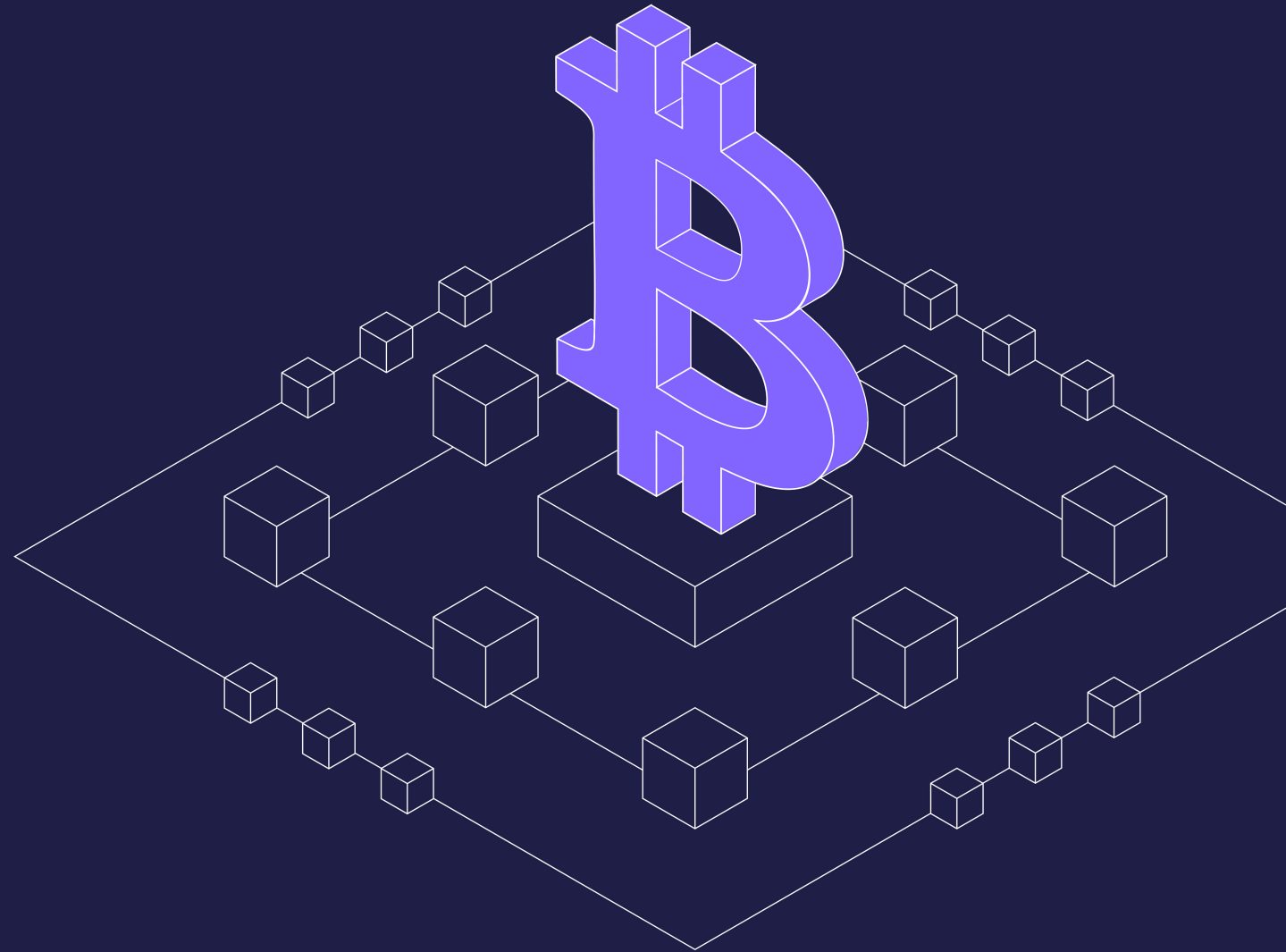


September 2024

THE BITCOIN MONTHLY

A NEUTRAL ENVIRONMENT



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Important Information Regarding Bitcoin

Bitcoin is a relatively new asset class, and the market for bitcoin is subject to rapid changes and uncertainty. Bitcoin is largely unregulated and bitcoin investments may be more susceptible to fraud and manipulation than more regulated investments. Bitcoin is subject to unique and substantial risks, including significant price volatility and lack of liquidity, and theft.

Bitcoin is subject to rapid price swings, including as a result of actions and statements by influencers and the media, changes in the supply of and demand for bitcoin, and other factors. There is no assurance that bitcoin will maintain its value over the long term.

ARK strongly encourages any investor considering an investment in bitcoin or any other digital asset to consult with a financial professional before investing. All statements made regarding bitcoin are strictly beliefs and points of view held by ARK and are not recommendations by ARK to buy, sell or hold bitcoin. Historical results are not indications of future results.



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Section 01

Market Summary





Bitcoin Is In Net Neutral Territory, With Hints Of Optimism

On Balance, Bitcoin Is In Net Neutral Territory, With Hints Of Optimism

- During September, bitcoin's price increased 7.35% to \$63,301. That said, two indicators suggested that it still was in neutral territory in the context of its longer-term bull market: its 200-day moving average at \$63,729, seemingly a breakthrough, and its short-term-holder cost basis at \$62,734, seemingly resistance. By October 14, bitcoin's price had surpassed both levels.
- Bitcoin's net realized profit reset to slightly below zero during the third quarter, a dynamic typically correlated with market equilibrium with upside potential.
- Relative to its 365-day moving average, the 30-day moving average of bitcoin's transaction value in USD suggested a lack of network activity.
- The stablecoin supply ratio oscillator (SSRO), a metric that assesses bitcoin purchasing power, entered extreme "oversold" territory (-2.27) in early September.

US Economic Markers Are Net Neutral, But China Stocks Take Off

- One of China's key equity indices responded strongly to the stimulus announced by the People's Bank of China (PBOC) and expectations of further stimulus.
- In the US, the quit rate surged in the post-COVID lockdown period, creating the "Great Resignation." Since April 2022, however, the trend has reversed sharply as annual wage growth for "job changers" has dropped from 16% on a year-over-year basis to 7%.

ARK'S KEY TAKEAWAYS

- During September, bitcoin's price increased 7.35% to \$63,301, wedging between its 200-day moving average and its short-term-holder cost basis.
- Bitcoin's trend still is bullish, except for its lack of network activity in September.
- Chinese equities soared thanks to stepped-up government stimulus.
- US quit rates dropped to three-year lows.



