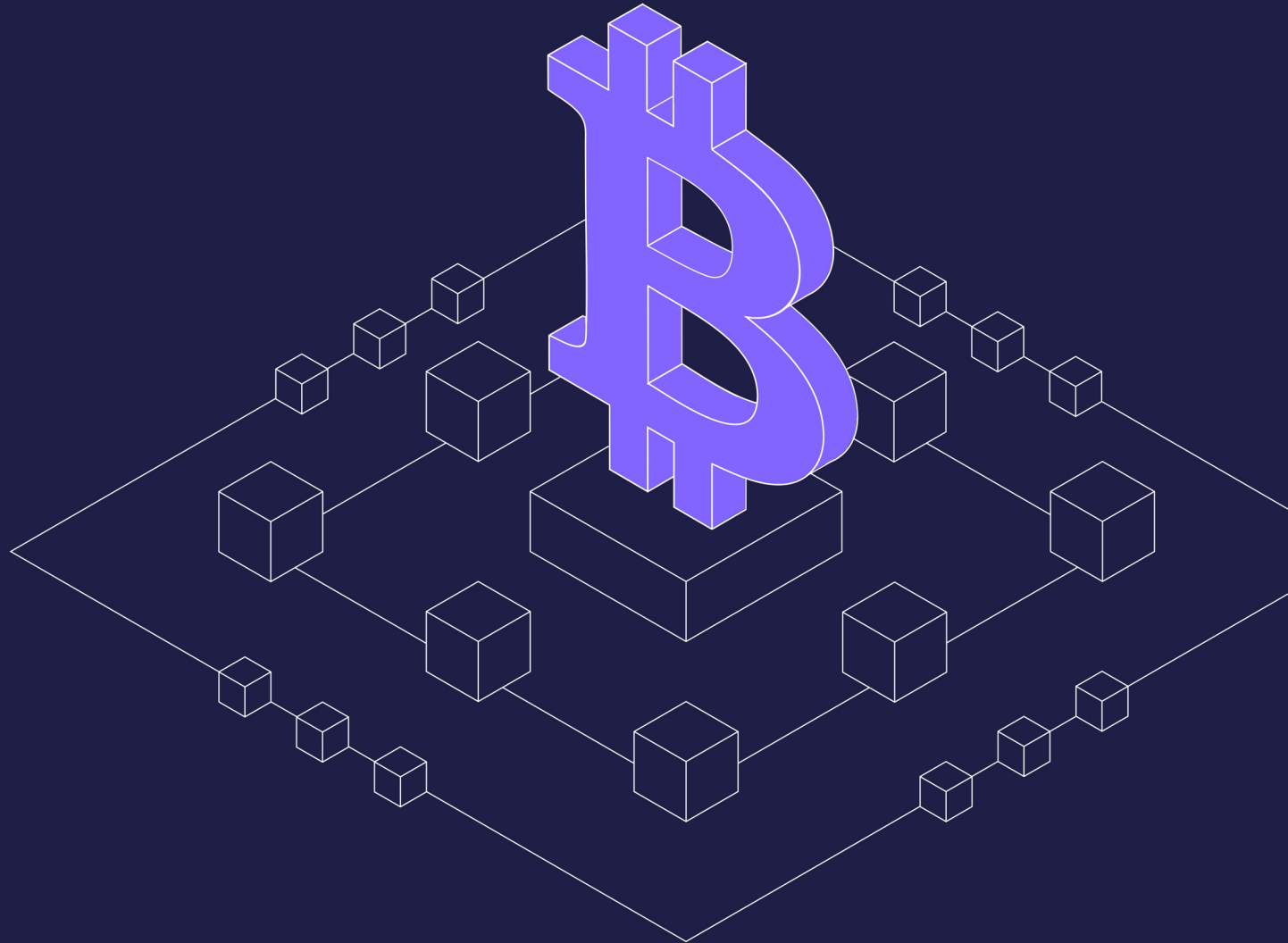




As of March 31, 2023

# THE BITCOIN MONTHLY

**BITCOIN HAS FLOURISHED  
AMID THE BANKING CRISIS**



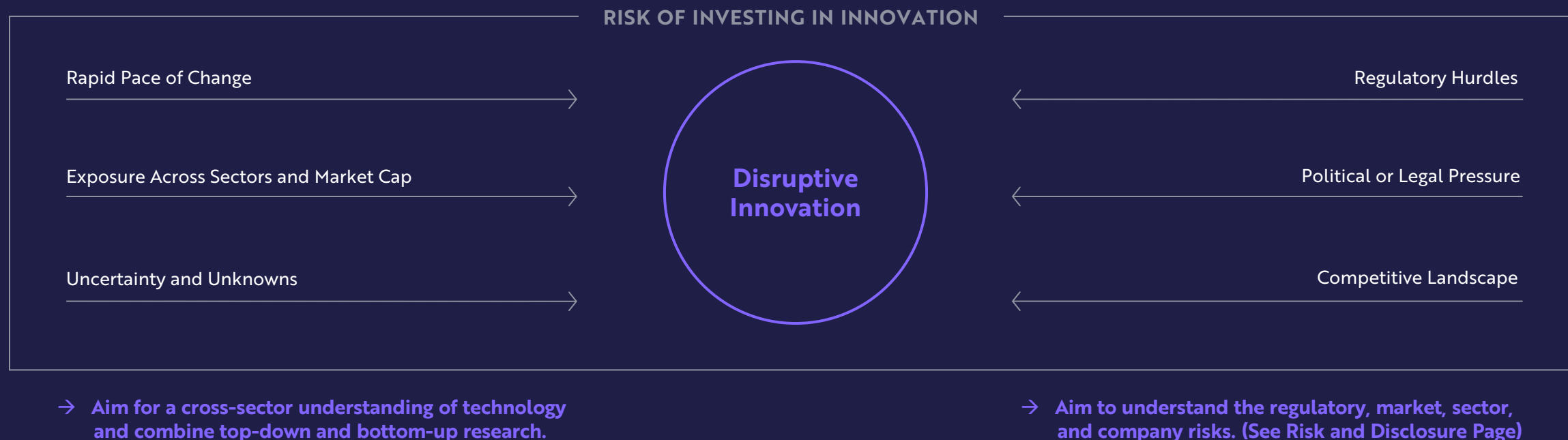
**For Informational Purposes Only.** ARK Investment Management LLC, 2023. This is not investment advice or a recommendation in relation to any named particular securities or cryptocurrencies and no warranty or guarantee is provided. Any references to particular securities or cryptocurrencies are for illustrative purposes only. The reader should not assume that an investment identified was or will be profitable. Certain information was obtained from sources that ARK believes to be reliable; however, ARK does not guarantee the accuracy or completeness of any information obtained from any third party. Forecasts are inherently limited and cannot be relied upon. **PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE PERFORMANCE; FUTURE RETURNS ARE NOT GUARANTEED.**



## RISKS OF INVESTING IN INNOVATION

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Please read risk disclosure carefully.





