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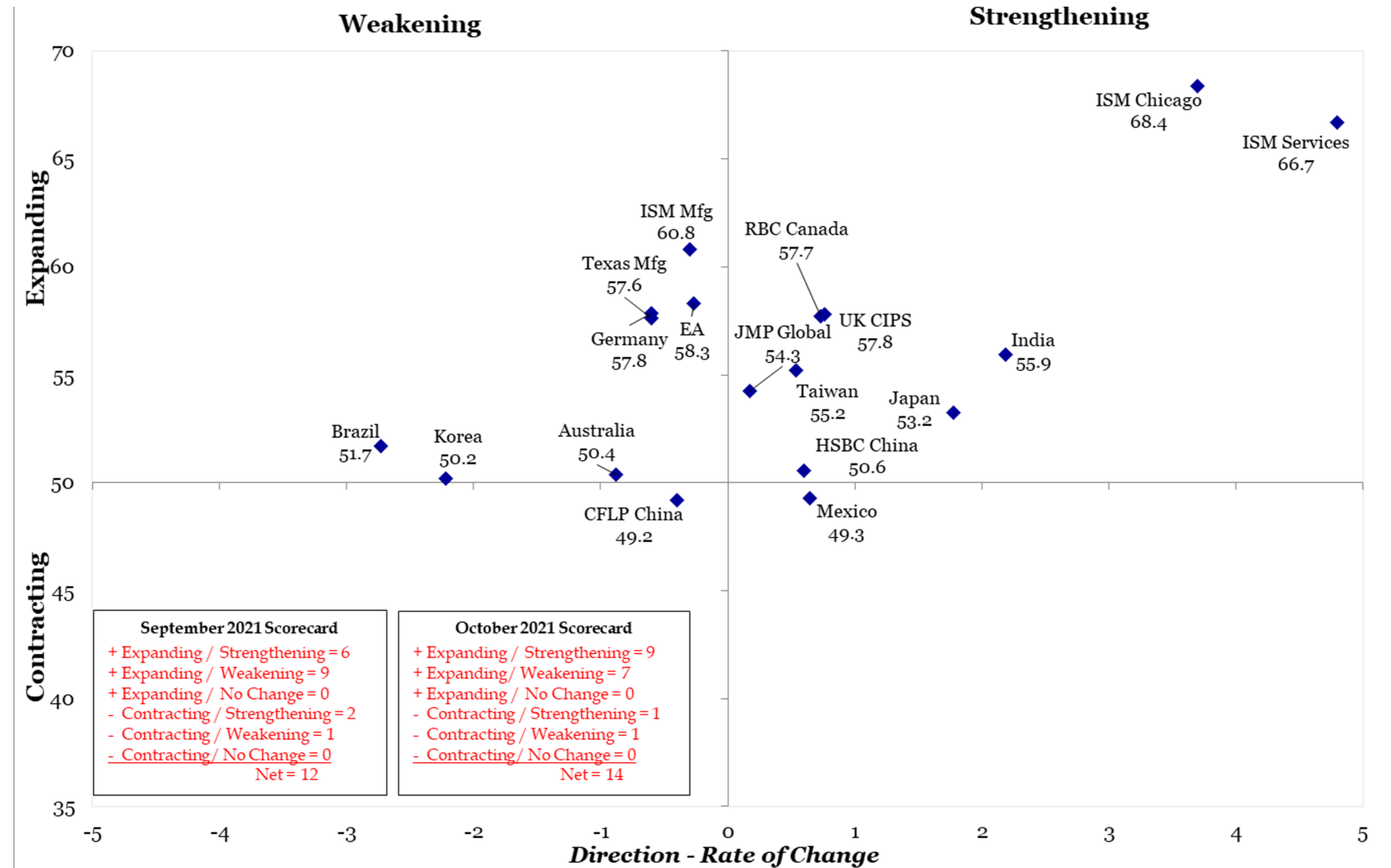
# Economic & Market Outlook: It All Depends On Your Time Horizon

**Linda A. Duessel, CFA®, CPA, CFP®**  
Senior Equity Strategist  
Senior Vice President

December 2021

# Economies Recovering All Around The World

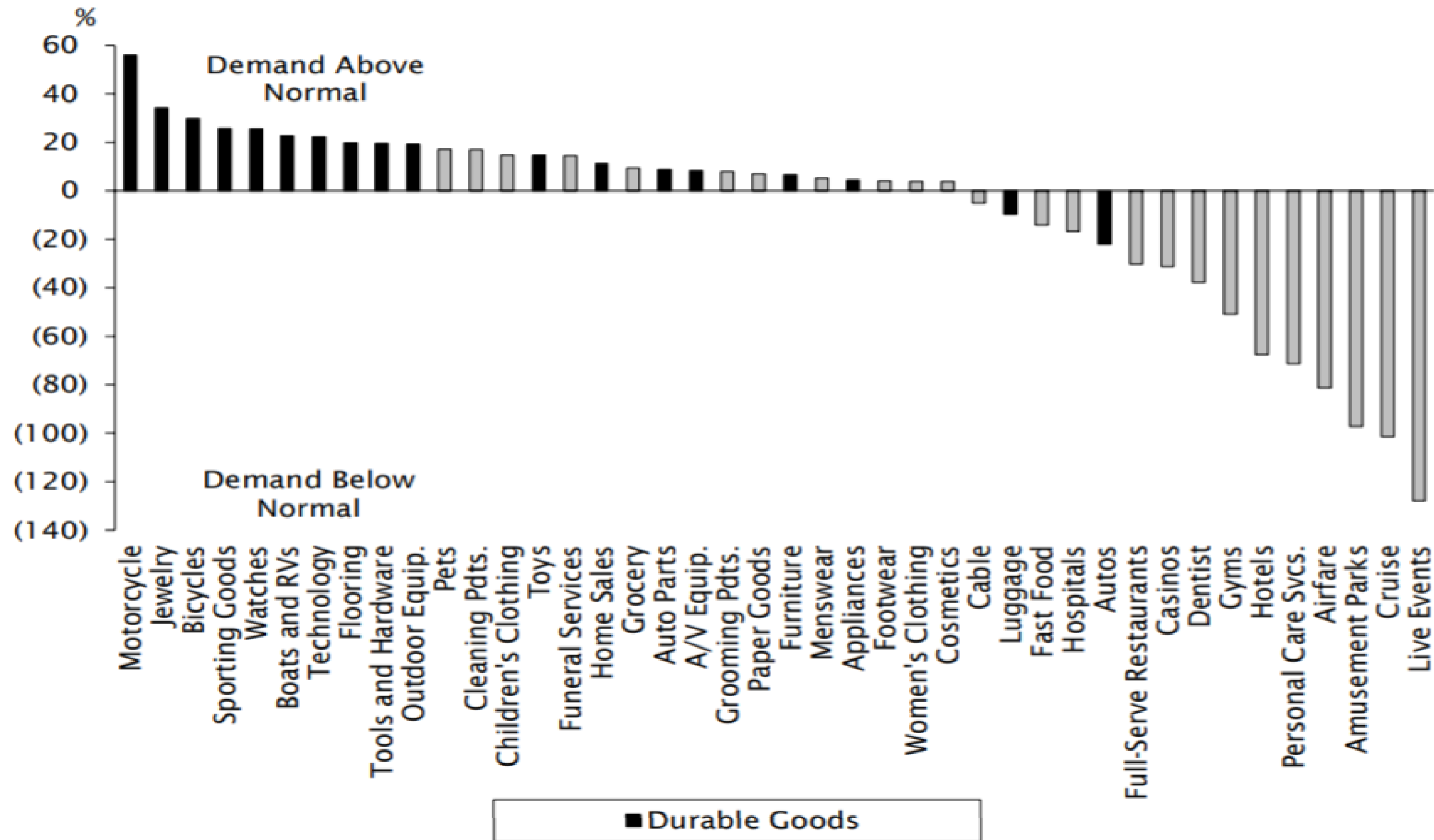
Global Economy Scorecard as of October 2021



Source: Strategas Research Partners. November 23, 2021

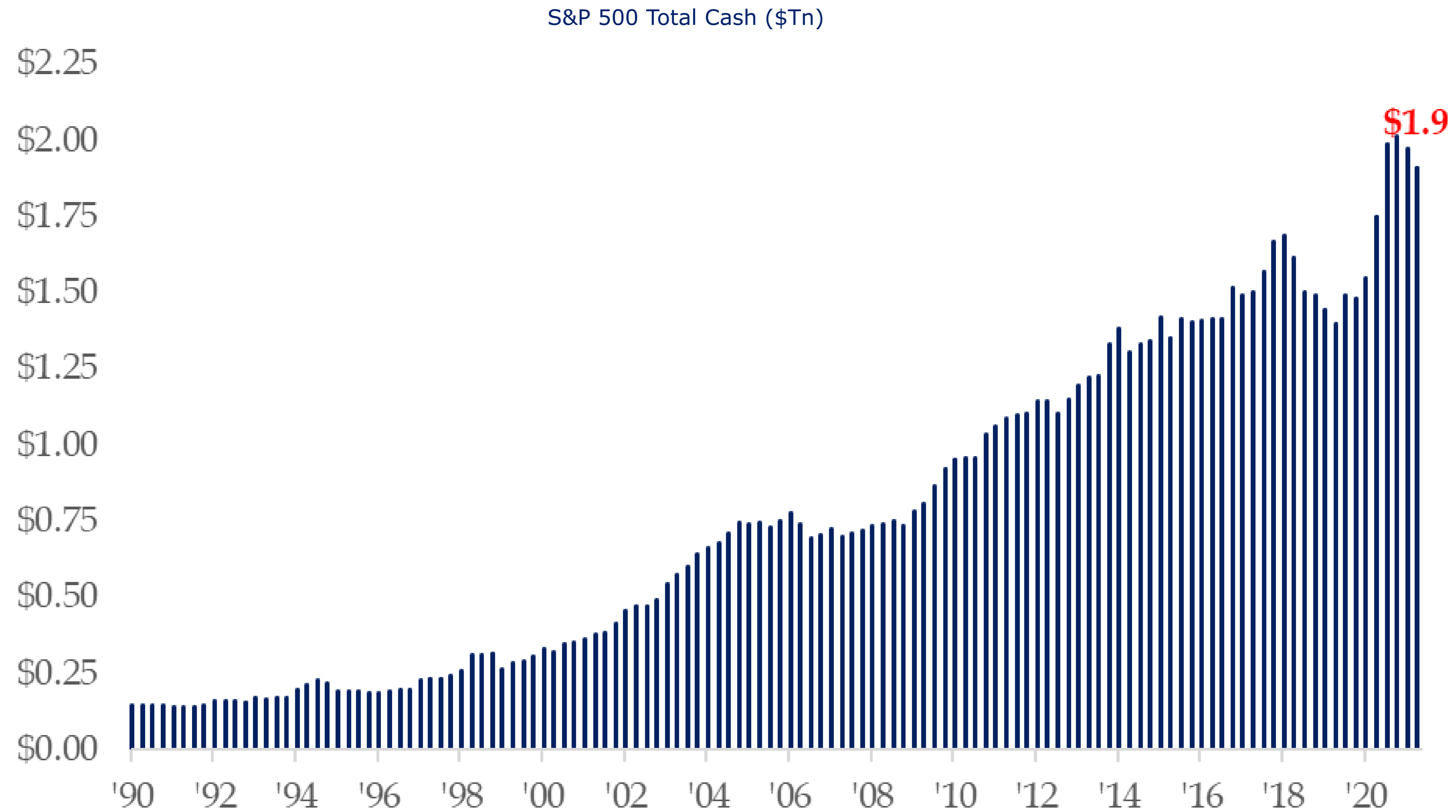
# Lots of Pent-Up Demand in Services

Real Demand Relative to Normal\* Cumulative Change in Quantities Consumed from Pre-Pandemic Levels, Measured as a Share of the Category Baseline  
March 2020 Through September 2021



Source: Bureau of Economic Analysis, Empirical Research Partners Analysis. November 9, 2021  
\*Normal based on 2019 spending/sales by category grown two years using historical average growth rates.

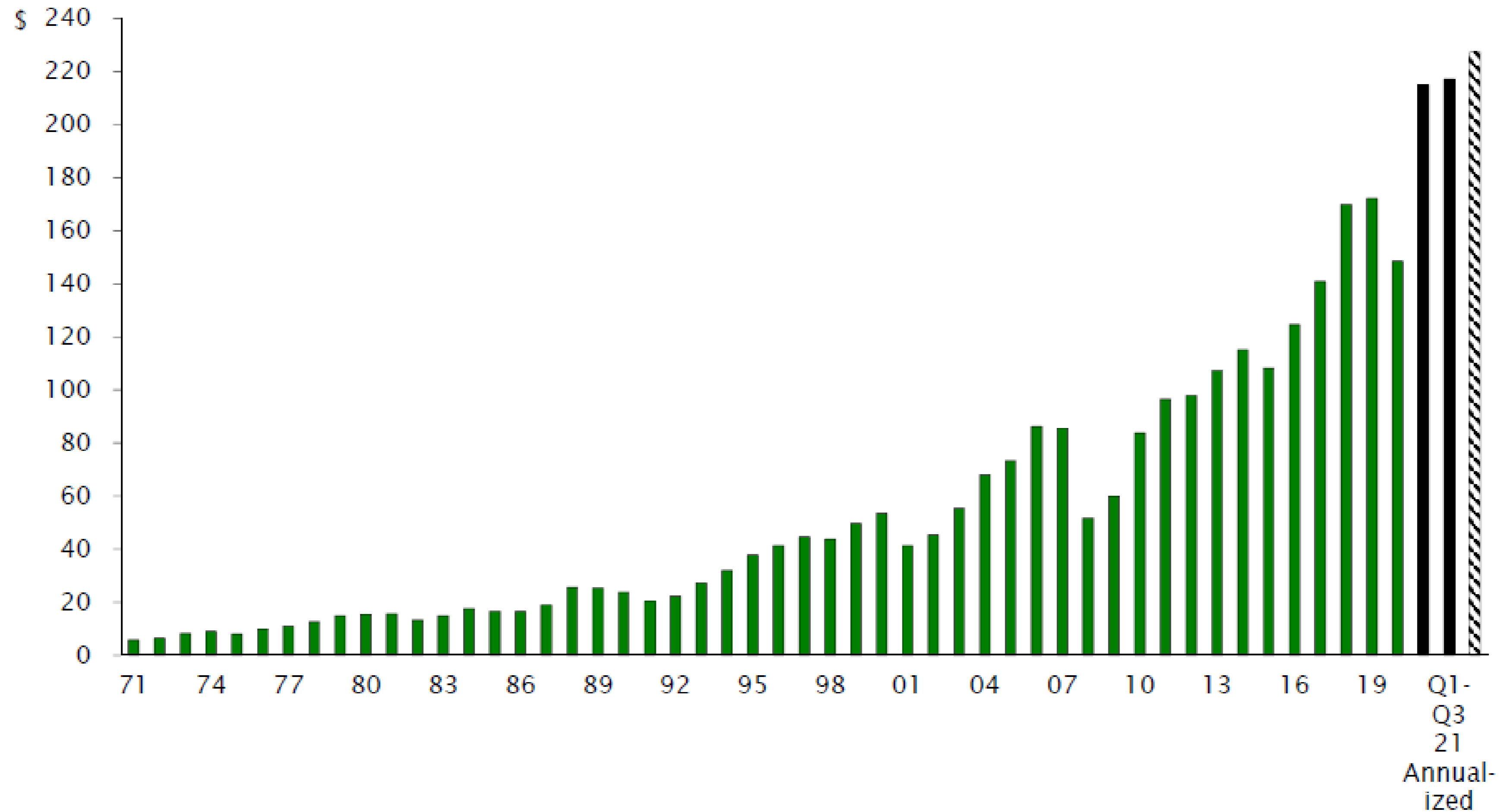
# Businesses Are Flush With Cash



Source: Strategas Research. September 27, 2021

# Earnings Have Vastly Exceeded Expectations

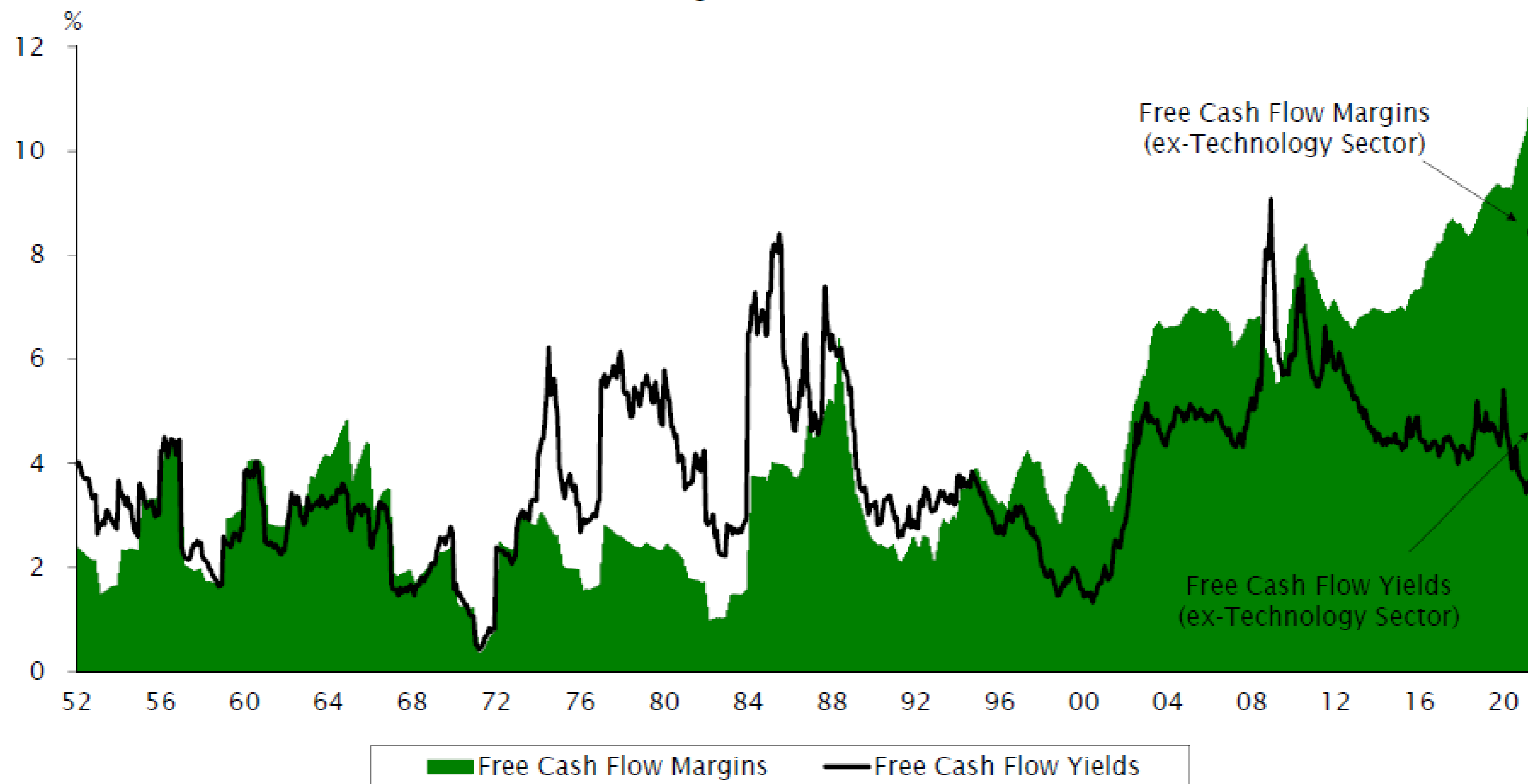
The S&P 500 Earnings Per Share  
1971 Through 2022E



Source: Empirical Research Partners. November 22, 2021

# US Corporations Are Superbly Profitable

Large-Capitalization Stocks  
Free Cash Flow Margins and Yields\*  
1952 Through Mid-November 2021

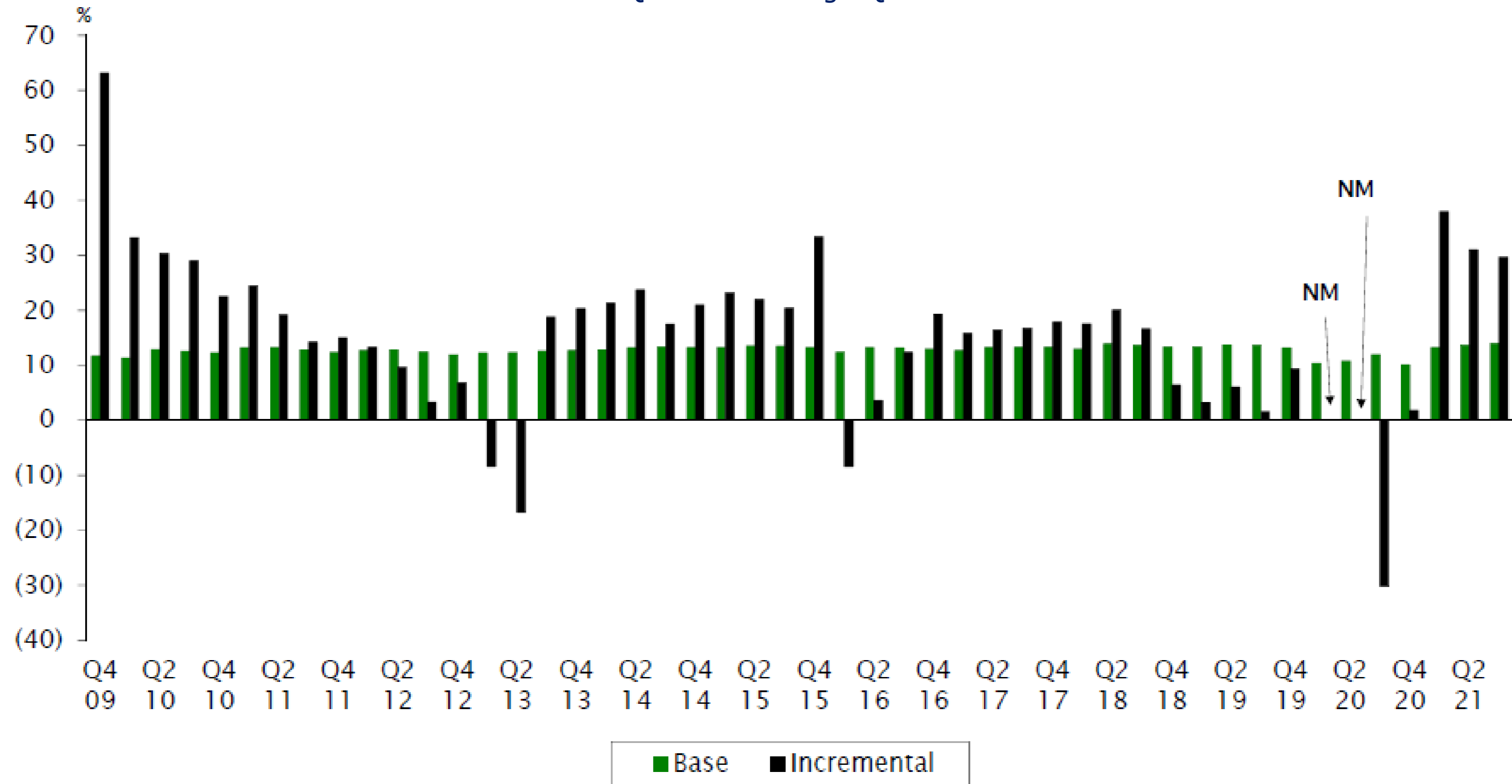


Source: Empirical Research Partners. November 22, 2021

\*1Free cash flow margins are based on aggregated trailing four-quarter data, smoothed on a trailing three-month basis, and the yields are cap-weighted.