News Of The Month

[Uniswap Labs Settles With The US CFTC For \\$175,000 On Charges Related To Derivatives Trading](#)

[English High Court Rules Tether's USDT Stablecoin Counts as Property](#)

[CZ Set to Be Released From Prison on September 29](#)

[Judge Dismisses Consensys Lawsuit Against SEC Over MetaMask And Ethereum Claims](#)

[Benchmark Says MicroStrategy Could Soon Generate Yield By Lending Its Bitcoin Holdings](#)

[Kamala Harris Says US Should Become 'Dominant' In Blockchain, Reiterates 'Digital Assets' In Economic Plan](#)



In Aggregate, Network Activity Remains Tilted To Positive

	Bitcoin Metrics ¹	Unit	September 2024	1M Change	1Y Change	ARK's View	Upgrade/Downgrade ³
Network Security	<u>Mining Difficulty</u>	Exahash/sec ¹ (Thousands)	379.6	-1.19%	+54.76%	Neutral	No Change
	<u>Miner Revenue</u> (7-Day Moving Average)	USD (Millions)	28.7	+4.84%	+16.14%	Bullish	↑
Network Usage	<u>Active Owners²</u> (Active Entities, 7-Day Moving Average)	Thousands	200.1	+2.74%	-28.68%	Neutral	No Change
	<u>Transaction Volume²</u> (7-Day Moving Average)	BTC (Thousands)	112.6	+1.77%	+3.46%	Bullish	↑↑
Holder Behavior	<u>Long-Term-Holder Supply²</u> (Coins Held for 155 Days+)	BTC (Millions)	14.1	+0.69%	-0.7%	Neutral	↓
	<u>Locked Supply²</u> (Illiquid Supply)	BTC (Millions)	14.6	+0.73%	+2.12%	Bullish	No Change
	<u>Time-Weighted Turnover²</u> (Coindays Destroyed, 7-Day Median)	Coindays (Millions)	11.2	+40.7%	+58.1%	Bearish	↓

[1] For more information on these metrics and their units of account, please read the Appendix: Glossary of Terms in the Appendix 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, 2024. Data sourced from Glassnode. Some data may be subject to change over time since they are entity-adjusted in real time. Information as of September 30, 2024. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency.



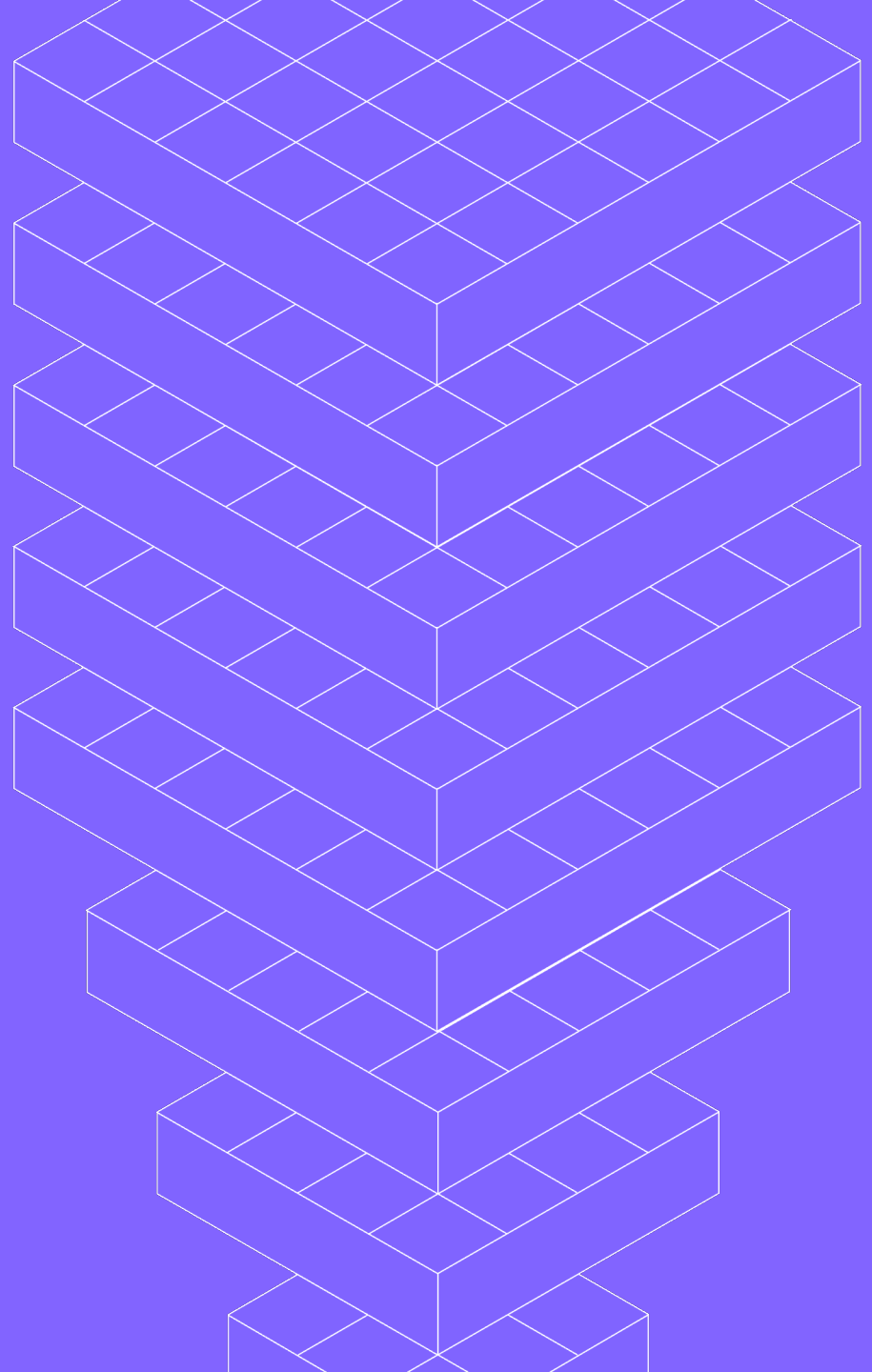
Cost Bases And The Derivatives Market Remain Mostly Net Neutral