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### **Appendix: Glossary of Terms**



Section 01

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# Market Summary





# Bitcoin Is Flourishing Amid The National Banking Crisis

## Cryptoasset Resilience

- During March, Bitcoin settled \$650 billion, facilitated ~9 million transactions, issued ~26,000 new BTC at a steady and predictable ~1.8% inflation rate, attracted ~13 million new addresses, and generated ~\$700 million for miners securing the network.<sup>1</sup> In short, Bitcoin did not skip a beat as the banking crisis took hold.
- Despite the temporary depegging of USDC, the DeFi ecosystem remained resilient: importantly, the Maker protocol, which uses USDC as collateral, functioned effectively.

## Macro Uncertainty

- During March, bank deposits dropped 4.1%, the biggest decline since 1948.<sup>2</sup>
- The Federal Reserve's (Fed) decisions to hike the Fed funds rate by a record 20-fold in less than a year contributed to Silicon Valley Bank's bankruptcy and to the instability and failure of other regional banks.<sup>3</sup>
- The Fed expanded its balance sheet by \$300 billion, kicking off its loan bailout program for banks and reversing six months of quantitative tightening.<sup>4</sup>

## ARK'S KEY TAKEAWAY

- While the US banking system seized up in response to bank runs, Bitcoin, Ethereum, and other cryptonetworks didn't skip a beat.
- As Silicon Valley Bank descended into bankruptcy, bitcoin appreciated 49%, from a low of \$19,500 on March 10<sup>th</sup> to \$29,150 on March 30<sup>th</sup>.
- Demand for more transparent, auditable, and decentralized financial services soared as cracks in the centralized and opaque traditional financial system worsened.
- Regulators were quick to blame crypto for the banking crisis. Instead of blocking financial platforms that are decentralized, transparent, and auditable, with no central points of failure, we believe regulators should focus on the centralized points of failure in the traditional banking system.

[1] Data are not entity-adjusted. [2] For further information and sourcing, please see slide 18. [3] For further information and sourcing, please see slide 18. [4] For further information and sourcing, please see slide 19. Source: ARK Investment Management LLC, 2023. Data from [Glassnode](#) unless otherwise specified. Data valid as of March 31, 2023, and subject to change. For more information on certain terms, please read our Appendix: Glossary Of Terms on page 23 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.



# News Of The Month

<a href="#"><u>Silicon Valley Bank Is Shut Down By Regulators In Biggest Bank Failure Since Global Financial Crisis</u></a>	<a href="#"><u>Tokenized Texan House Listed Sold On Solana</u></a>
<a href="#"><u>Silvergate Announces Intent To Wind Down Operations and Voluntarily Liquidate Silvergate Bank</u></a>	<a href="#"><u>Microsoft Testing Crypto Wallet In Its Web Browser Edge: Bleeping Computer</u></a>
<a href="#"><u>Regulators Close Crypto-focused Signature Bank, Citing Systemic Risk</u></a>	
<a href="#"><u>Coinbase Receives Wells Notice From SEC, Suggests Implications Across Exchange, Staking, And Wallet Products</u></a>	
<a href="#"><u>CFTC Sues Binance And Its CEO "CZ" For Allegedly Violating US Laws</u></a>	
<a href="#"><u>US Court questions SEC's Rejection Of Grayscale's Bitcoin Fund Proposal</u></a>	
<a href="#"><u>Kraken Suspends ACH Deposits And Withdrawals Following Silvergate Shutdown</u></a>	
<a href="#"><u>Fed Details Reasons Why It Denied Custodia's Application To Become A Member Of The Fed System</u></a>	
<a href="#"><u>ZkSync And Polygon Launch Much Anticipated Zero-knowledge Scaling Solutions On Ethereum Mainnet</u></a>	
<a href="#"><u>DeSantis Touts Bill That Would Ban Use Of Any Fed-backed Digital Currency In Florida</u></a>	
<a href="#"><u>Judge Halts Voyager Digital's \$1.3 Billion Sale To Binance US</u></a>	
<a href="#"><u>Ethereum Staking Withdrawals Expected To Hit Mainnet On April 12</u></a>	
<a href="#"><u>Nasdaq: Institutional Appetite For Crypto Is Steady As It Plots Push Into Custody, Trading</u></a>	
<a href="#"><u>Robinhood Self-custody Wallet Released To All iOS Customers Globally</u></a>	
<a href="#"><u>Ticketmaster Launches Early Ticket Access Feature For NFT Holders</u></a>	



# The Bitcoin Network Seems Unfazed By The Banking Crisis

	Bitcoin Metrics <sup>1</sup>	Unit	March 2022	1M Change	1Y Change	ARK's View	Upgrade/Downgrade <sup>3</sup>
Network Security	<u>Mining Difficulty</u>	Exahash/sec <sup>1</sup> (Thousands)	201.1	+8.8%	+70.6%	Bullish	No Change
	<u>Miner Revenue</u> (7-Day Moving Average)	USD (Millions)	\$27.1	+21.7%	-35.9%	Bullish	↑
Network Usage	<u>Active Owners</u> <sup>2</sup> (Active Entities, 7-Day Moving Average)	Thousands	299.8	+13.7%	+5.6%	Bullish	No Change
	<u>Transaction Volume</u> <sup>2</sup> (7-Day Moving Average)	BTC (Thousands)	130.3	+1.7%	-13.7%	Neutral	No Change
Holder Behavior	<u>Long-Term-Holder Supply</u> <sup>2</sup> (Coins Held for 155 Days+)	BTC (Millions)	14.06	-0.44%	+5.8%	Bullish	No Change
	<u>Locked Supply</u> <sup>2</sup> (Illiquid Supply)	BTC (Millions)	15.03	+0.24%	+5.9%	Bullish	No Change
	<u>Time-Weighted Turnover</u> <sup>2</sup> (Coindays Destroyed, 7-Day Median)	Coindays (Millions)	6.60	-10%	-30.4%	Bullish	No Change

[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. 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 March 29, 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.