# Post Pandemic, The Top Line Created Strong Operating Leverage

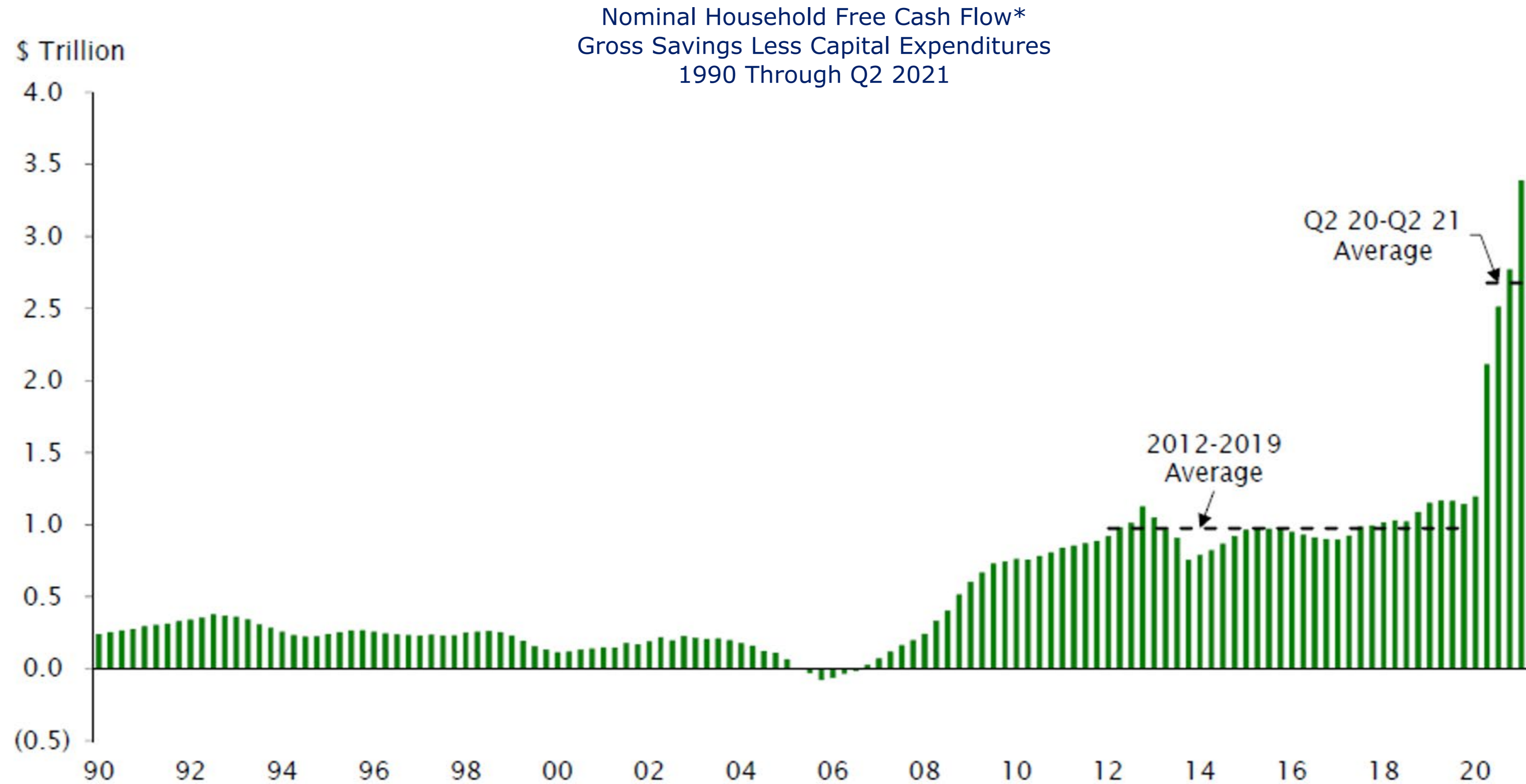
The Core of the S&P 500\*  
 Base and Incremental Pre-Tax Margins  
 Q4 2009 Through Q3 2021E



Source: Empirical Research Partners. November 22, 2021  
 \*The core excludes financials, REITs, Utilities and energy  
 NM=Not Meaningful



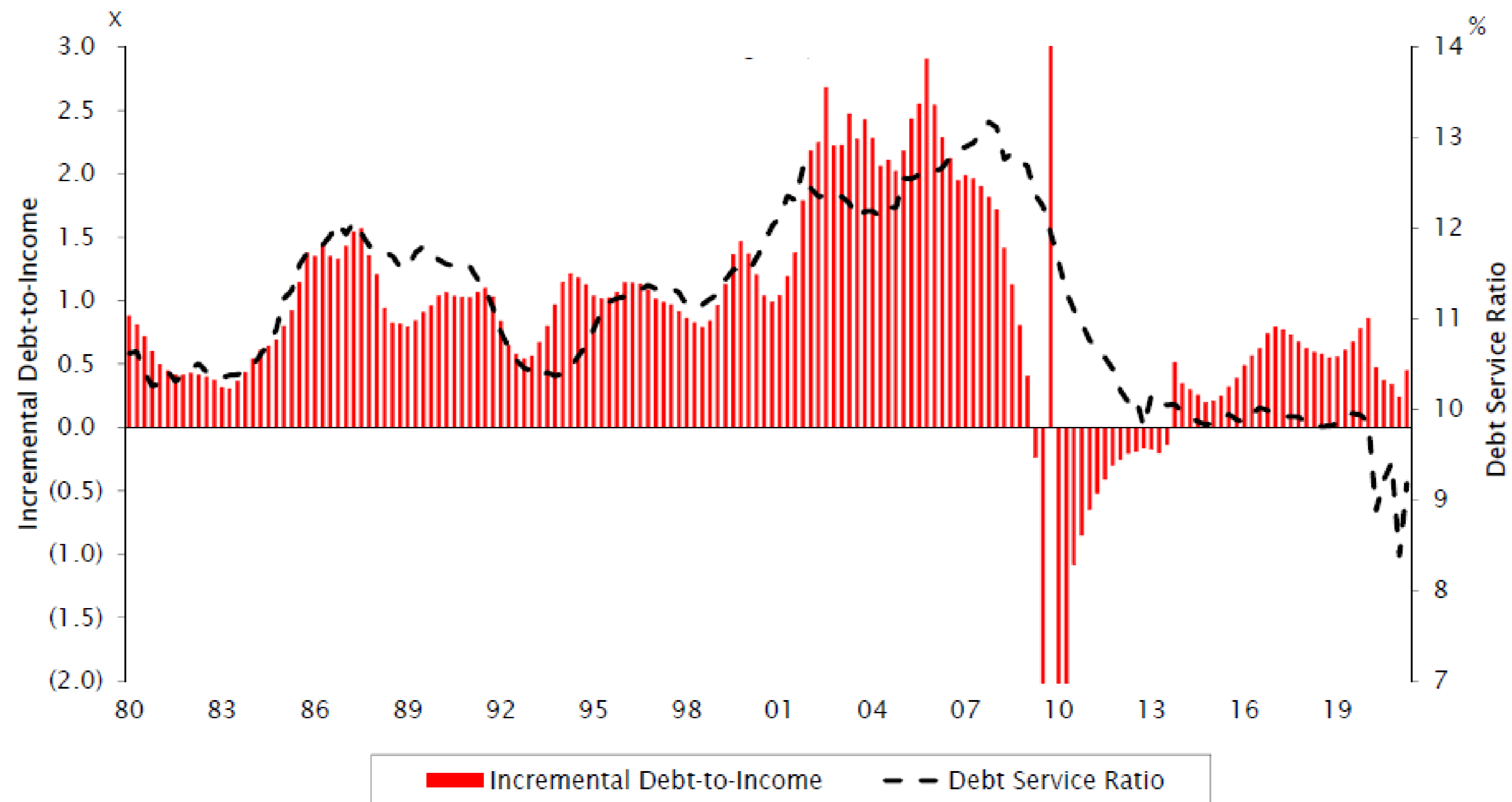
# Household Free Cash Flow is Nearly \$2 Trillion Above Pre-Pandemic Levels



Source: Empirical Research Partners, November 22, 2021  
\*Capital expenditures on housing and durable goods. Data smoothed on a trailing four-quarter basis

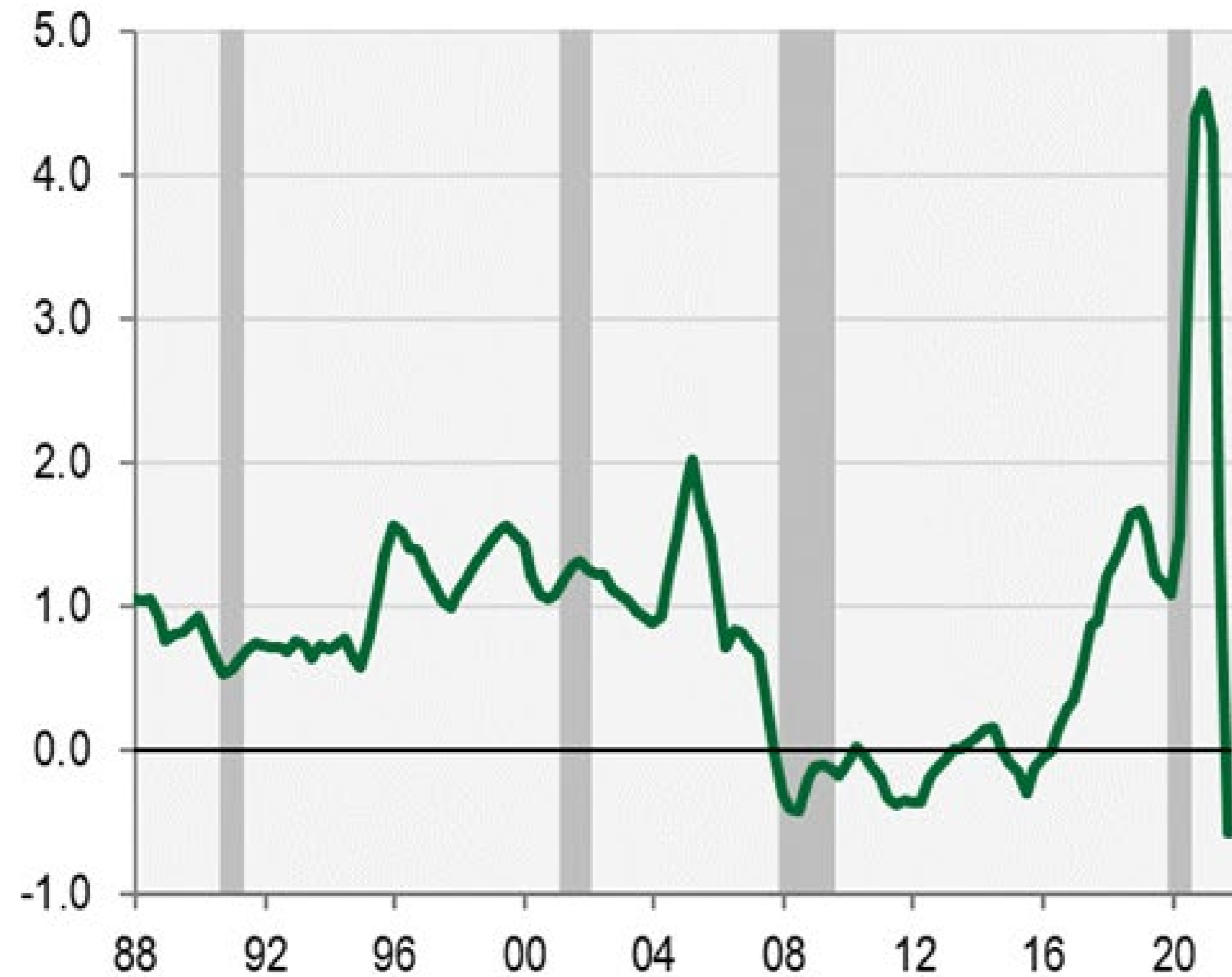
# Household Balance Sheets Have Been De-levered, Providing Additional Borrowing Power

Household Balance Sheets  
Incremental Debt-to-Income  
and the Debt Service Ratio  
1980 Through Q2 2021



# Housing Pent-Up Demand

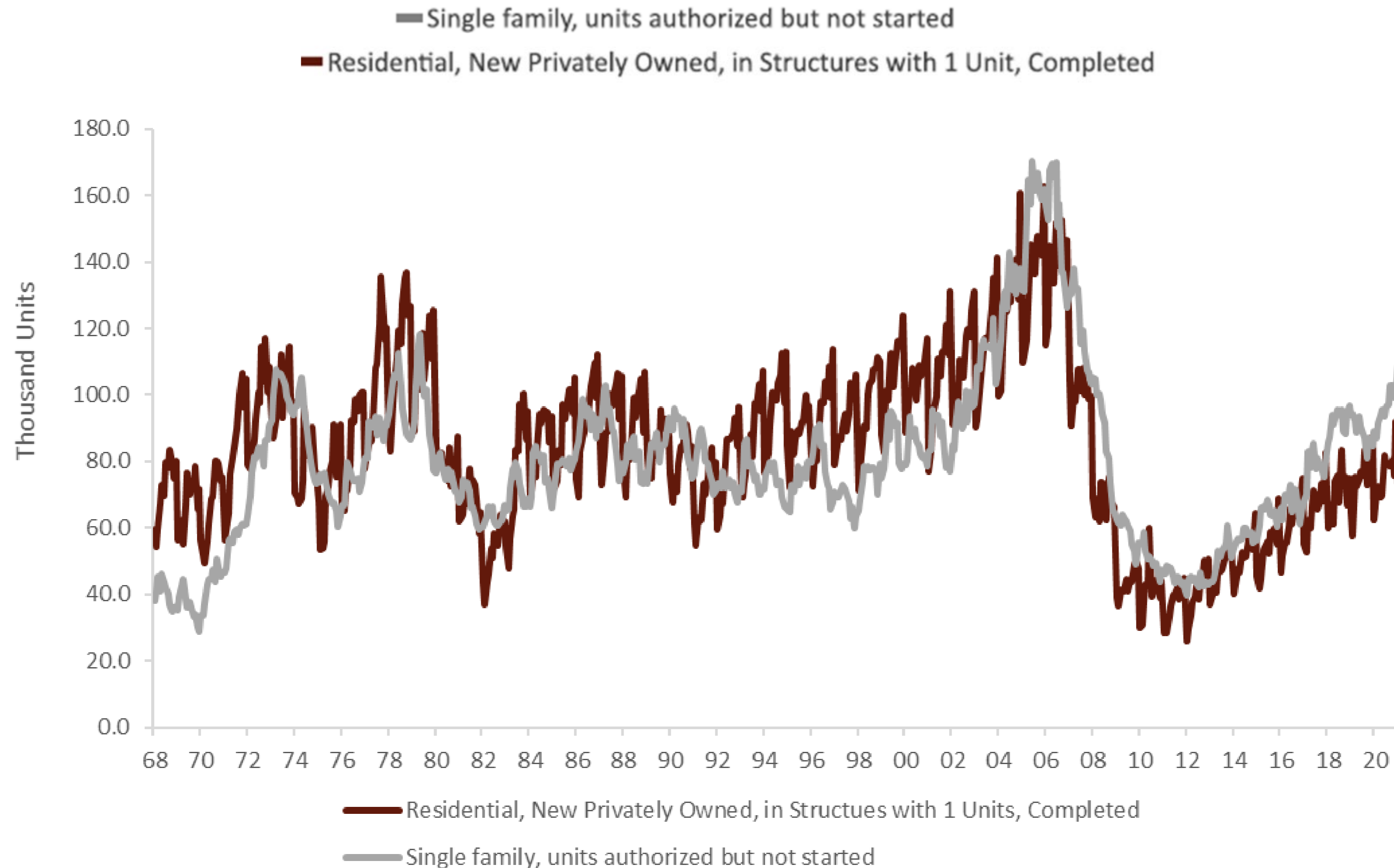
US Household Formations: Owners  
4 Qtr. Avg. 2021:3Q: -0.6 Million



US New & Existing House Inventories  
3 Mo. Avg: October 1.6

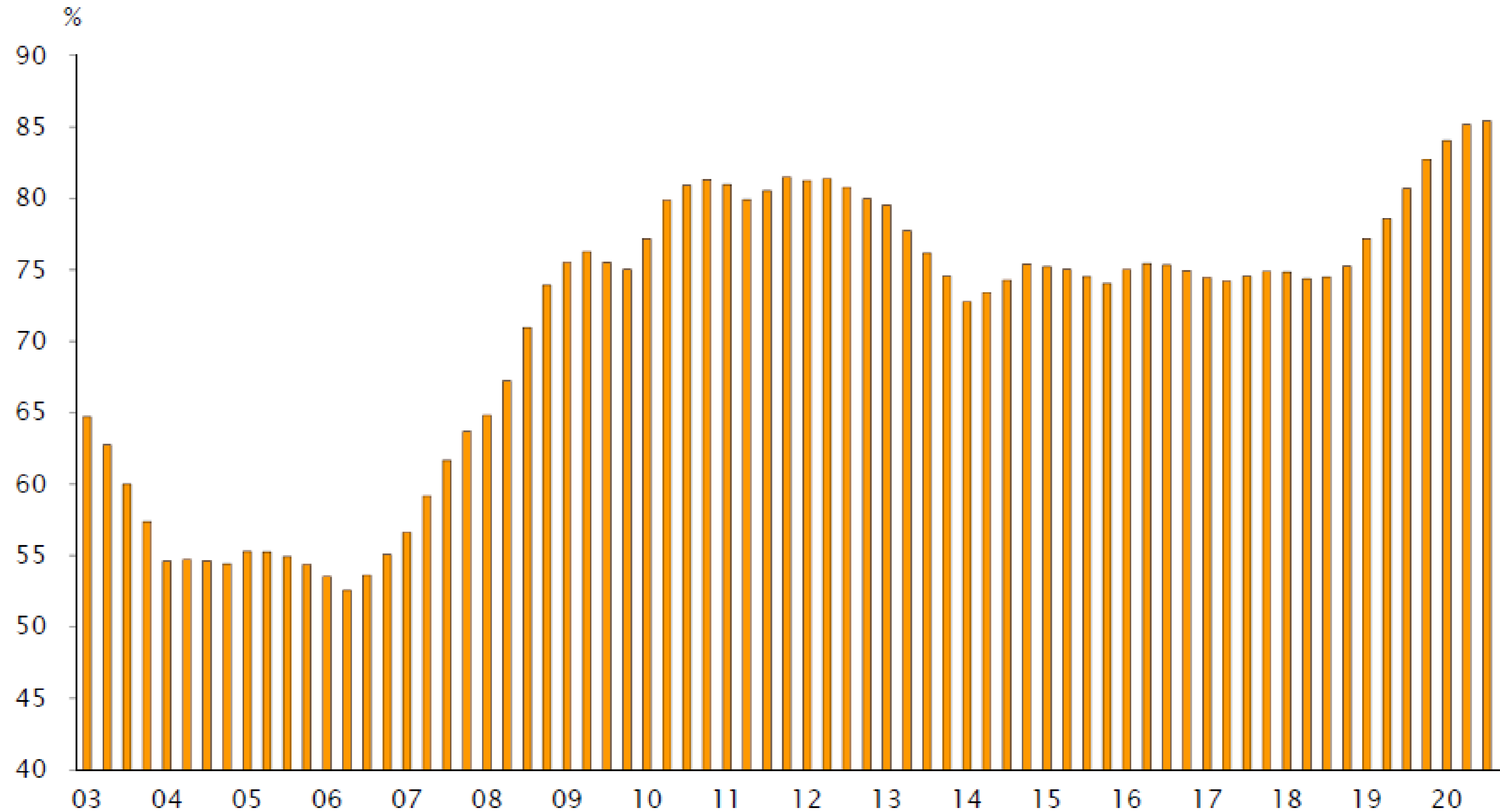


# There is A Lot of Housing Activity in the Pipeline



# Mortgage Lending Standards Have Been Strict

Mortgage Lending Share of Originations Made to Credit Scores of 720 or Higher  
2003 Through Q3 2021



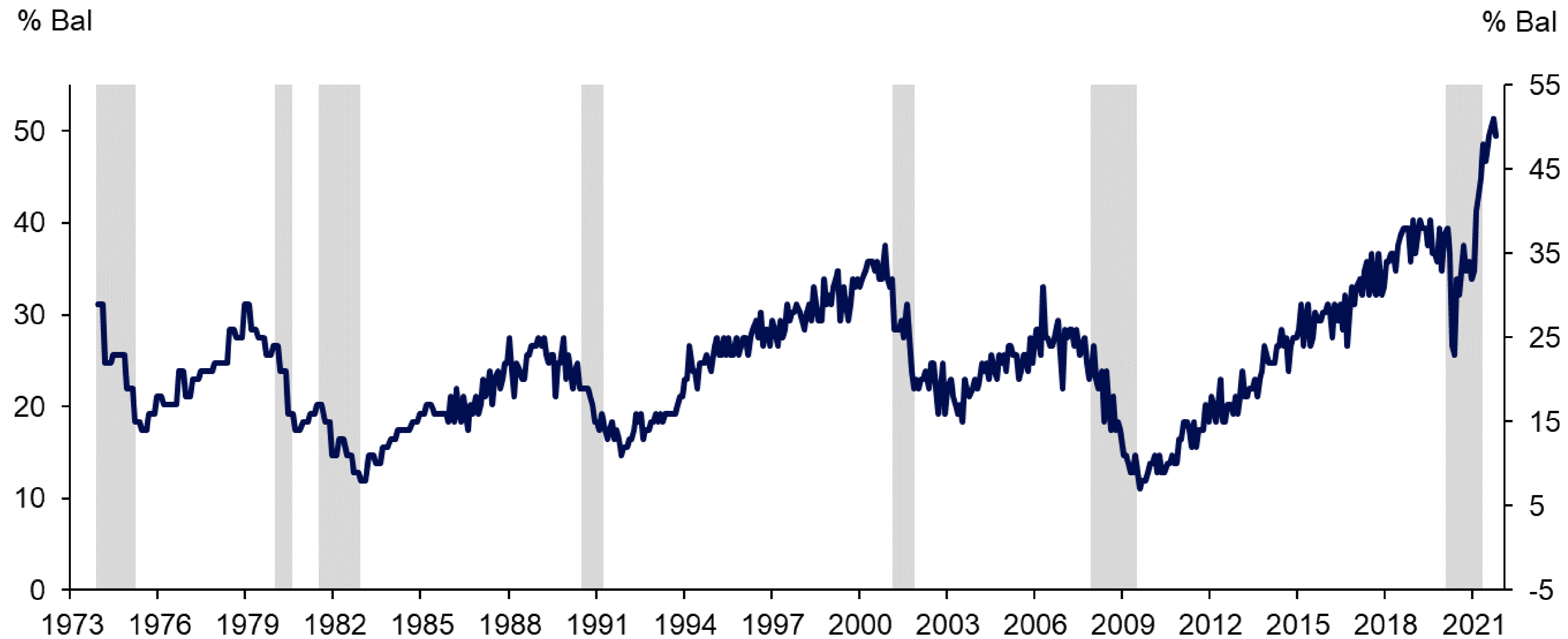
# Where Are The Workers?