	Bitcoin Metrics ¹	Unit	September 2024	1M Change	1Y Change	ARK's View	Upgrade/ Downgrade ³
Long-Term Valuation	<u>Market Cost Basis</u> (Realized Price)	USD	\$31,905	+1.3%	+57.27%	Bullish	No Change
	<u>Percent Supply In Profit</u>	pp	82.9	+7.28	+13.6	Neutral	No Change
Short-Term Valuation	<u>Short-Term-Holder Cost Basis²</u> (STH Realized Price)	USD	\$62,734	-0.8%	+125.32%	Neutral	No Change
	<u>Realized Market Returns²</u> (SOPR-1, 7-day moving average)	pp	7.5	+4.68	+7.34	Neutral	No Change
Market Sentiment	<u>Perpetual Futures Basis</u> (Binance, Estimated)	pp	-0.03	+0.03	+0.01	Bullish	No Change
	<u>Expirational Futures Basis</u> (Quarterly, All Exchanges, Annualized)	pp	6.6	-0.64	+1.49	Neutral	No Change

[1] For more information on these metrics and their units of account, please read the Appendix: Glossary of Terms in the Appendix 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, 2024. 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 September 30, 2024. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency.

Section 02

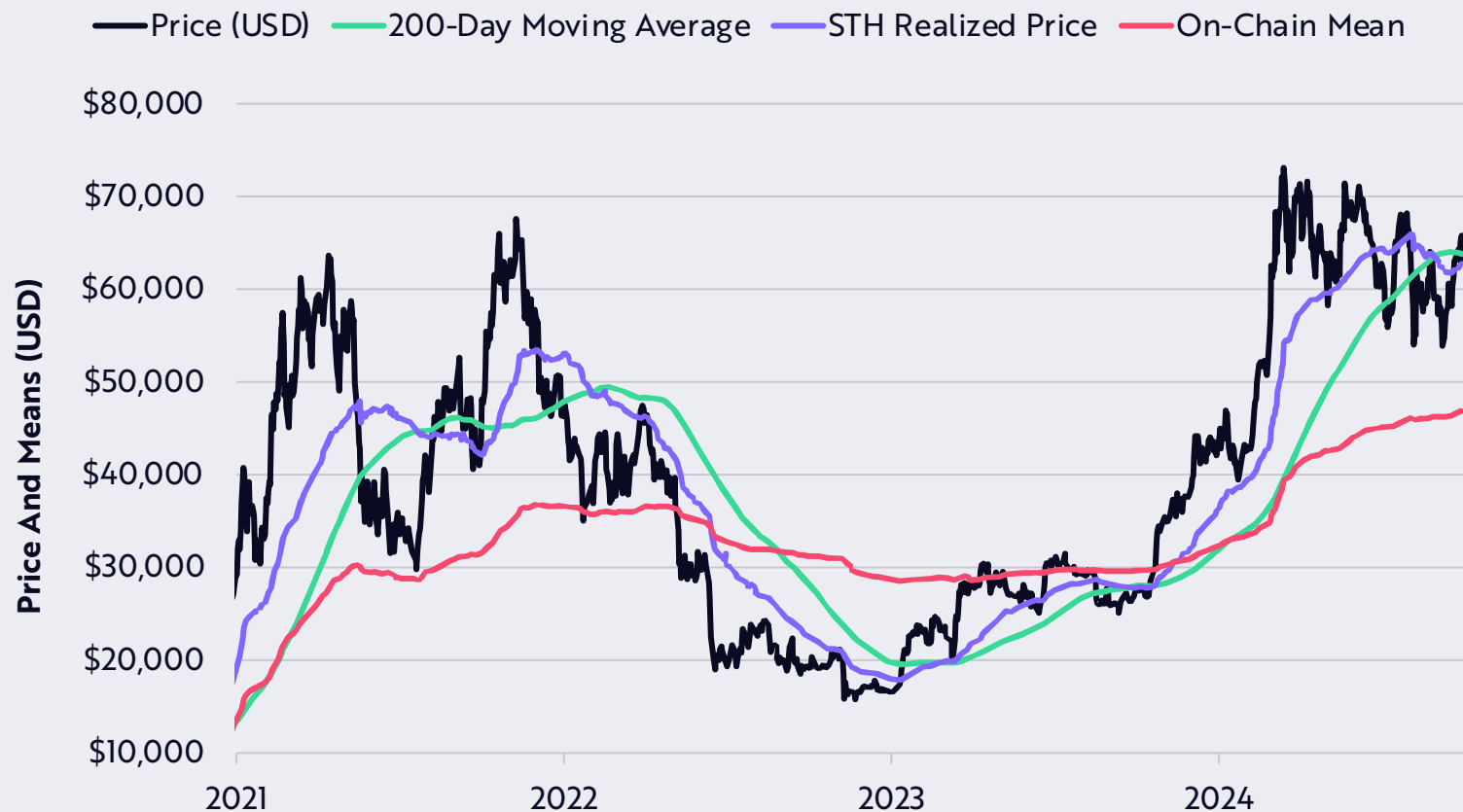
On Balance, The Price Of Bitcoin Is In Net Neutral Territory, With Hints Of Optimism





