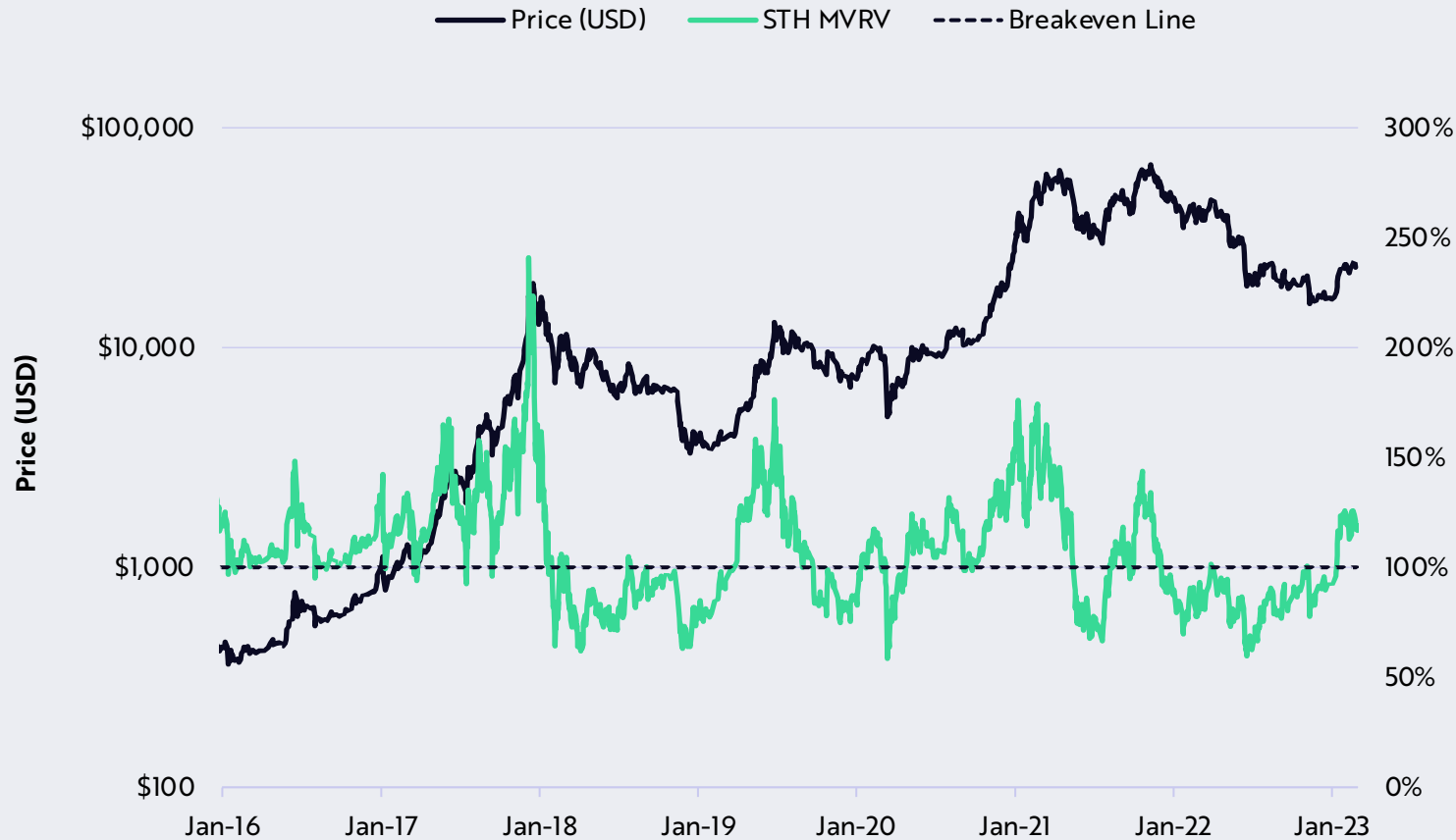
- After closing up 39% in January, bitcoin now faces critical resistance: the 200-week moving average.
- At \$25,120, the 200-week moving average acted as resistance for most of February, while bitcoin's market cost basis and 200-day moving average acted as support.