Signals of Labor Market Slack Deviations From The Expected Outcome  
As of May 2021



# Record Job Openings

Small Business Survey: Job Openings Hard To Fill (Recessions Shaded)

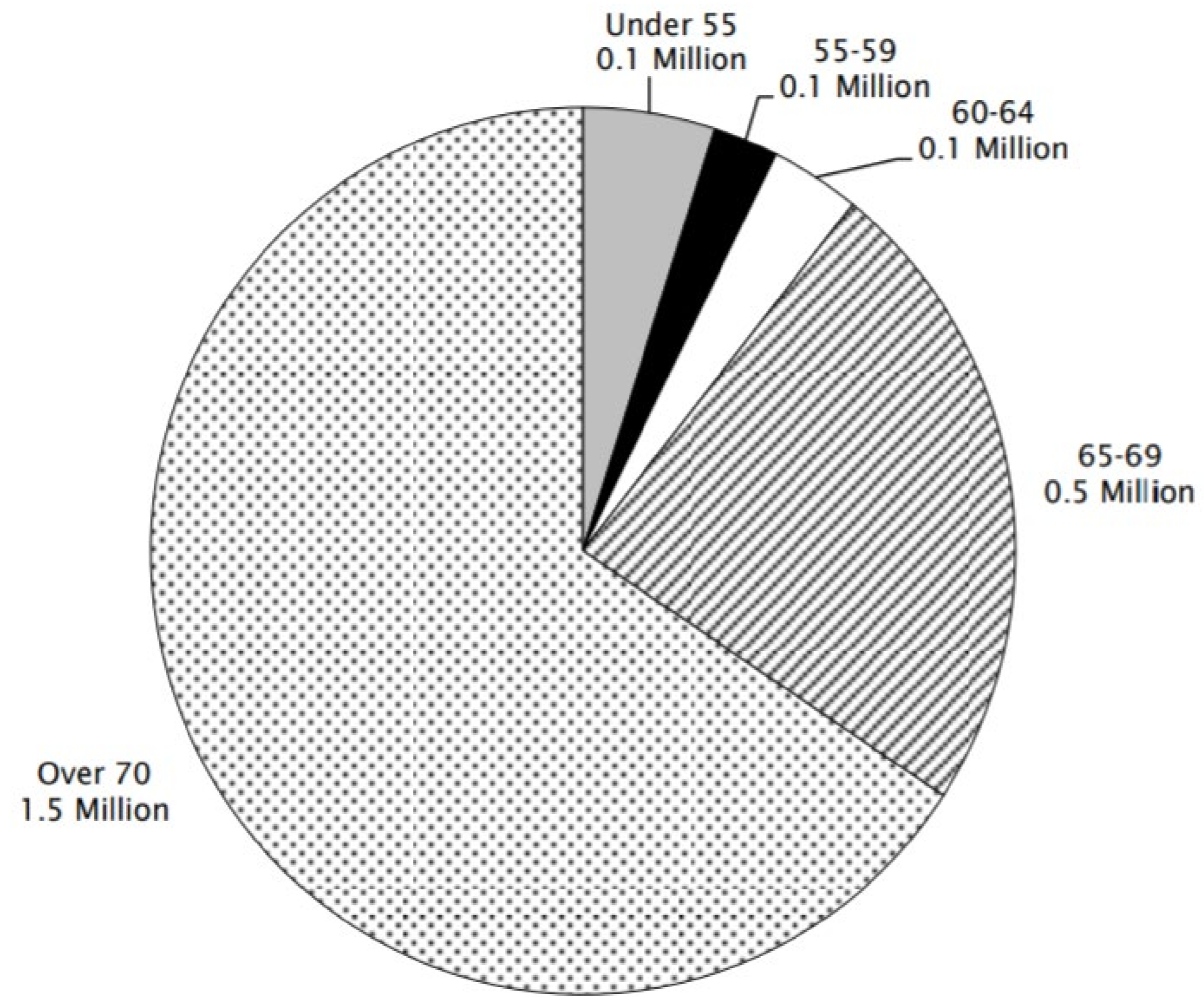


Source: NFIB; Bloomberg Finance; Deutsche Bank. November 23, 2021

Note: "% balance" represents the % of firms in NFIB Small Business Survey with the opinion that current Job openings are hard to fill vis-a-vis the firms who said it is easy to fill job openings.

# Early Retirement

Excess Retirees\* Distributions by Age  
As of Q2 2021

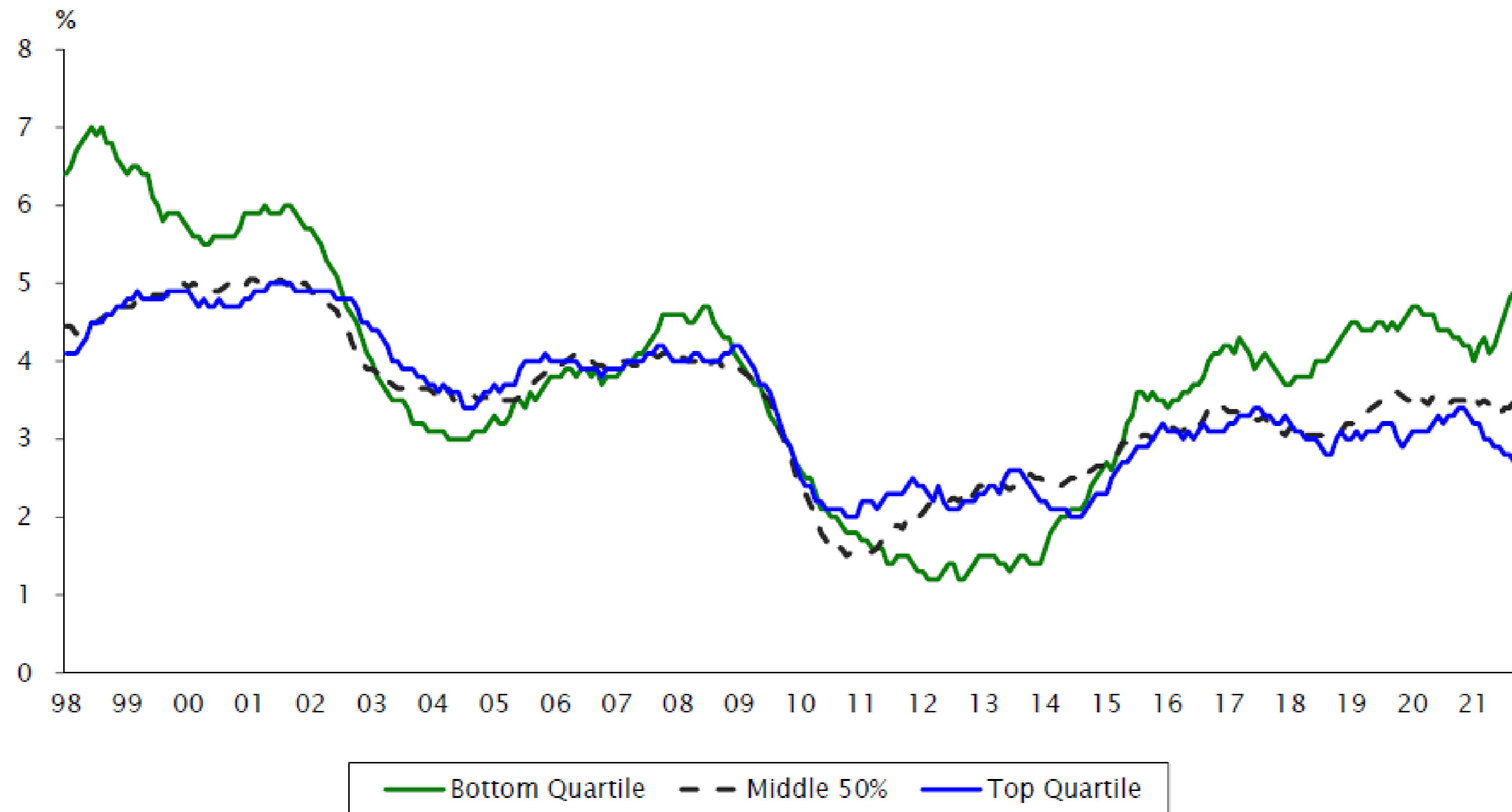


Source: Federal Reserve Bank of Atlanta, Bureau of Labor Statistics, Empirical Research Partners Analysis. November 9, 2021  
\*Number of retirees above the 2019 trend line.



# Wage Growth Never Rolled Over During the Pandemic

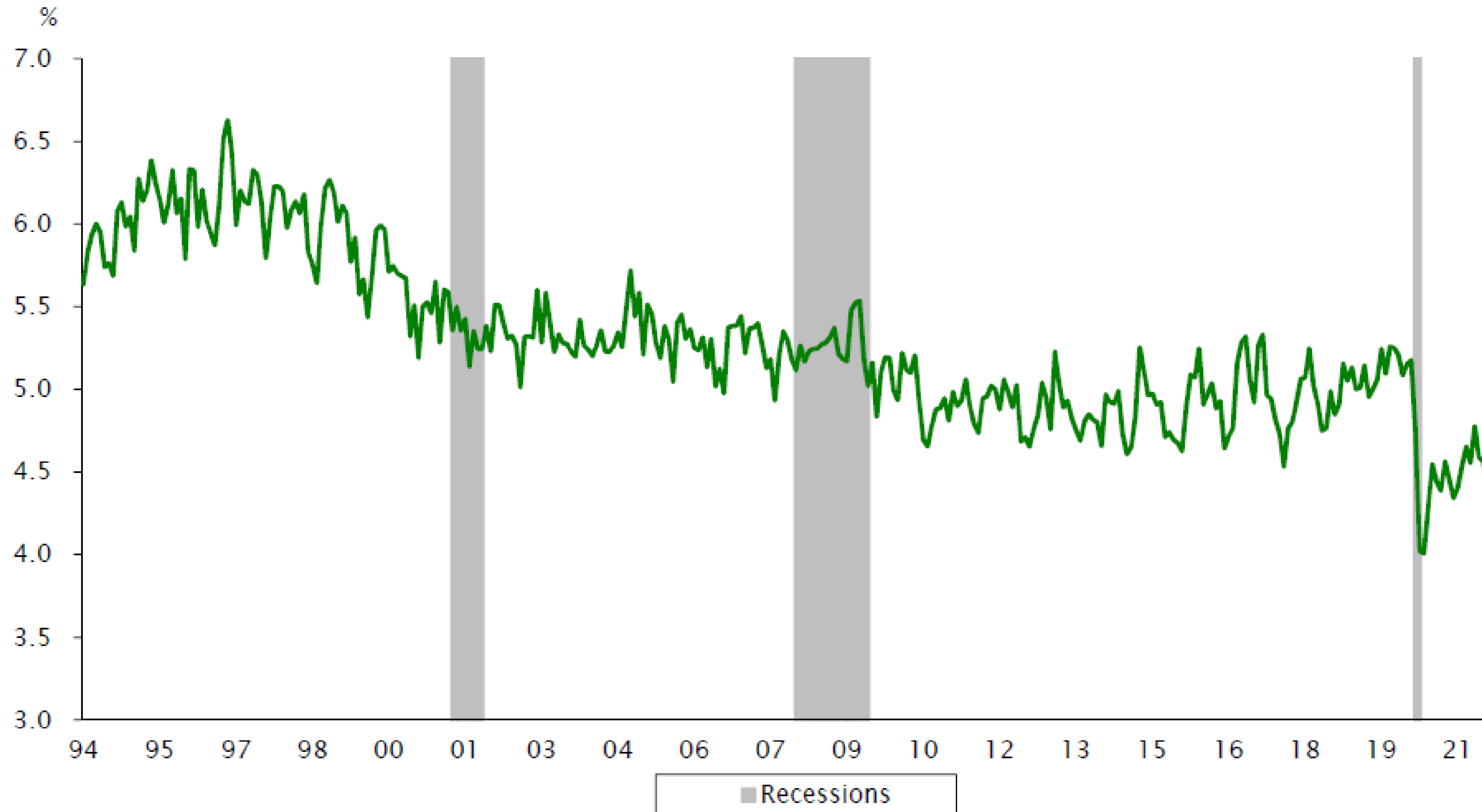
"Same-Store" Wages by Wage Level  
Year-over-Year Change  
For Workers That Are Continuously Employed\*  
1998 Through October 2021



Source: Empirical Research Partners, November 22, 2021  
\*Average hourly earnings for production and nonsupervisory workers.

# People are Working Fewer Jobs, Making It Difficult to Fill Part-Time Roles

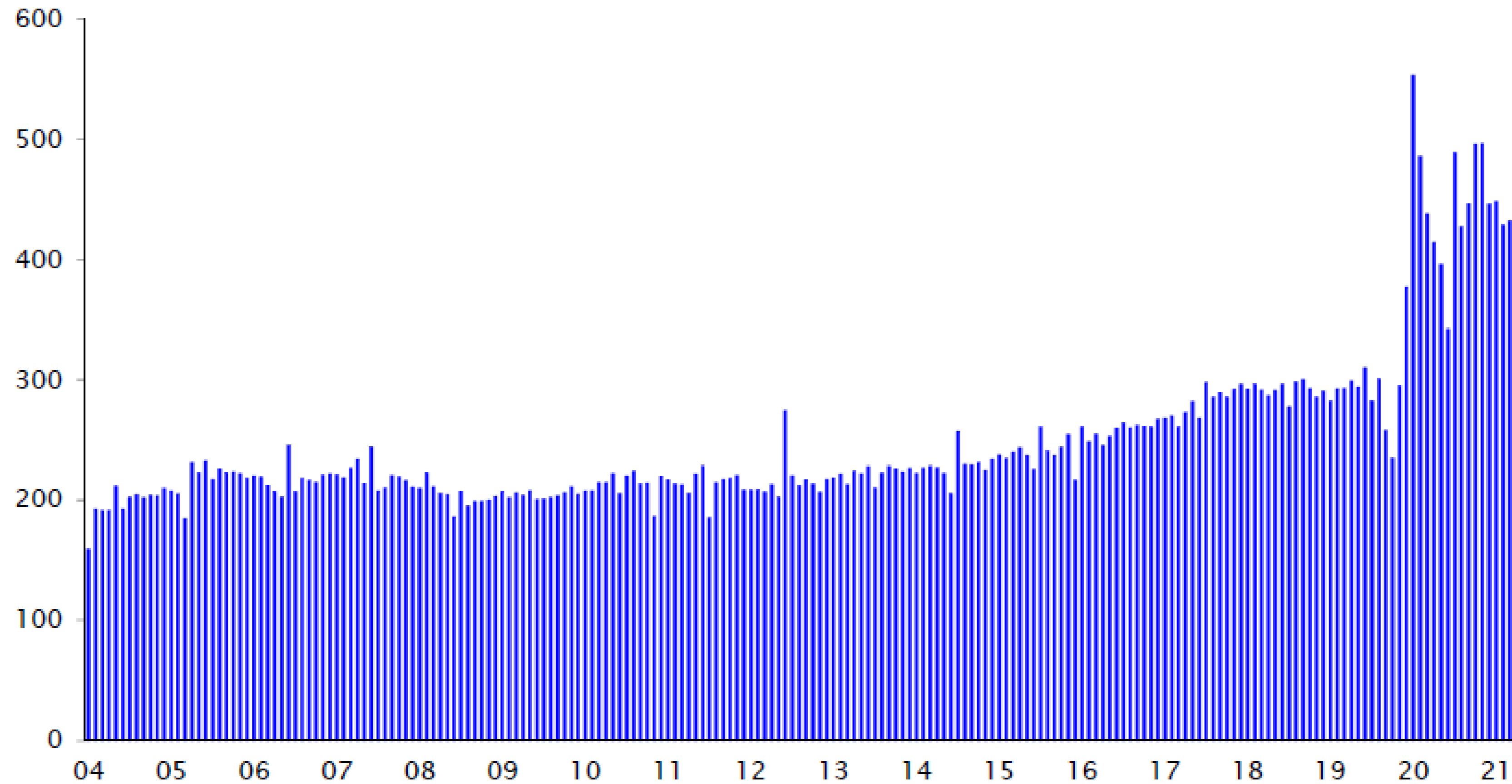
Multiple Jobholders As a Share of Total Employment  
1994 Through October 2021



Source: Empirical Research Partners. November 22, 2021

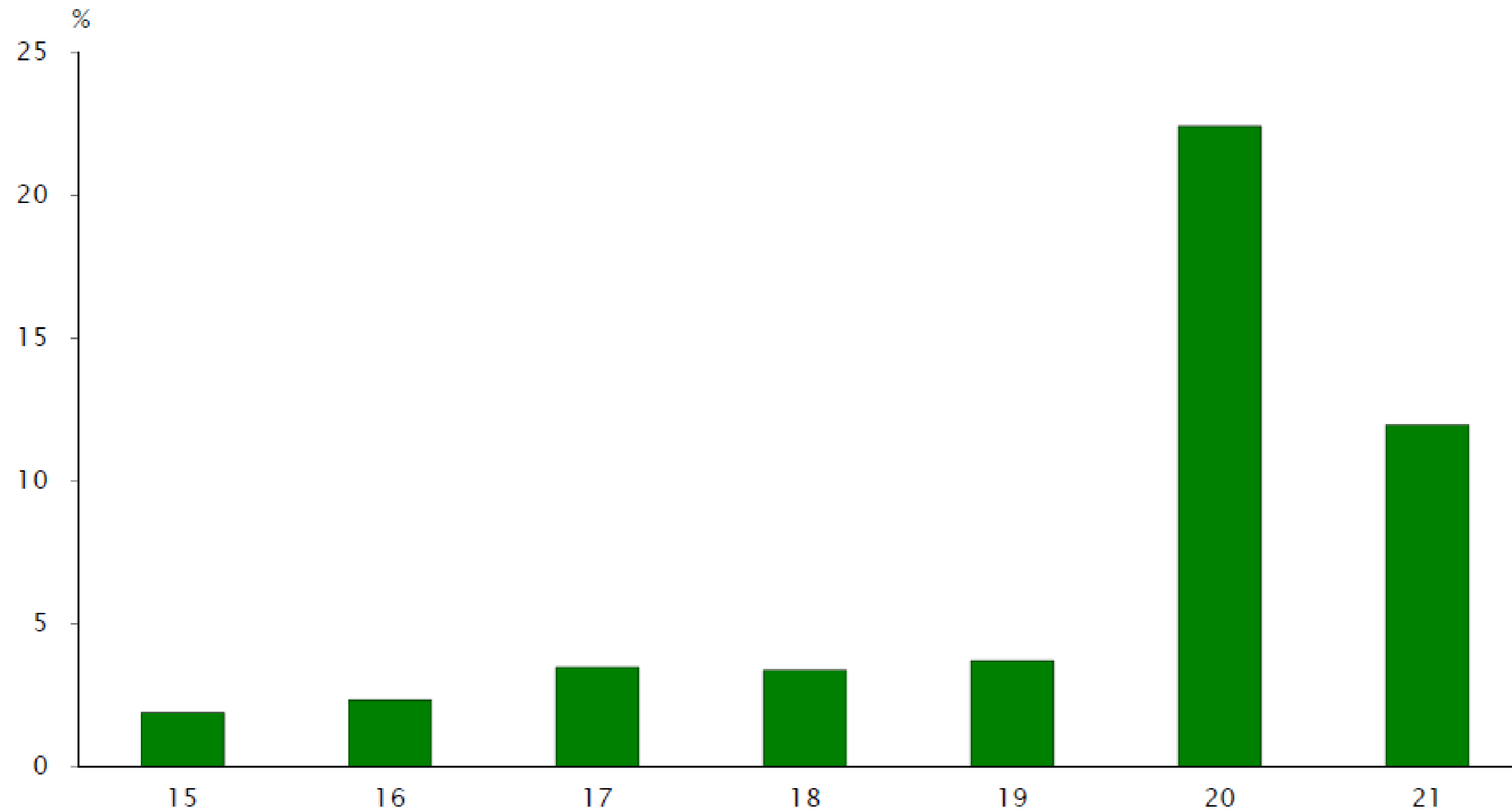
# More Entrepreneurs Probably Means Fewer Applicants for Each Job Posting