# Bitcoin's Cost Bases Resumed Their Rise

	Bitcoin Metrics <sup>1</sup>	Unit	March 2022	1M Change	1Y Change	ARK's View	Upgrade/Downgrade <sup>3</sup>
Long-Term Valuation	<u>Market Cost Basis</u> (Realized Price)	USD	\$20,018	+0.71%	-18.39%	Bullish	No Change
	<u>Percent Supply In Profit</u>	pp	75.2%	+7 pp	-5.89 pp	Bullish	No Change
Short-Term Valuation	<u>Short-Term-Holder Cost Basis<sup>2</sup></u> (STH Realized Price)	USD	\$21.424	+8.2%	-53.7%	Bullish	No Change
	<u>Realized Market Returns<sup>2</sup></u> (SOPR-1, 7-day moving average)	pp	4.8%	+5.24 pp	-4 pp	Bullish	No Change
Market Sentiment	<u>Perpetual Futures Basis</u> (Binance, Estimated, 7-Day Exponential Moving Average)	pp	-0.05%	-0.01 pp	-0.02 pp	Bullish	No Change
	<u>Expiration Futures Basis</u> (Quarterly, All Exchanges, Annualized)	pp	3.4%	-0.53 pp	-1.61 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 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. One arrow denotes a 1-tier change, and two arrows denote a 2-tier change. Source: ARK Investment Management LLC, 2023. Data sourced from [Classnode](#). 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 March 29, 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.