Source: ARK Investment Management LLC, 2023. Data from [Glassnode](#). Information as of February 28, 2023. 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. Past performance is not indicative of future results.



Short-Term Holders Closed The Month At 110% Unrealized Profit

Bitcoin Short-Term-Holder Market-Value-to-Realized-Value (MVRV) Ratio



ARK'S VIEW: BULLISH

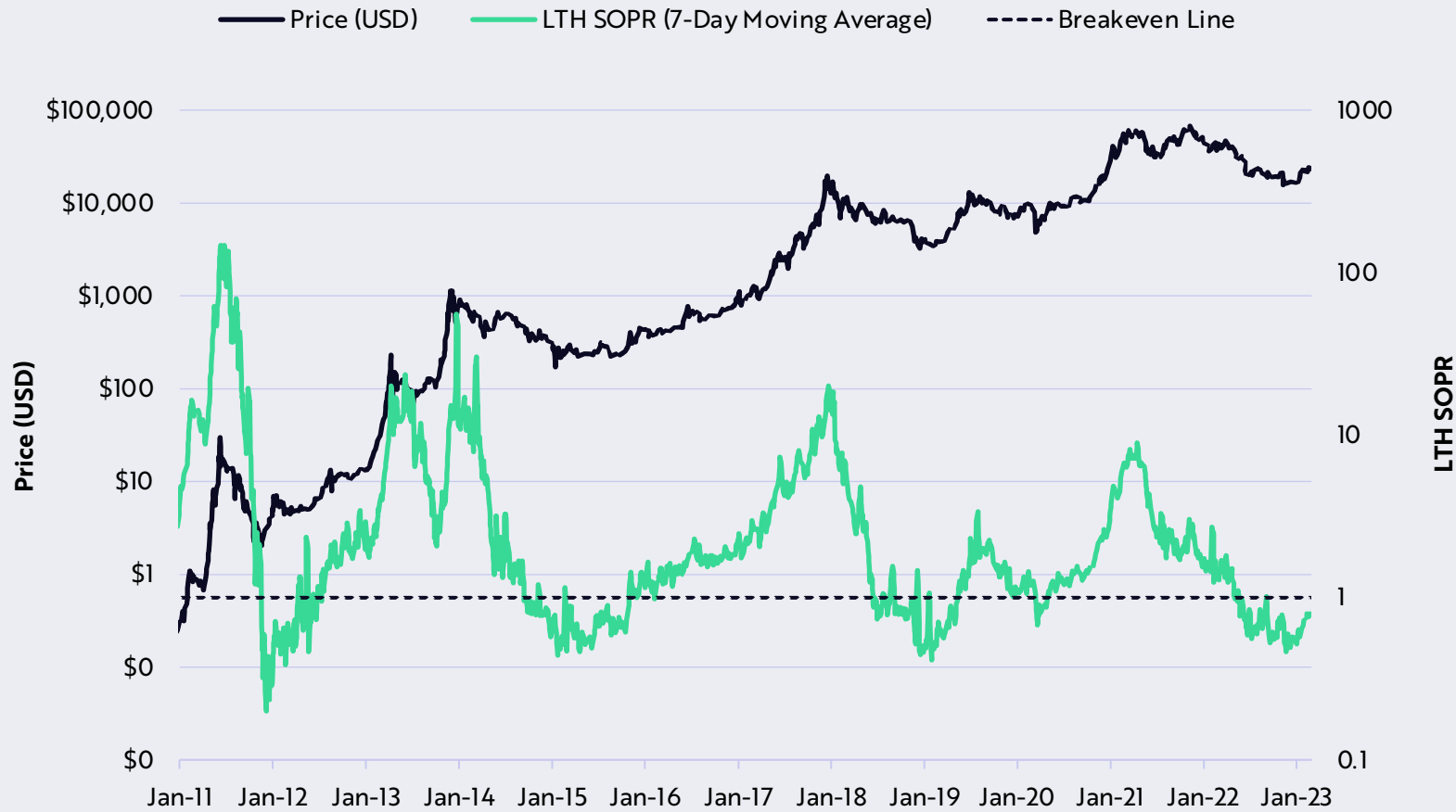
- The short-term holder (STH) cohort—holders who have transacted in the last 155 days—was trading at 1.1 as of the end of February for the first time since November 2021, or 110% unrealized profit.
- Now well above 1 (or 100%), this metric signals that bulls have dominated bears in 2023.