New Business Formation Seasonally-Adjusted Applications  
July 2004 Through October 2021



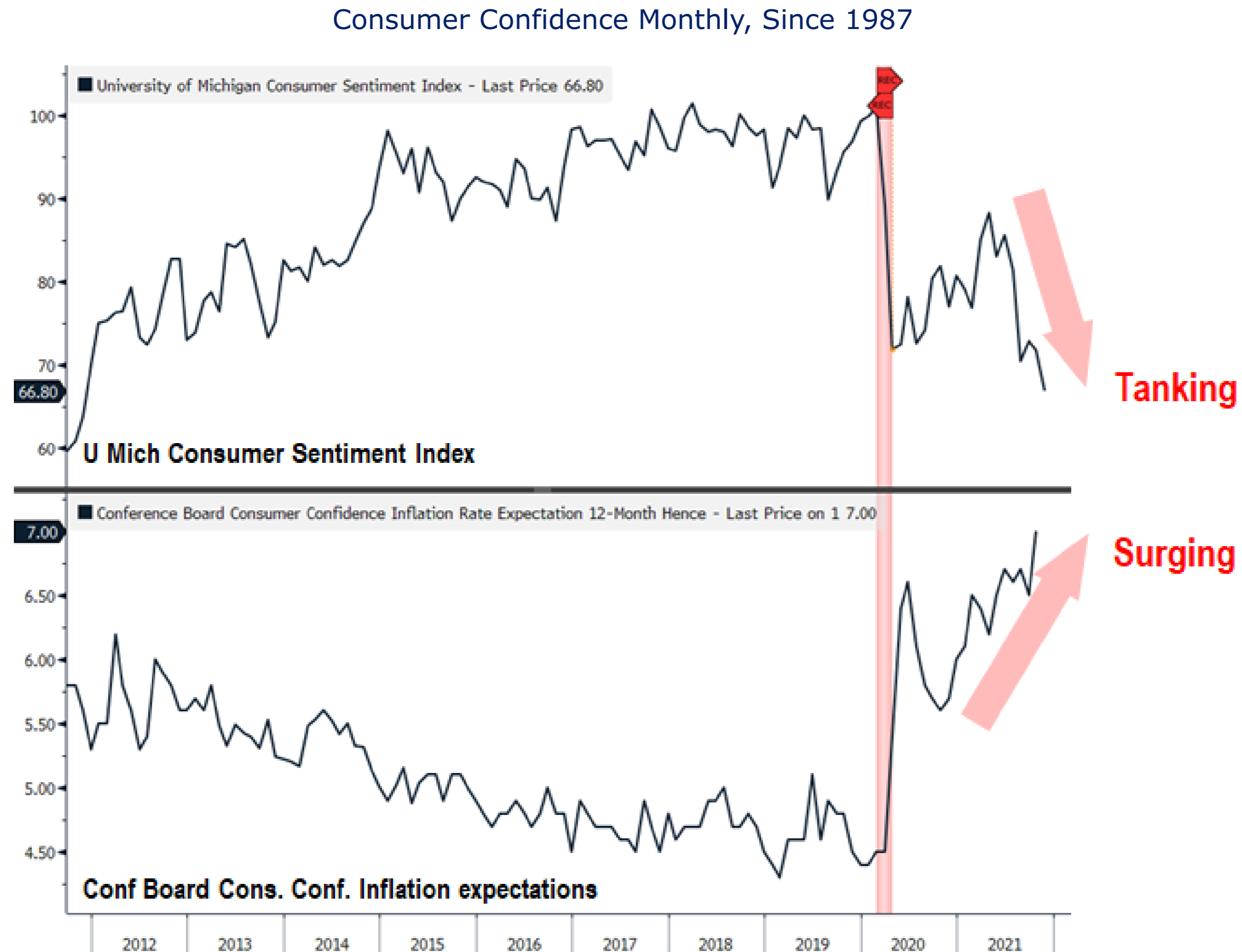
# Big Tech Made a Play for Labor During the Pandemic

Select Large-Cap Technology and Interactive Media Stocks\*  
Share of Cumulative U.S. Employment Growth Since 2015  
2015 Through 2021E



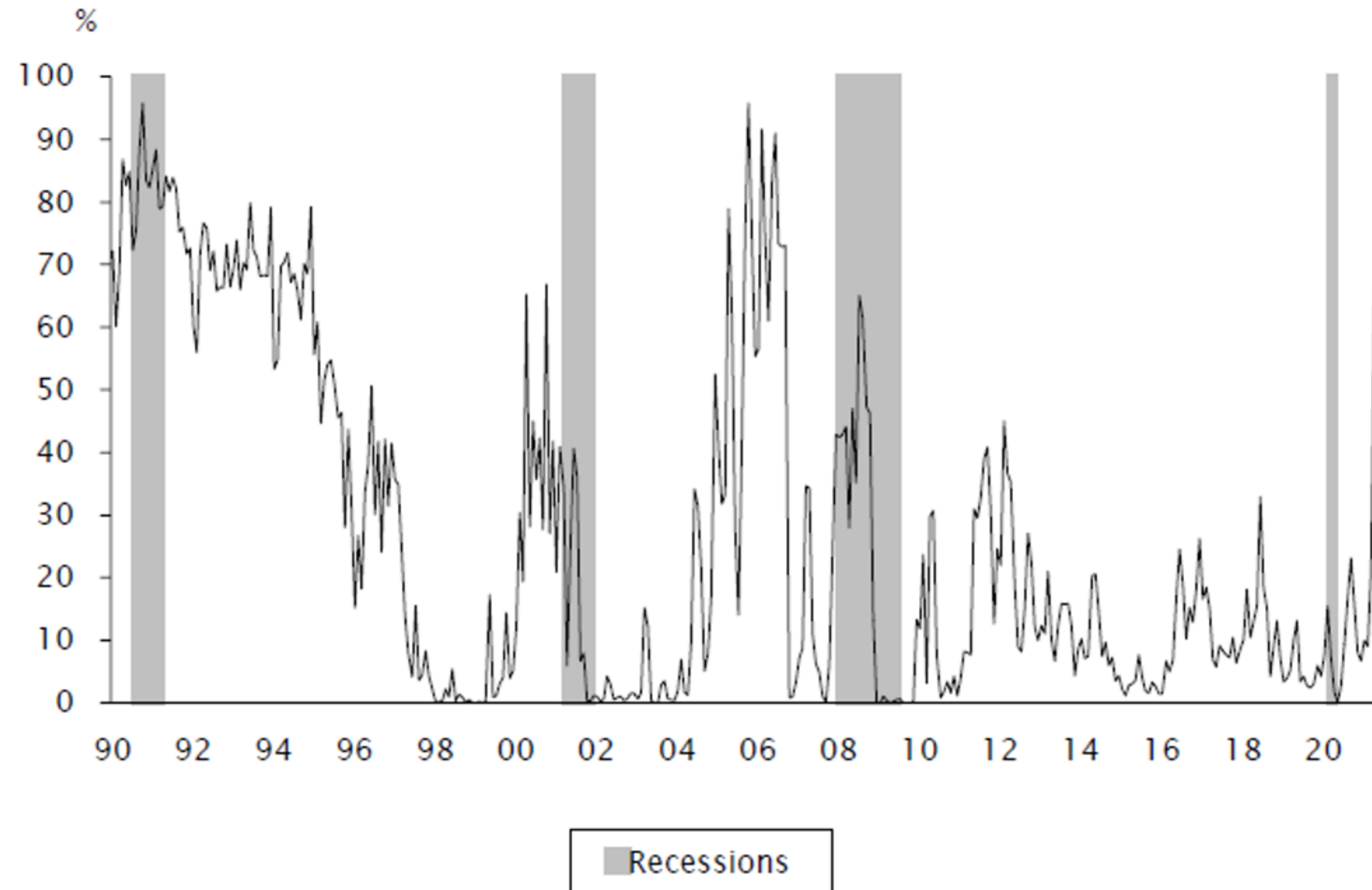
Source: Empirical Research Partners, November 22, 2021  
\*Estimated U.S. employees at AMZN, GOOGL, MSFT, AAPL, FB, NFLX, ORCL, CRM, ADBE, WDAY, INTU and EA.

# A Booming Economy, But The Consumer is Miserable

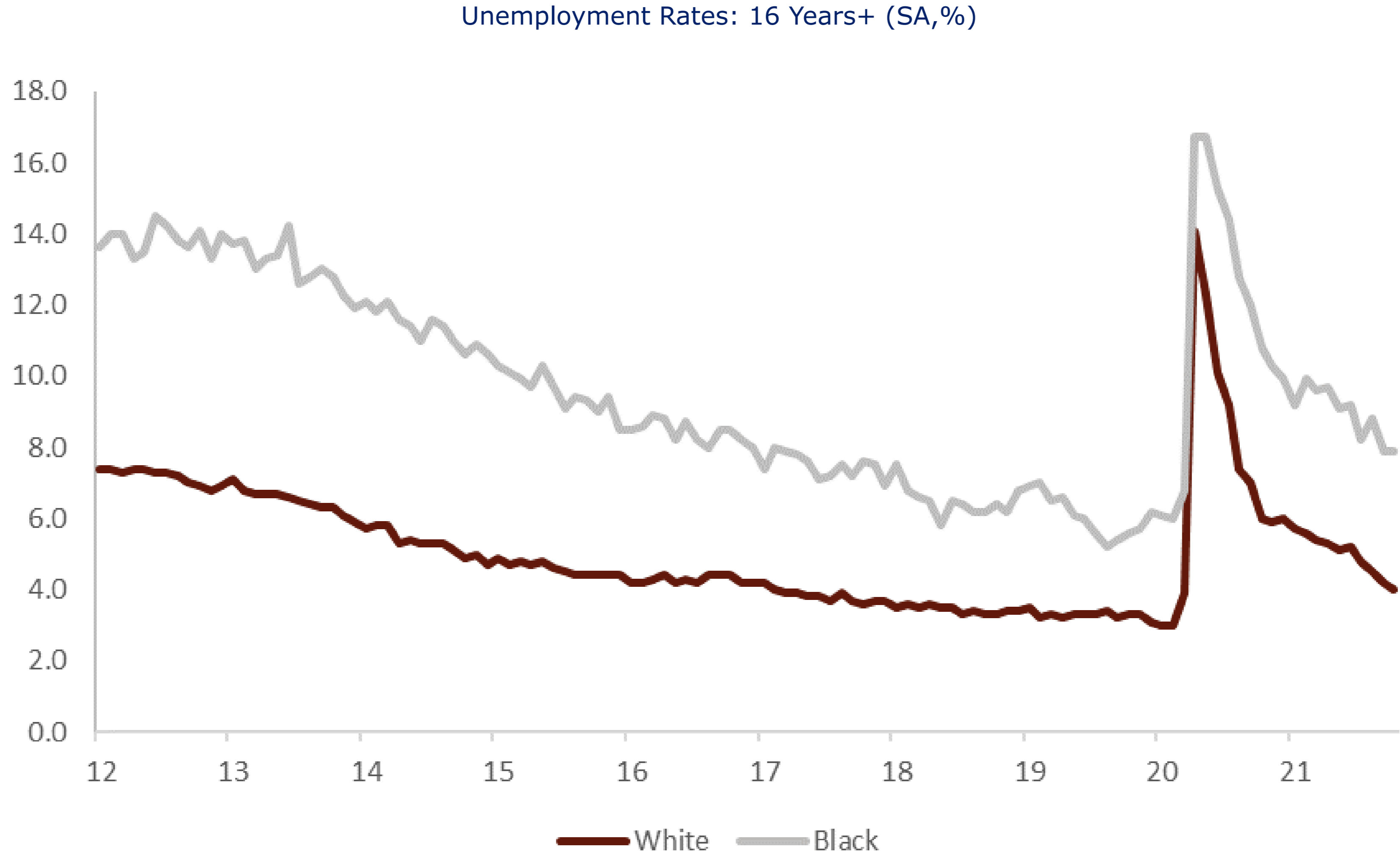


# Fed Policy Mistake?

Price Pressure Probability that Headline PCE Inflation Will Exceed 2.5% in The Next Year  
1990 Through August 2021



# This Gap Needs To Close Much More Before The Fed Hits The Exit Button

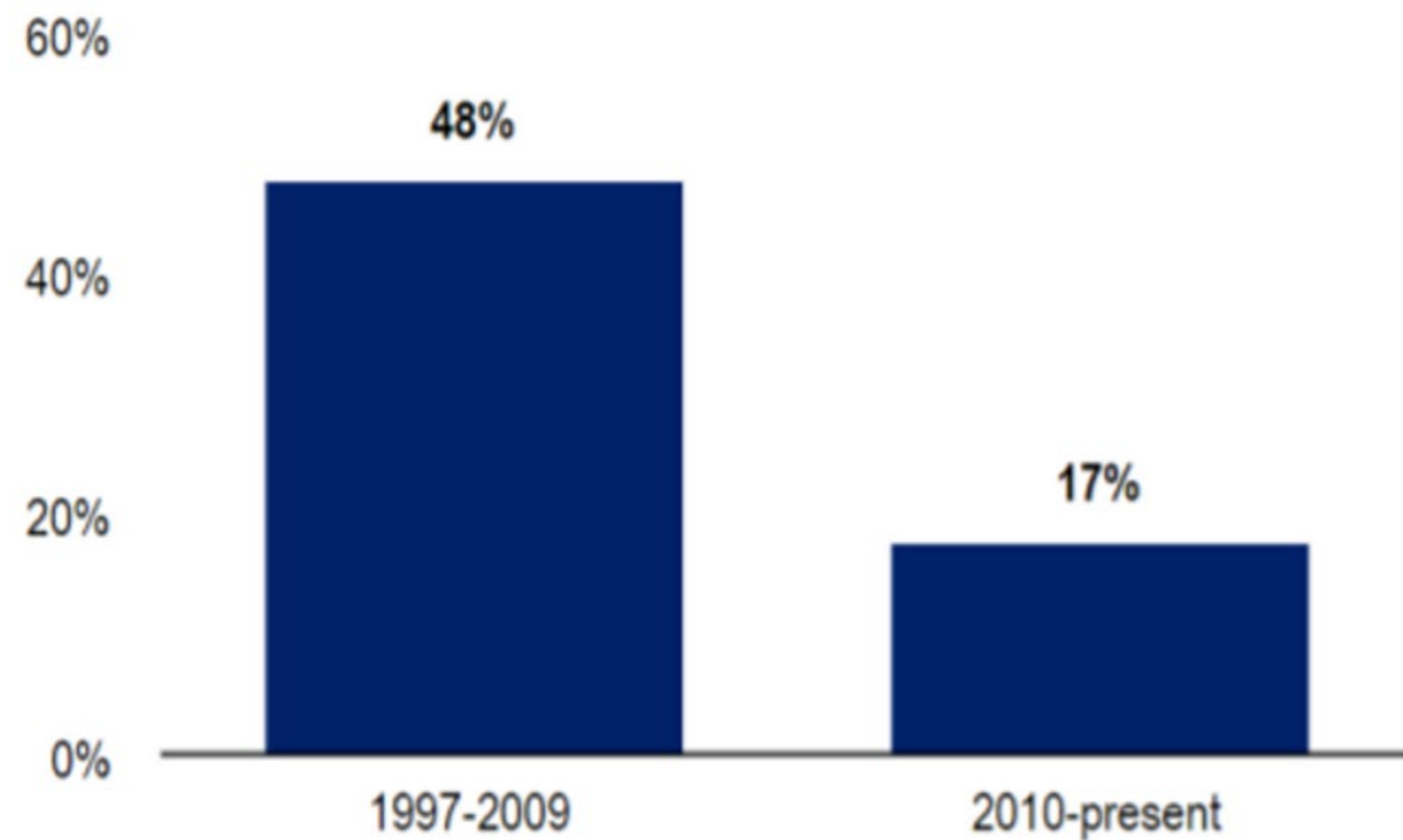


Source: Renaissance Macro Research; Have Analytics. November 29, 2021

# The Market Loves Easy Monetary Policy

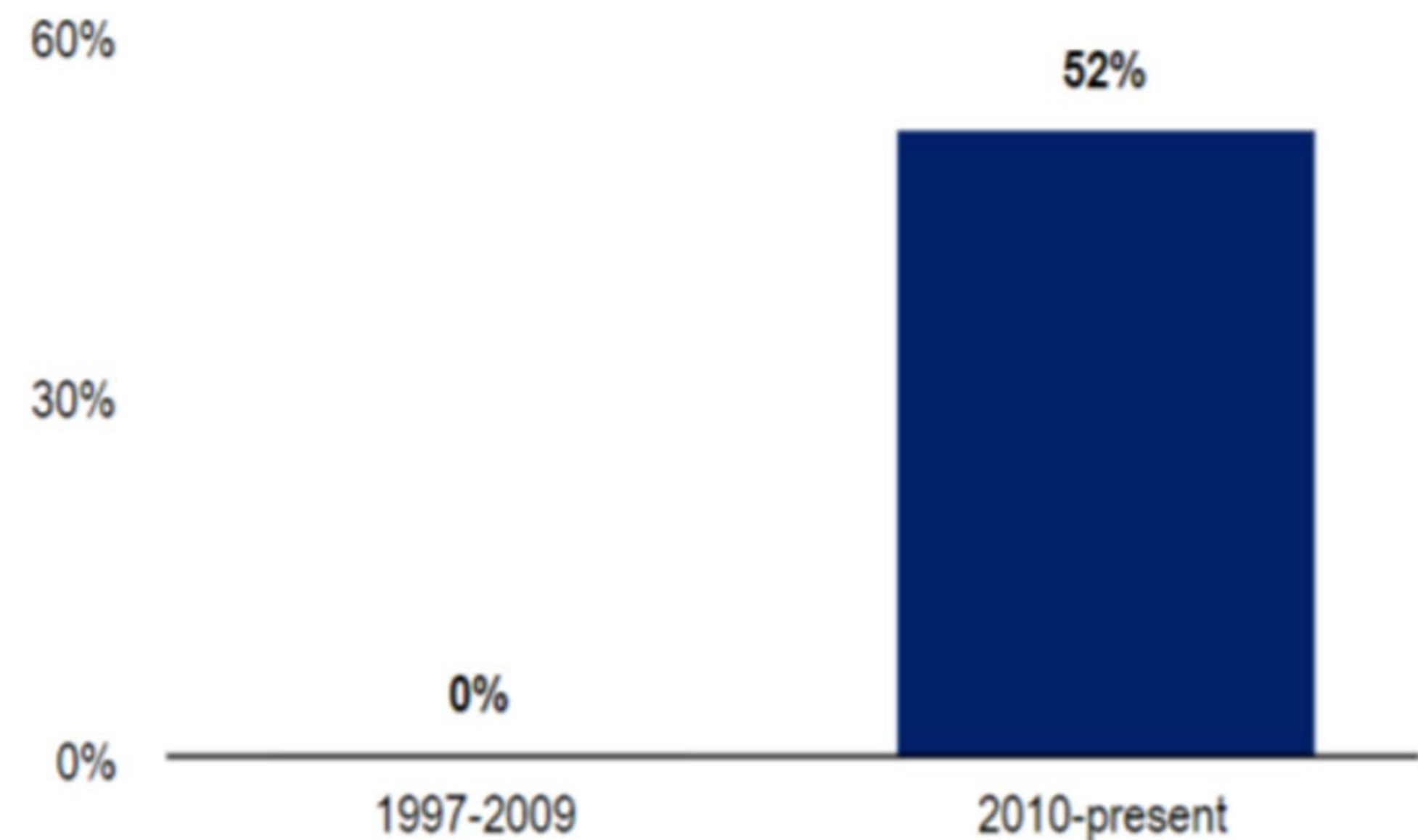
## EPS Used to Matter Most

Earnings Explained Nearly 50% of Market Returns Pre-GFC,  
Only 17% Post-GFC



R-sq of S&P 500 fwd EPS YoY vs. S&P 500 price returns on a monthly basis (May 1997-present)

Of The Non-Earnings Portion of S&P 500 Changes, More Than  
Half Explained By Fed Balance Sheet Changes Post-GFC

