

# 2023 CRYPTO OUTLOOK

**2022 danger...**

**...2023 opportunity**

危機

Danger

Opportunity

**2022**



**2023**

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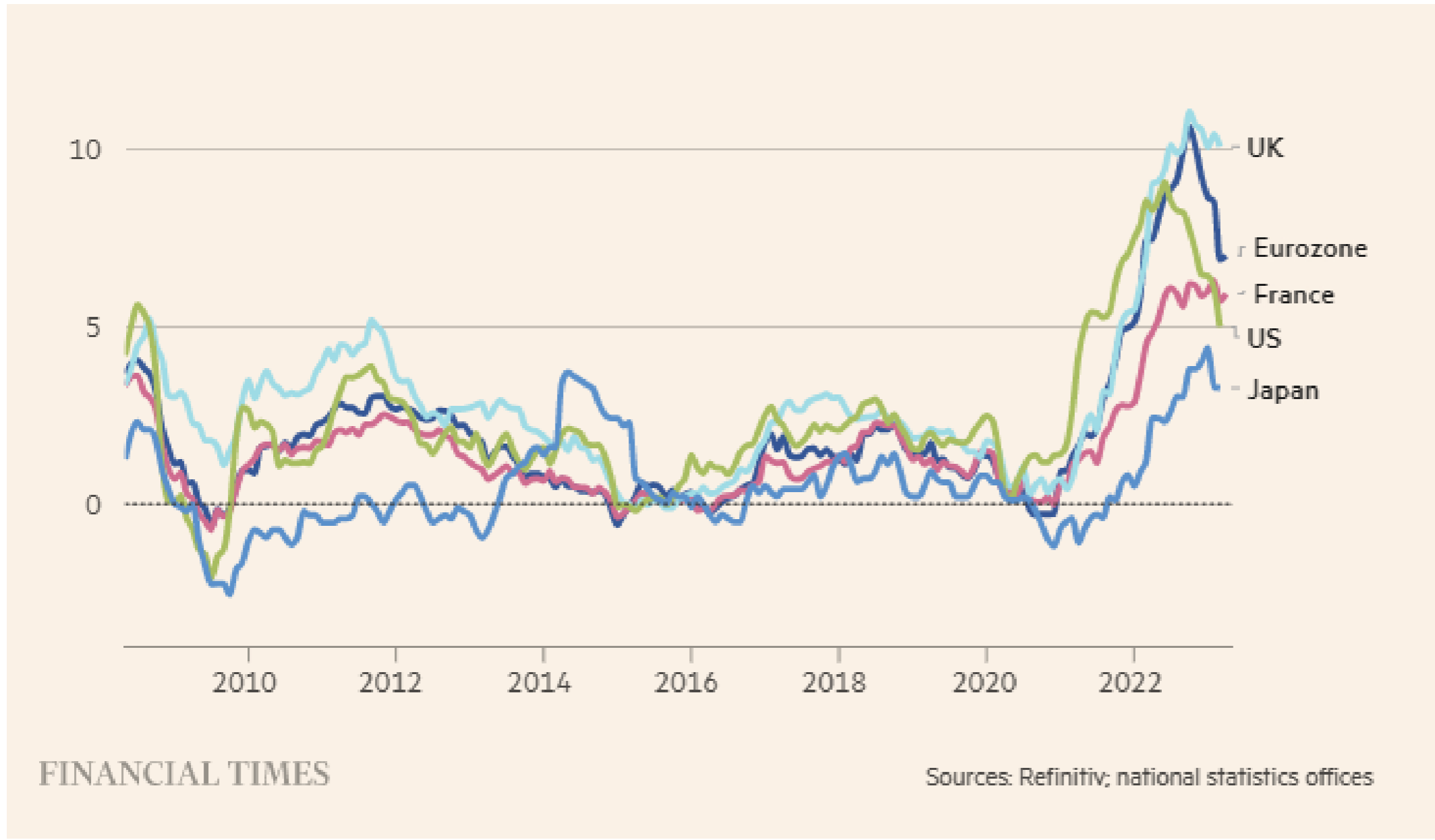
# 危機

Danger

**2022**

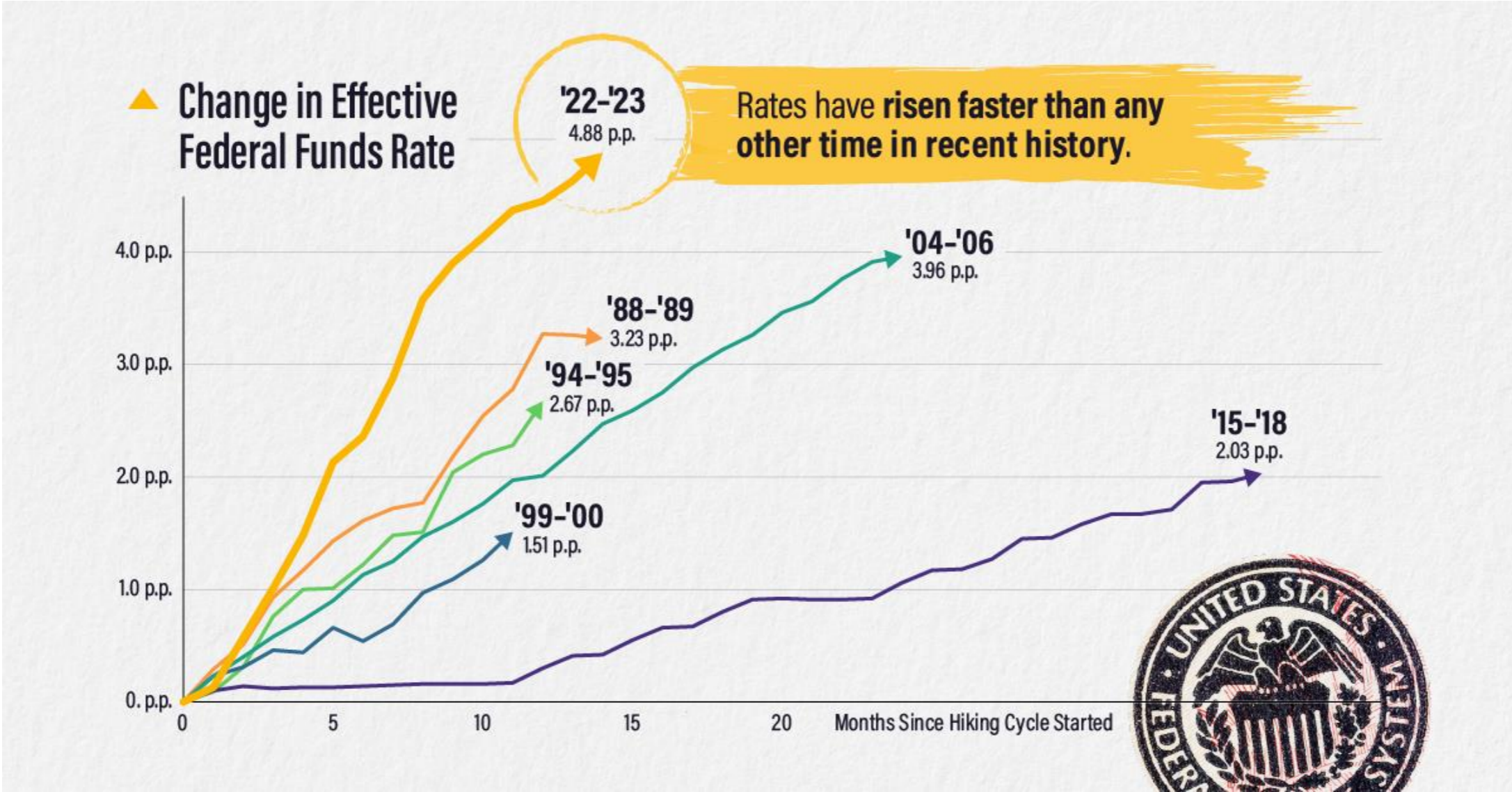


# World is fighting an inflation war





# FED: Fastest rate hike cycle ever



Source: Statista



# BEAR: 2022, never >200D and longest rally lasted only 40 days

S&P 500  
Daily



Source: Fundstrat, Bloomberg





# Fed tightens until something breaks

**Chart 2: Fed tightening cycles always “break” something**  
US Federal Funds Target Rate (%)



Source: BofA Global Investment Strategy, GFD Finaeon, Bloomberg.

BoFA GLOBAL RESEARCH

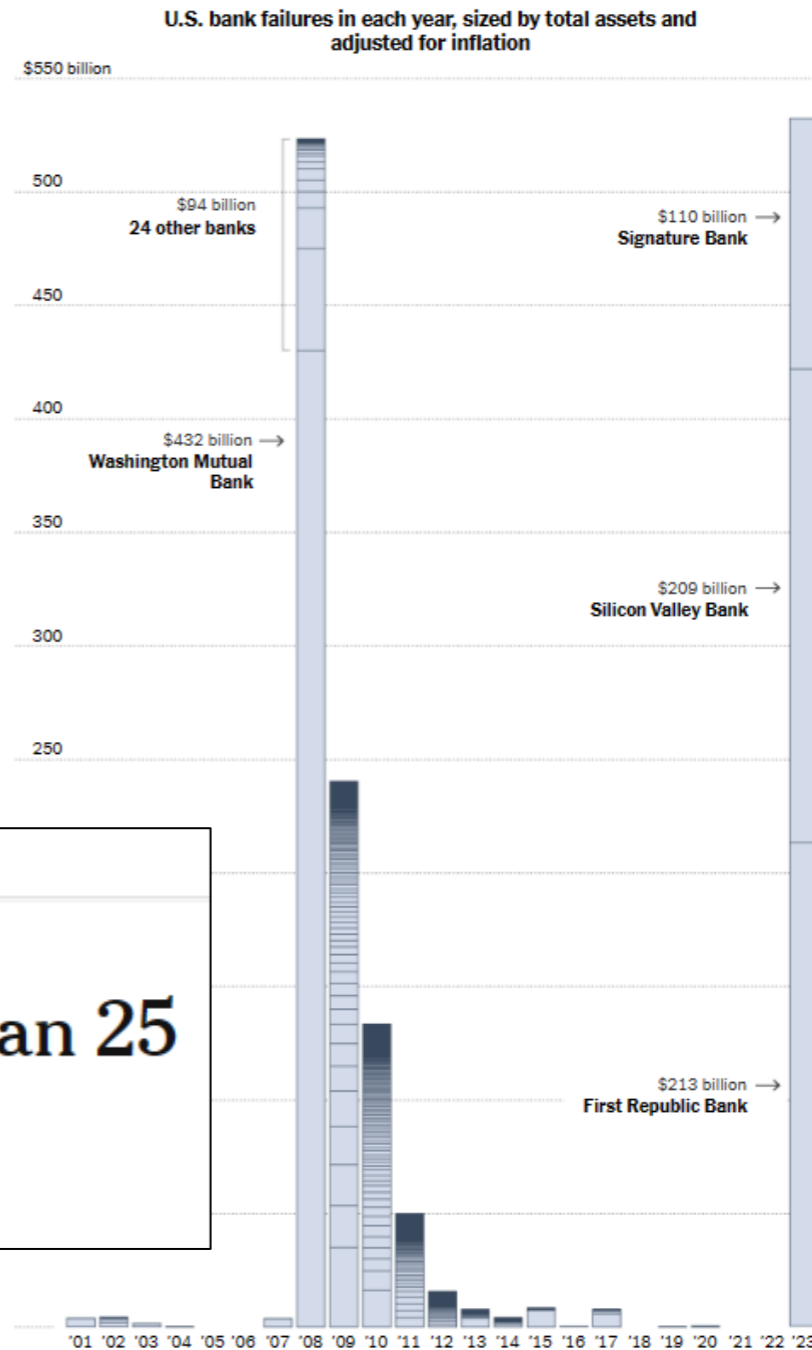


# Regional banks are “breaking”

The New York Times

## 3 Failed Banks This Year Were Bigger Than 25 That Crumbled in 2008

By [Karl Russell](#) and [Christine Zhang](#) Updated May 1, 2023



Source: [Federal Deposit Insurance Corporation](#) • Note: Assets data is as of Dec. 31, 2022. Chart includes failures of federally insured U.S. banks and does not include investment banks. • By Karl Russell





Crypto outside USA = generally true



# 'Crypto is dead in America,' says longtime bitcoin bull Chamath Palihapitiya

PUBLISHED MON, APR 24 2023•1:40 PM EDT | UPDATED MON, APR 24 2023•2:59 PM EDT



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# SEC

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### Operation Choke Point 2.0: The Federal Bank Regulators Come For Crypto

David H. Thompson  
John D. Ohlendorf  
Harold S. Reeves

- Operation Choke Point 2.0 deprives business of their constitutional rights to due process in violation of the Fifth Amendment. It is well settled that when a federal agency attaches a derogatory label to an individual or business, and this stigmatizing label causes the business to lose a bank account or broadly precludes them from the pursuit of their chosen trade, the agency has violated the Due Process Clause of the Fifth Amendment, unless if first afforded the individual or business a right to be heard. This is precisely what the federal bank regulators responsible for Operation Choke Point 2.0 have done and continue to do by labeling crypto businesses a threat to the financial system, a source of fraud and misinformation, and a risk to bank liquidity.