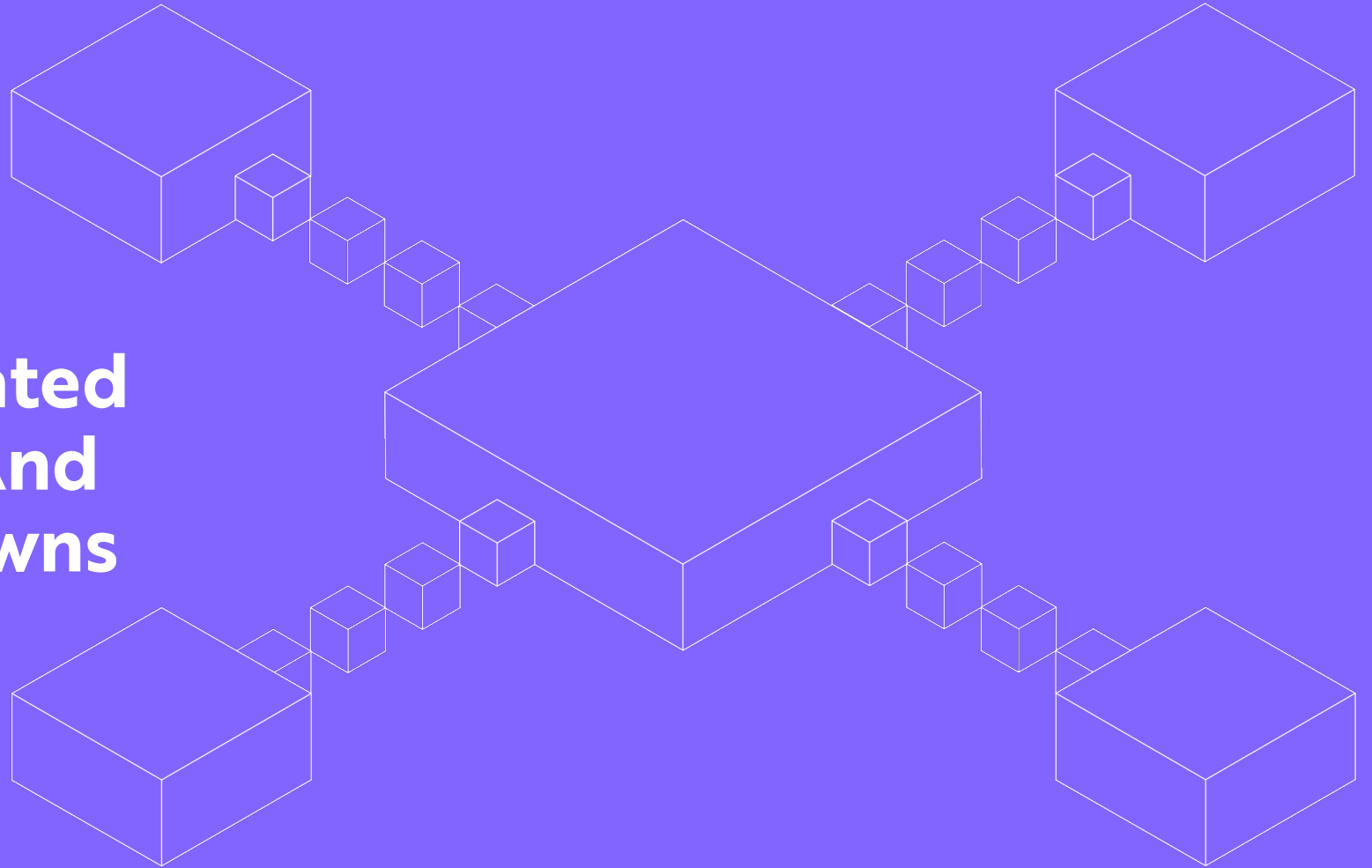




## Section 02

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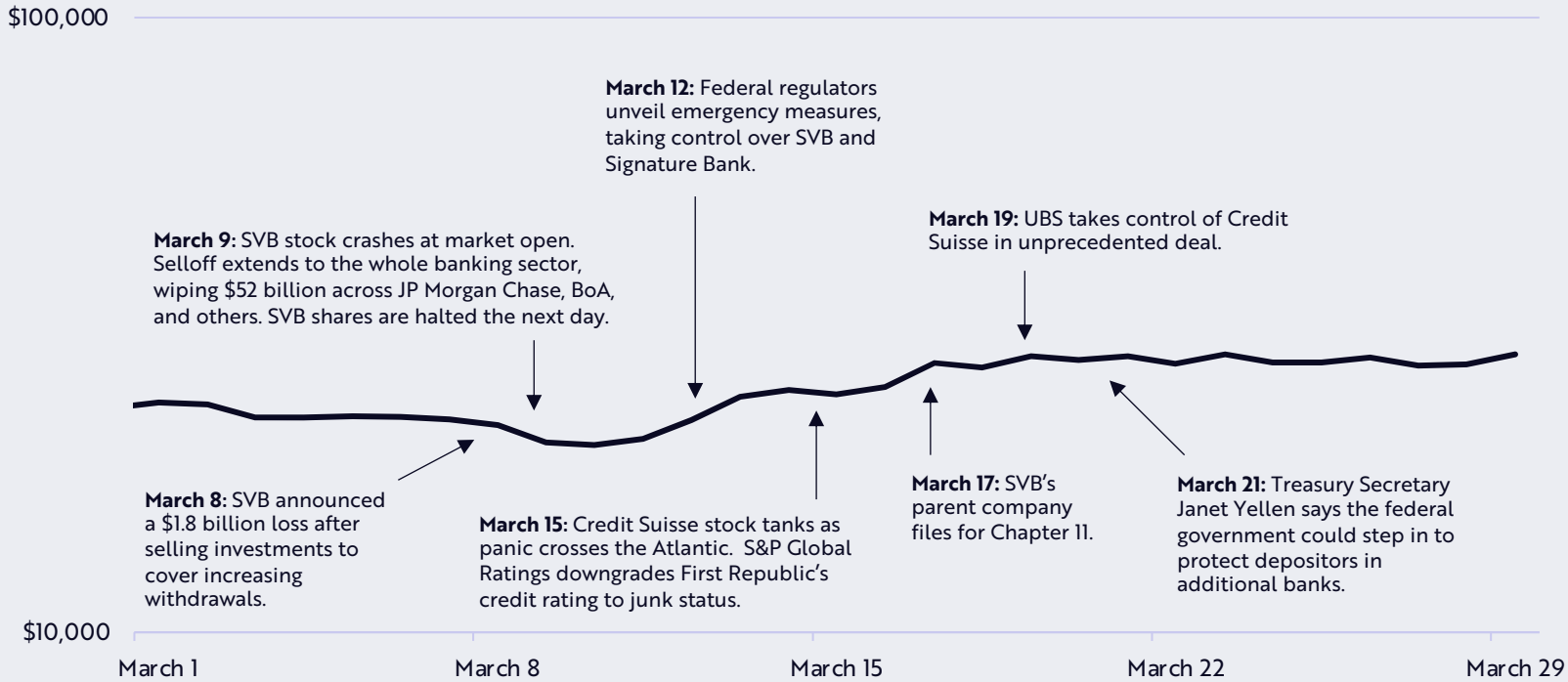
# Bitcoin Has Appreciated Despite Bank Runs And Regulatory Crackdowns





# Bitcoin Has Been A Safe Haven During The Banking Crisis

**Bitcoin Price**



## ARK'S VIEW: BULLISH

- During a month in which three major banks collapsed, bitcoin was a crucial safe haven, outperforming even bonds and gold.
- Up 22% during March, bitcoin's price was inversely correlated to the Regional Bank Index.
- Demand for more transparent, auditable, and decentralized financial services has soared because, in our view, crypto is a solution to the central points of failure, the opacity, and the regulatory lapses in the traditional financial system.

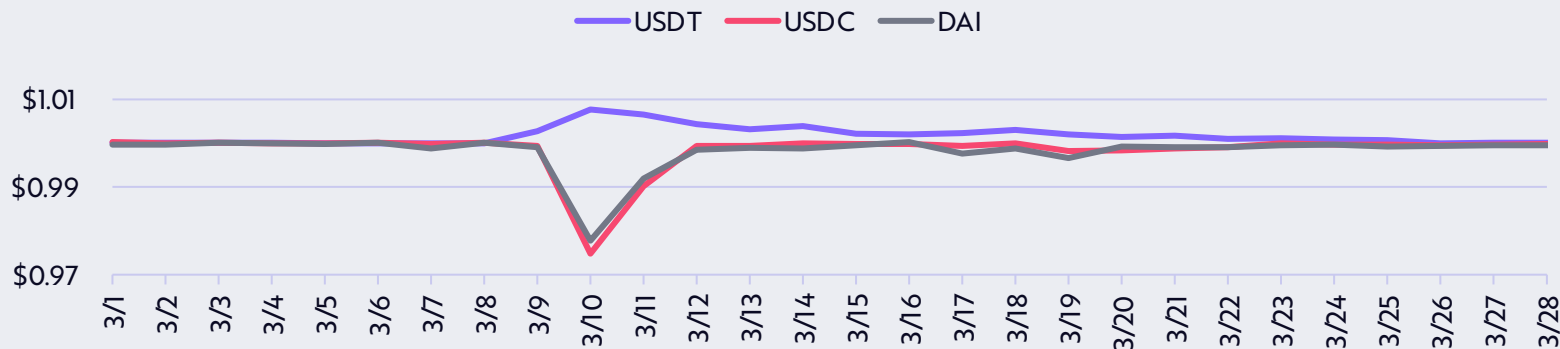
Performance	Bitcoin	Regional Banks	Bonds	Gold
Month-Over-Month	22.67%	-28.13%	3.16%	7.79%
Year-To-Date	71.68%	-24.74%	3.01%	7.06%

Source: ARK Investment Management LLC, 2023. Chart price data from Glassnode. Table data from Bloomberg. Information as of March 31, 2023. Timeline partially based on: <https://www.wsj.com/articles/bank-collapse-crisis-timeline-724f6458>. 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.