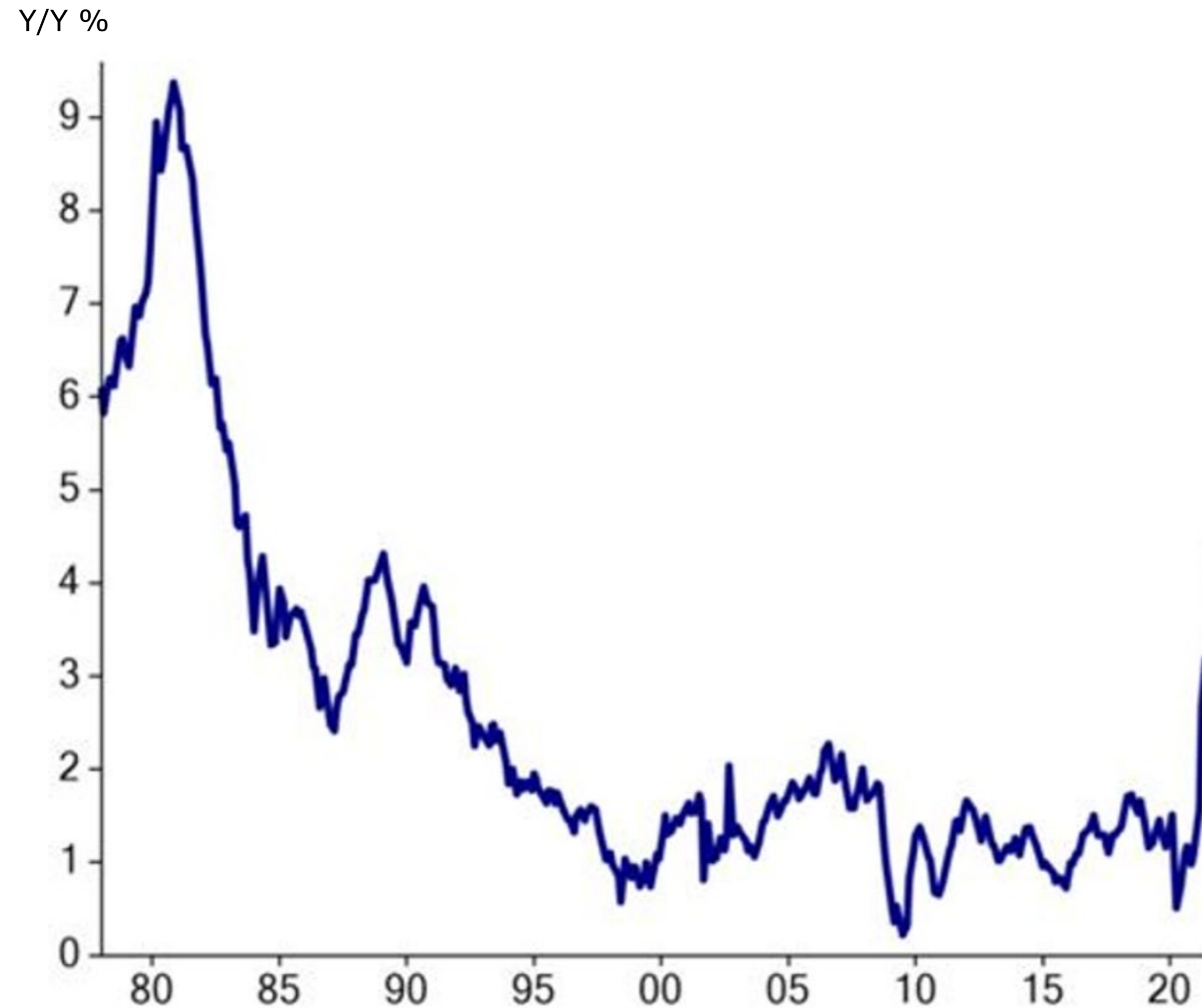


R-sq of Fed balance sheet YoY vs. YoY change in S&P 500 market cap that is not driven by earnings (May 1997-present)



# Is 1970's - Style Inflation Back?

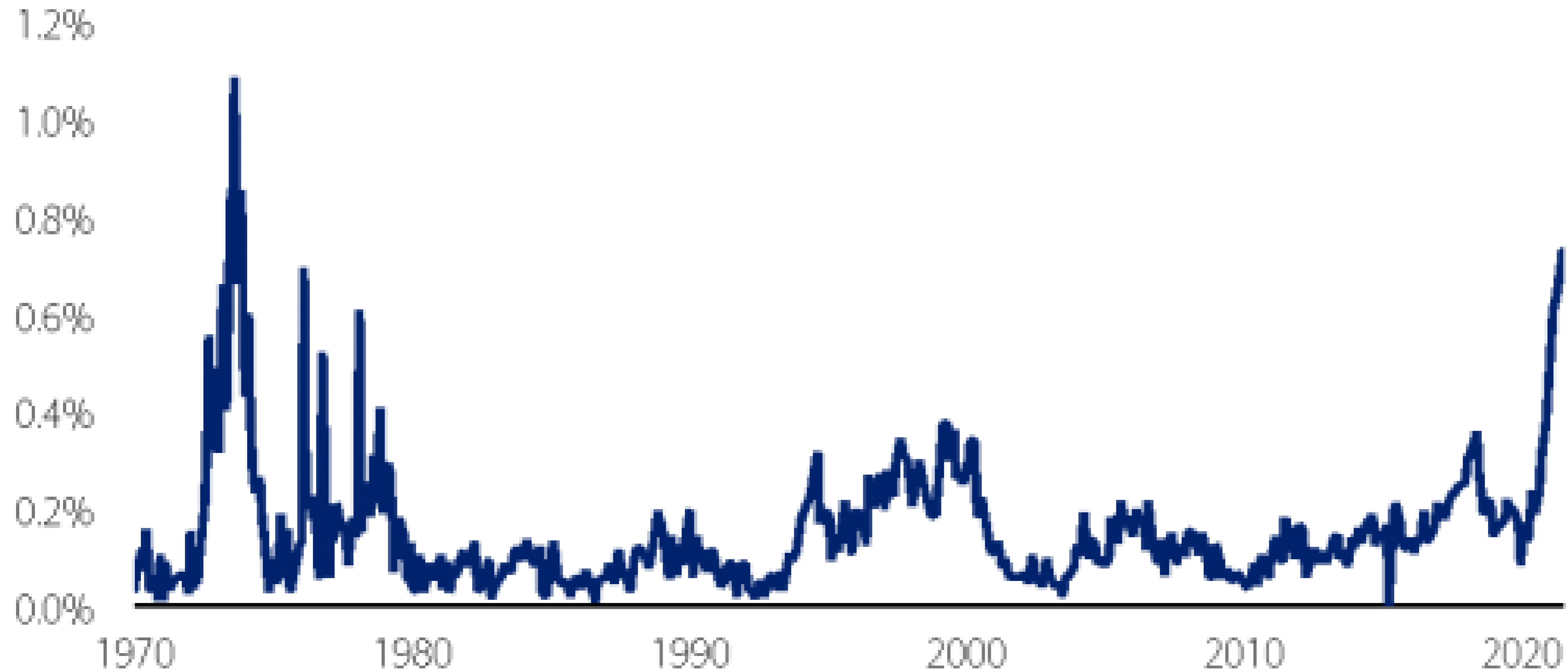
US Consumption Price Deflator Core  
December 4.8% e



Source: Evercore ISI. November 10, 2021

# Remarkably, There Are Almost As Many Complaints of Supply-Side Problems as in The 1970s

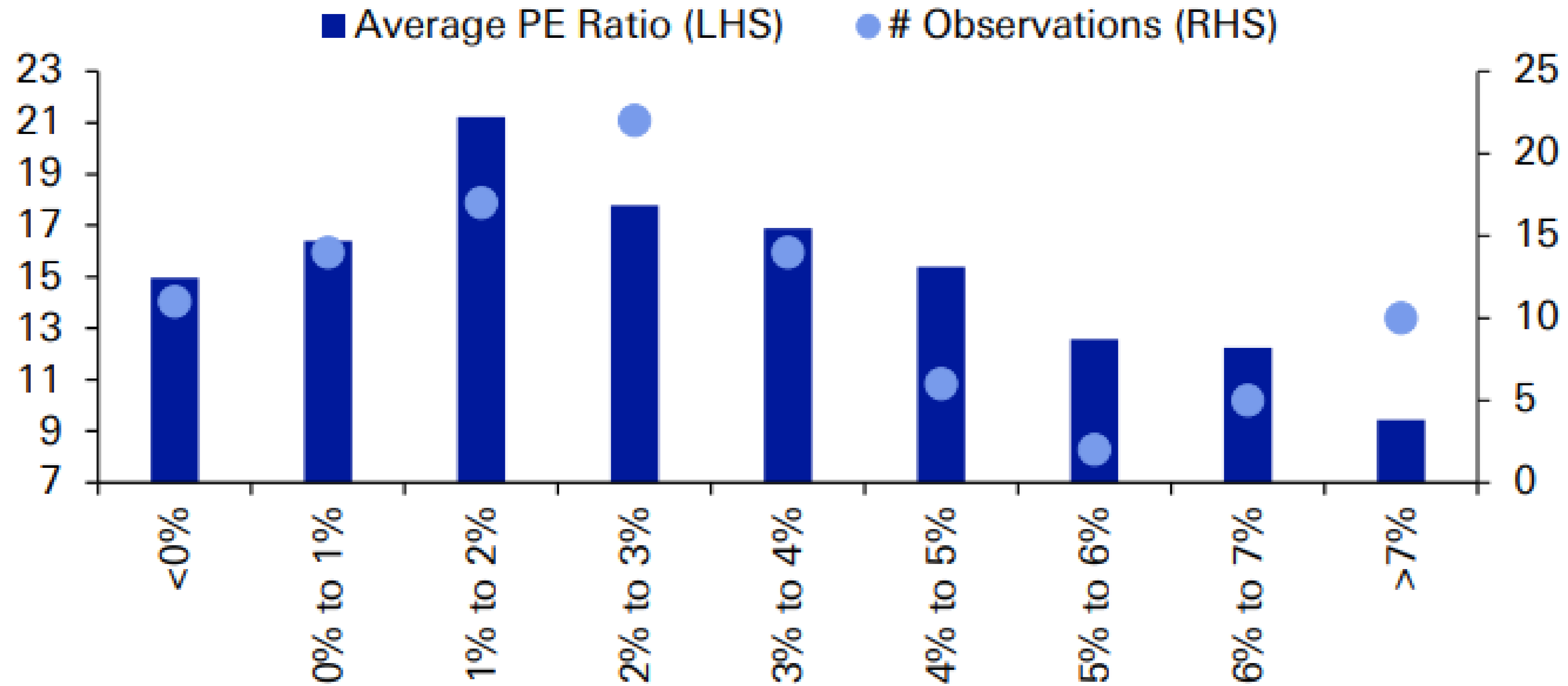
Ratio of Words Associated With Supply-Side Constraints To Total Words in the Beige Book (%)



Source: BofA Global Research, FRB. October 21, 2021

# P/E Multiples At Risk As Inflation Rises

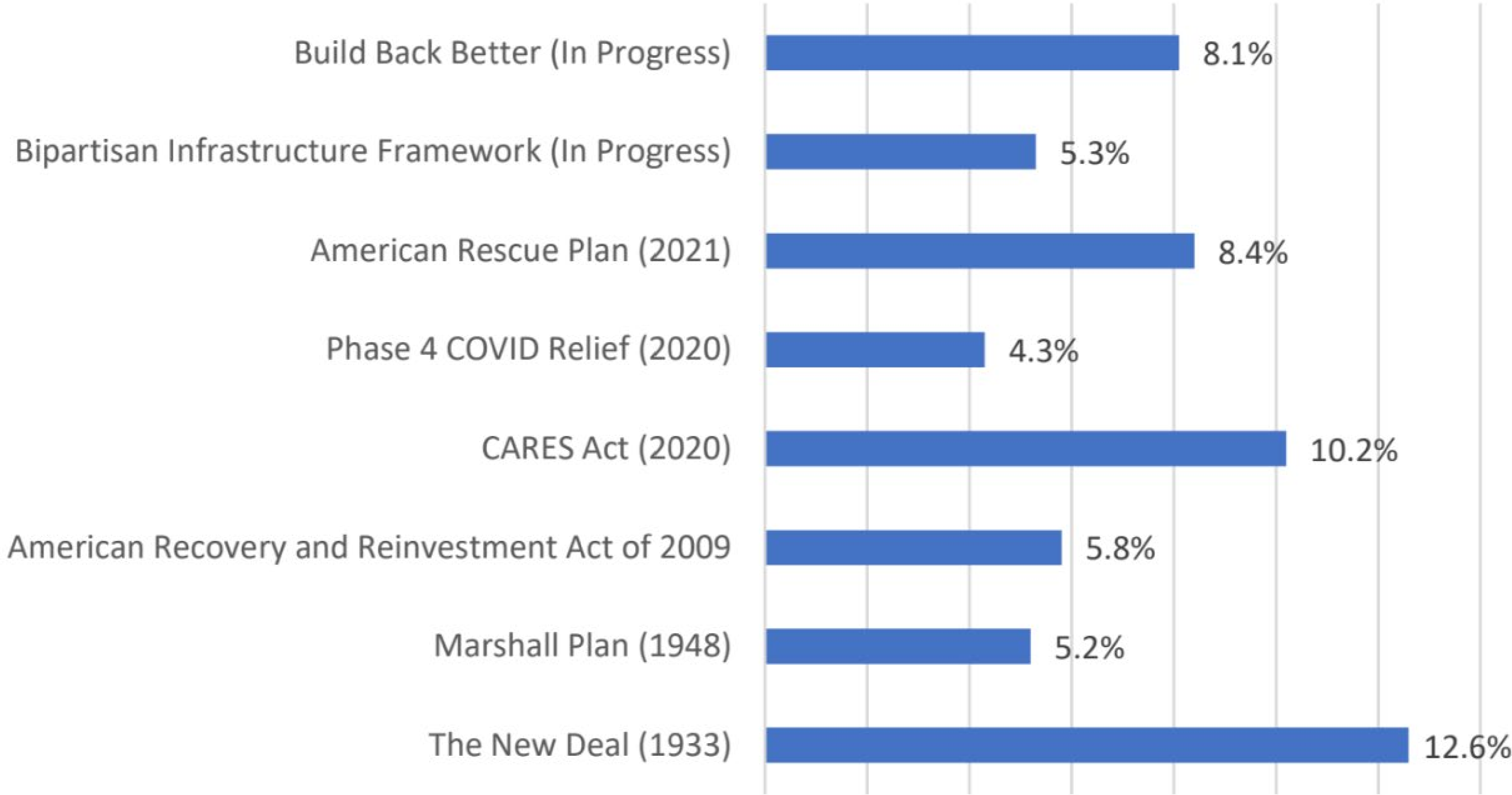
US PE Ratio Since 1920 By Different Inflation Buckets



Source: GFD, Deutsche Bank. December 2, 2021

# Historic Fiscal Policy

Select Stimulus As A Percentage of US GDP



Source: Axios and Crown and Company. November 1, 2021

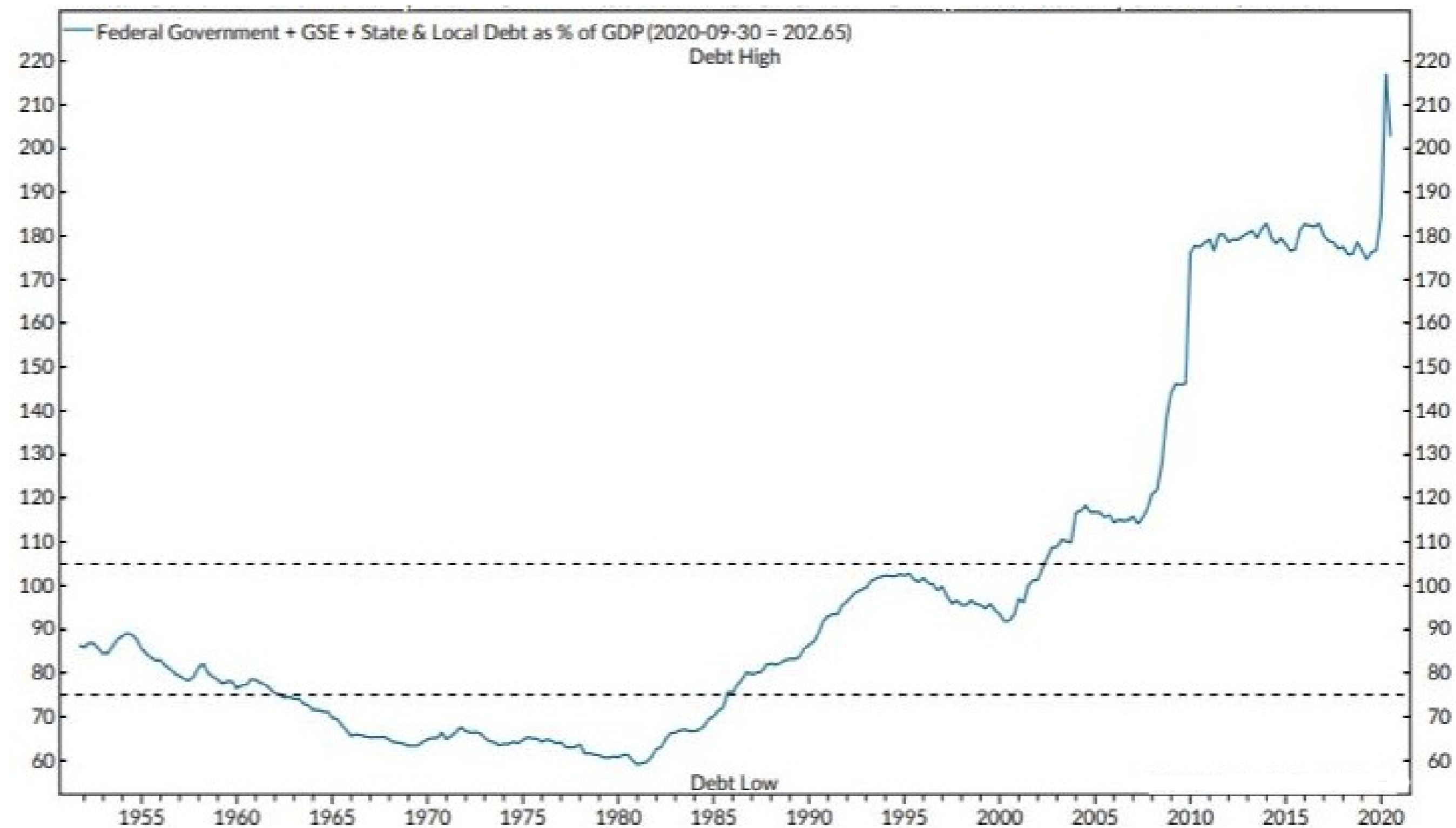
# And The Debt Champion Is....

Debt Levels and Increases in Major Economies

	<b>2020 gov't debt (US\$ trn)</b>	<b>2020 rise in gov't debt (US\$trn)</b>	<b>Population (mn)</b>	<b>2020 gov't debt per capita (US\$)</b>	<b>2020 rise in gov't debt per capita (US\$)</b>
<b>USA</b>	22.21	4.20	328.2	67,672	12,797
<b>Canada</b>	0.76	0.31	37.6	20,300	8,202
<b>UK</b>	2.68	0.46	66.6	40,176	6,961
<b>Japan</b>	9.01	0.72	126.5	71,192	5,690
<b>Germany</b>	2.12	0.44	83	25,571	5,286
<b>France</b>	2.92	0.34	66.9	43,552	5,063
<b>Italy</b>	2.85	0.24	60.3	47,157	4,048
<b>China</b>	9.65	1.66	1,393.00	6,931	1,191

# But Long Term, High Debt Slows Growth

Total Government Debt's (Fed + GSE + State & Local as a % of GDP) Potential Impact On Growth

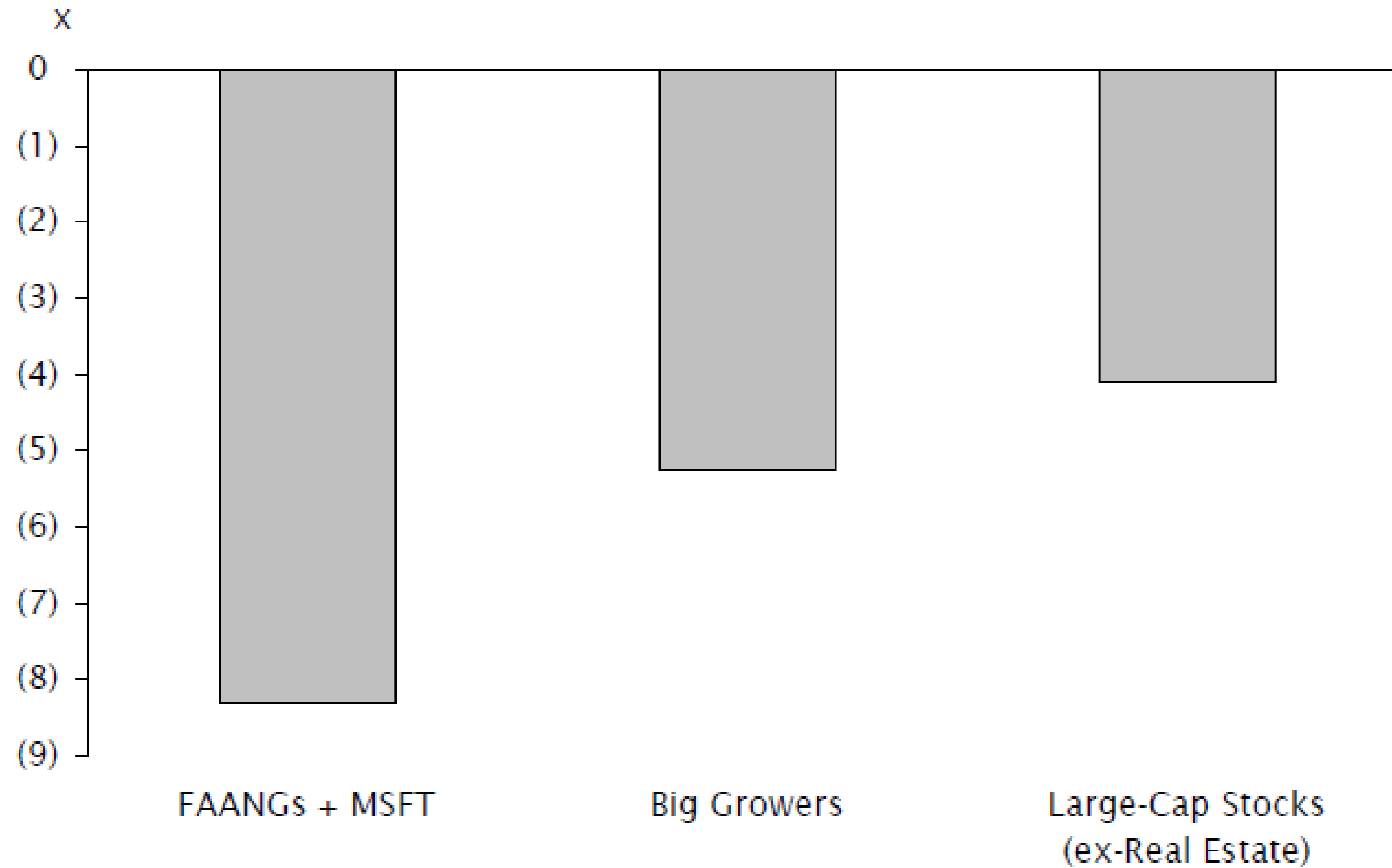


Multi-Factor Mode Analysis ( 1951-12-31 - 2020-09-30 )						
Government Debt/GDP is:	Nominal GDP Gain/Annum	Real GDP Gain/Annum	Nonfarm Payrolls Gain/Annum	CPI Inflation Gain/Annum	Real Non-Residential Investment Gain/Annum	% Time In Mode
Above 105%	3.7	1.8	0.5	2.0	3.3	26.2
75% to 105%	5.4	3.2	1.6	2.4	4.7	40.0
75% and Below	8.9	3.6	2.5	5.7	10.4	33.8