Source: ARK Investment Management LLC, 2023. Data from [Glassnode](#). Information as of February 28, 2023. Data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm. 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. Past performance is not indicative of future results.



Long-Term Holders Have Yet To Break Even

Bitcoin Long-Term-Holder (LTH) SOPR



ARK'S VIEW: NEUTRAL

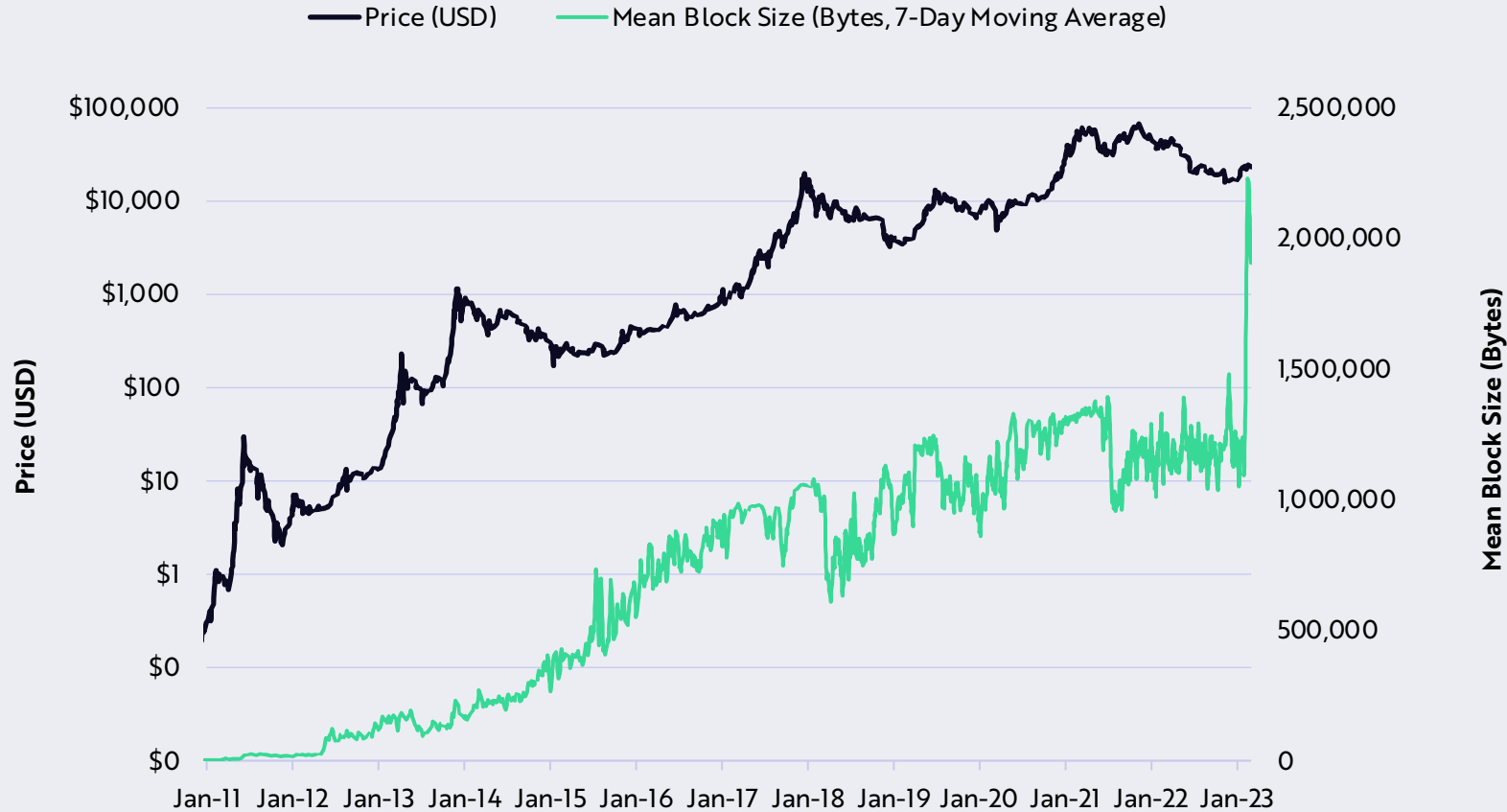
- While short-term holders are enjoying unrealized profits, long-term holders (LTH) have yet to realize profits.
- The SOPR (Spent Output Profit Ratio) of long-term holders, which is calculated by dividing the price at which a bitcoin was sold by the price originally paid, is still trading below 1.
- Reclaiming 1 as support would confirm bullish momentum and put long-term holders back into realized profit territory.