An A.S. Pratt™ PUBLICATION

MAY 2023

Editor's Note: The Rules Are Getting Tighter and Tighter  
Victoria Prussen Spears

A New "Operation Choke Point"? The Quickly Constricting Rules on Crypto Activities for Banks  
Douglas Landy, Glen R. Cuccinello, Leel Sinai and Chante Eliazadeh

### A New "Operation Choke Point"? The Quickly Constricting Rules on Crypto Activities for Banks

*By Douglas Landy, Glen R. Cuccinello, Leel Sinai and Chante Eliazadeh\**

*In this article, the authors review a recent joint statement by federal bank regulators regarding whether banks can continue to provide banking services to the crypto industry, as well as whether they can continue to engage in related activities themselves.*

Perhaps responding to criticism that the prior actions and guidance could result in the crypto industry being excluded from the regulated banking system, the Board of Governors of the Federal Reserve System (the Federal Reserve), the Office of the Comptroller of the Currency (the OCC) and the Federal Deposit Insurance Corporation (the FDIC) have issued a "Joint Statement on Liquidity Risks to Banking Organizations Resulting from Crypto-Asset Market Vulnerabilities" (the Joint Liquidity Statement). In the Joint Liquidity Statement, the agencies stated:



# SEC



LUKE HUIGSLOOT



COINTELEGRAPH  
The future of money

MAR 22, 2023

## 'Operation Choke Point 2.0' may have contributed to SVB's collapse: Mulvaney

While the existence of "Operation Choke Point 2.0" has not been confirmed, Mick Mulvaney spoke of "rumors" of its existence and the potential side effects of such a policy.

### Finance



## 'Operation Choke Point 2.0' Is SEC's 'Chemotherapy' for \$14B Ponzi Problem, BCB's CEO Says

What happened to Custodia Bank is "tragic" under the current administration's efforts to de-bank the crypto industry, BCB's Oliver von Landsberg-Sadie said.

By Aoyon Ashraf ⌚ Apr 28, 2023 at 12:36 p.m. EDT Updated Apr 28, 2023 at 4:03 p.m. EDT

AUSTIN, Texas – "Operation Choke Point 2.0," the alleged coordinated efforts by the Biden administration to cut the cryptocurrency industry off from the U.S. banking sector, is the Securities and Exchange Commission's "chemotherapy" for a \$14 billion "Ponzi cancer," said Oliver von Landsberg-Sadie, founder and CEO of crypto banking firm BCB Group. He spoke during a panel at CoinDesk's [Consensus 2023](#) conference titled "Crypto Banished From the Banking System."



# OPERATION CHOKE POINT 2.0: Timeline and actions against crypto

## Timeline – “Operation Choke Point 2.0”

Fall of 2022 to present.

Date	Event
Nov 6, 2022	Beginning of the FTX collapse.
Nov 8, 2022	Binance enters agreement to buy FTX.
Nov 9, 2022	Binance exits agreement.
Dec 6, 2022	Elizabeth Warren, John Kennedy, and Roger Marshall call out Silvergate for providing services to Alameda.
Dec 7, 2022	Signature Bank announces that it will halve all of its deposits ascribed to crypto clients and stop accepting further deposits.
Jan 3, 2023	Fed, FDIC, and OCC release joint statement discouraging banks from involving themselves with crypto.
Jan 9, 2023	Metropolitan Commercial Bank announces shut down of crypto services.
Jan 27, 2023	Federal Reserve Board denies Custodia Bank's member application.
Jan 27, 2023	Kansas City Fed denies Custodia's application for a master account.
Jan 27, 2023	Fed issues policy statement, discouraging banks from holding or issuing crypto.
Jan 27, 2023	White House National Economic Council issues statement, discouraging banks from being involved in crypto.
Feb 2, 2023	DOJ launches investigation into Silvergate for business with FTX and Alameda.
Feb 3, 2023	SEC delivers "Wells Notice" to Paxos.
Feb 7, 2023	Fed finalizes policy statement from Jan 27.
Feb 13, 2023	NY Department of Financials Services orders to halt of issuance of stablecoin \$BUSD
Feb 14, 2023	Elizabeth Warren calls out ShapeShift, a decentralized exchange, labeling them a money-laundering haven.
Feb 16, 2023	FDIC releases report that identifies 136 federally-insured banks with crypto-related activity ongoing or planned.
Feb 23, 2023	Another joint statement is released by the Federal Reserve, FDIC, and OCC discouraging banks from engaging with crypto. However, this one states that banks "are neither prohibited nor discouraged from providing banking services to customers of any specific class or type, as permitted by law or regulation."
Feb 23, 2023	Custodia's request to be reconsidered for membership in Federal Reserve System is rejected.
Mar 9, 2023	House Subcommittee on Digital Assets, Financial Technology and Inclusion hearing title: "Coincidence or Coordinated? The Administration's Attack on the Digital Asset Ecosystem."
Mar 13, 2023	Signature Bank run on deposits in aftermath of SVB.
Mar 17, 2023	Crypto custodian Protego's national trust banking charter expires without permanent approval.
Mar 22, 2023	SEC delivers "Wells Notice" to Coinbase.
Mar 30, 2023	Elizabeth Warren "building an anti-crypto army."

Source: Fundstrat, Cato Institute, News Media





## CHOKER POINT 2.0: Crypto liquidity impacted

### Jane Street, Jump Pull Back Crypto Trading Amid US Crackdown

- Regulatory uncertainty has made the business more difficult
- Scrutiny intensified in the wake of the FTX, TerraUSD failures

By Katherine Doherty and Yueqi Yang

(Bloomberg) -- Jane Street Group and Jump Crypto – two of the world’s top market-making firms – are pulling back from trading digital assets in the US as regulators crack down on the industry.

Jane Street is going even further by scaling back its crypto ambitions globally because regulatory uncertainty has made it difficult for the firm to operate the business in a way that meets internal standards, according to a person familiar with the matter.

Jump Crypto, the digital-assets unit of Jump Trading, is pulling back from the US market for the same reason, though it’s expanding internationally, two people familiar with the matter said. Both firms are still making markets, though on a smaller scale, and not abandoning crypto entirely, the people said.



## CHOKER POINT 2.0: Bittrex could file for bankruptcy

**Mike Selig**  
@MikeSeligEsq

Bittrex filing for Chapter 11 bankruptcy less than a month after the SEC filed a complaint against it is no coincidence. SEC investigations are extremely expensive to defend and the agency knows this. Without winning a single legal argument, the SEC can win by draining the bank.

6:21 PM · May 8, 2023 · **5,529** Views

**10** Retweets   **1** Quote   **52** Likes   **2** Bookmarks

Source: Twitter.com





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Danger

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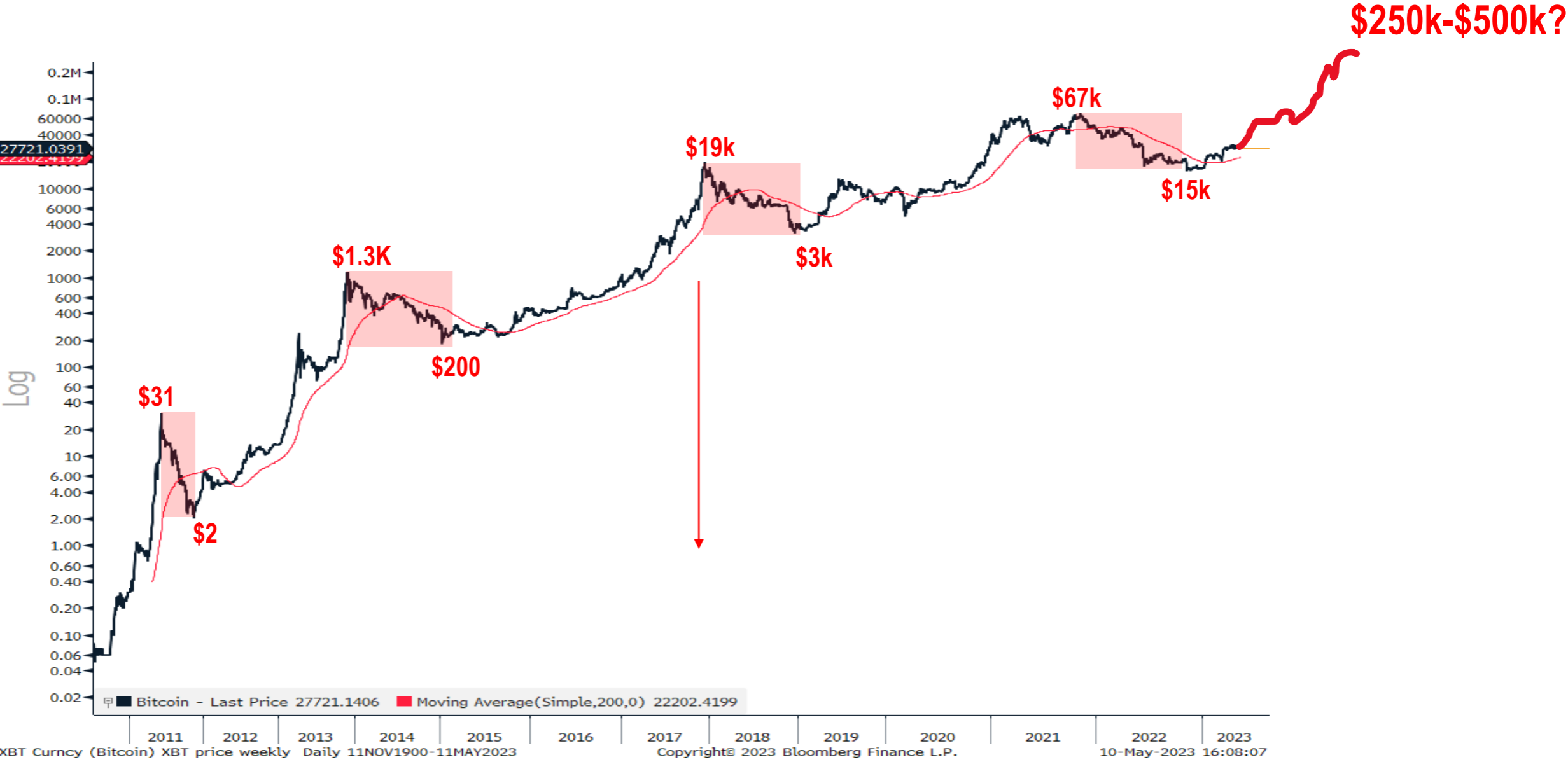
**2022**