Source: Federal Reserve Board, Ned Davis Research as of December 24, 2020

# The Leadership Is Vulnerable To Corporate Tax Hikes

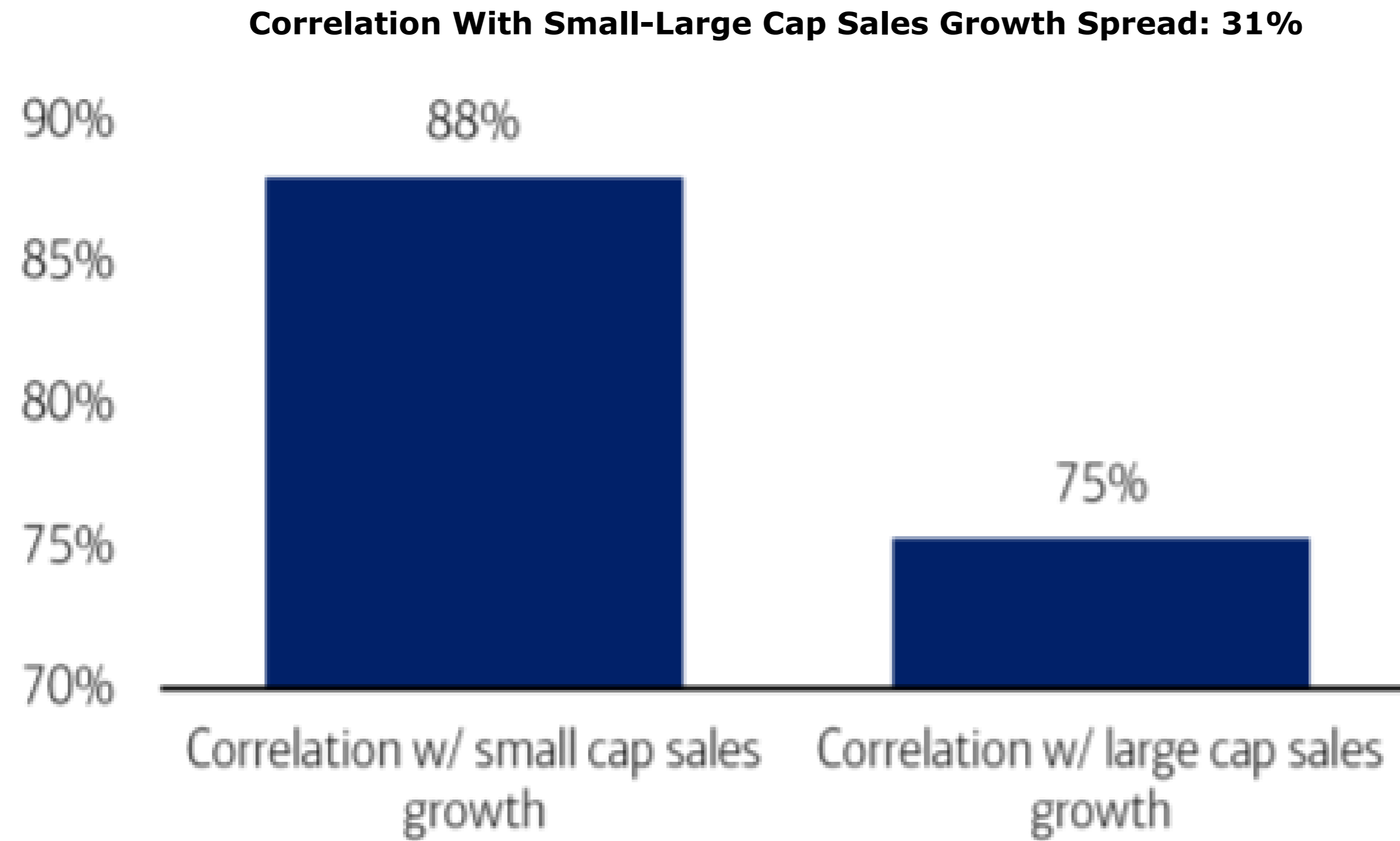
Large Capitalization Stocks (ex-Real Estate) Average Change in Net Profit Margin  
Biden Corporate Tax Plan Relative to Current Forecasts\*



Source: Empirical Research Partners. September 14, 2021  
\*Assumes 15% foreign and 28% domestic tax rates.

# Small Caps Benefit More From Capex Cycles

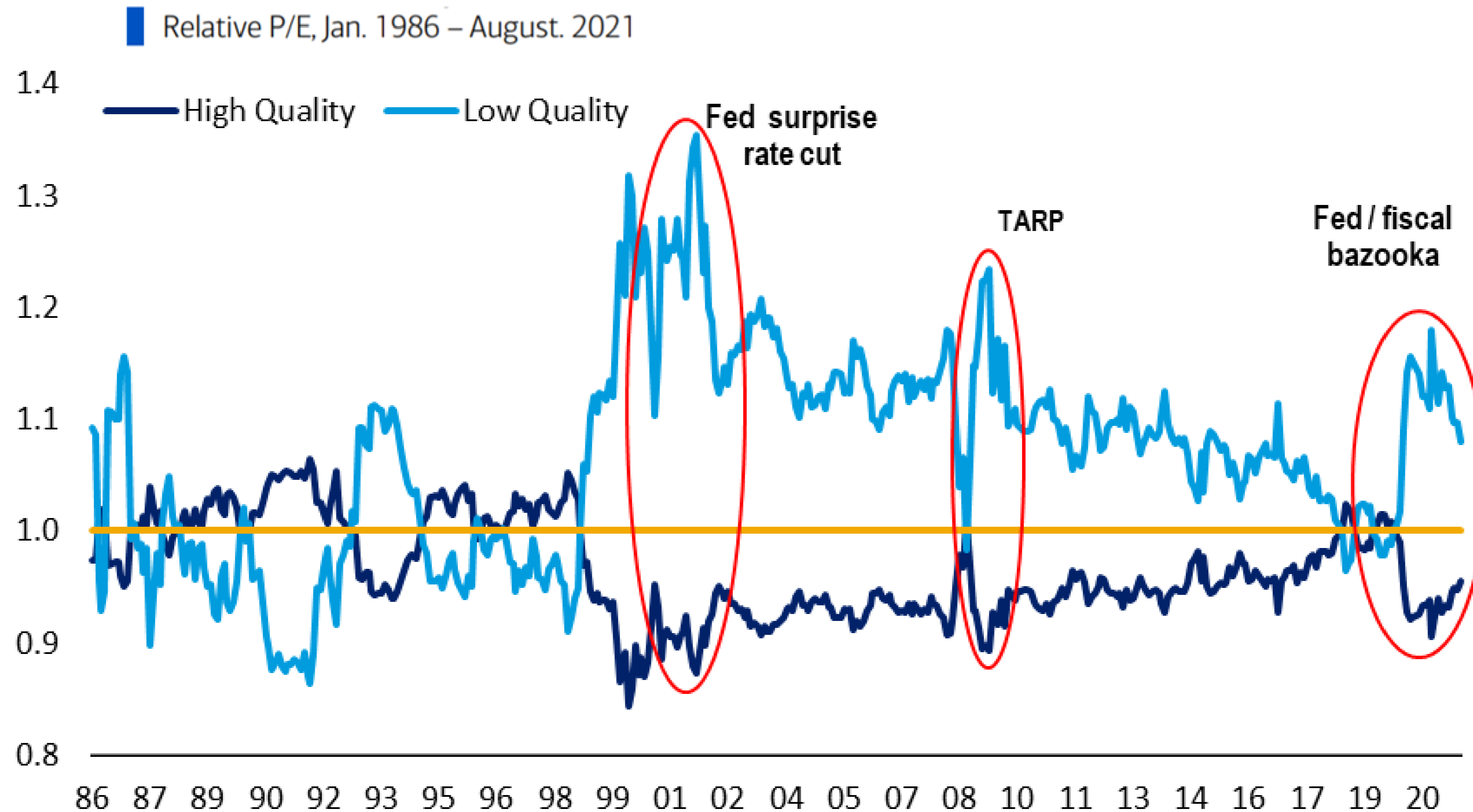
Correlation of US Capex Growth With Small Cap (Russell 2000) and Large Cap (S&P 500) Sales Growth, 1985-present





# Post-Covid, Investors Are Paying A Premium For Risk, Are Compensated For Safety

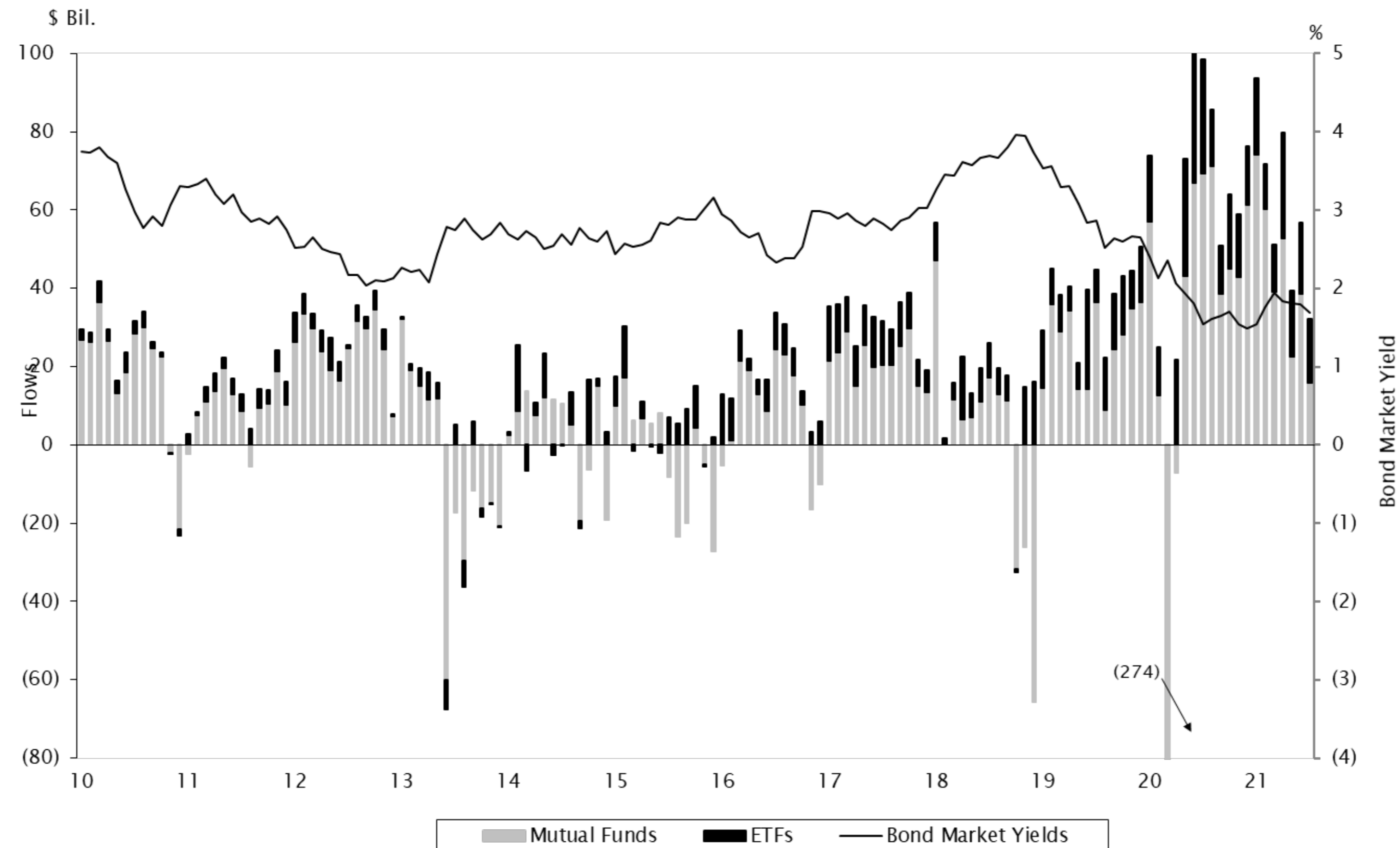
Low Quality Stocks Have Risen Each Time Easy Money Flowed



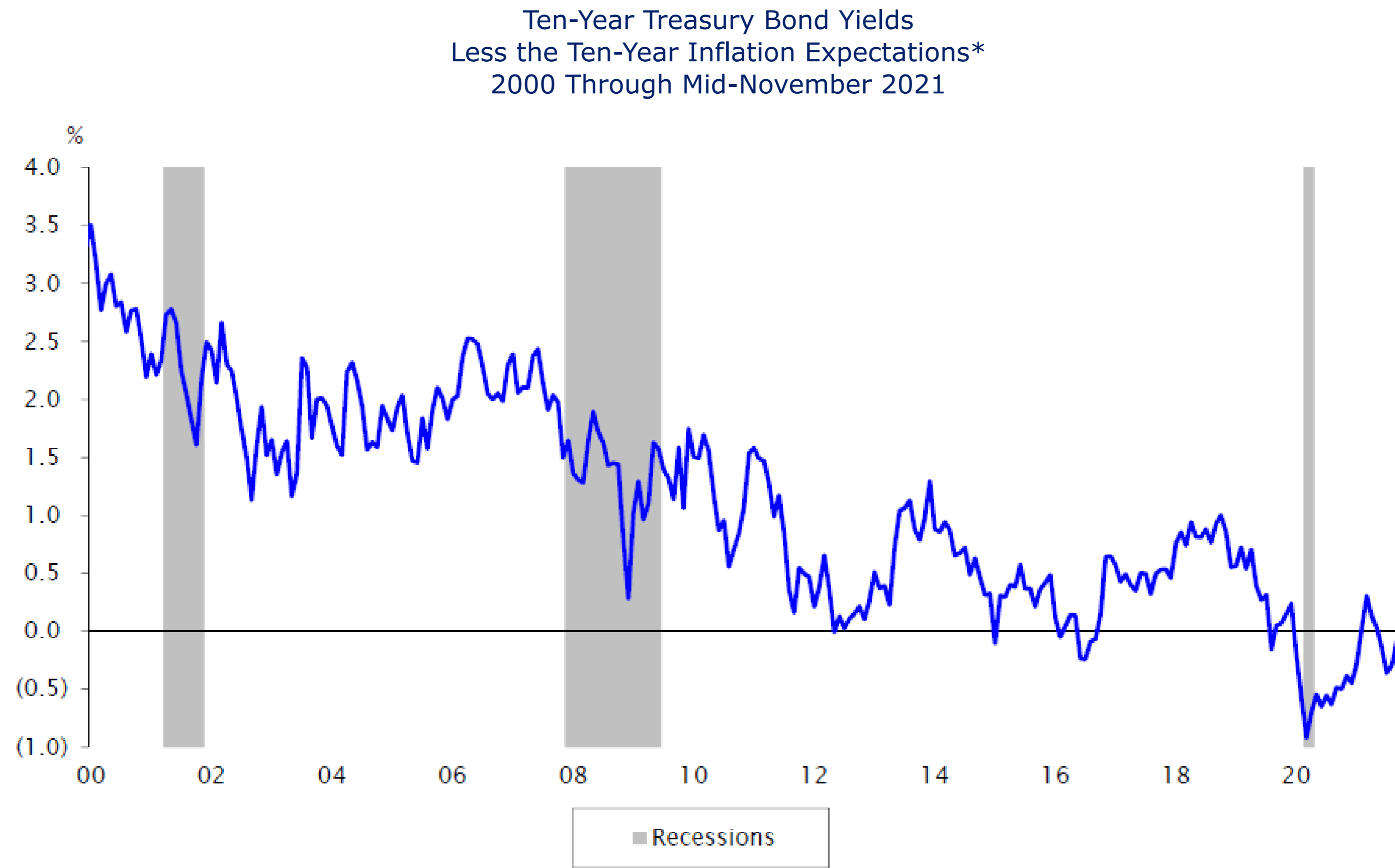
Source: Factset, BofA US Equity & US Quant Strategy. November 23, 2021

# Meanwhile, The Love Affair With Bonds Continues

Bond Mutual Funds and ETFs Monthly Net Flows and the Yields of the US Bond Market 2010 Through July 2021



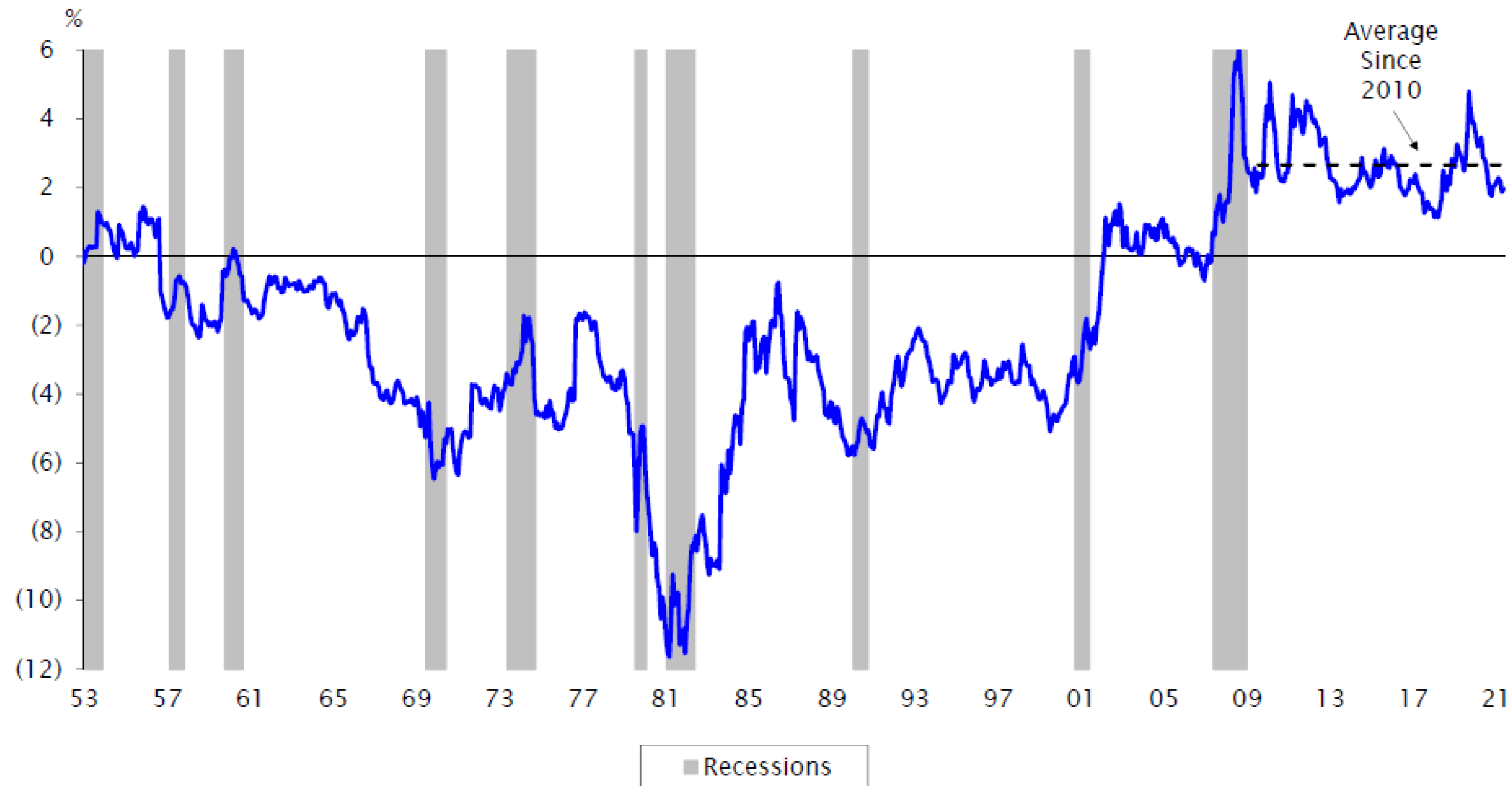
# Real Rates Are Zero



Source: Empirical Research Partners. November 22, 2021  
\*Less the trailing three-month average of the ten-year inflation expectations.