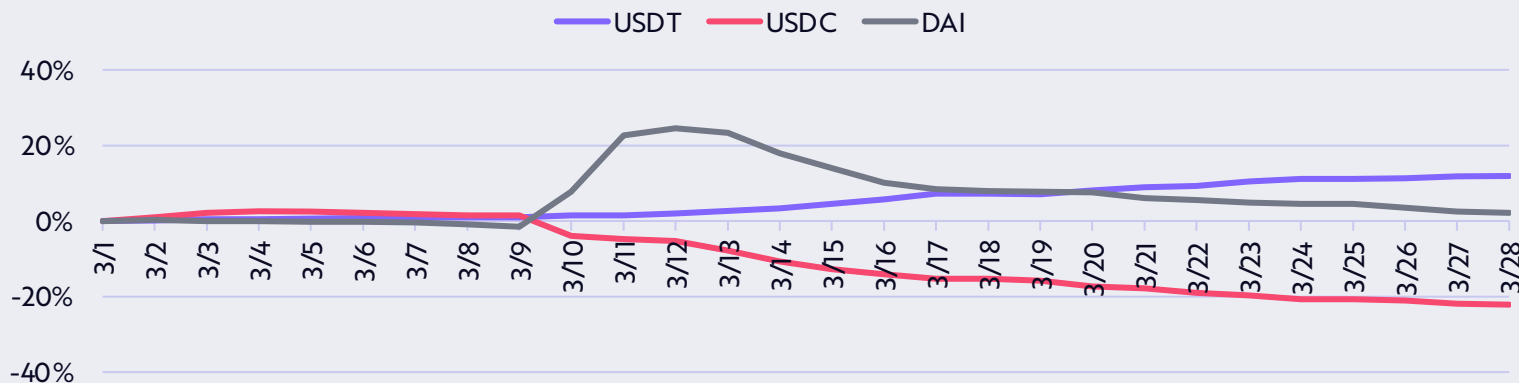


# The Banking Scare Caused USDC And DAI To Depeg While Tether And DAI Gained Share

**Stablecoin Prices**



**Month-To-Date Change In Circulating Supply**

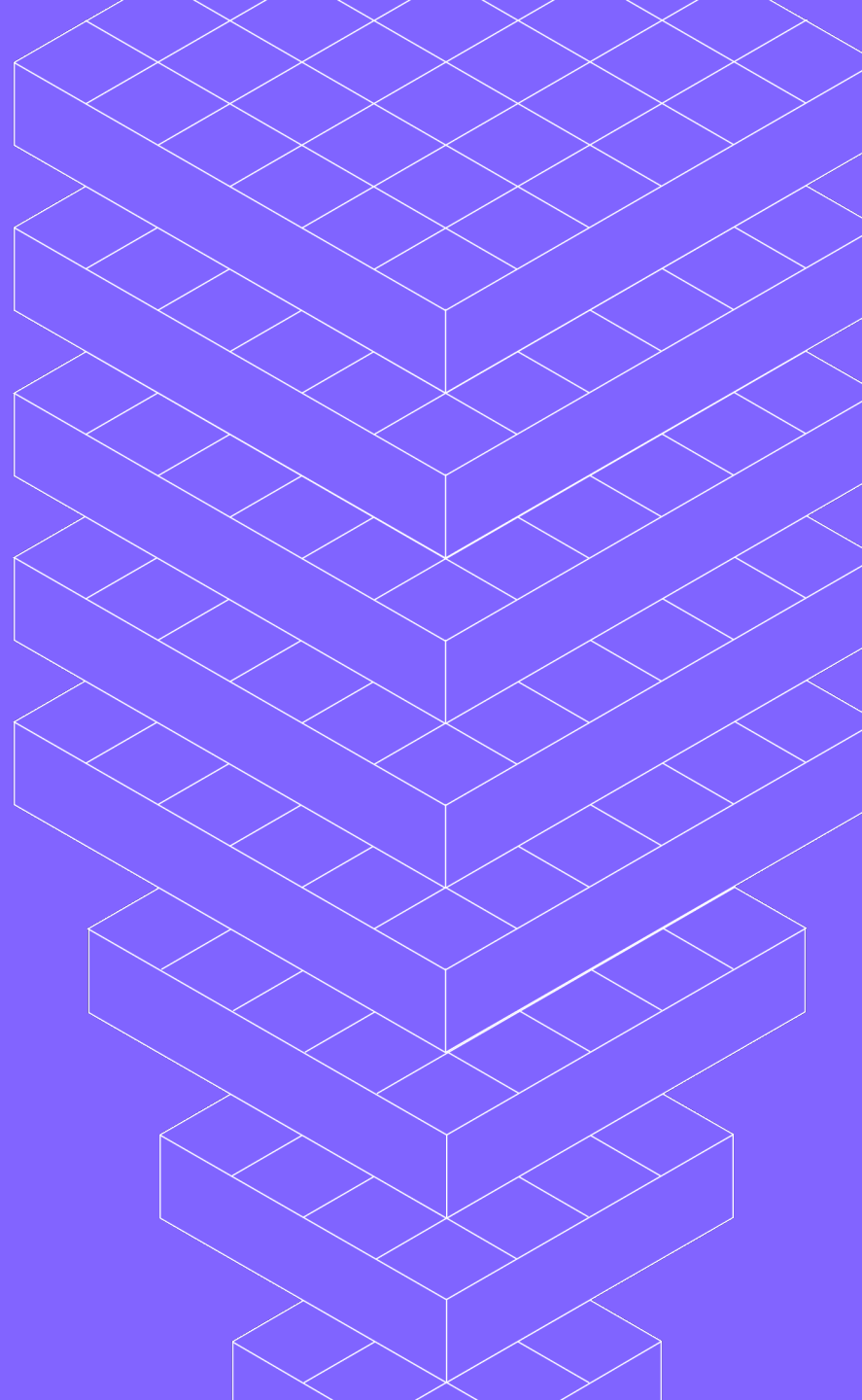


**ARK'S VIEW: NEUTRAL**

- Circle disclosed that ~8% of assets backing USDC were in uninsured accounts at Silicon Valley Bank, causing the stablecoin's price to drop as low as \$0.88 intra-day. The price of decentralized stablecoin DAI also dropped below \$1, as a portion of its supply is backed by USDC.
- Importantly, Circle never failed to redeem USDC for \$1 (during banking hours), processing ~\$15 billion in redemptions and ~\$7 billion in creations during the month.
- Amid instability, DAI's supply increased as holders sought decentralized alternatives with open creations and redemptions outside of US banking hours, unlike USDC.