**2023**



# OPPORTUNITY: Will this cycle deliver same upside as past?

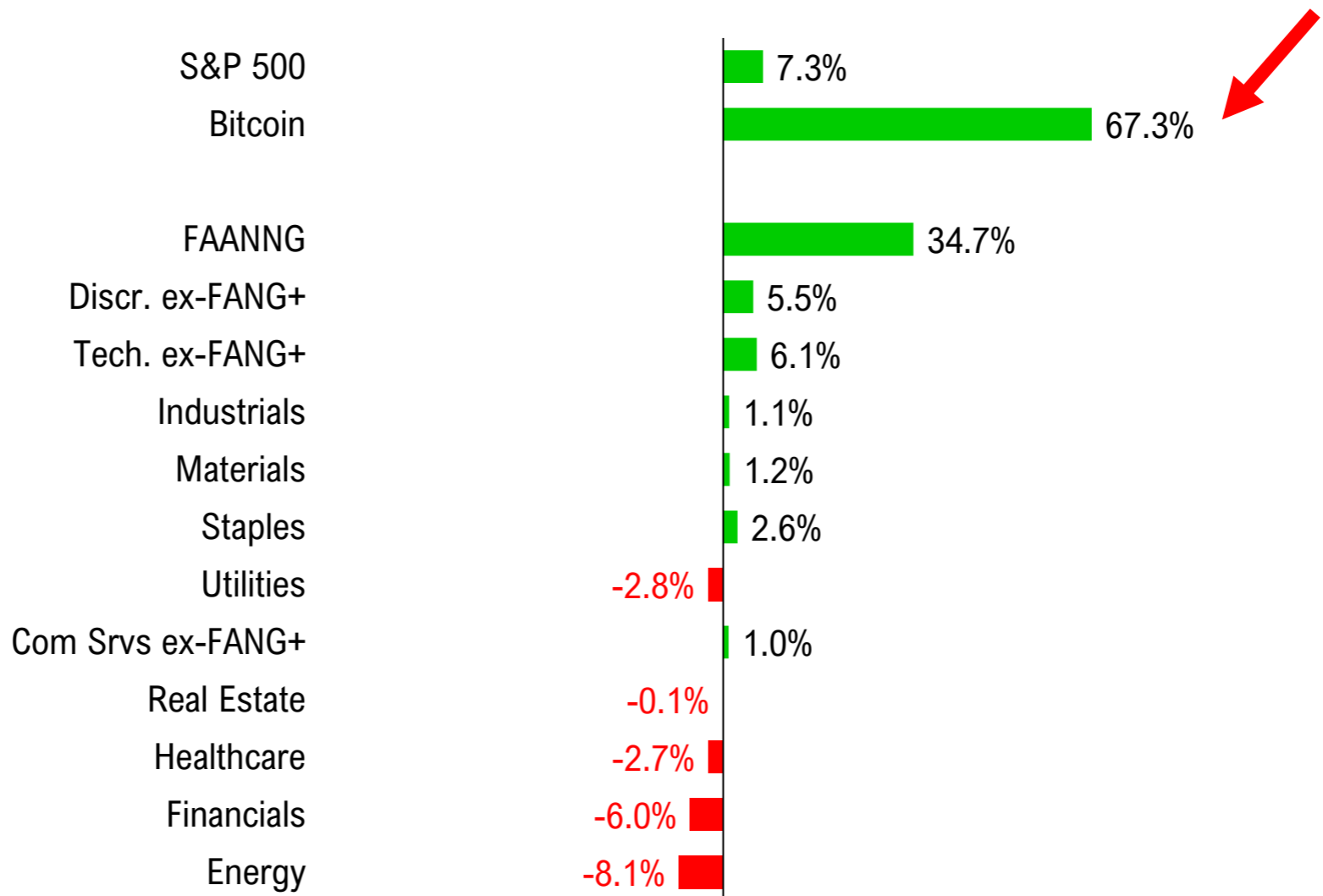


XBT Curncy (Bitcoin) XBT price weekly Daily 11NOV1900-11MAY2023 Copyright© 2023 Bloomberg Finance L.P. 10-May-2023 16:08:07



# Bitcoin up 67% YTD

## S&P 500 Sectors



Source: Fundstrat, Bloomberg



**Charlie Bilello**   
@charliebilello

### (11) Inverse of 2022

With the exception of commodities, every major asset class is up thus far in 2023, the polar opposite of 2022...

Video: [youtube.com/watch?v=-mSM9j...](https://www.youtube.com/watch?v=-mSM9j...)

CREATIVE PLANNING		Asset Class Total Returns Since 2011 (as of 4/28/23 - Data via YCharts)													@CharlieBilello	
ETF	Asset Class	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 YTD	2011-23 Cumulative	2011 Annual
N/A	Bitcoin	1473%	186%	5507%	-58%	35%	125%	1331%	-73%	95%	301%	66%	-65%	76.8%	9741125%	153.9%
QQQ	US Nasdaq 100	3.4%	18.1%	36.6%	19.2%	9.5%	7.1%	32.7%	-0.1%	39.0%	48.6%	27.4%	-32.6%	21.3%	564.8%	16.6%
EFA	EAFE Stocks	-12.2%	18.8%	21.4%	-6.2%	-1.0%	1.4%	25.1%	-13.8%	22.0%	7.6%	11.5%	-14.4%	12.2%	80.5%	4.9%
SPY	US Large Caps	1.9%	16.0%	32.2%	13.5%	1.2%	12.0%	21.7%	-4.5%	31.2%	18.4%	28.7%	-18.2%	9.2%	317.3%	12.3%
GLD	Gold	9.6%	6.6%	-26.3%	-2.2%	-10.7%	8.0%	12.8%	-1.9%	17.9%	24.8%	-4.2%	-0.8%	8.9%	33.2%	2.4%
TLT	Long Duration Treasuries	34.0%	2.6%	-13.4%	27.3%	-1.8%	1.2%	9.2%	-1.6%	14.1%	18.2%	-4.6%	-31.2%	7.7%	54.2%	3.6%
LQD	Investment Grade Bonds	9.7%	10.6%	-2.0%	8.2%	-1.3%	6.2%	7.1%	-3.8%	17.4%	11.0%	-1.8%	-17.9%	5.3%	53.5%	3.5%
PFF	Preferred Stocks	-2.0%	17.8%	-1.0%	14.1%	4.3%	1.3%	8.1%	-4.7%	15.9%	7.9%	7.2%	-18.2%	4.5%	62.7%	4.0%
HYG	High Yield Bonds	6.8%	11.7%	5.8%	1.9%	-5.0%	13.4%	6.1%	-2.0%	14.1%	4.5%	3.8%	-11.0%	3.9%	64.5%	4.1%
BND	US Total Bond Market	7.7%	3.9%	-2.1%	5.8%	0.6%	2.5%	3.6%	-0.1%	8.8%	7.7%	-1.9%	-13.1%	3.9%	28.3%	2.0%
TIP	TIPS	13.3%	6.4%	-8.5%	3.6%	-1.8%	4.7%	2.9%	-1.4%	8.3%	10.8%	5.7%	-12.2%	3.6%	37.6%	2.6%
EEM	EM Stocks	-18.8%	19.1%	-3.7%	-3.9%	-16.2%	10.9%	37.3%	-15.3%	18.2%	17.0%	-3.6%	-20.6%	3.2%	5.8%	0.5%
CWB	Convertible Bonds	-7.7%	15.9%	20.5%	7.7%	-0.8%	10.6%	15.7%	-2.0%	22.4%	53.4%	2.2%	-19.4%	3.1%	175.3%	8.6%
EMB	EM Bonds (USD)	7.7%	16.9%	-7.8%	6.1%	1.0%	9.3%	10.3%	-5.5%	15.5%	5.4%	-2.2%	-18.6%	3.1%	41.4%	2.8%
VNQ	US REITs	8.6%	17.6%	2.3%	30.4%	2.4%	8.6%	4.9%	-6.0%	28.9%	-4.7%	40.5%	-26.2%	2.0%	142.7%	7.5%
BIL	US Cash	0.0%	0.0%	-0.1%	-0.1%	0.1%	0.1%	0.7%	1.7%	2.2%	0.4%	-0.1%	1.4%	1.4%	7.7%	0.6%
IWM	US Small Caps	-4.4%	16.7%	38.7%	5.0%	-4.5%	21.6%	14.5%	-11.1%	25.4%	20.0%	14.5%	-20.5%	0.9%	165.7%	8.2%
DBC	Commodities	-2.6%	3.5%	-7.6%	-28.1%	-27.6%	18.6%	4.9%	-11.6%	11.8%	-7.8%	41.4%	19.3%	-4.4%	-11.5%	-1.0%
Highest Return		BTC	BTC	BTC	VNQ	BTC	BTC	BTC	BIL	BTC	BTC	BTC	DBC	BTC	BTC	BTC
Lowest Return		EEM	BIL	GLD	BTC	DBC	BIL	BIL	BTC	BIL	DBC	TLT	BTC	DBC	DBC	DBC
% of Asset Classes Positive		61%	94%	44%	67%	39%	100%	100%	6%	100%	89%	61%	11%	94%	94%	94%

2:14 PM · May 5, 2023 · 21.7K Views

Source: Twitter.com

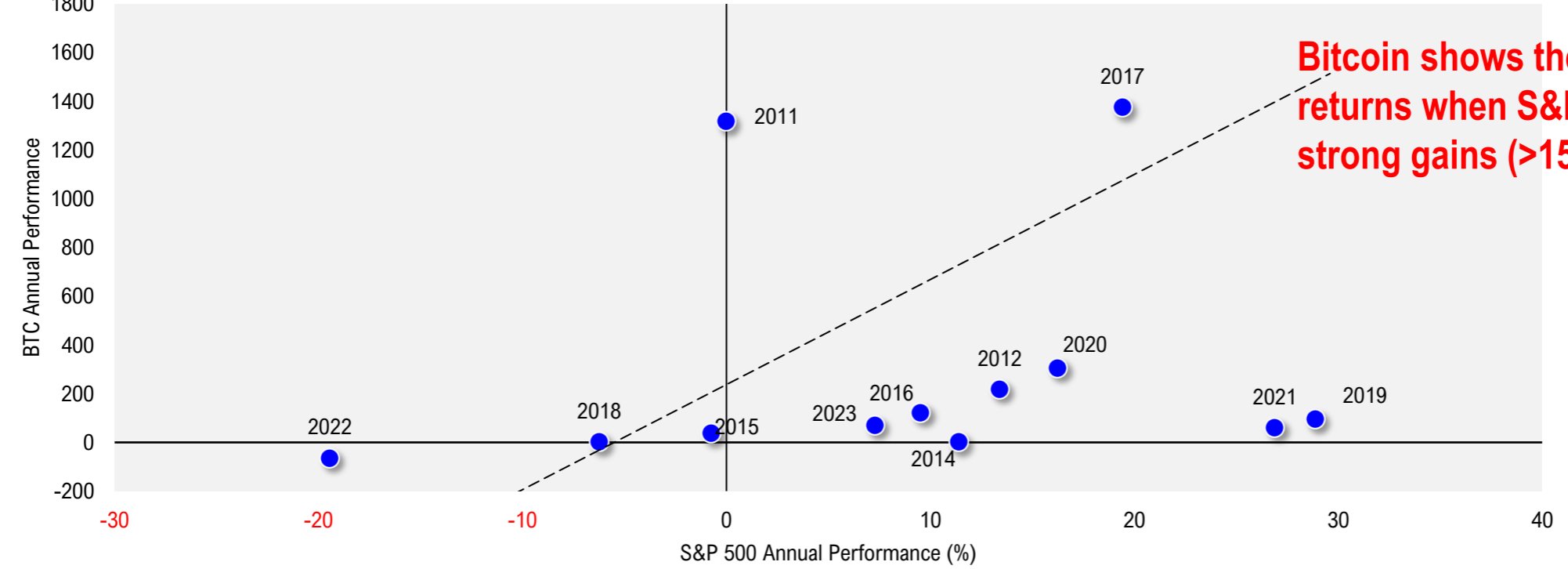
CREATIVE PLANNING		@CharlieBilello	
ETF	Asset Class	2011-23 Cumulative	2011-23 Annualized
N/A	Bitcoin	9741125%	153.9%
QQQ	US Nasdaq 100	564.8%	16.6%
EFA	EAFE Stocks	80.5%	4.9%
SPY	US Large Caps	317.3%	12.3%
GLD	Gold	33.2%	2.4%
TLT	Long Duration Treasuries	54.2%	3.6%
LQD	Investment Grade Bonds	53.5%	3.5%
PFF	Preferred Stocks	62.7%	4.0%
HYG	High Yield Bonds	64.5%	4.1%
BND	US Total Bond Market	28.3%	2.0%
TIP	TIPS	37.6%	2.6%
EEM	EM Stocks	5.8%	0.5%
CWB	Convertible Bonds	175.3%	8.6%
EMB	EM Bonds (USD)	41.4%	2.8%
VNQ	US REITs	142.7%	7.5%
BIL	US Cash	7.7%	0.6%
IWM	US Small Caps	165.7%	8.2%
DBC	Commodities	-11.5%	-1.0%
Highest Return		BTC	BTC
Lowest Return		DBC	DBC
% of Asset Classes Positive		94%	94%