Bitcoin's Price Closed September Near Important Averages

Bitcoin Mean Reversion



ARK'S VIEW: NEUTRAL

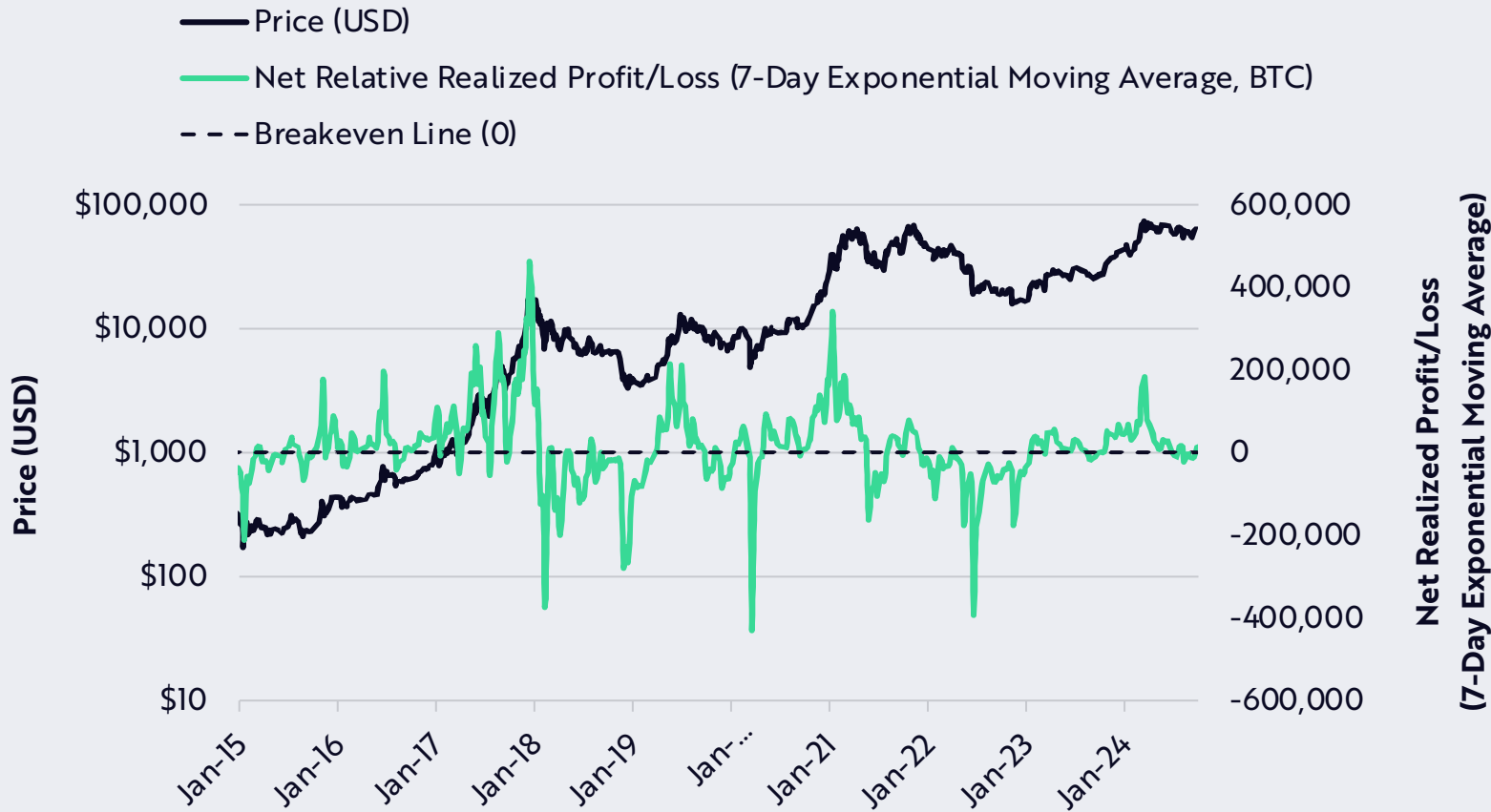
- During September, bitcoin's price increased 7.35% to \$63,301.
- Bitcoin's 200-day moving average and short-term-holder (STH) cost basis—\$63,729 and \$62,734, respectively—closed slightly over its price and under its price, respectively.
- By October 14, bitcoin's price had closed above both those support levels.
- If it were to continue correcting, the most important support level would be \$47,000, its on-chain mean, as illustrated by the red line on the chart.

Source: ARK Investment Management LLC, 2024. Chart data from Glassnode. Information as of September 30, 2024. STH realized price data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm. For more information on certain terms, please read our Glossary Of Terms in the Appendix of this report. 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.



Bitcoin's Net Realized Profits Reset During The Third Quarter

Bitcoin Net Realized Profit/Loss



ARK'S VIEW: BULLISH

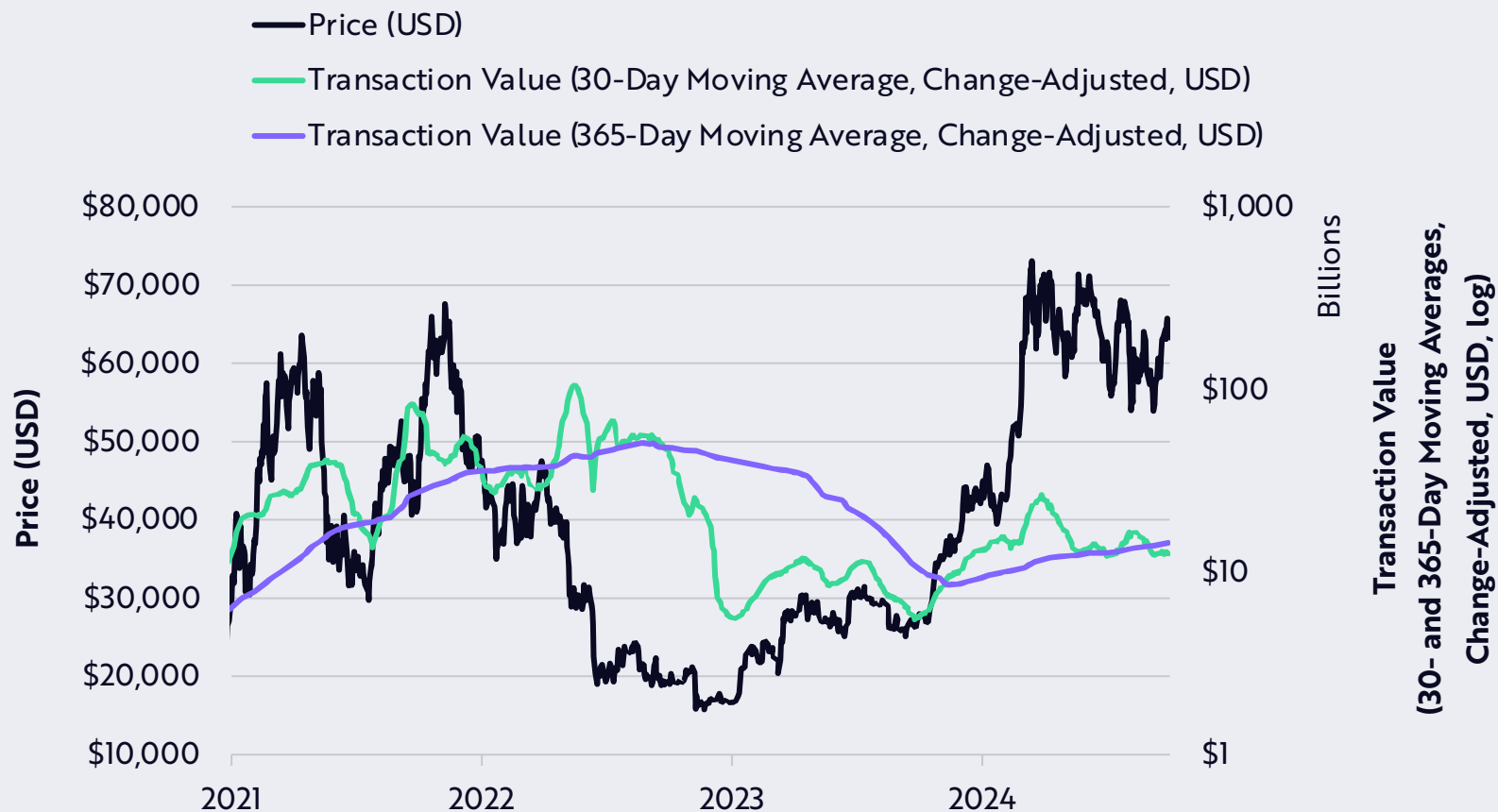
- Bitcoin's net realized profit reset to slightly below zero during the third quarter, a dynamic historically correlated with market equilibrium.
- 17.1k bitcoin settled in net profit at the end of September, which our research suggests could indicate a market reset poised for upward momentum into the end of the year.