Source: ARK Investment Management LLC, 2023. Data from [Glassnode](#). Information as of February 28, 2023. Data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm. 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. Past performance is not indicative of future results.



Ordinals Take The Bitcoin Network By Storm

Bitcoin Mean Block Size



ARK'S VIEW: BULLISH

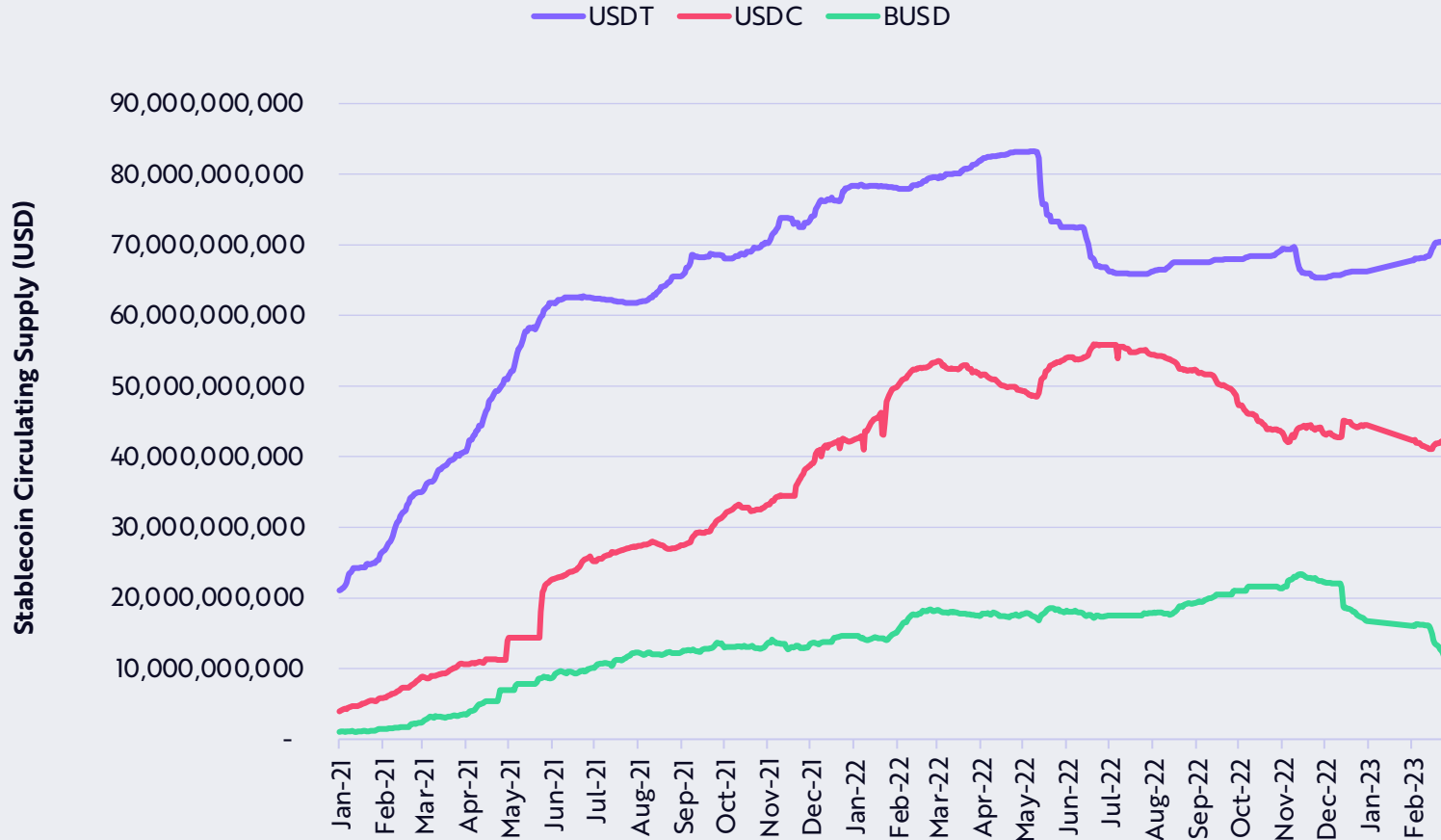
- With the launch of the Ordinals protocol, the Bitcoin network now can support non-fungible tokens (NFTs) directly on-chain. Users can inscribe images and other data in satoshis, the lowest denomination of bitcoin.
- To date, users have created more than 150,000 ordinals¹ on the Bitcoin blockchain.
- With the launch of ordinals, Bitcoin's mean block size increased 20.5% in February, confirming that inscriptions are boosting demand for block space and generating fees, ultimately compensating miners for securing the network.