# Bitcoin performs best when S&P 500 is performing strongly...

Figure: Comparative performance of Bitcoin and the S&P 500  
Since 2010

	Annual Performance (%)														Stock market trend is...		
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Down	Up/No Trend	Strong
S&P 500	17	-0	13	30	11	-1	10	19	-6	29	16	27	-19	7	-9	8	23
Stock Market Trend	Strong	No	Up	Strong	Up	Down	Up	Strong	Down	Strong	Strong	Strong	Down	Up			
Bitcoin	200	1,467	187	5,485	-58	34	124	1,369	-74	92	305	60	-64	67	-35	357	1,252

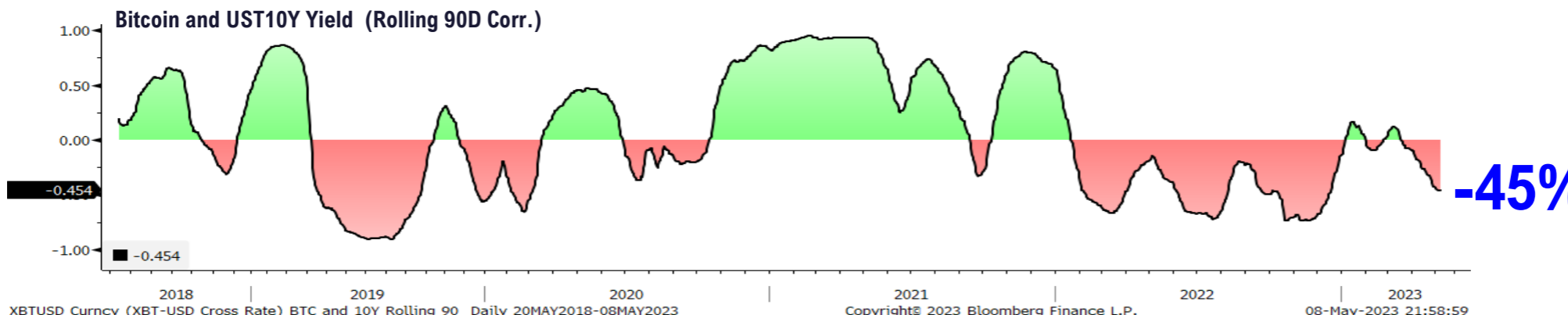
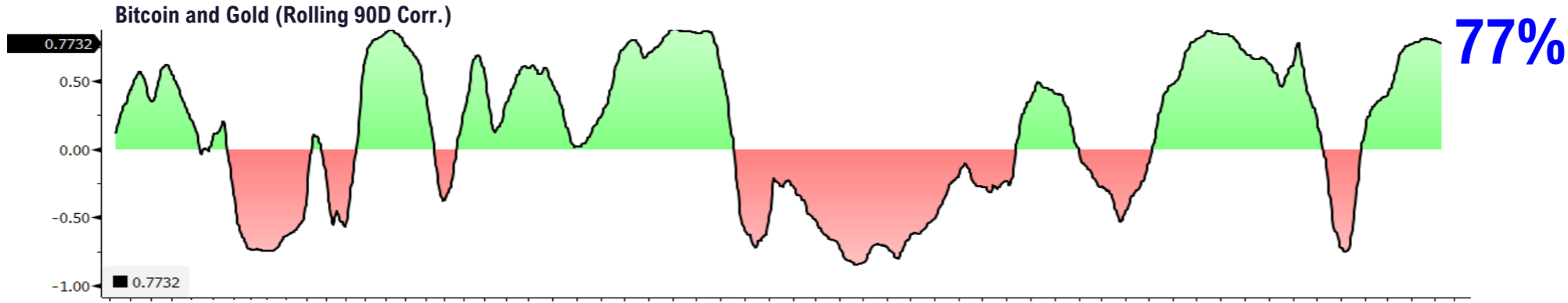
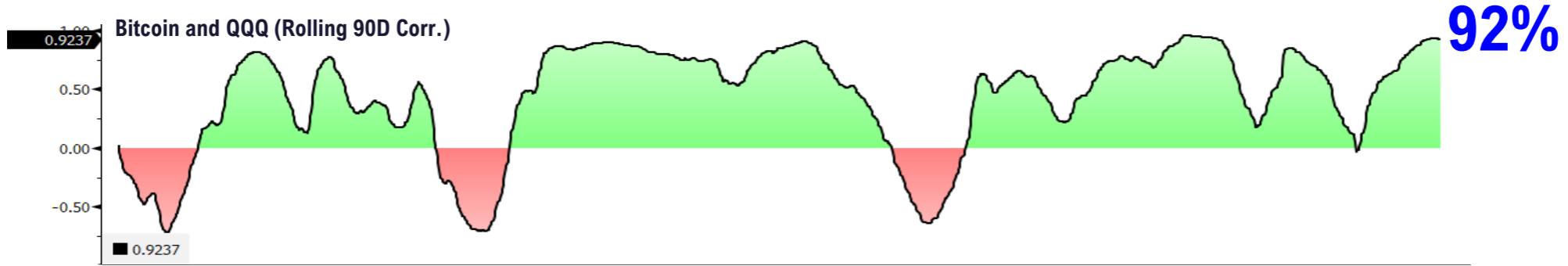


Source: Fundstrat, Bloomberg



# CORRELATION: Bitcoin *positively* correlated to equities

## Rolling 90D Correlation of Bitcoin and QQQ/Gold/UST10Y Yield Last 5 Years



XBTUSD Currency (XBT-USD Cross Rate) BTC and 10Y Rolling 90 Daily 20MAY2018-08MAY2023 Copyright© 2023 Bloomberg Finance L.P. 08-May-2023 21:58:59

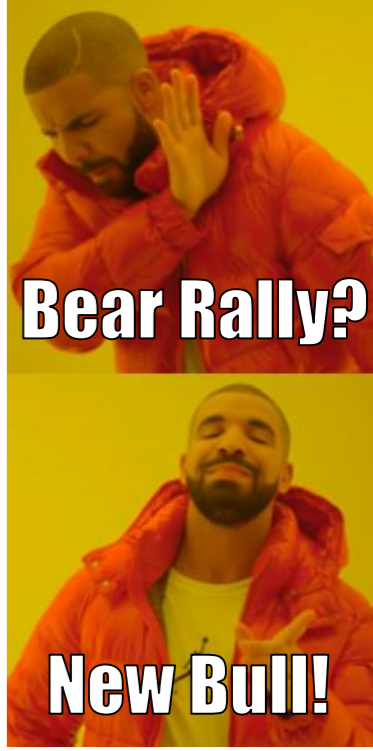
Source: Fundstrat, Bloomberg





# 2023: 133 days since low, +20% gain + 26 weeks >200-week mavg

S&P 500  
Daily



Source: Fundstrat, Bloomberg



# 2023: 6 reasons (others too) Oct 12, 2022 was the probable low

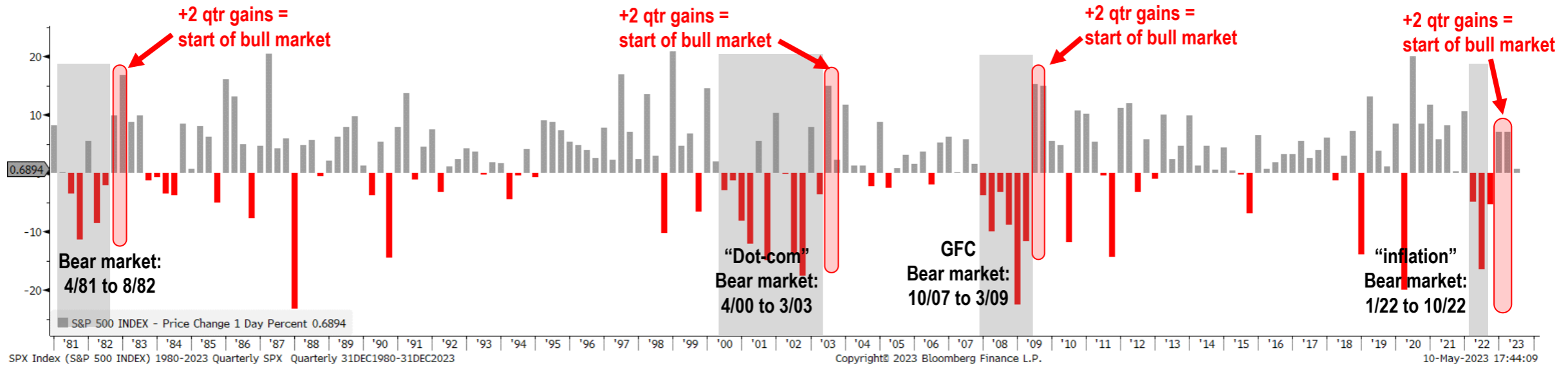
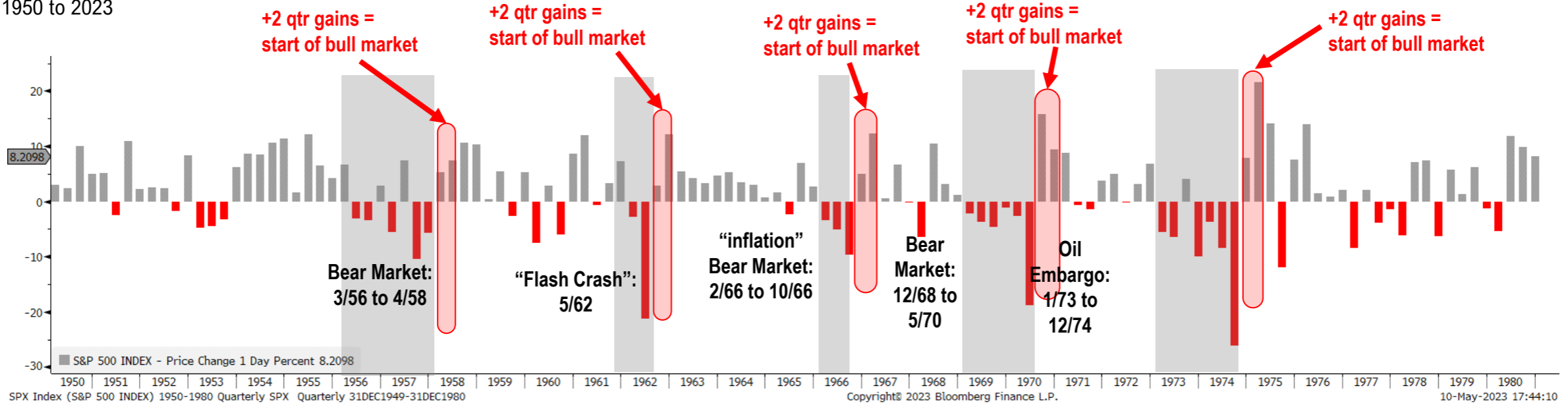
	<u>Metric</u>	<u>Date</u>	<u>Rationale</u>
1.	Inflation peaked	June '22	3 prior inflation bear markets, equities bottomed with CPI peak
2.	High-yield spreads peaked	July 6, 2022	High-yield spread peaks lead equity bottoms. HY OaS has not made a new high, confirming July 6, 2022 was the low
3.	Rule of 1 <sup>st</sup> 5 days	Jan 5, 2023	Since 1950, the 7 precedent instances of negative prior year and 1 <sup>st</sup> 5 days gain >1.4%, 7 of 7 times markets higher
4.	2 consecutive quarters of gains	March 31, 2023	Since 1950, this has never happened in a bear market
5.	>15 weeks above 200-week average	Feb 14, 2023	Since 1950, 12 instances and never a single instance markets made a new low.
6.	AAll %net bulls -26 (52-week avg)	Jan 12, 2023	Only 3 <sup>rd</sup> time since 1987. 1991 and 2009 occurred after low.