Source: ARK Investment Management LLC, 2024. Chart data from Glassnode. Information as of September 30, 2024. For more information on certain terms, please read our Glossary Of Terms in the Appendix of this report. 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.



On A Relative Basis, Bitcoin's Network Activity Appears In Decline

Bitcoin Transaction Value Momentum



ARK'S VIEW: BEARISH

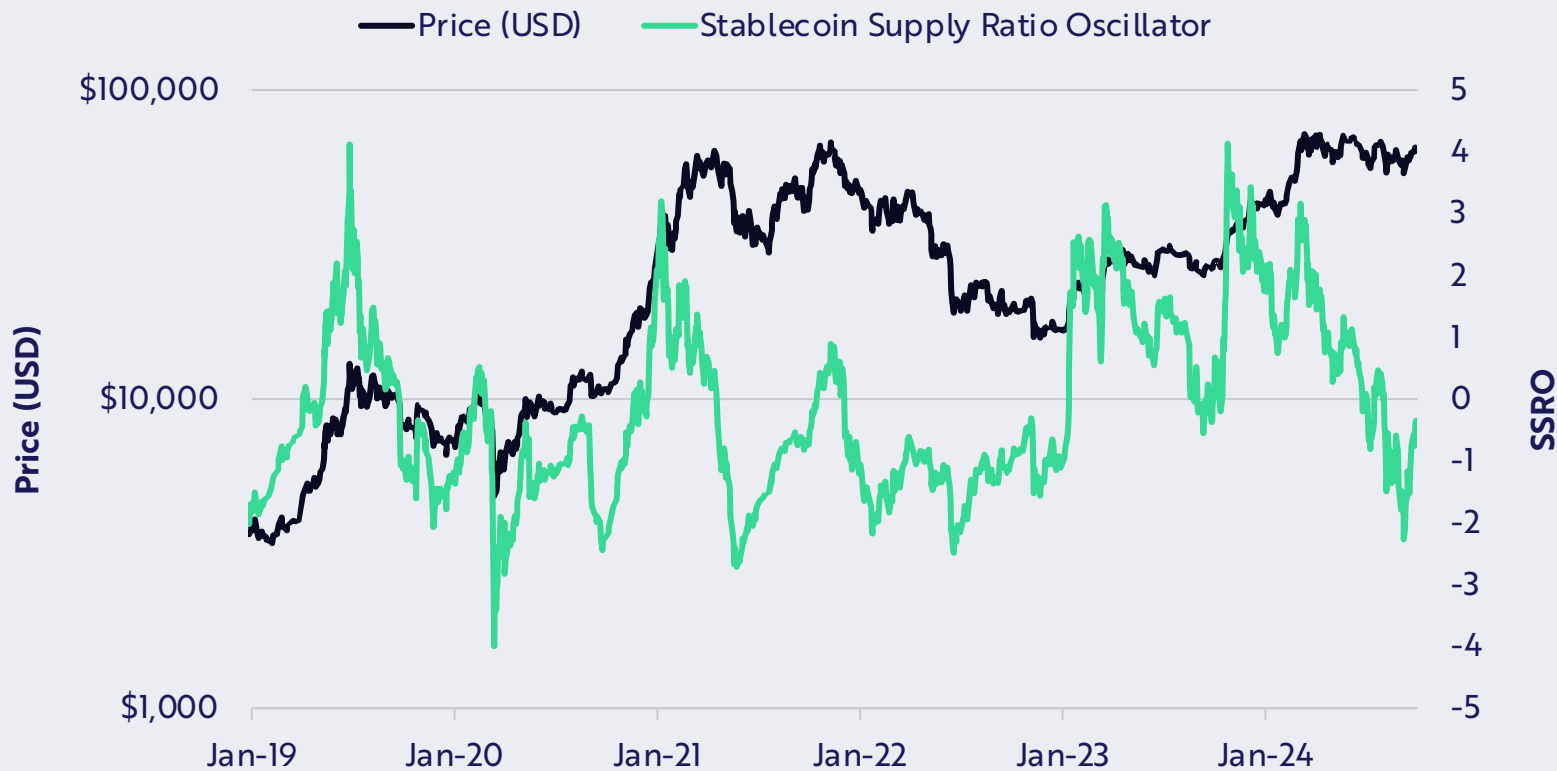
- When measuring its 30-day moving average against its 365-day moving average, bitcoin's transaction value in USD appears to be in decline.
- Since the beginning of September, the 30-day moving average (\$12.7 billion at the end of month) has crossed below the 365-day moving average (\$14.4 billion), implying a general lack of network activity on a relative basis.