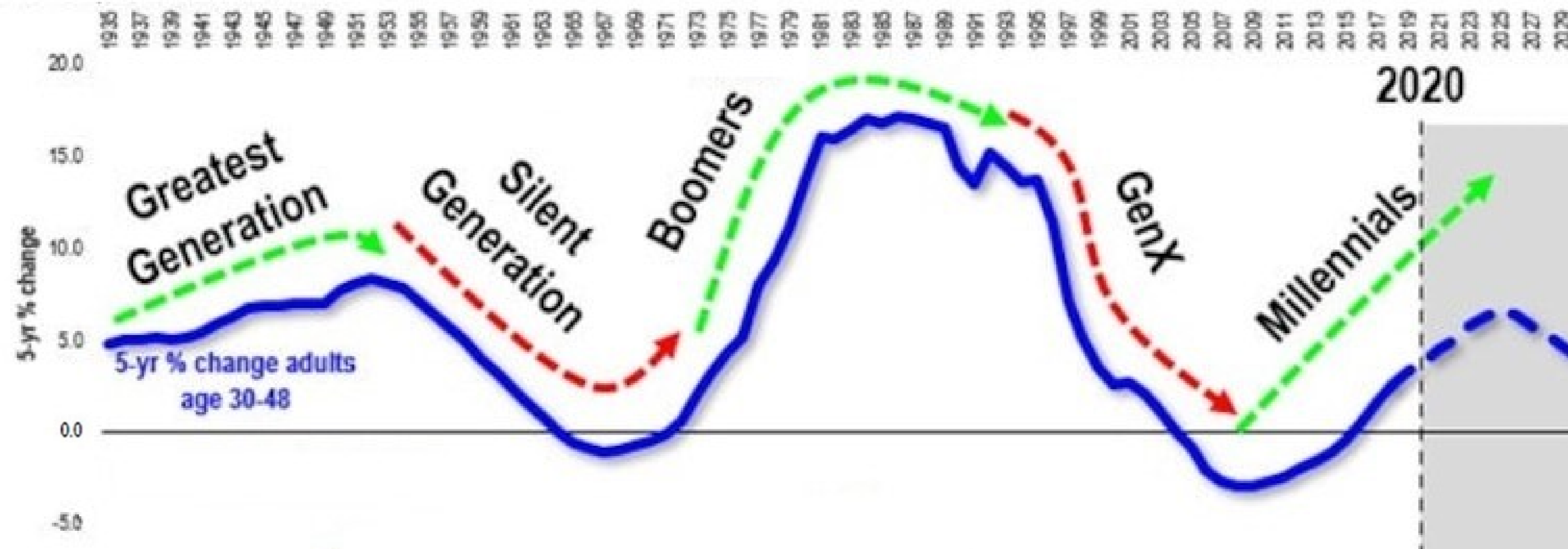
# Stocks Don't Look Expensive By Comparison

The Large-Cap Equity Market  
Free Cash Flow Yields Compared to That of Ten-Year Treasury Bonds  
1953 Through Mid-November 2021



# It All Depends On Your Time Horizon: In The Long Term, Prime Skilled Adults Age 30-48 Are Surging

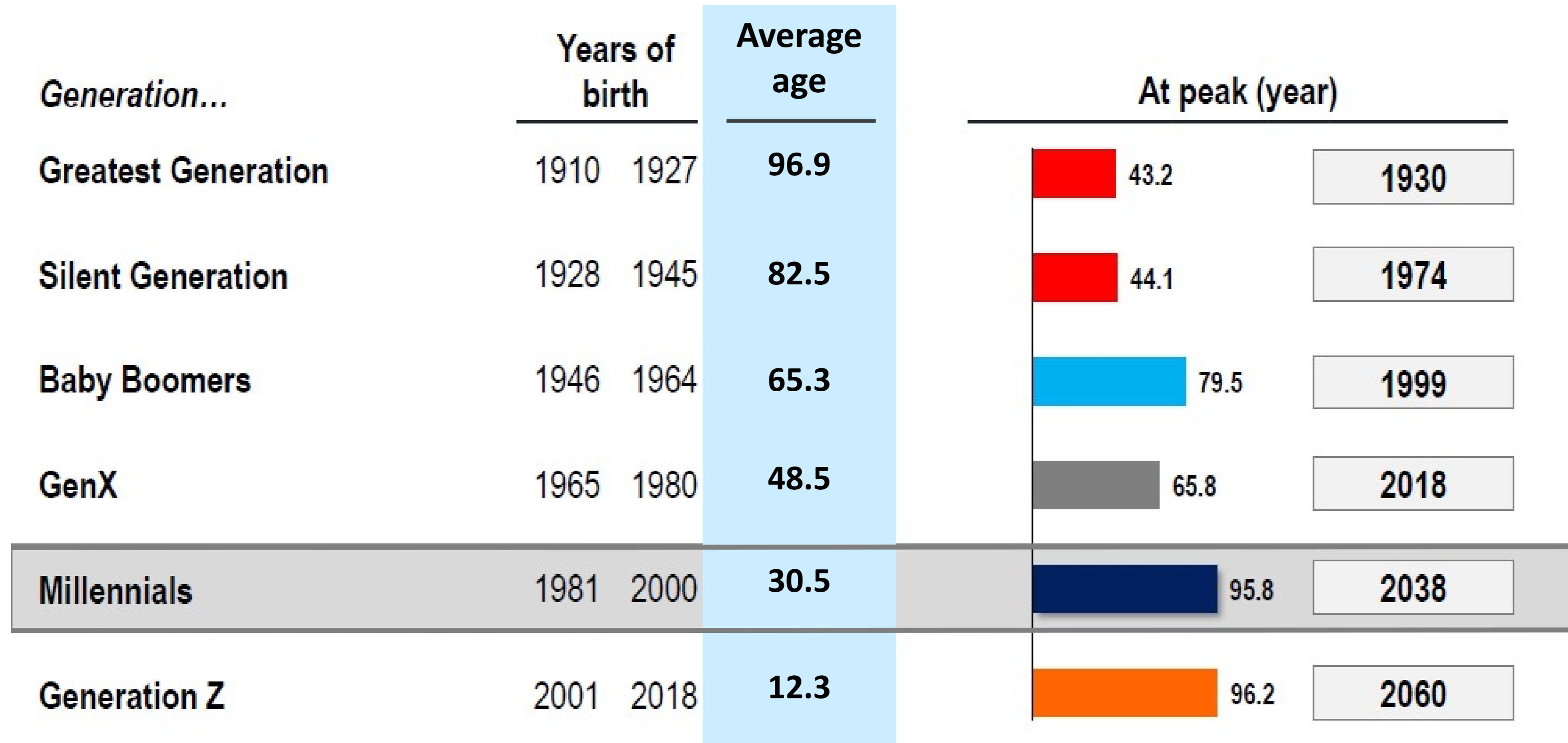
Prime Leverage Years: # Adults Age 30-48 Since 1935 per the US Census Bureau



Generation...	Birth years
Greatest Generation	1910 1927
Silent Generation	1928 1945
Baby Boomers	1946 1964
GenX	1965 1980
Millennials	1981 2000
Generation Z	2001 2018

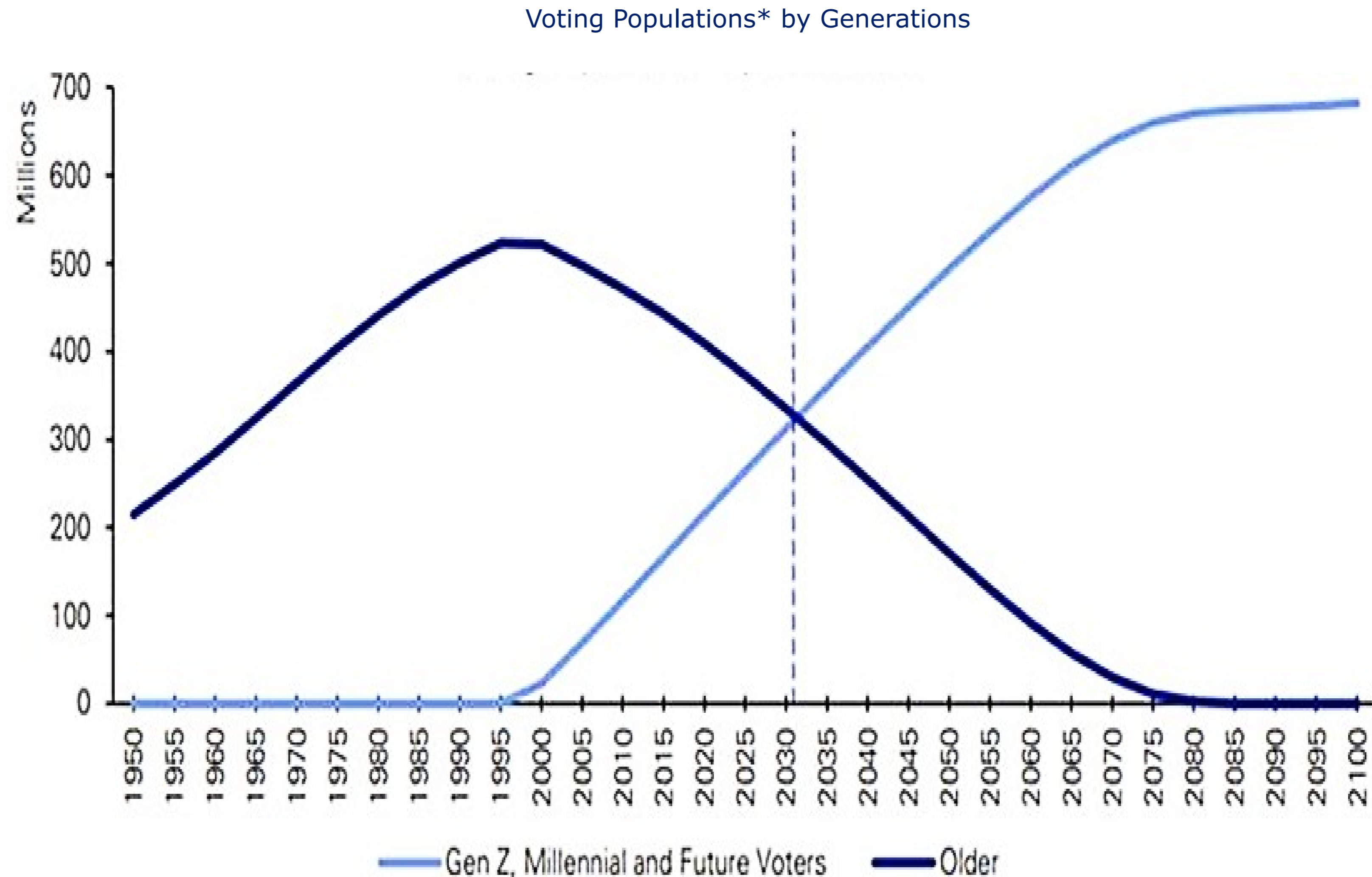
# The Largest Generation Ever, Millennials Are Just Entering Their Prime Income Years

Total US Population Divided by Age Groups



Peak population figures above include immigration. Reduced immigration will lead to a smaller overall size of Gen Z.  
 Source: DESA UN Data sets, Fundstrat; Federated Hermes. Updated June 28, 2021

# For Your Consideration-Millennials & Gen Z Will Have More Voters Than Older Generations By The End Of This Decade



\*Voting population estimated from 17.5 years and older.  
Source: United Nations, Haver, Deutsche Bank, as of September 9, 2020.

# Interested In Hearing More?

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LINDA DUESSEL



## Mind on the Market

With more than 30 years of experience, Linda Duessel is nationally recognized for her expertise in analyzing equity market conditions. Linda discusses personal finance with investor groups across the country on topics of interest ranging from the impact of the alternative minimum tax to investing for retirement. Additionally, Linda has been extensively quoted by Associated Press, The Wall Street Journal and Barron's, as well as featured in the annual roundtable for USA Today.

As senior equity market strategist, Linda is part of the equity income team, which is responsible for formulating Federated's views about the market and the firm's positioning strategies within the equity income team. As senior client portfolio manager, she is responsible for articulating the strategy, process, positioning and performance of Federated's equity income products.

Interested in hearing more from Linda? Here are two ways:

1. **Read her weekly market views**  
Look for them on our site and in our weekly email.
2. **Connect with her on LinkedIn**



# Cryptocurrencies Demystified

Presented by

**Linda A. Duessel, CFA®, CPA, CFP®**

Senior Equity Strategist  
Senior Vice President

September 2021

# What Is Bitcoin?



# October 31, 2008

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Satoshi Nakamoto's Whitepaper

I've been working on a new electronic cash system that's fully peer-to-peer, with no trusted third party.

The paper is available at:

<http://www.bitcoin.org/bitcoin.pdf>

The main properties:

Double-spending is prevented with a peer-to-peer network.

No mint or other trusted parties. \*

Participants can be anonymous.

New coins are made from Hashcash style proof-of-work.

The proof-of-work for new coin generation also powers the network to prevent double-spending.

# What is Bitcoin?

***Bitcoin is a form of digital currency, entirely created and held in digital form without any management by a central bank or government.***

- It achieves this status by managing a distributed database (distributed ledger).
- In addition, users or holders of the tokens use encryption to secure their access to the entries in this database.
- Each transaction or movement of tokens is then updated to the database and a copy of this transaction is recorded to the ledger—hence, the database has the entire history of each token and its movement from its inception.
- To ensure security, a majority of the databases (nodes) needs to accept or acknowledge each transaction—this work is done by miners as “proof of work.”
- Each new bitcoin is mined by solving an encrypted message and the difficulty is increased over time—making each additional coin more difficult to mine.

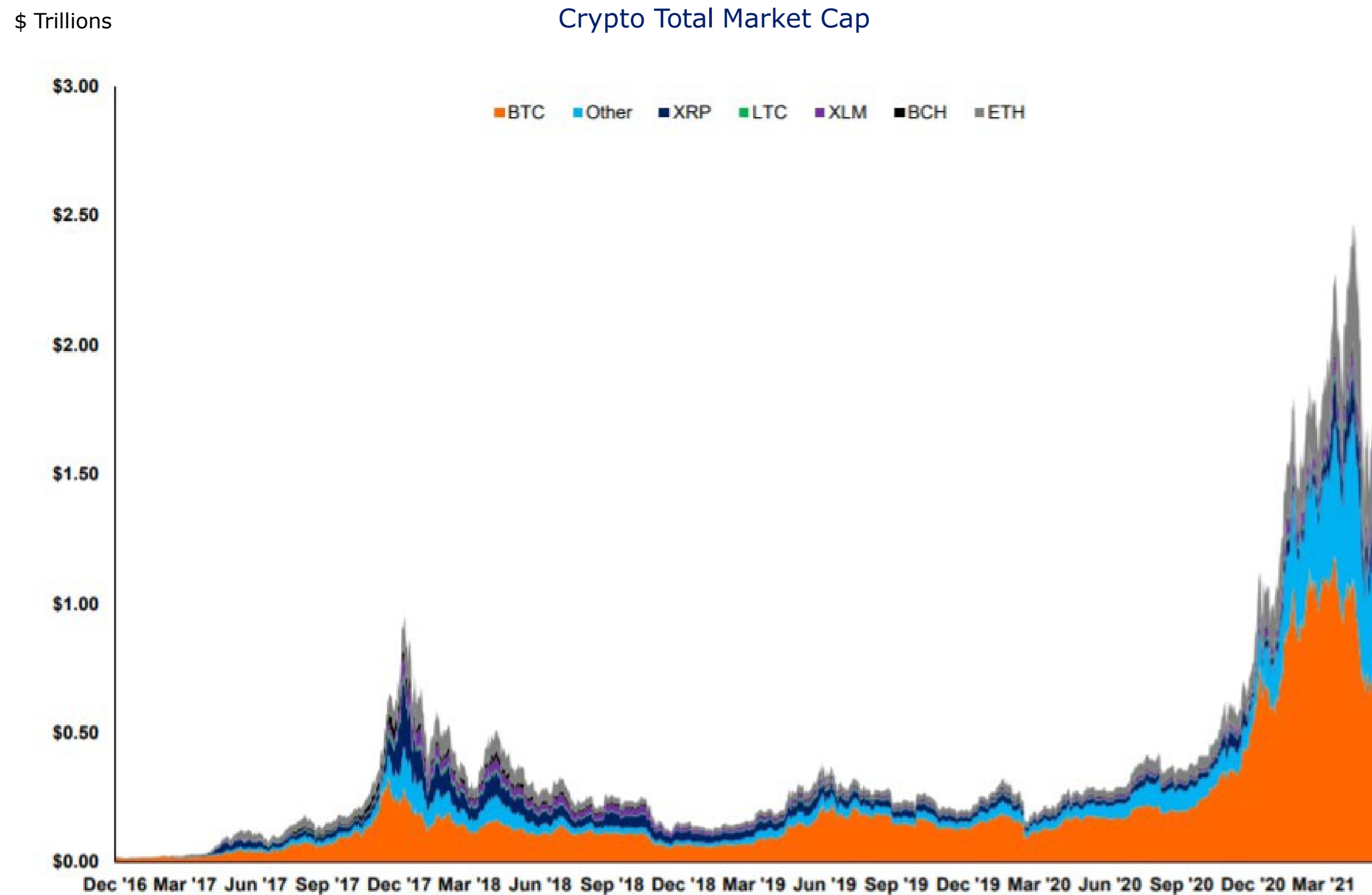
# The Three Categories of Cryptocurrencies

Cryptocurrency Examples

	Cryptocurrency	Blockchain	Backing	Fixed Quantity?	Smart Contracts	Application
Standalone	Bitcoin	Bitcoin	None	Yes	No	
	Ether	Ethereum	None	No	Yes	
Asset-Backed (Stablecoins)	Tether	Bitcoin	USD	No	No	
	Dai	Ethereum	USD	No	Yes	
	Facebook/Diem	LibraBFT	USD	No	Yes	
	Tether Gold	Ethereum	Gold	Yes	No	
Utility	Stellar Lumens	Stellar	None	Yes	Yes	Payments
	Basic Attention Token	Ethereum	None	Yes	Yes	Advertising
	OX (ZRX)	Ethereum	None	Yes	Yes	Exchanges