# RETURNS: 2 quarters of gains = "new" bull market – Since 1950

## S&P 500 Quarterly Returns

1950 to 2023



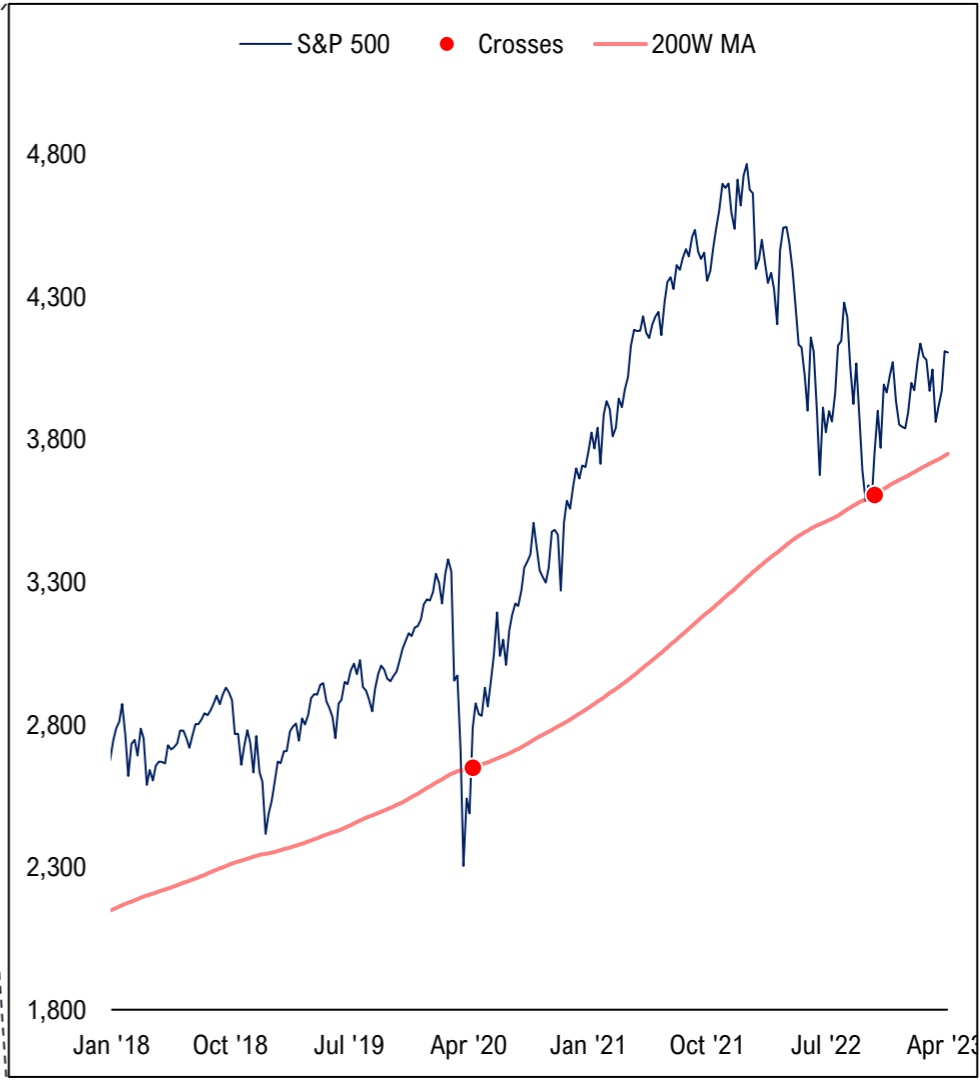
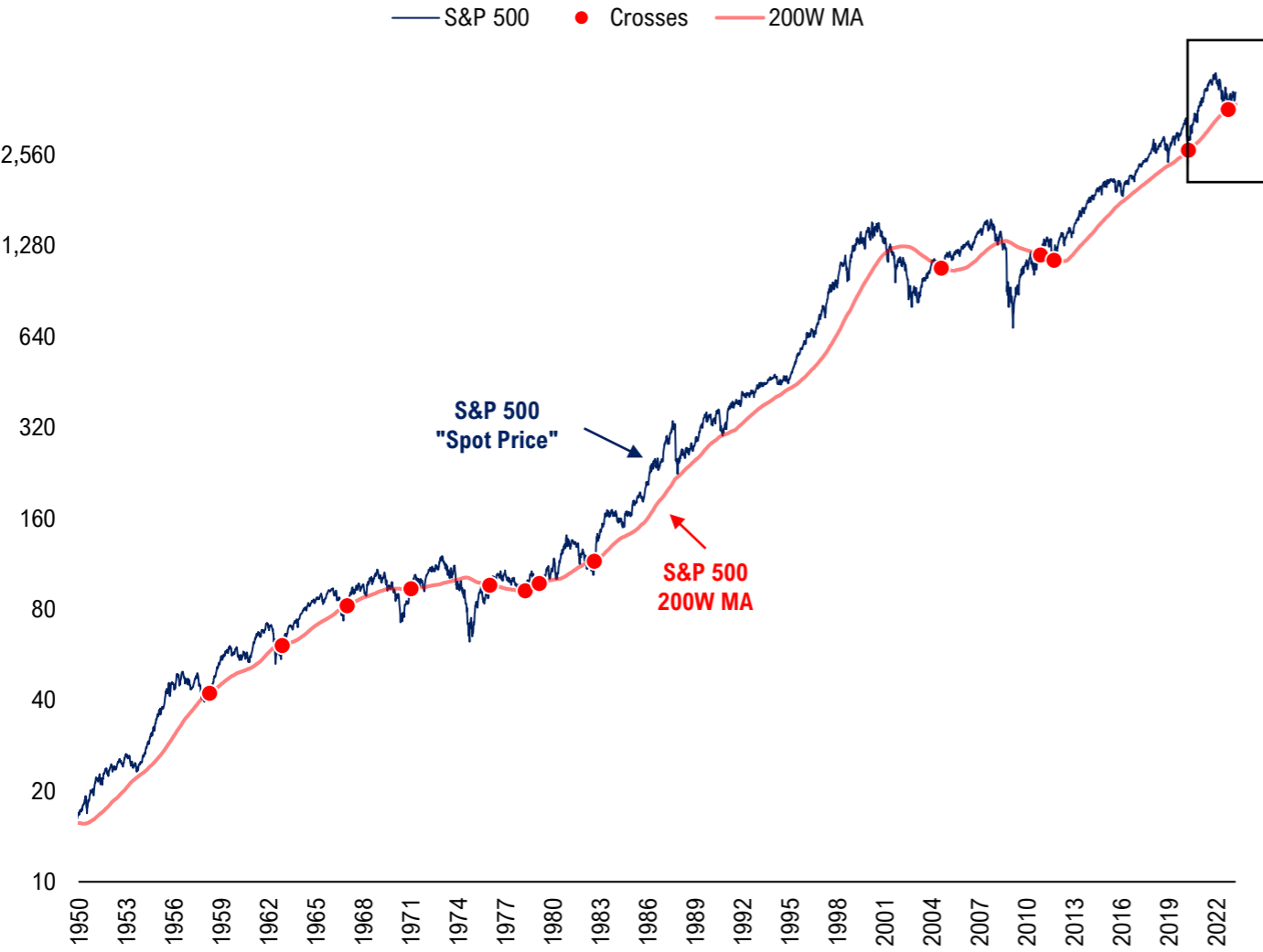
Source: Fundstrat, Bloomberg



# SUPPORT: S&P 500 Remaining Above 200W MA Implies Further Upside

## S&P 500 Spot & 200W MA

12 prior 15-week crosses and current shown. Since 1950

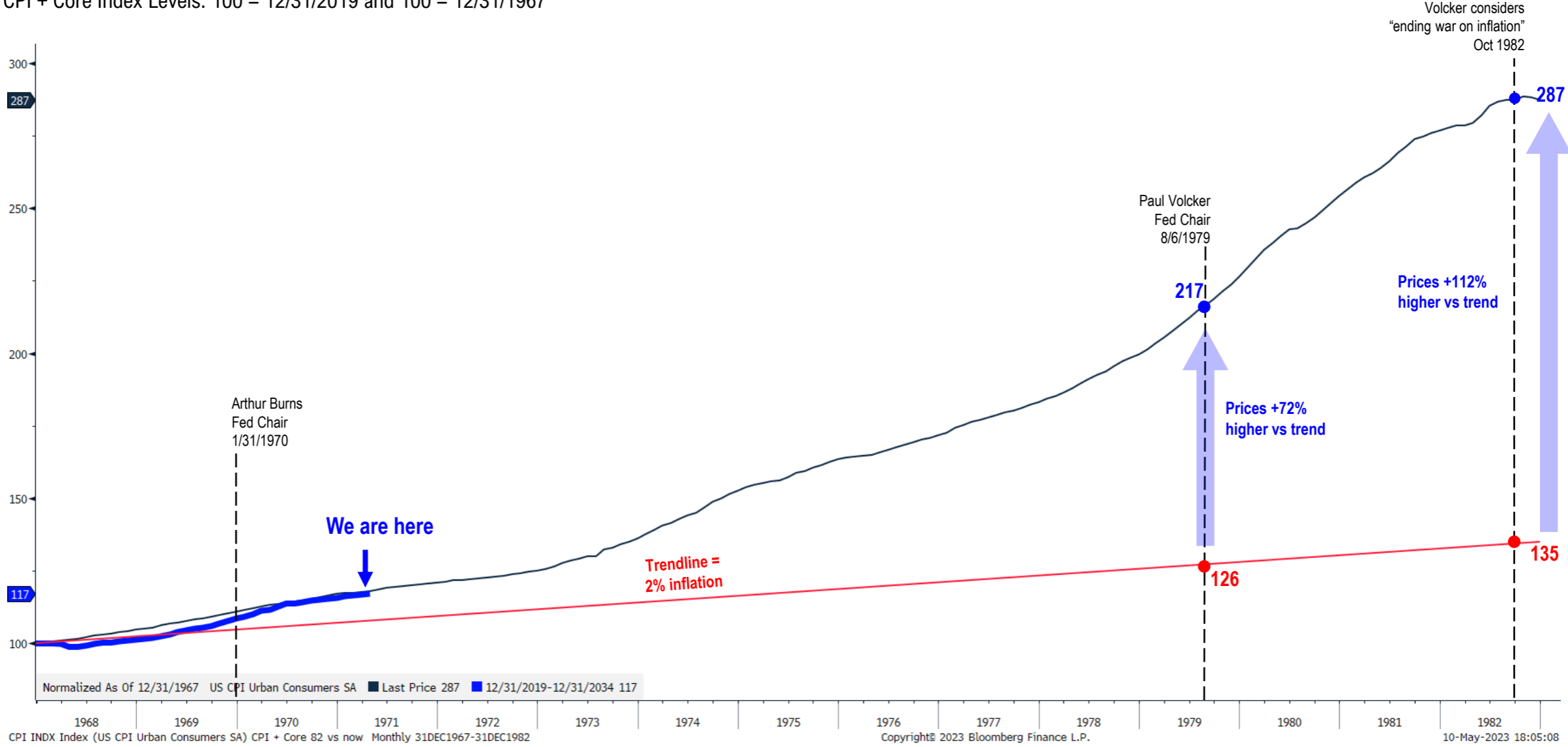


Source: Fundstrat, Bloomberg



# INFLATION: Less “wood to chop” for Powell vs Volcker

Figure: Powell has far less “wood to chop”  
CPI + Core Index Levels. 100 = 12/31/2019 and 100 = 12/31/1967