Source: ARK Investment Management LLC, 2024. Chart data from Glassnode. Information as of September 30, 2024. For more information on certain terms, please read our Glossary Of Terms in the Appendix of this report. 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 Stablecoin Supply Ratio Oscillator Is “Oversold,” Which Should Support The Price Of Bitcoin

Stablecoin¹ Supply Ratio Oscillator (SSRO)



ARK'S VIEW: BULLISH

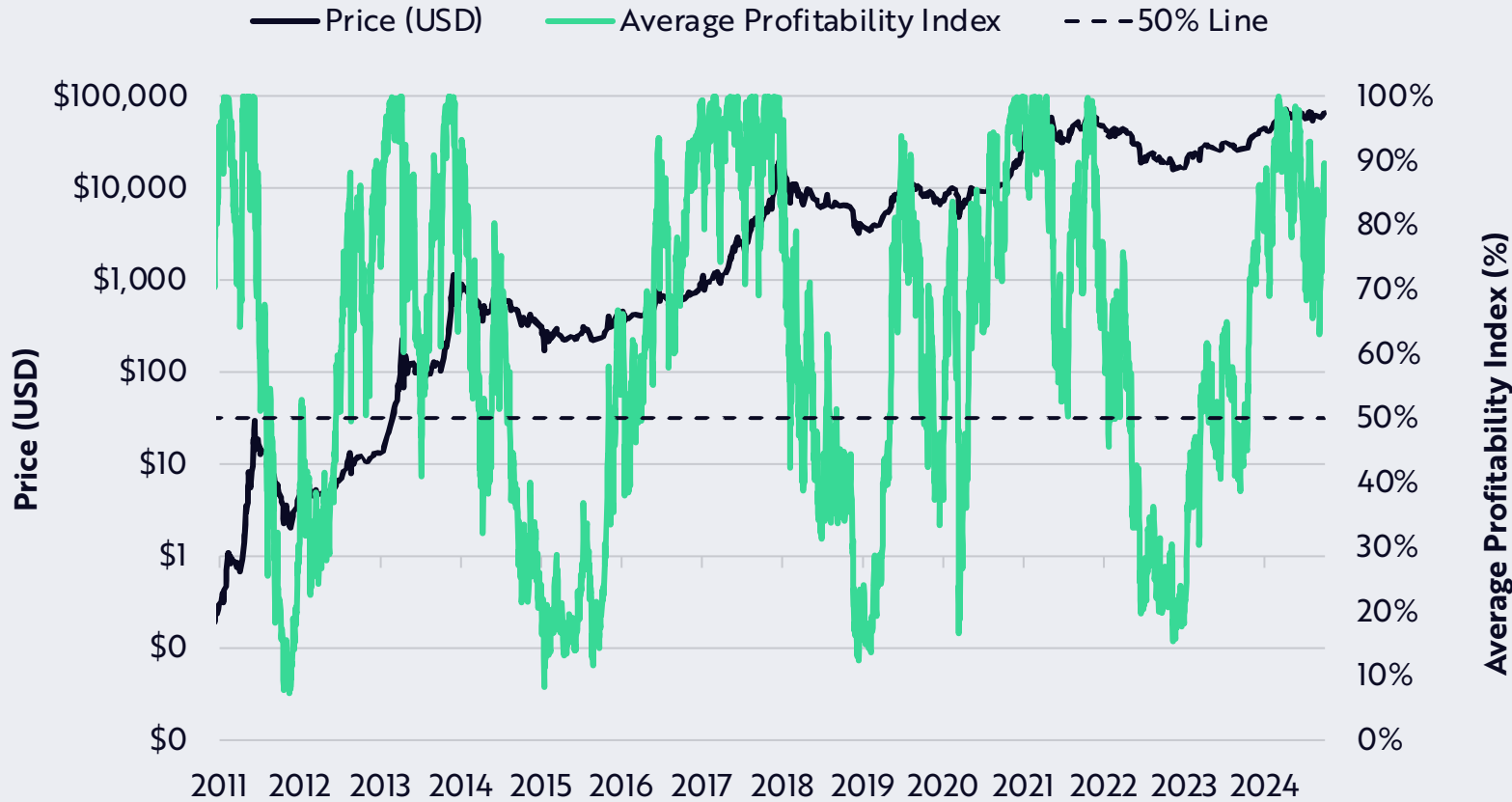
- In early September, the stablecoin supply ratio oscillator (SSRO), a metric used to assess potential bitcoin purchasing power, became extremely “oversold” (-2.27), hitting lows last seen near the bottom of the bear market in 2022.
- The SSRO is calculated in three steps:
 - Divide supply of bitcoin by the supply of all major stablecoins (denominated in BTC).
 - Trace the ratio’s 200-day moving average, plus 2 standard deviations above and below.
 - The SSRO tracks how the ratio moves between those two standard deviation bands (a.k.a., Bollinger bands).

[1] It includes USDT, TUSD, USDC, USDP, GUSD, DAI, SAI, and BUSD. Source: ARK Investment Management LLC, 2024. Chart data from Glassnode. Information as of September 30, 2024. For more information on certain terms, please read our Glossary Of Terms in the Appendix of this report. 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.



Bitcoin's Average Profitability Appears Neutral

Bitcoin Average Profitability Index



ARK'S VIEW: NEUTRAL

- According to our research, bitcoin's average profitability index, measured from 0% to 100%, usually suggests a bear market when its below 50%.
- The 50% line is also a demarcation line from which the index—and price—bounce, at least historically.
- In our view, at the end of September, with an index of 81% and a year-to-date low of 63%, the index still indicates a primarily bullish environment.
- That said, as in July of 2021, the index sometimes requires lower values to fully reset before bullish momentum can begin again.
- The average profitability index is calculated by multiplying bitcoin's percent supply in profit by bitcoin's percent realized profits.

Source: ARK Investment Management LLC, 2024. Chart data from Glassnode. Information as of September 30, 2024. For more information on certain terms, please read our Glossary Of Terms in the Appendix of this report. 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

US Economic Indicators Are Net Neutral, But China Stocks Take Off





Chinese Equities Have Rebounded With Force

Shanghai Shenzhen CSI 300 Index



ARK'S VIEW: BEARISH

- One of China's key equity indices responded strongly to the stimulus announced by the People's Bank of China (PBOC) and expectations of further stimulus.
- The PBOC's stimulus package includes a 0.5 percentage point reserve requirement ratio cut, a 0.2 percentage point policy rate reduction, lower mortgage rates, reduced downpayments for second homes, and increased funding for housing conversion.
- New tools also should boost equity markets by supporting liquidity for institutional investors and facilitating share buybacks.