[1] Data from Dune Analytics (<https://dune.com/dataalways/ordinals>). Source: ARK Investment Management LLC, 2023. Chart data from Glassnode. Information as of February 28, 2023. 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. Past performance is not indicative of future results.



As Regulators Crack Down On BUSD, The Stablecoin Market Is Shifting In Share

Circulating Supply Of Top 3 Stablecoins



ARK'S VIEW: NEUTRAL

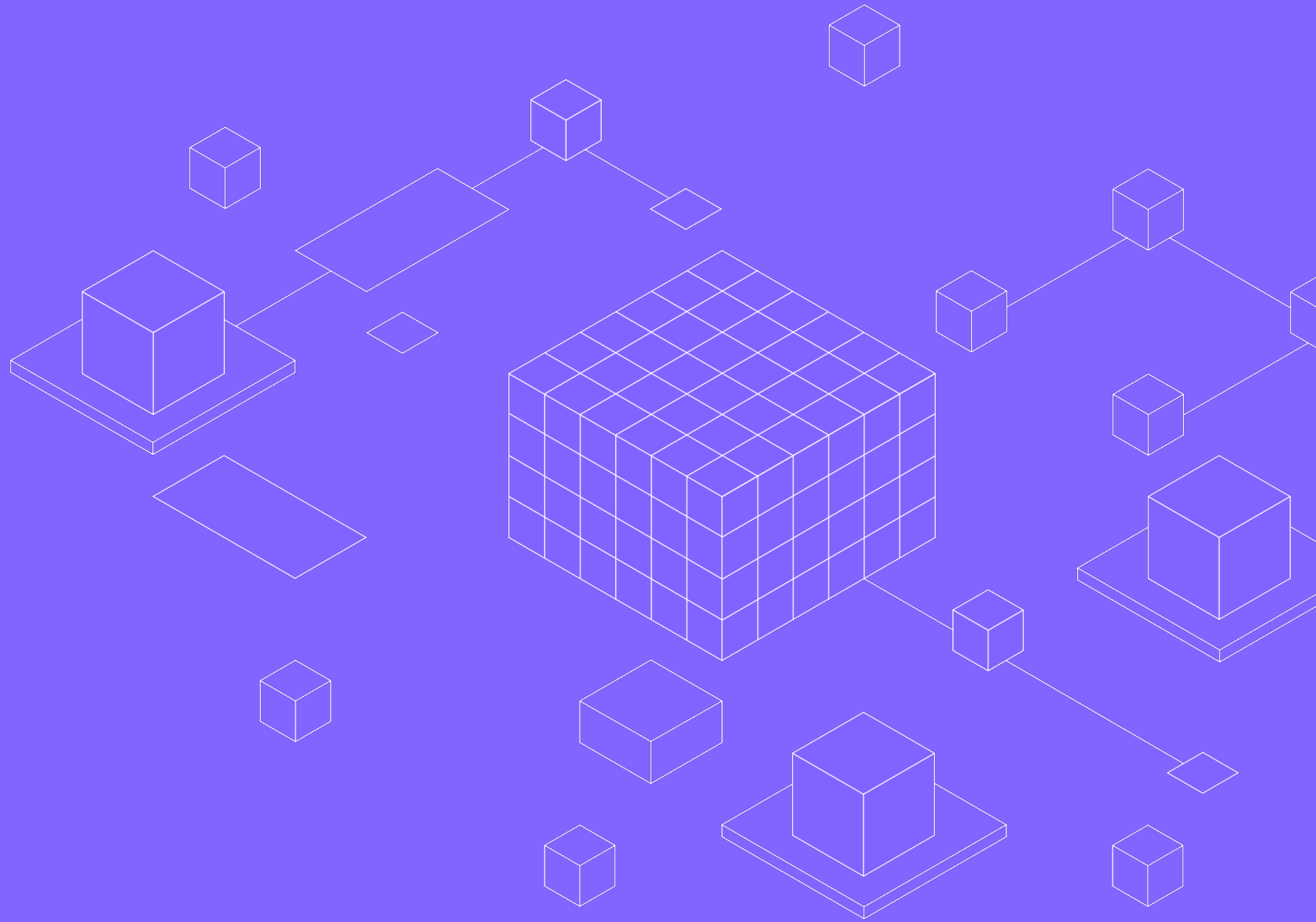
- On February 13, Paxos announced an end to its relationship with Binance for the BUSD stablecoin.
- The Paxos announcement followed two regulatory events: (1) an enforcement action by the New York Department of Financial Services; and (2) a Well's Notice from the SEC claiming that BUSD was operating as an unregistered security.
- As a result, Paxos no longer may issue new units of BUSD but can continue to support ongoing redemptions. As BUSD holders headed for the exit, the token's circulating supply dropped by ~\$6 billion during February.
- The elimination of BUSD, which used to facilitate USD-pegged trading on the Binance exchange, has shifted share to the Tether stablecoin, reigniting growth in USDC as investors seek continued stablecoin exposure.