Source: Fundstrat, Bloomberg, BLS

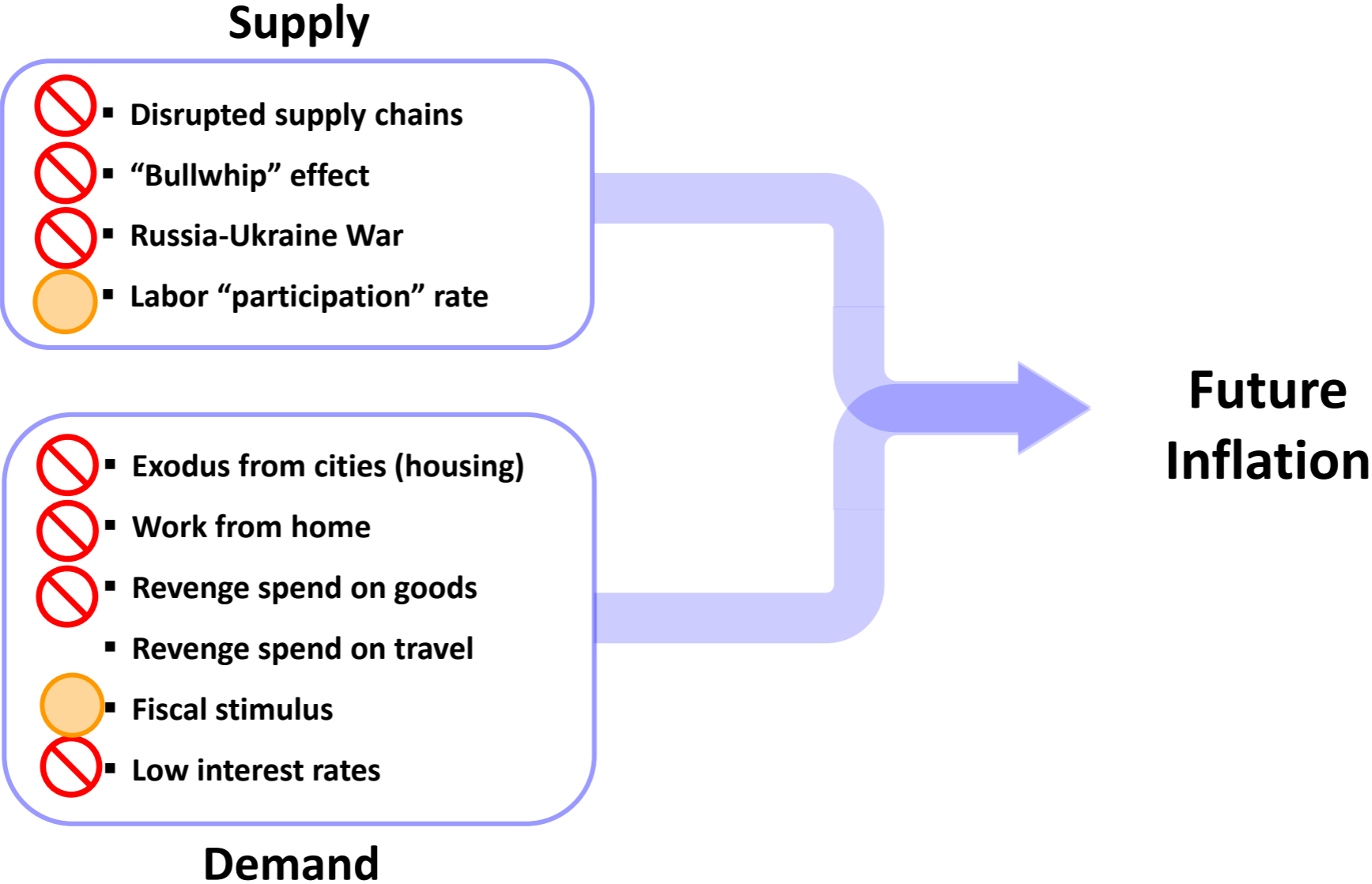


Source: Fundstrat, Internet





# 2023 Inflation Per Fundstrat

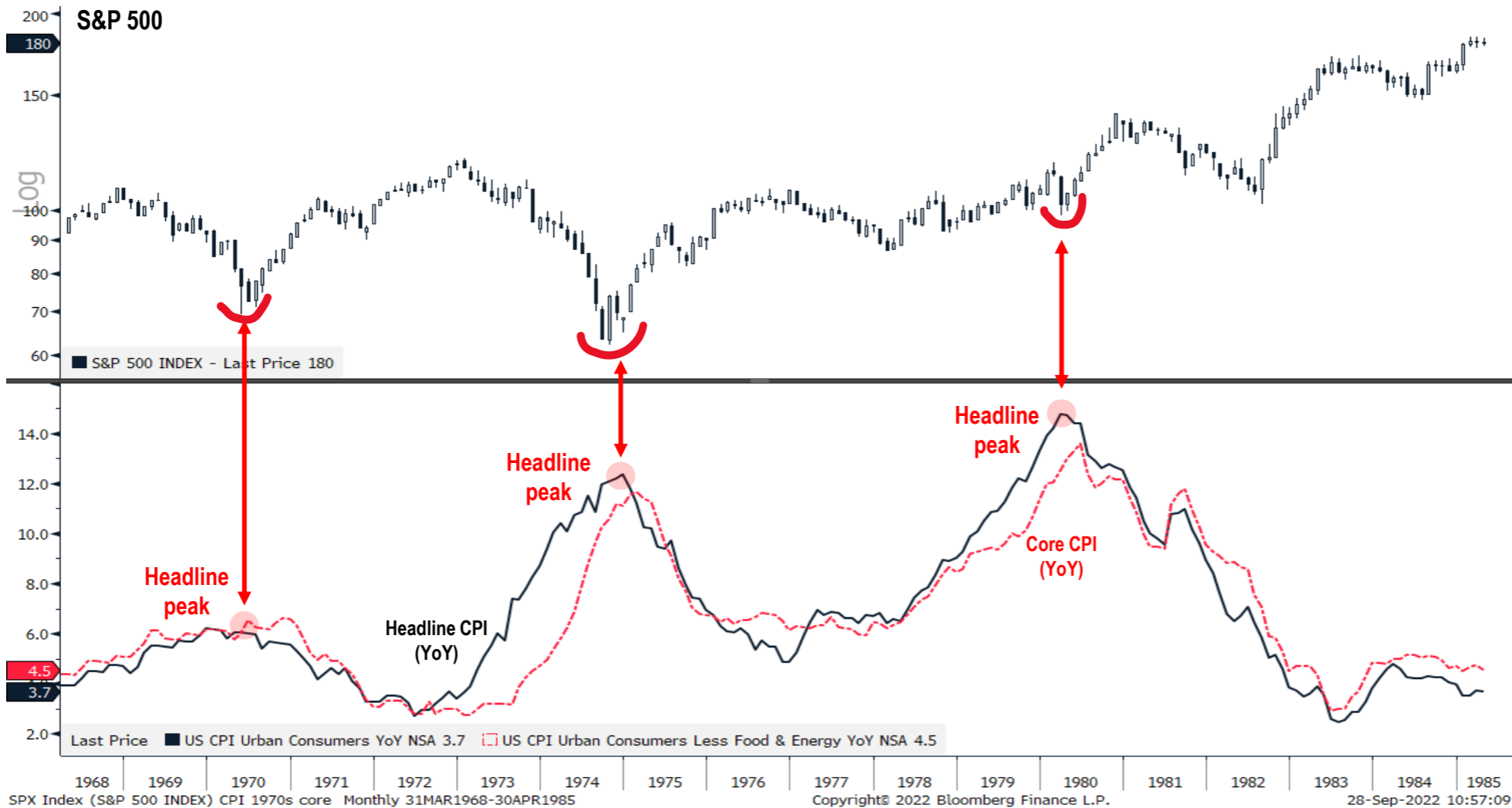


Source: Fundstrat



# 2022 BEAR: Inflation is the war the Fed and economy fighting

Figure: Headline CPI and Core CPI vs. S&P 500  
1968-1985





# FED: "Pause"

ECONOMY | U.S. ECONOMY

# Federal Reserve Raises Rates, Signals Potential Pause

Central-bank officials remove earlier guidance that had pointed to further increases

By [Nick Timiraos](#) [Follow](#)

Updated May 3, 2023 8:16 pm ET



Fed Chair Jerome Powell said that the central bank would raise its benchmark interest rate by a quarter-percentage-point. Photo: Anna Moneymaker/Getty Images