The US Quits Rate Continue To Fall

US Job Quits Rate



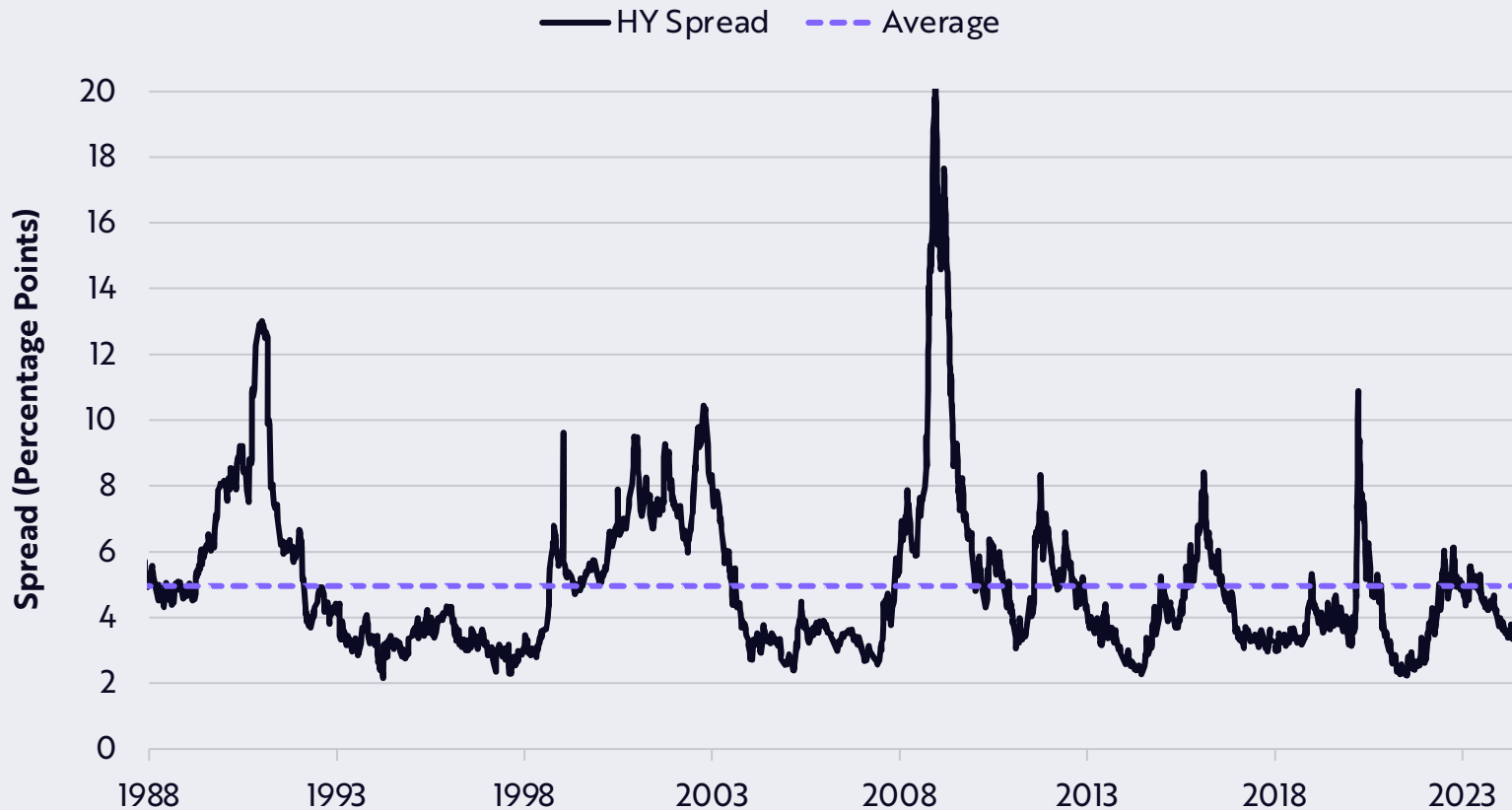
ARK'S VIEW: NEUTRAL

- The quit rate surged during the post-COVID lockdown period, which led to the “Great Resignation”—workers quitting at high rates, chasing higher pay—creating the consensus view of sticky wage price inflation.
- Since April 2022, however, the trend has reversed sharply, and year-over-year change in annual wages for “job changers” has dropped from 16% to 7%.
- Quit rates can signal worker confidence in the labor market. The falling rate corroborates the historical downward revisions to employment.



High-Yield Spreads Are Unusually Low

BarCap US Corp High-Yield Spread Over 10-Year US Treasury Yield



ARK'S VIEW: NEUTRAL

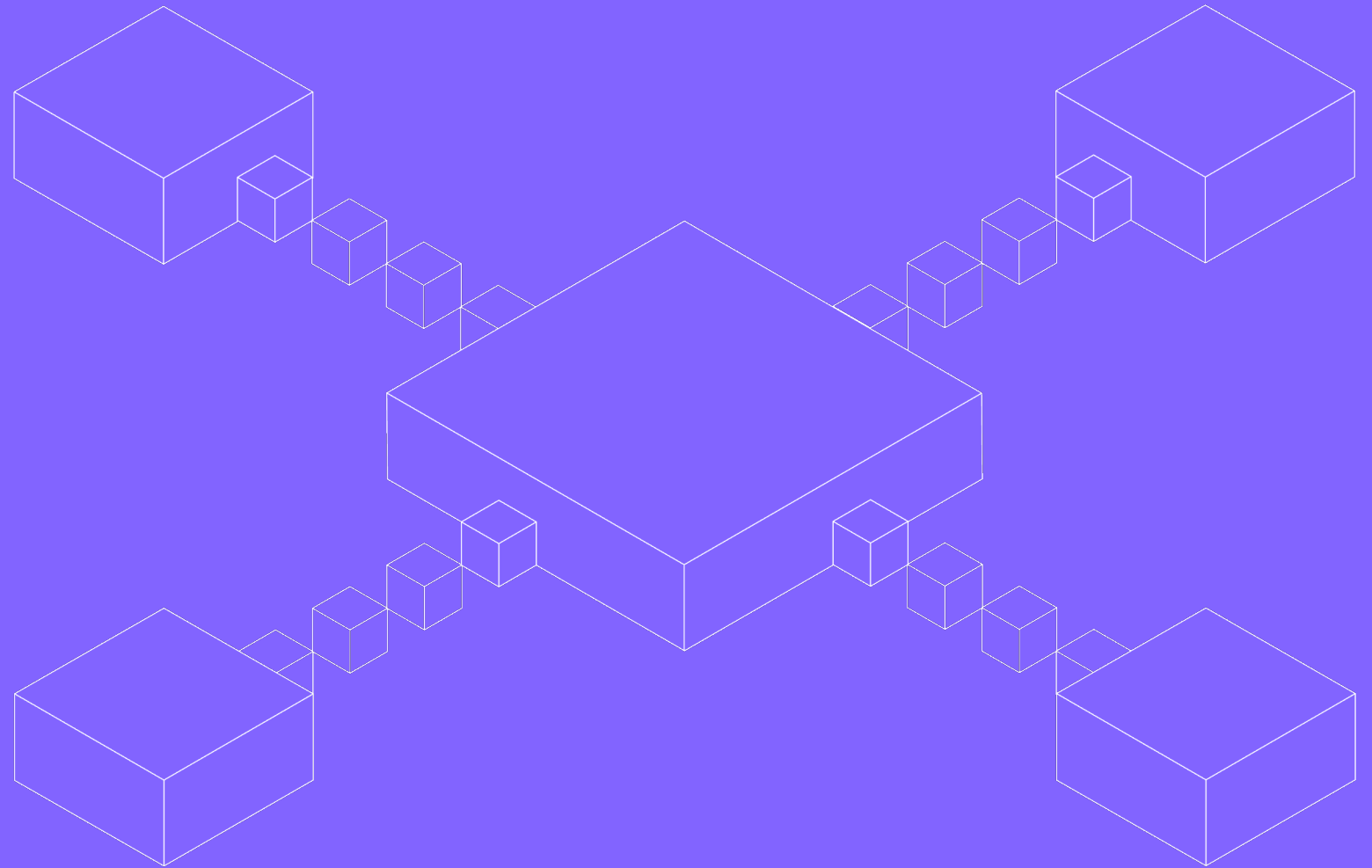
- The most recent high-yield spread¹ is relatively low compared to historical peaks and its long-term average, indicating less credit stress despite recent economic uncertainty.
- Re-widening spreads could signal rising concerns about a slowdown or financial instability, requiring close monitoring for potential early signs of a broad-based recession.