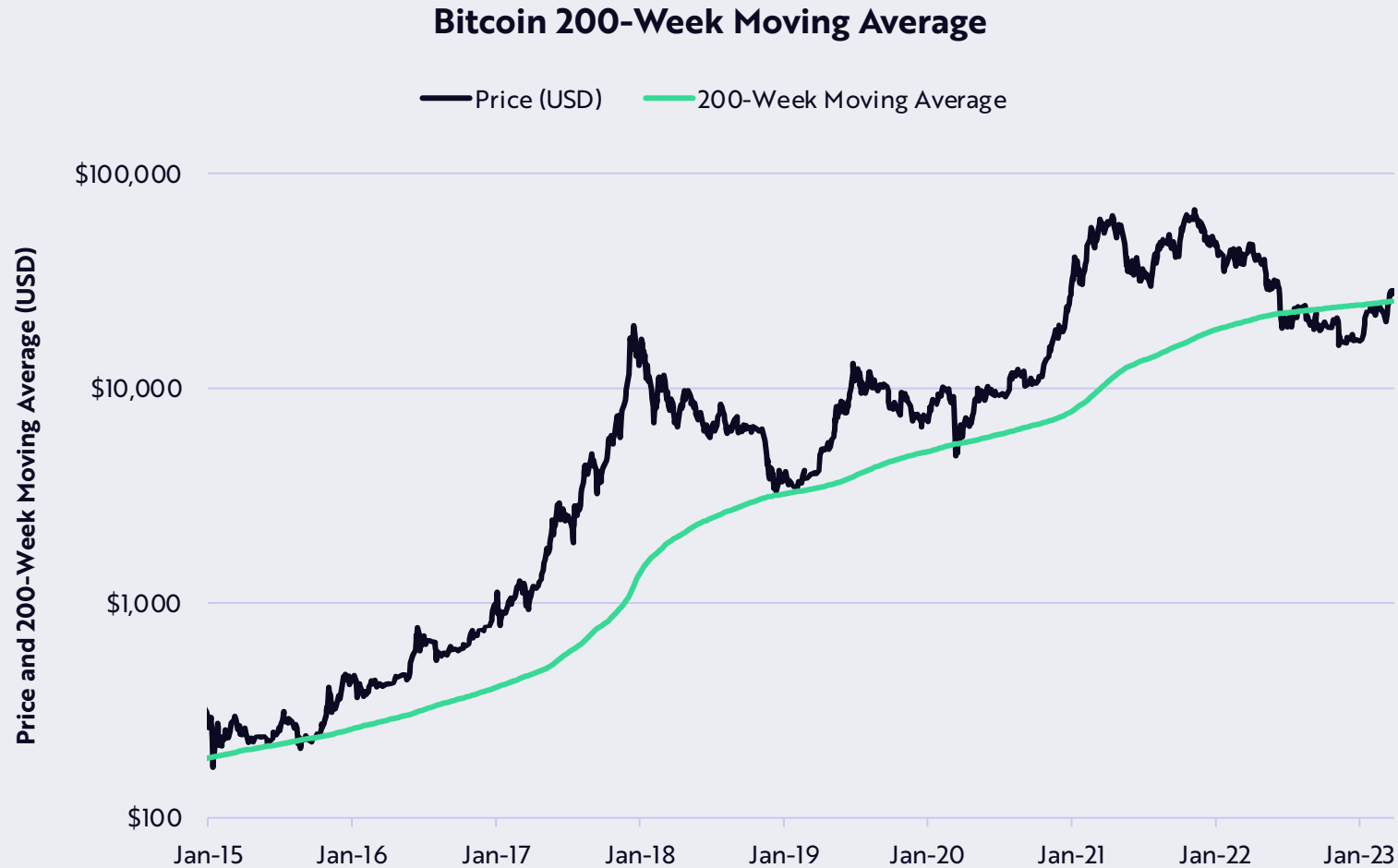
Source: ARK Investment Management LLC, 2023. Data from Glassnode, Dune Analytics, TradingView. Information as of March 31, 2023. For informational purposes only and should not be considered investment advice or a recommendation to buy, sell, or hold any particular security or cryptocurrency. Forecasts are inherently limited and cannot be relied upon. Past performance is not indicative of future results.

# Bitcoin's Fundamentals Continue To Strengthen





# Bitcoin Finally Closed Above Its 200-Week Moving Average



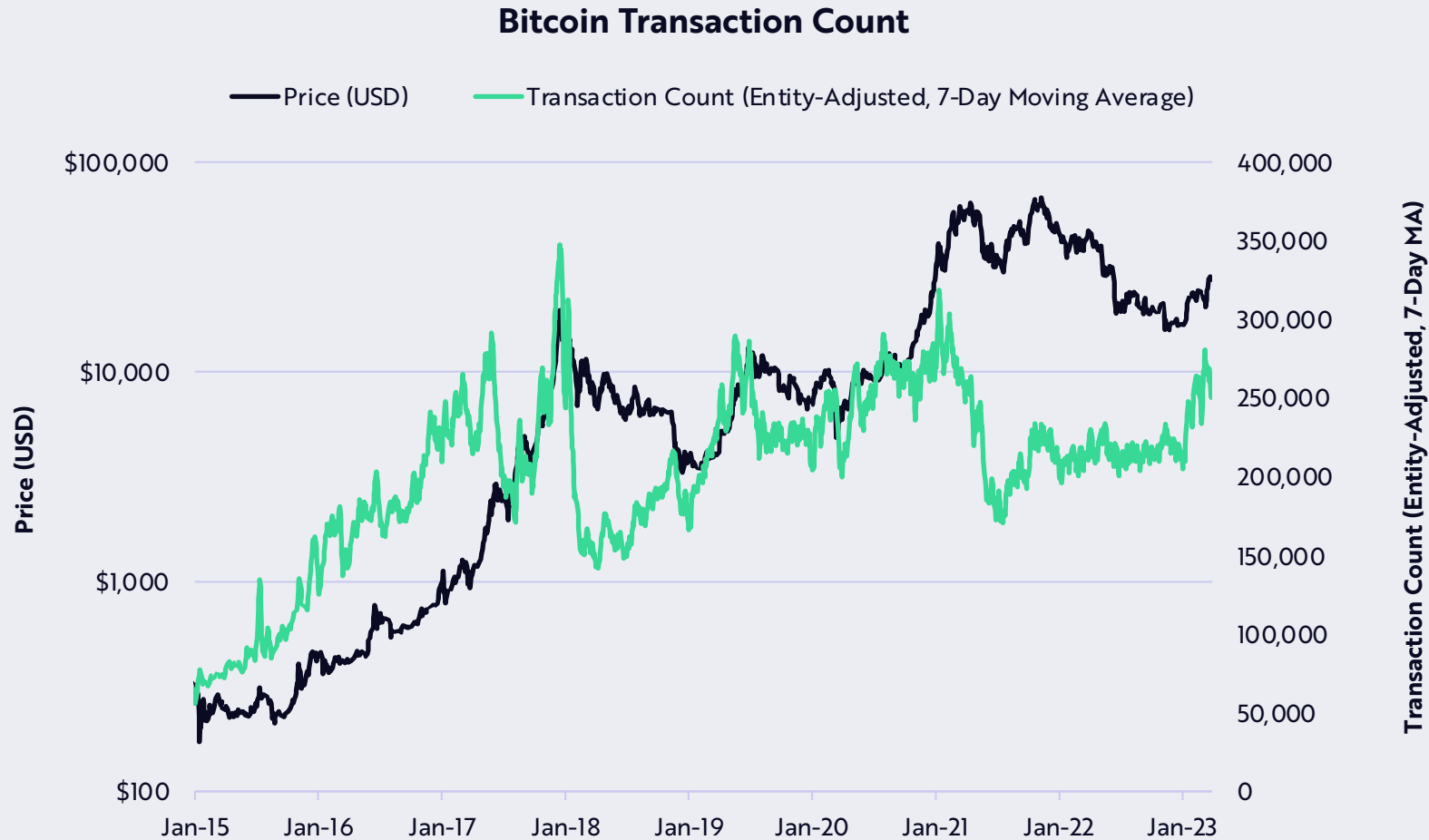
## ARK'S VIEW: BULLISH

- Bitcoin closed above its 200-week moving average (\$25,400) for two weeks in a row for the first time since August 2022.
- This marks the longest period in history during which bitcoin remained below this crucial support level.