# DON'T WAIT FOR FED: Market bottomed before Volcker shifted Tactics. Entire decline erased in 4 months.

**VOLCKER SUGGESTS FEDERAL RESERVE MAY SHIFT TACTICS**

By Peter T. Kilborn, Special To the New York Times  
Oct. 10, 1982

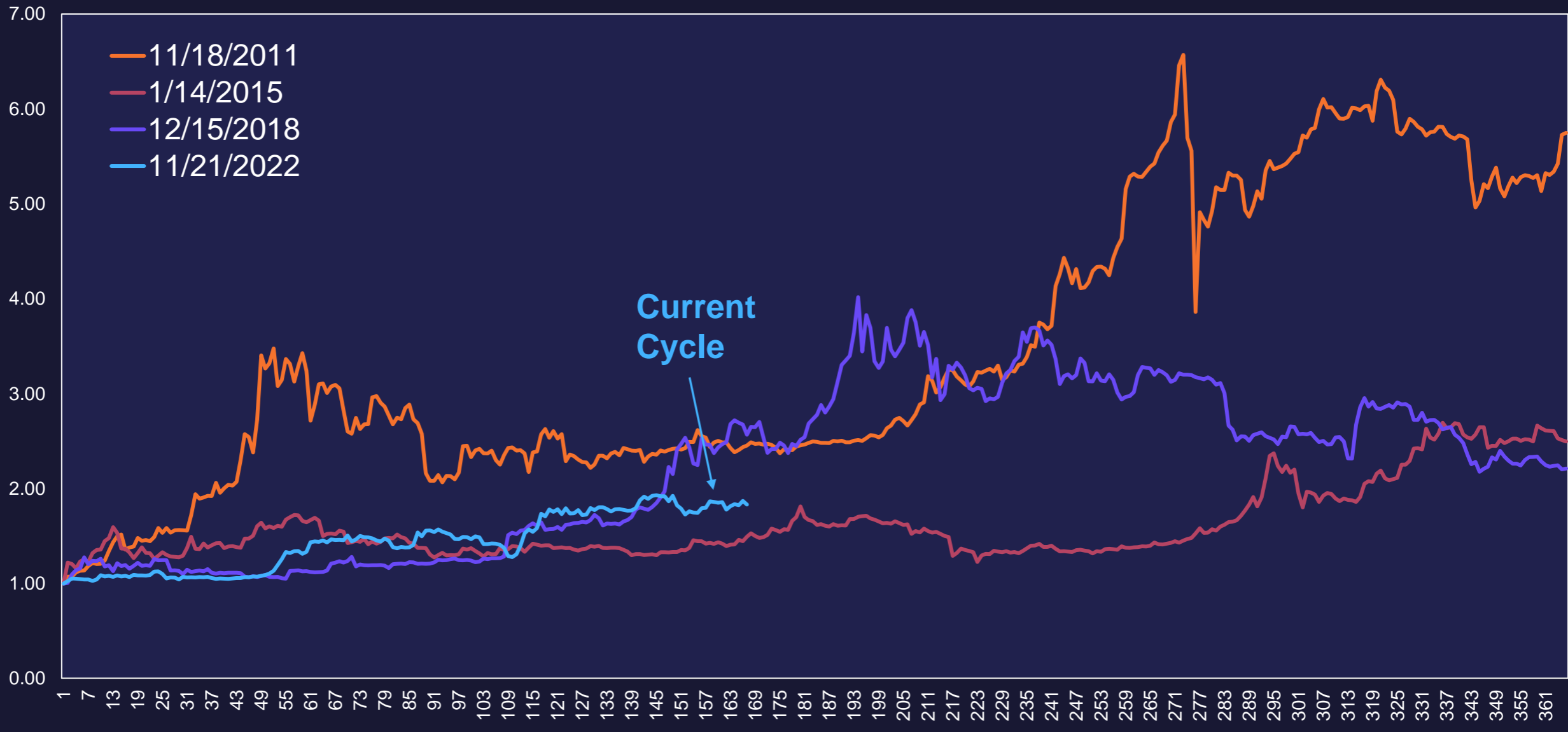


Source: Fundstrat, Bloomberg



# BITCOIN: Bitcoin Acting Similar off Low vs other Cycles

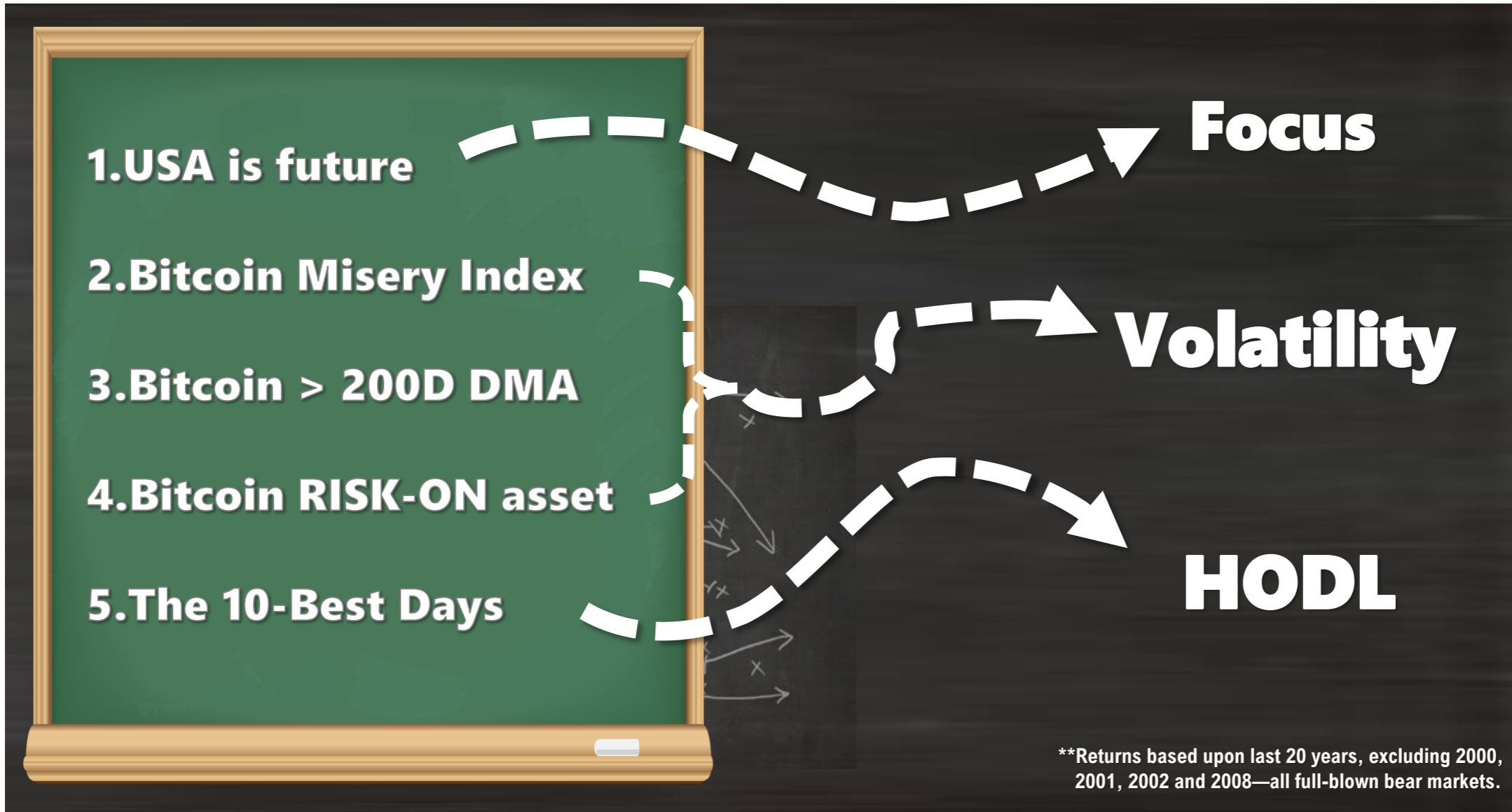
BTC Performance off of Cycle Lows



Source: Fundstrat, Glassnode



## PLAYBOOK: 5 Rules of Bitcoin (first 5 of 10)



Source: Fundstrat, Bloomberg, Factset



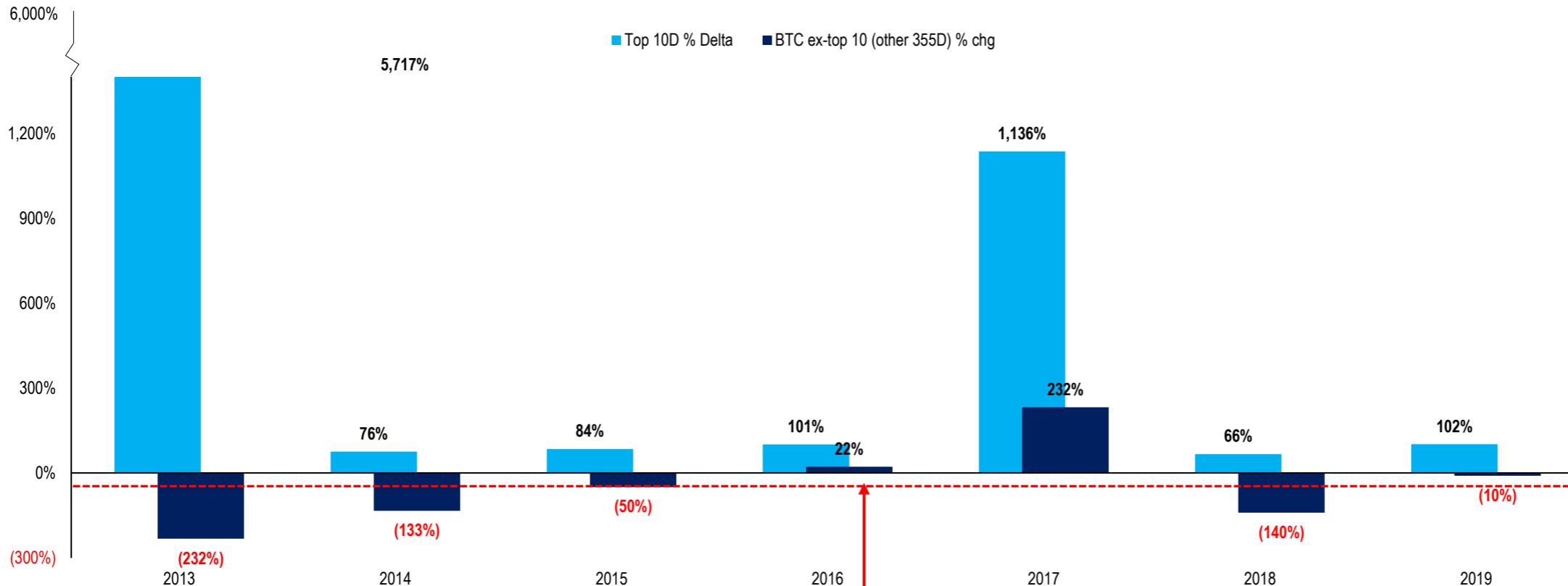


# FUNDSTRAT CRYPTO RULE #5: Rule of 10-best days

The reason “buy and hold” (or HODL) makes sense for BTC is that a handful of days each year account for the bulk of gains for BTC.

- As shown below, BTC was down, on average, every year if we exclude the gains for the top 10 days (based on % change).
- If we looked at the top 10 “point gain” days, BTC would be down even more every year.

Figure: Return of BTC based on top 10 days (% chg. daily) vs rest of year  
Since 2013



Ex-top 10 days, BTC is down 44% annually 2013-2019....

Source: Fundstrat, Bloomberg, CoinMarketCap



# PANDEMIC: Crypto did not fully capitalize on pandemic

Forbes

FORBES > BUSINESS > MANUFACTURING

## Remote Work: The Biggest Legacy Of Covid-19

**Gad Levanon** Former Contributor

*My job is to write about just that: jobs! I cover US labor markets.*

Nov 23, 2020, 05:04pm EST



## INFLATION: Spawning a wave of AI and automation

TechCrunch+ Fundraising



# VCs continue to pour dollars into generative AI

Kyle Wiggers @kyle\_i\_wiggers / 9:00 AM EDT • March 28, 2023

According to a PitchBook report released this month:

- VCs have steadily increased their positions in generative AI, from **\$408 million** in 2018 to \$4.8 billion in 2021 to **\$4.5 billion in 2022**.
- Angel and seed deals have grown, as well, with 107 deals and \$358.3 million invested in 2022 compared with just 41 and \$102.8 million in 2018.



# NFT

a16z crypto

State of Crypto

2023

Trends to Watch: Mainstream Adoption

23

## The world's biggest brands are exploring web3, beginning with NFTs



**Starbucks** starts NFT-based loyalty program.



**Reddit** mints 5 million collectible avatar NFTs.



**Adidas Originals** creates NFT collection *Into the Metaverse*.



**Tiffany & Co.** crafts jewel-encrusted pendants for CryptoPunks NFT owners.



**Nike** makes NFT platform .Swoosh for digital sneakers.



**Porsche** launches NFT collection and virtual experiences centered around the iconic Porsche 911.



**Budweiser** purchases beer.eth ENS name and debuts multiple NFT collections.



**Nickelodeon** bases NFT collectibles on *Rugrats* and *Hey Arnold!* characters.



**Gucci** showcases collectible NFTs in art exhibit called *The Next 100 Years of Gucci* and partners with Yuga Labs' metaverse project.