Source: ARK Investment Management LLC, 2023. Data from [Classnode](#). Information as of February 28, 2023. 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. Past performance is not indicative of future results.



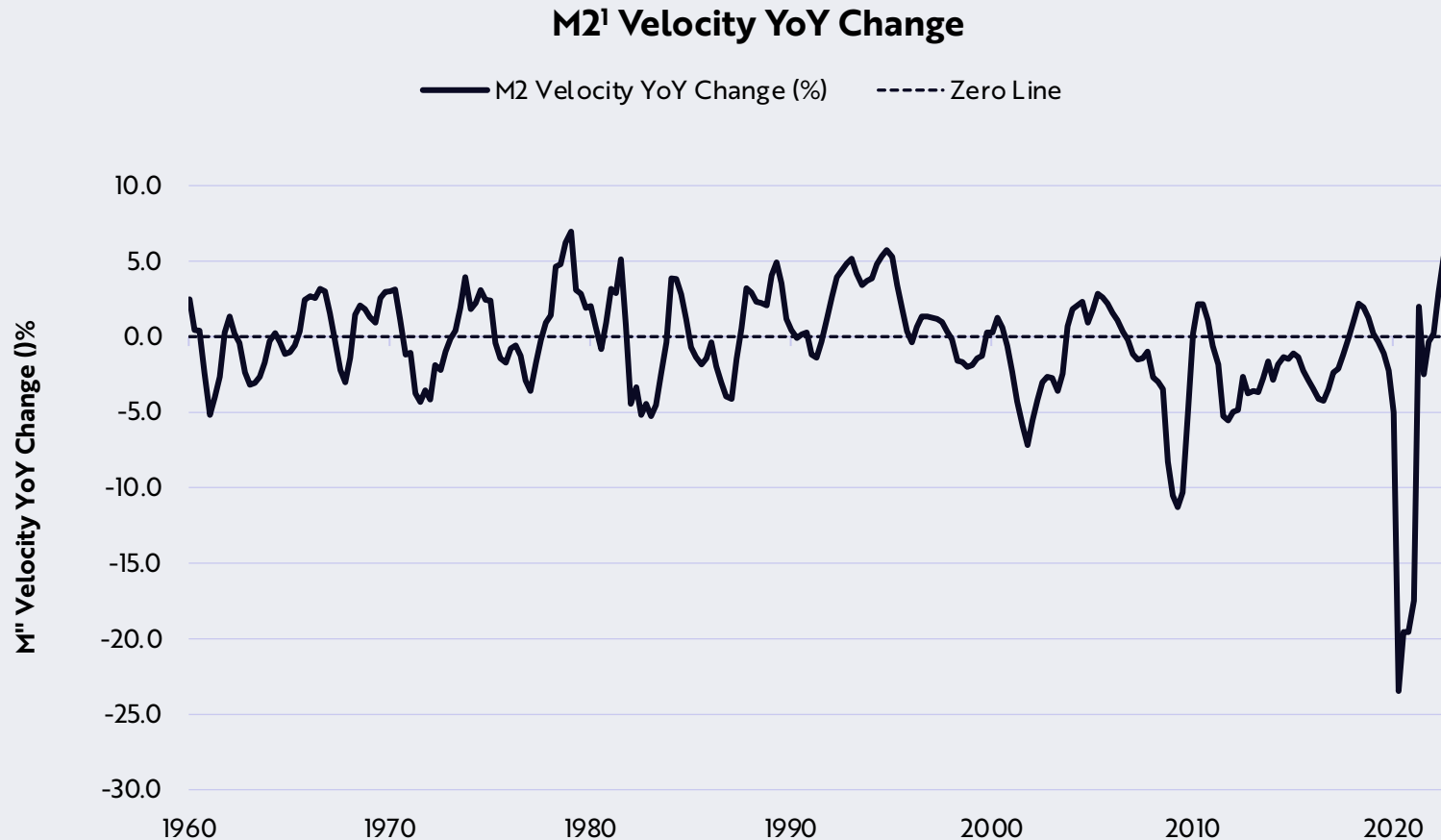
Section 03

Macro Remains Uncertain