Source: ARK Investment Management LLC, 2023. Chart data from [Glassnode](#). Information as of March 31, 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 Number Of Bitcoin Transactions Suggests High Network Activity



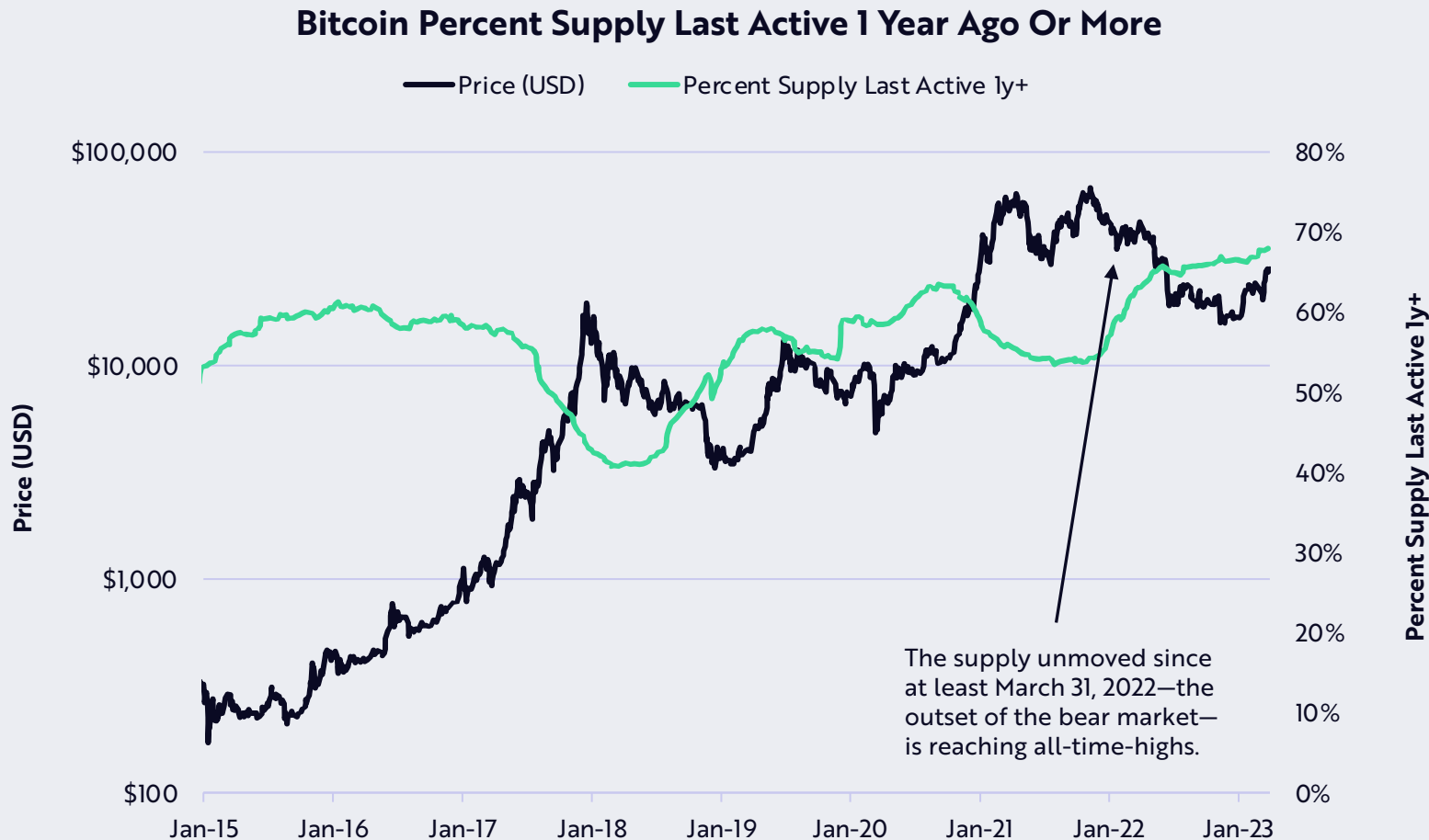
## ARK'S VIEW: BULLISH

- The number of transactions in the Bitcoin network has reached over 250k consistently throughout 2023 for the first time since April 2021.
- Transactions peaked at 277k during March, values not seen since price approximated \$50,000 in early 2021.
- From December 29, 2022, to March 7, 2023, transactions rose by 34% while price rose proportionally by 36%.

Source: ARK Investment Management LLC, 2023. Chart data from [Glassnode](#). Data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm. Information as of March 31, 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.