**DraftKings** opens marketplace focused on mainstream NFT accessibility.



**TIME** introduces NFT initiative TIMEPieces.



**Louis Vuitton** lets players collect NFTs in a self-branded mobile game.

Source: a16z



# Ordinals driving transaction growth on Bitcoin network

Crypto Concepts – Crypto Concepts: Ordinals

FS Insight <inquiry@fsinsight.com>  
To Thomas Lee

Tue 3:45 PM

**fsinsight** powered by fundstrat  
May 9, 2023  
Crypto Concepts

## Crypto Concepts: Ordinals

**THIS MESSAGE IS SENT SOLELY TO MEMBERS OF FS INSIGHT**

### Key Takeaways

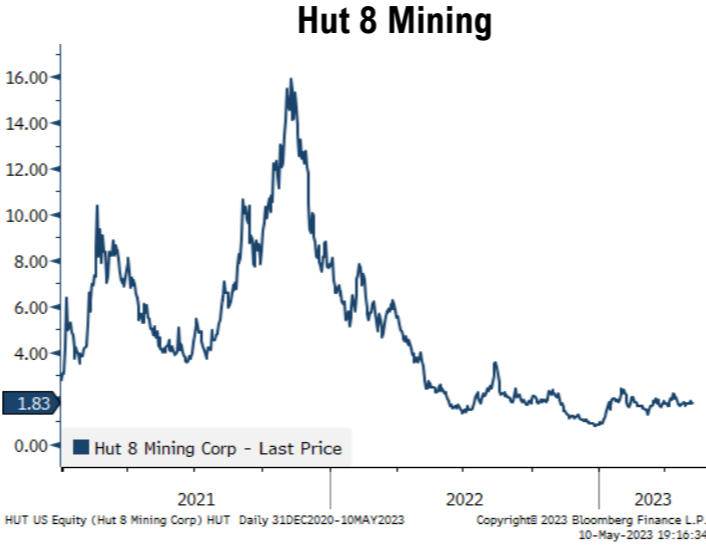
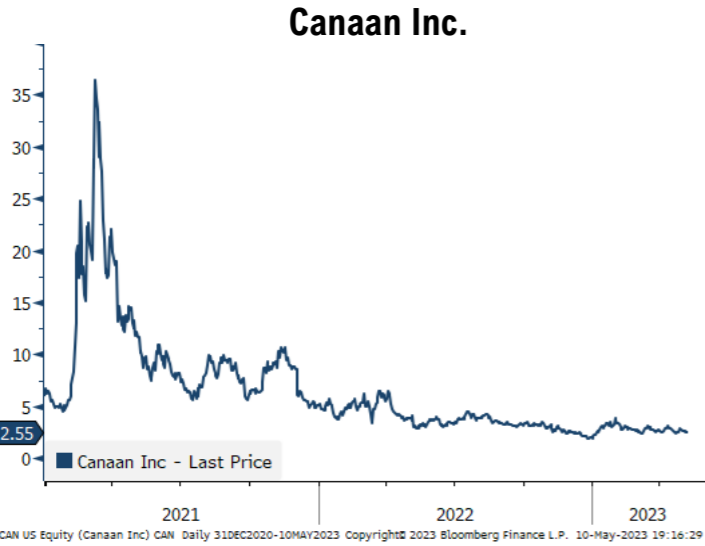
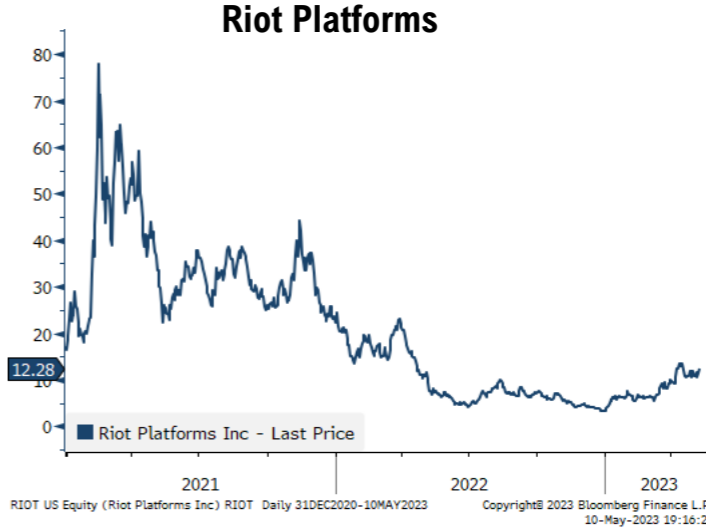
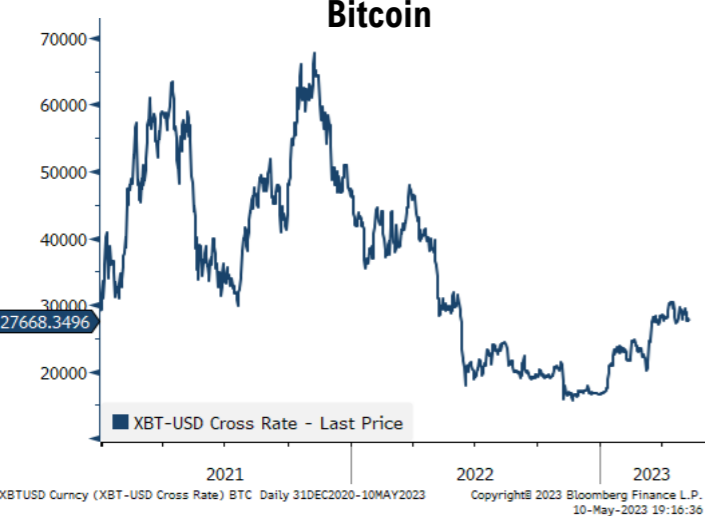
- Ordinals, often referred to as "Bitcoin NFTs," have been rapidly gaining traction on the network, experiencing exponential growth since their inception just five months ago. Ordinals provide a method for attaching or "inscribing" data to individual satoshis (the smallest unit of a Bitcoin, equal to 1/100,000,000) on the Bitcoin blockchain.
- The creation of Ordinals was made possible by the SegWit and Taproot Bitcoin upgrades. While these upgrades facilitated the emergence of Ordinals, they were an unintended consequence



# Miners: Ordinals spurring growth in mining revenues

Macro Research

### Price performance of Bitcoin and Bitcoin Miners Since 2021



Source: Fundstrat, Bloomberg



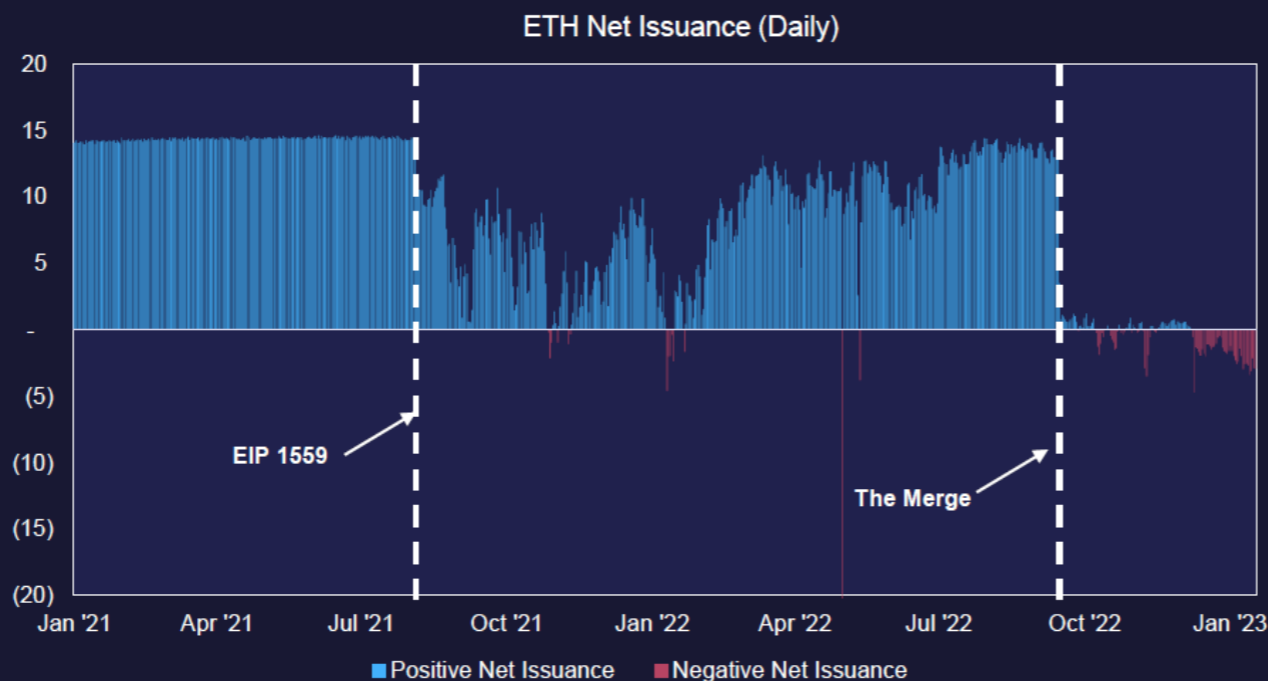


# Diminished energy intensity: The Merge to PoS

fundstrat

## Silver Linings: The Merge

- In what was undoubtedly one of the greatest instances of long-term collaboration and a celebration of human ingenuity, the Ethereum network finally converted from Proof-of-Work to Proof-of-Stake in September.
- Ethereum's inflation rate went from 4% to 1% overnight and was deflationary on its first day as a PoS network.
- The new supply dynamics are likely to serve as a tailwind for the asset over the coming years. More importantly, the completion of the Merge allows the network to progress on its development roadmap towards scaling and ultimately, ossification.



Source: Glassnode, Fundstrat

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# Diminished energy intensity: The Merge to PoS

## Ethereum now consumes 0.001% of the energy that YouTube consumes annually

Ethereum switched to energy-saving Proof of Stake (PoS) from energy-intensive Proof of Work (PoW)\*

### Estimated energy consumption

	Annualized energy consumption (TWh)	Comparison to PoS Ethereum
<b>YouTube</b>	<b>244</b>	<b>94,000x</b>
Gold mining	130 - 240	50,000 - 92,000x
Global data centers	200	78,000x
Bitcoin	100 - 130	38,000 - 50,000x
PoW Ethereum*	78	30,000x
Gaming in USA	34	13,000x
PayPal	0.26	100x
<b>PoS Ethereum*</b>	<b>0.0026</b>	<b>1x</b>

Height comparison for scale



**PoS Ethereum**

Half a penny  
0.95 cm  
(0.0026 TWh)

Note: Ranges represent the lower and upper bounds from different sources. Estimates can vary dramatically. For the full list of sources, visit <https://ethereum.org/en/energy-consumption/>.

Source: <https://ethereum.org/en/energy-consumption/>.

\*PoW and PoS are consensus mechanisms for securing blockchains.

Source: a16z

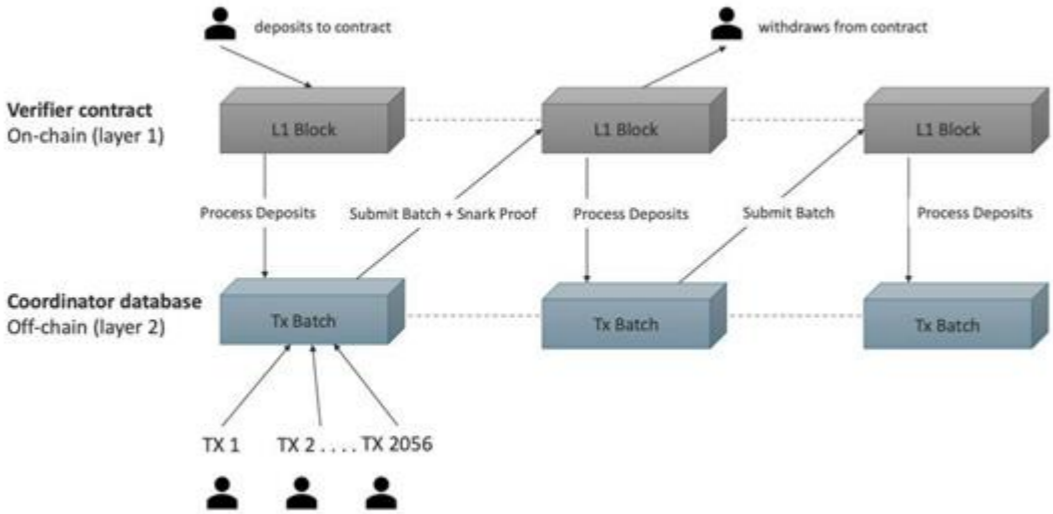


# Zero Knowledge Proofs

**VERADI VERD/CT**

## ZK vs Optimistic

VeradiVeradict - Issue #247  
PAUL VERADITTAKIT  
MAY 4





# Applied “money”



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Finance
Policy
Technology
Web3

---

0.86%
**Binance Coin** ▼ \$315.03 -1.01%
**XRP** ▼ \$0.42502598 -2.79%
**Cardano** ▼ \$0.36496600 -1.28%
**Dogecoin** ▼ \$0.08554587 -1.28%

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## Finance

### Investors Flock to Tokenized Diamond as Crypto Banking Crisis Props Hard Assets

Sales of tokenized diamonds surged 300% last weekend, when three banks collapsed and investors scrambled to sell their USDC stablecoins.

By **Aoyon Ashraf** ⌚ Mar 16, 2023 at 12:55 p.m. EDT Updated May 9, 2023 at 12:10 a.m. EDT



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