Monetary Velocity Continues Its Multi-Year Rise, Suggesting Inflationary Forces



ARK'S VIEW: BEARISH

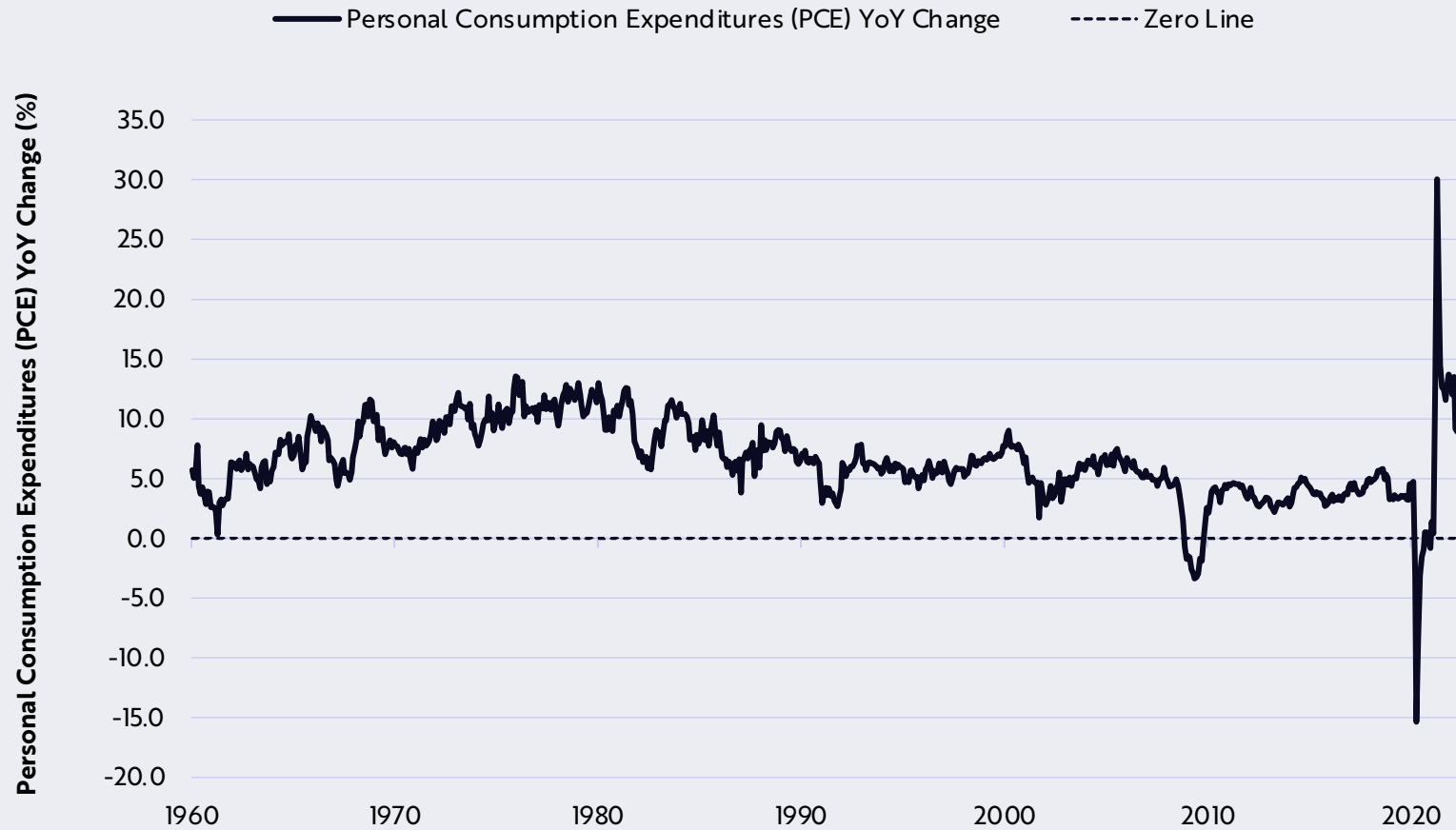
- After falling dramatically during the last two years, the velocity of M2 has rebounded sharply, raising fears of inflation.
- The year-over-year percent change in velocity is now above 5% for the first time since 1992.