# Since The Onset Of The 2022 Bear Market, One-Year Holder Supply Has Hit An All-Time High



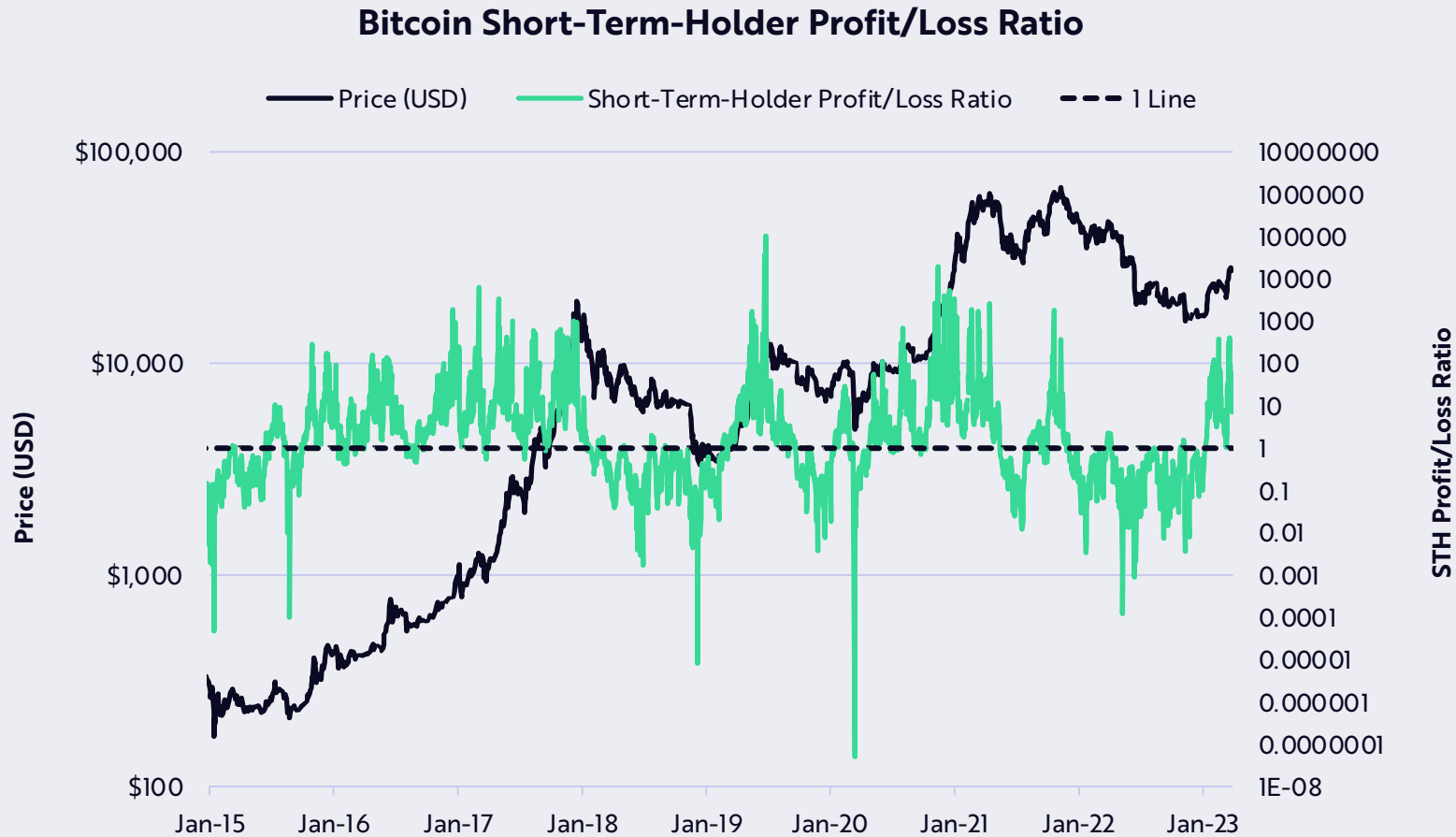
## ARK'S VIEW: BULLISH

- Supply last active 1 year ago or more reached all-time highs during March, approaching nearly 70% of bitcoin's total circulating supply.
- Supply held since the end of March 2022 coincides with market actors holding bitcoins since the outset of the 2022 bear market. That suggests strong holding behavior on the part of long-term investing cohorts.

Source: ARK Investment Management LLC, 2023. Chart data from [Glassnode](#). Information as of March 31, 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 Profits Of Short-Term Holders Outpaced Their Losses By ~395 To 1, Increasing The Likelihood Of A Sustained Bull Market



## ARK'S VIEW: BULLISH

- The ratio of short-term-holder (STH) supply in profit to short-term-holder supply in loss is stably above 1, twice showing a relationship of more than 300-to-1 profits-to-losses during March.
- According to our research, sustained values above 1 in this metric usually indicate a bullish primary trend.
- Short-term holders are those whose coins moved in the last 155 days, a threshold at which the probability of those coins being spent increases above 3%-4%.

Source: ARK Investment Management LLC, 2023. Chart data from [Glassnode](#). Data may be subject to change over time since they are entity-adjusted in real time via a machine-learning algorithm. Information as of March 31, 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

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# Record-Breaking Fed Tightening Seems To Have Caused The Crisis





# Bank Deposits Are Declining

**Total Bank Deposits  
(Year-Over-Year % Change)**



## ARK'S VIEW: NEUTRAL

- Deposits in banks have declined sharply as depositors withdraw their money at an alarming rate, resulting in the biggest year-over-year decline since 1948.
- Presumably, depositors are searching for higher-yielding opportunities than are available in traditional saving accounts.
- Outflows are stressing bank solvency, which led to the collapse of Silicon Valley Bank (SVB).

Source: ARK Investment Management LLC, 2023. Data from FRED. Information as of March 31, 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 Federal Reserve Acted Swiftly To Address The Financial Turmoil

Fed Balance Sheet Total Assets



**ARK'S VIEW: NEUTRAL**

- The Fed stepped in as lender of last resort, increasing its balance sheet by over \$350 billion and reversing 5 months of quantitative tightening in a matter of days.
- Regulators are doing their best to prevent broad panic and cascading bank runs.

Source: ARK Investment Management LLC, 2023. Data from FRED. Information as of March 31, 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.



# Consumer Confidence Is At Crisis Lows

## University Of Michigan Consumer Sentiment Index



### ARK'S VIEW: BEARISH

- Consumer Confidence is at levels last seen during the Global Financial Crisis and the early 1980s when the US battled two recessions.
- With muscle memory of a banking crisis, coupled with a low savings rate, consumers appear to lack either the means or the desire for significant real consumption growth.

Source: ARK Investment Management LLC, 2023. Data from The University of Michigan. Information as of March 31, 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.



# Cracks Appear In The Housing Market

Existing Home Sales Median Price  
(Year-Over-Year % Change)



## ARK'S VIEW: BEARISH

- US Existing Home Prices declined year-over-year for the first time since 2012.
- Falling prices are likely to dampen consumer confidence further, potentially leading consumers to pull back on spending significantly.
- Commercial real estate giants PIMCO and Brookfield strategically defaulted on office properties in major markets.
- The housing industry is an economic multiplier: a slowdown will be felt broadly, across construction, home improvement, utilities, furniture, home goods, and more.

Source: ARK Investment Management LLC, 2023. Data from National Association of Realtors. Information as of March 31, 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 05

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# 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.

**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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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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