^[1]The percentage difference in current yields of various classes of high-yield bonds compared against Treasury bonds. Information as of September 30, 2024. 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. "Accumulation balance" refers to coins held in these addresses.

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.

BRC-20: A token standard that enables the minting and transaction of fungible tokens via the Ordinals protocol on the Bitcoin network.

Coinblocks Created: The number of coins in the Bitcoin network times the number of blocks at any given day.

Coinblocks Destroyed: The number of coins transacted at any given day times the number of blocks each coin remained dormant.

Contango: Describes when expirational futures contracts are trading at a price higher than spot, suggesting a bearish market environment.

Consumer Price Index (CPI): Measurement that tracks how the average price of a basket of consumer goods and services changes over time. It's often used to calculate inflation.

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.

Federal Funds Policy Rate: This is the interest rate at which banks lend money to each other overnight. It's set by a country's central bank (like the Federal Reserve in the U.S.) and influences other interest rates throughout the economy.

Fiat Currency: Government-issued money that is not backed by a commodity like gold or silver, but rather by the government that issues it.

Futures Basis: The difference between the price of spot and the price of a perpetual or expirational contract.

Gross Domestic Income (GDI): This is the *nominal* total income earned by a country's residents and businesses, including wages, profits, and taxes minus subsidies. It's a way to measure the economic health of a country, much like GDP. The *real* GDI adjusts for price change by expressing values at base-year prices, not current market prices.

Gross Domestic Product (GDP): This is the *nominal* total value of all goods and services produced in a country over a certain period of time, usually a year. It's another way to measure a country's economic performance. The *real* GDP adjusts for price change by expressing values at base-year prices, not current market prices.

Hash Rate: The estimated computational power mining within and providing security to the Bitcoin network.

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.

Liveliness: The ratio of the sum of coindays created to the sum of coindays destroyed. Liveliness rises when old coins move and decreases when participants hold on to their bitcoin. In essence, it's the ratio of coin movement to coin dormancy in the network.

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.

MVRV Z-Score: Defined as the ratio of the difference of market cap and realized cap to the cumulative, inception-to-date standard deviation of market cap.

Natural Rate of Interest: Theoretical interest rate that at which the economy is neither expanding nor contracting.

Net Realized Profit/Loss (NRPL): The difference between realized profit and realized loss, normalized by market cap.



Glossary Of Terms, Continued

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.

On-Chain Mean: Developed collaboratively by ARK Invest and Glassnode, on-chain mean is calculated by dividing the cost basis capitalization of investors—the secondary market of the Bitcoin network—by the number of active coins in the network based on their aggregate time of dormancy proportional to total supply. Also known as “active-investor price” or “true market mean.”

Ordinals: Refers to the creation of non-fungible tokens (NFTs) in the Bitcoin network by making Inscriptions, where metadata such as images or videos are attached to individual satoshis (the smallest unit of account).

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 to 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.

SOPR: The Spent Output Profit Ratio is calculated by dividing the realized value of a spent output (in USD) divided by the dollar value at the point of its creation. In other words, it divides the aggregate price of coins sold by the aggregate price where those coins were initially bought.

Supply in Profit (Percentage): The percentage of bitcoins currently at a higher price compared to the price at which they last moved.

S&P 500 Index: Short for “The Standard and Poor’s 500,” it is a stock market index tracking the performance of 500 of the largest public companies in the United States.

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 is (the smallest unit of account).



For more research on disruptive innovation visit www.ark-invest.com

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ARK aims to educate investors and to size the potential opportunity of Disruptive Innovation, 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 Deep Learning, Digital Wallets, Battery Technology, Autonomous Technologies, Drones, DNA Sequencing, CRISPR, Robotics, 3D Printing, Bitcoin, Blockchain Technology, etc. **Cryptocurrency Risk.** Cryptocurrencies (also referred to as "virtual currencies" and "digital currencies") are digital assets designed to act as a medium of exchange. Cryptocurrency is an emerging asset class. There are thousands of cryptocurrencies, the most well-known of which is bitcoin. Cryptocurrency generally operates without central authority (such as a bank) and is not backed by any government. Cryptocurrency is not legal tender. Federal, state and/or foreign governments may restrict the use and exchange of cryptocurrency, and regulation in the U.S. is still developing. The market price of bitcoin and other cryptocurrencies have been subject to extreme fluctuations. Similar to fiat currencies (i.e., a currency that is backed by a central bank or a national, supra-national or quasi-national organization), cryptocurrencies are susceptible to theft, loss and destruction. Cryptocurrency exchanges and other trading venues on which cryptocurrencies trade are relatively new and, in most cases, largely unregulated and may therefore be more exposed to fraud and failure than established, regulated exchanges for securities, derivatives and other currencies. Cryptocurrency exchanges may stop operating or permanently shut down due to fraud, technical glitches, hackers or malware, which may also affect the price of cryptocurrencies. **Cryptocurrency Tax Risk.** Many significant aspects of the U.S. federal income tax treatment of investments in bitcoin and other cryptocurrencies are uncertain and still evolving.

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