[1] M2 is a measure of the US money stock that includes currency and coins held by the non-bank public, checkable deposits, and travelers' checks (M1) plus savings deposits (including money market deposit accounts), small time deposits under \$100,000, and shares in retail money market mutual funds. Source: ARK Investment Management LLC, 2023. Data from FRED. Information as of February 28, 2023. 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. Past performance is not indicative of future results.



Rapid Deceleration In Consumer Spending Growth Suggests Rising Risks Of Recession

Personal Consumption Expenditures (PCE) YoY Change



ARK'S VIEW: BEARISH

- The change in PCE momentum to the downside began in April 2021.
- A shift in PCE momentum can signal that consumers are becoming less confident about their financial situation and will continue to retrench.

Source: ARK Investment Management LLC, 2023. Data from FRED. Information as of February 28, 2023. 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. Past performance is not indicative of future results.



The Recent Rebound In Long-Term Treasury Yields Is A Headwind To Long-Duration Assets

US 10-Year Treasury Yield



ARK'S VIEW: BEARISH

- The 10-year Treasury yield is testing its October 2021 peak.
- Combined with a further inversion in the yield curve, higher yields suggest that the macro environment favors risk-off assets.

Source: ARK Investment Management LLC, 2023. Data from FRED. Information as of February 28, 2023. 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. Past performance is not indicative of future results.



Section 04

Appendix: Glossary Of Terms





Glossary Of Terms

Accumulation Addresses: Defined as those addresses that have received two or more economically meaningful transactions (non-dust transactions) and have never spent funds. Exchange and miner addresses are discarded. Coins held in these addresses is named accumulation balance.

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 threshold at which the possibility of a bitcoin remaining 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.

On-Chain: Refers to metrics or economic activity occurring on the blockchain ledger of most cryptocurrencies.

Patoshi: Entity estimated to be Satoshi Nakamoto, the creator and first miner of bitcoin.

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 (SOPR): 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.

Seller Exhaustion Constant: A metric created by ARK to measure the convergence of two market factors: high losses denoting capitulation and low volatility denoting market exhaustion.

Short-term Holding and Holders (STH): Related to supply that moved in the last 155 days, the threshold at which the potential for a bitcoin to move again increases drastically.

Supply in Profit (Percentage): 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.

Velocity-Adjusted Cost Basis: It subtracts the cumulative dollar value of coins spent over time from the general cost basis of the market (realized price). Also known as balanced price.



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