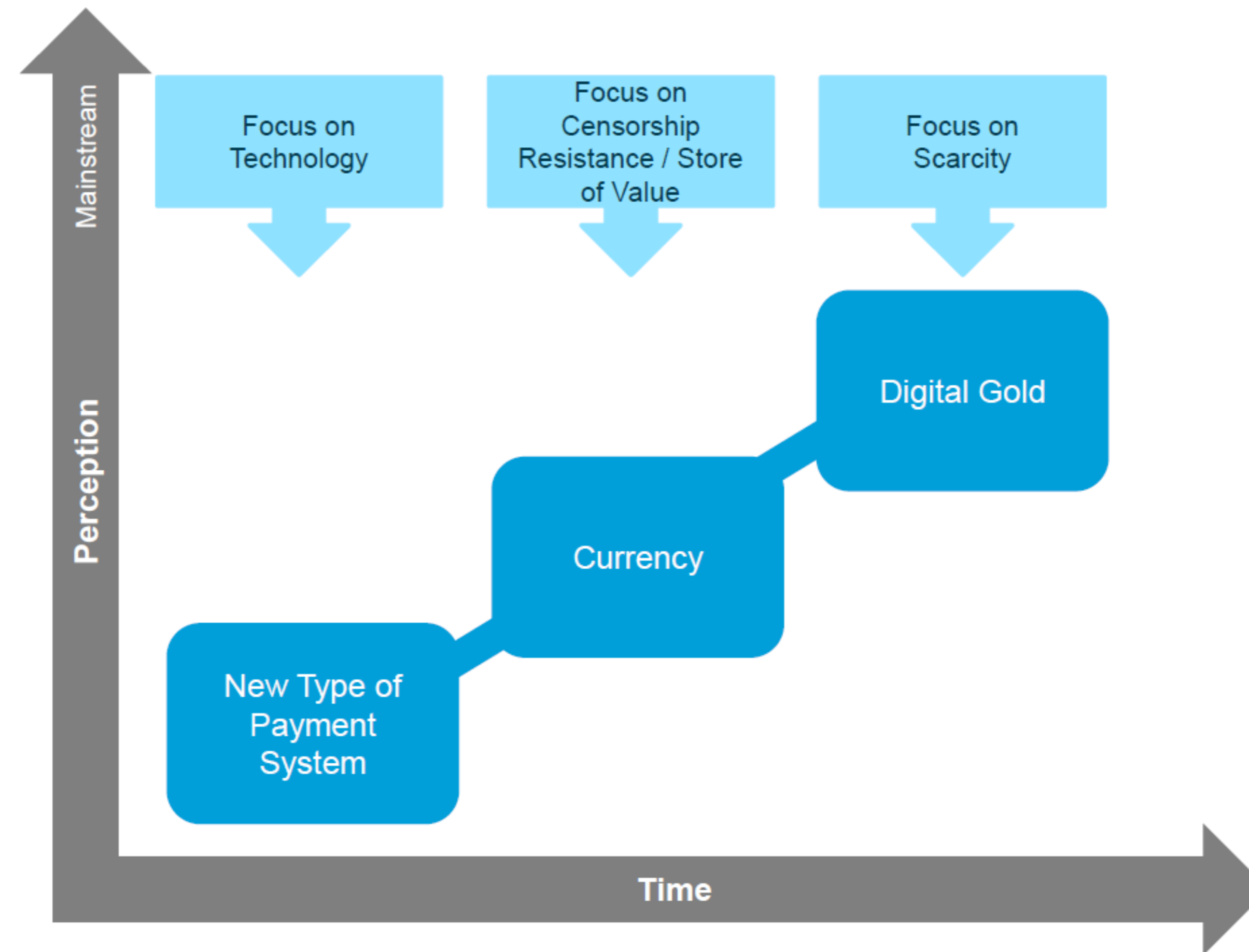
Source: Redburn. January 14, 2021

# Crypto Market Capitalization Has Grown Dramatically

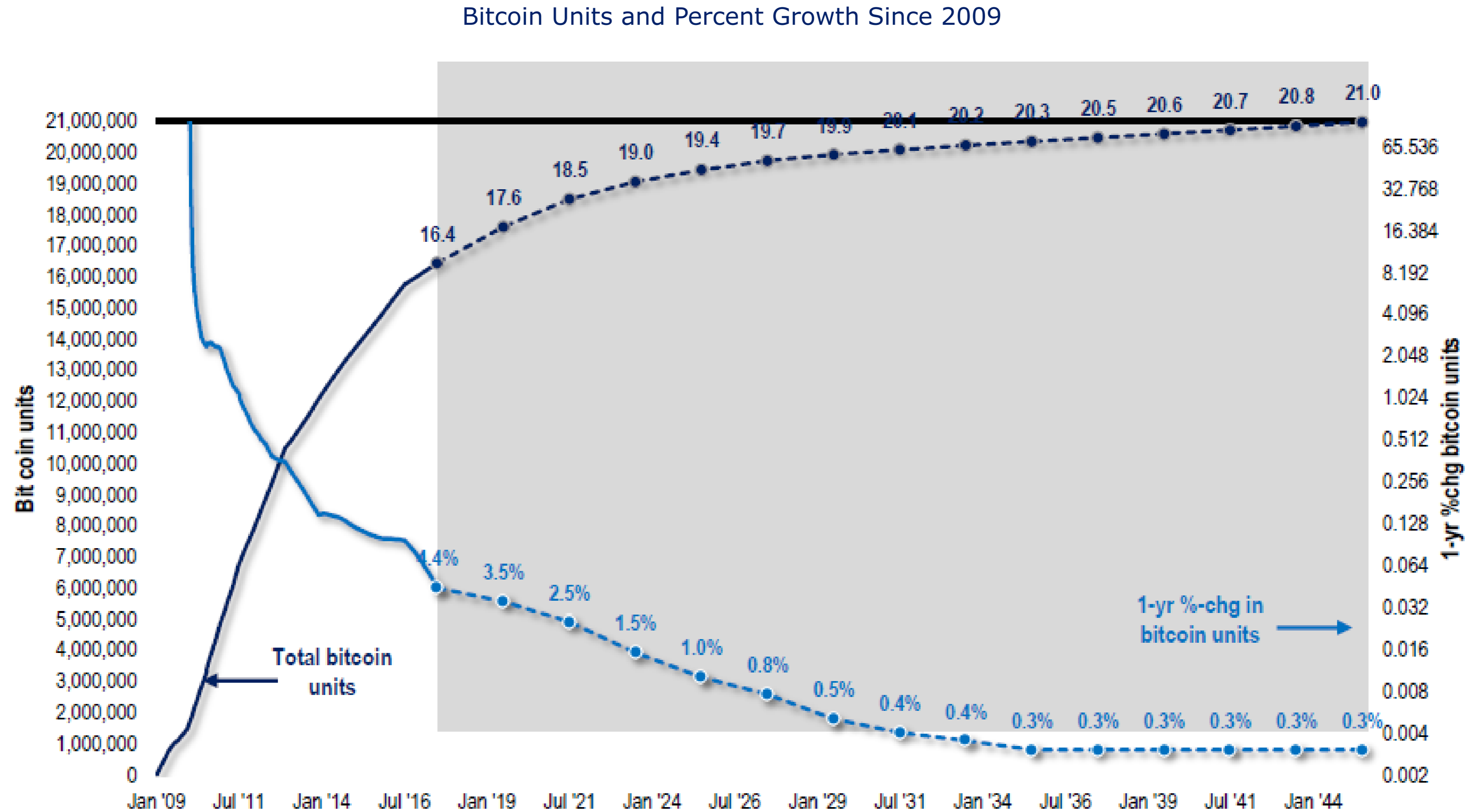


Note: BTC=Bitcoin; XRP=Ripple; LTC=Litecoin; XLM=Stellar; BCH=Bitcoin Cash; ETH=Ethereum  
Source: Fundstrat, Coinmetrics. June 22, 2021

# What is Bitcoin?



# Maximum Number of Bitcoin is: 20999999.976900



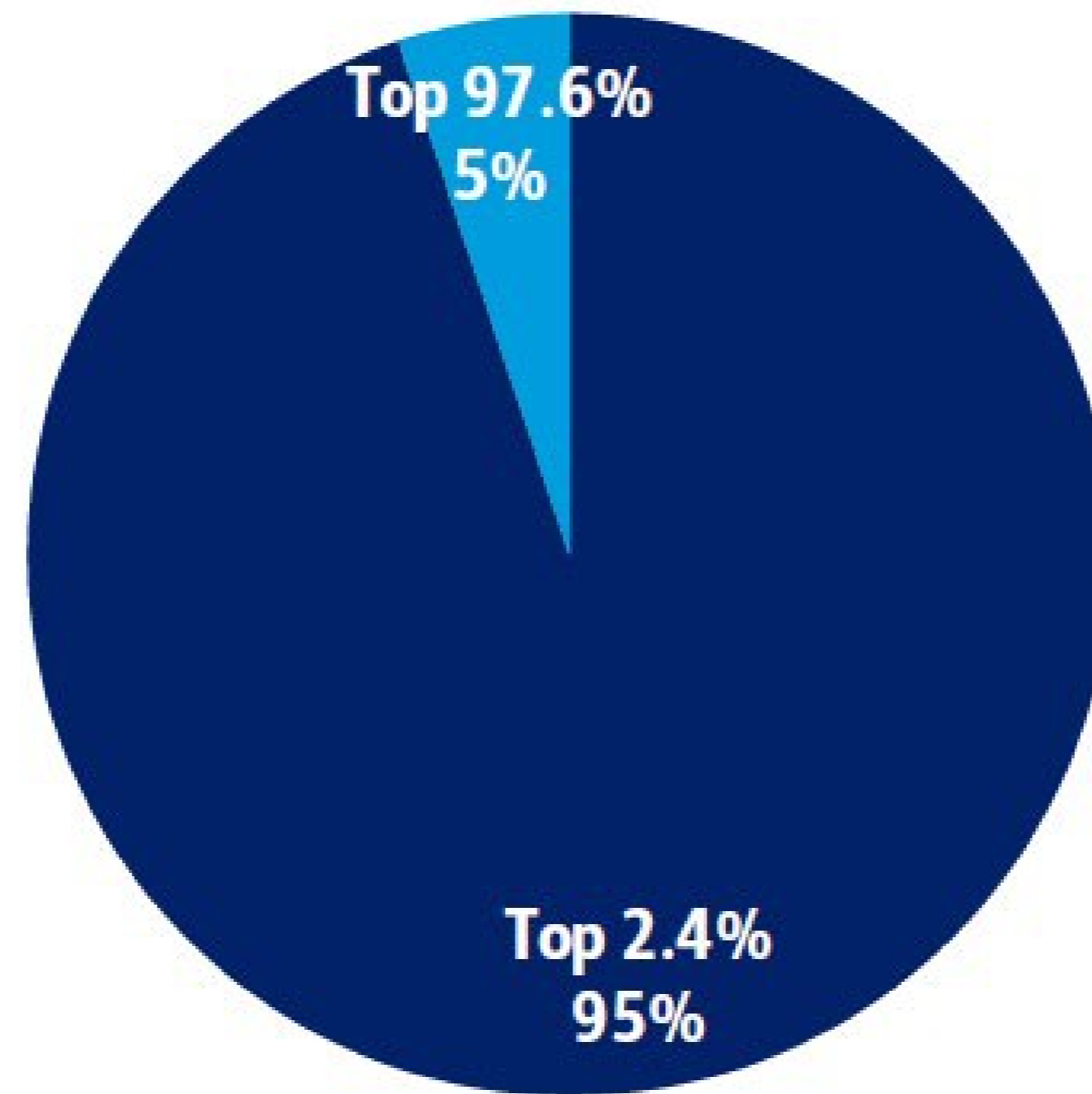
Source: Fundstrat; Bloomberg. 2017



# Used As A Store of Value

## 95% of Total Bitcoin Is Owned by the Top 2.4% of Addresses With the Largest Balances

Distribution of Bitcoin Value by Fraction of Addresses (Accounts)



# Used As A Store of Value

## Major Companies Adopt Bitcoin as a Reserve Asset

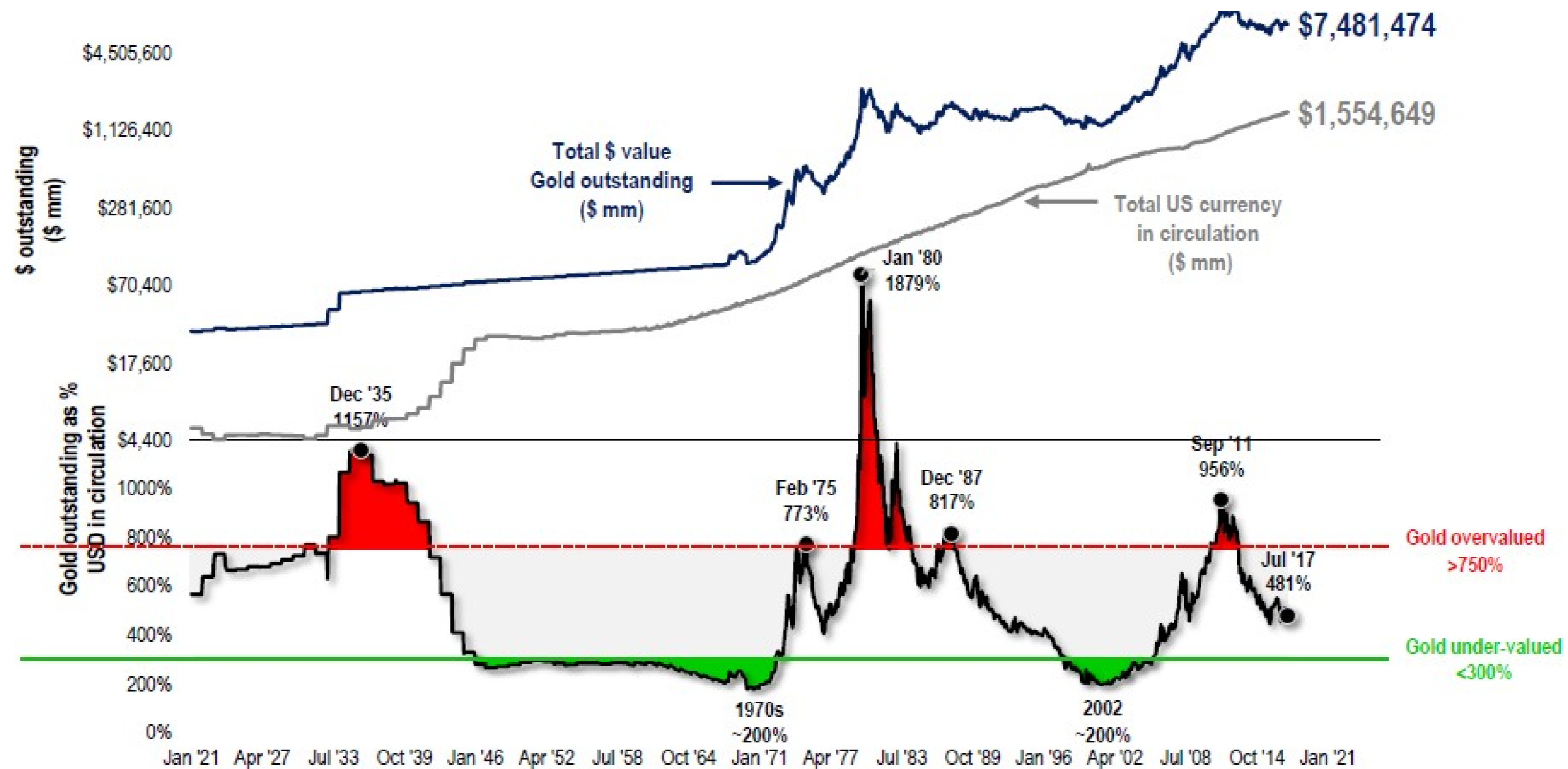
Public Companies With Biggest Bitcoin Reserves

<b>Ticker</b>	<b>Company</b>	<b># of Bitcoins</b>	<b>Value of Bitcoin Reserve</b>
MSTR	MicroStrategy Incorporated Class A	92,079	\$3.4 B
TSLA	Tesla Inc	42,902	\$1.6B
BRPHF	Galaxy Digital Holdings Ltd.	16,400	\$618.2M
VYGVF	Voyager Digital Ltd.	12,260	\$462.2M
SQ	Square, Inc. Class A	8,027	\$302.6 M
MARA	Marathon Digital Holdings Inc	5,518	\$208.1 M
COIN	Coinbase Global, Inc. Class A	4,482	\$169.0M
TCMKTS	Bitcoin Group SE	3,947	\$149.0 M
TSX	Hut 8 Mining Corp	3,233	\$122.0 M
RIOT	Riot Blockchain Inc	2,000	\$75 M

# Used As A Store of Value

## More Gold Circulating Than USD

Gold Price and Gold Value Outstanding as % USD in Circulation\*



\*\$ mm and the ratio is %. Since 1921  
Source: Fundstrat; Bloomberg, 2017

# Used As A Store of Value

## Central Banks Hold 18% of All Gold...Game Changer if They Buy Crypto?

		Central Bank Holdings of Gold			
		Metric tonnes	\$ value (billions)	% of reserves**	Est. % total gold
1	United States	8,133.5	\$319.9	75.2%	4.3%
2	Germany	3,377.3	132.8	69.7%	1.8%
3	IMF	2,814.0	110.7	1)	1.5%
4	Italy	2,451.8	96.4	67.5%	1.3%
5	France	2,435.9	95.8	65.8%	1.3%
6	China	1,842.6	72.5	2.4%	1.0%
7	Russia	1,687.3	66.4	17.1%	0.9%
8	Switzerland	1,040.0	40.9	5.8%	0.5%
9	Japan	765.2	30.1	2.5%	0.4%
10	Netherlands	612.5	24.1	66.2%	0.3%
11	India	557.8	21.9	6.1%	0.3%
12	ECB	504.8	19.9	27.6%	0.3%
13	Turkey	436.0	17.2	17.3%	0.2%
14	Taiwan	423.6	16.7	3.8%	0.2%
15	Portugal	382.5	15.0	54.7%	0.2%
16	Saudi Arabia	322.9	12.7	2.5%	0.2%
17	United Kingdom	310.3	12.2	8.5%	0.2%
18	Lebanon	286.8	11.3	21.8%	0.2%
19	Spain	281.6	11.1	17.7%	0.1%
20	Austria	280.0	11.0	48.5%	0.1%
21-99	Central banks 21-99	4,479.3	176.2	—	2.4%
	<b>World *</b>	<b>33,425.6</b>	<b>\$1,314.8</b>	<b>1)</b>	<b>17.6%</b>

\*As calculated by the IMF.

\*\*The percentage share held in gold of total foreign reserves, as calculated by the World Gold Council. The value of gold holdings is calculated using the end of month LBMA Gold price published daily by ICE Benchmark Administration. In April 2017 the end of month gold price was \$1,266.45. Data for the value of other reserves are taken from IFS, table 'Total Reserves minus Gold'.

1-Bank for International Settlements and IMF balance sheets do not allow this percentage to be calculated. In the case of any countries, up to date data for other reserves are not available.

Source: World Gold Council. As of June 2017. \$ in billions; Fundstrat. June 23, 2021

# Used For Currency

## Bitcoin Only Lacks Acceptability and Perhaps Durability

Characteristics of a Currency According to the St. Louis Fed

Characteristic	U.S. Dollar	Gold	Bitcoin
Durability	✓	✓	X (?)
Portability	✓	X	✓
Divisibility	✓	X	✓
Uniformity	✓	✓	✓
Limited Supply	X (?)	✓	✓
Acceptability	✓	X	X

# Used For Currency

## Acceptance Is a Necessary Step for Bitcoin's Future

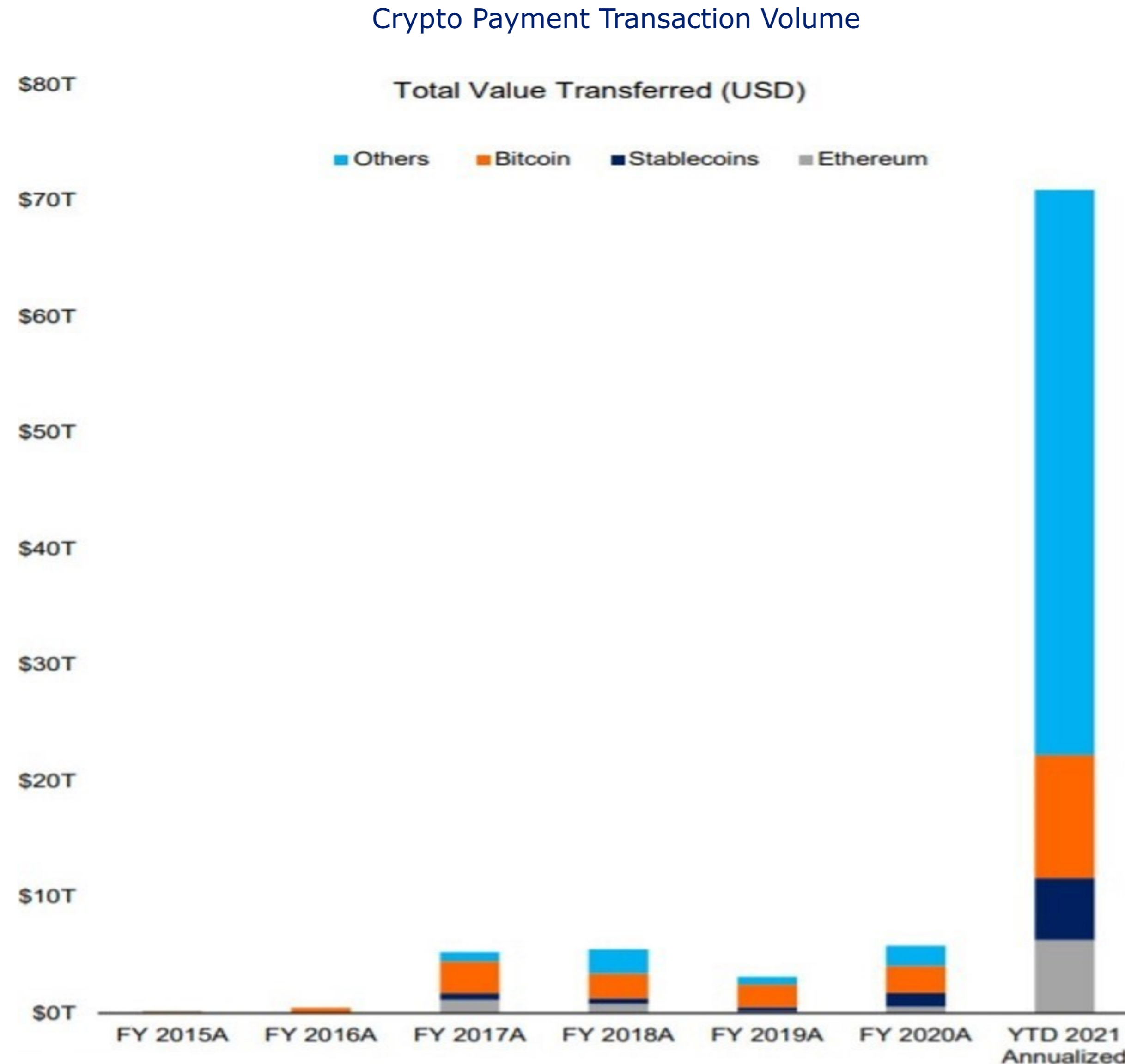
### Companies That Accept Bitcoin As Payment

<b>Ticker</b>	<b>Company</b>	<b>GICS Sector</b>
T	AT&T Inc.	Communication Services
TSLA	Tesla Inc.	Consumer Discretionary
OSTK	Overstock.com, Inc.	Consumer Discretionary
HD	Home Depot, Inc.	Consumer Discretionary
SBUX	Starbucks Corporation	Consumer Discretionary
YUM	Yum! Brands, Inc.	Consumer Discretionary
RKUNY	Rakuten Group, Inc.	Consumer Discretionary
WFM	Whole Foods Market, Inc.	Consumer Staples
PYPL	Paypal Holdings Inc.	Information Technology
V	Visa Inc.	Information Technology
SHOP	Shopify, Inc.	Information Technology
MSFT	Microsoft Corporation	Information Technology

Source: Strategas. June 18, 2021

# Used For Currency

## Crypto Payment Transaction Volume Seeing Incredible Growth



Source: Fundstrat, Coinmetrics June 22, 2021

## Used For Currency

# Nine of the Top 10 Countries in Terms of Crypto Adoption Are Emerging Markets

Crypto Currency Adoption Globally (Relative to Purchasing Power Parity Adjusted GDP)

Rank	Country
1	Ukraine
2	Russia
3	Venezuela
4	China
5	Kenya
6	USA
7	South Africa
8	Nigeria
9	Colombia
10	Vietnam



# Used For Currency Financial Inclusion

Population Statistics in Income Tiers Using World Bank Definitions, As Well as Allocation of Economic Activity, the Role of Remittances, and Shadow Economic Activity; Units As Indicated

Population Segment	Income Category				World
	High	Upper middle	Lower middle	Low	
Total	730	2,618	2,896	584	6,828
Adults (15+ years old)	601	2,071	2,023	331	5,027
Unbanked	57	565	823	218	1,663
own a mobile phone	49	439	499	92	1,079
receive cash only govt pmts	5	41	38	6	90
receive cash only wages	6	73	123	16	217
receive cash only ag pmts	0	34	117	65	216
cash or OTC remittances	3	62	140	43	248
% of adult population	12%	41%	40%	7%	100%
% of economic activity	51%	38%	11%	1%	100%
Remittances as % of GDP*	0.3%	0.9%	4.2%	5.5%	1.0%
Shadow activity as % of total†	12%	20%	23%	29%	17%

65% of the "unbanked" own a mobile phone

Almost half of the unbanked receives cash-only payments

Heavily cash-based

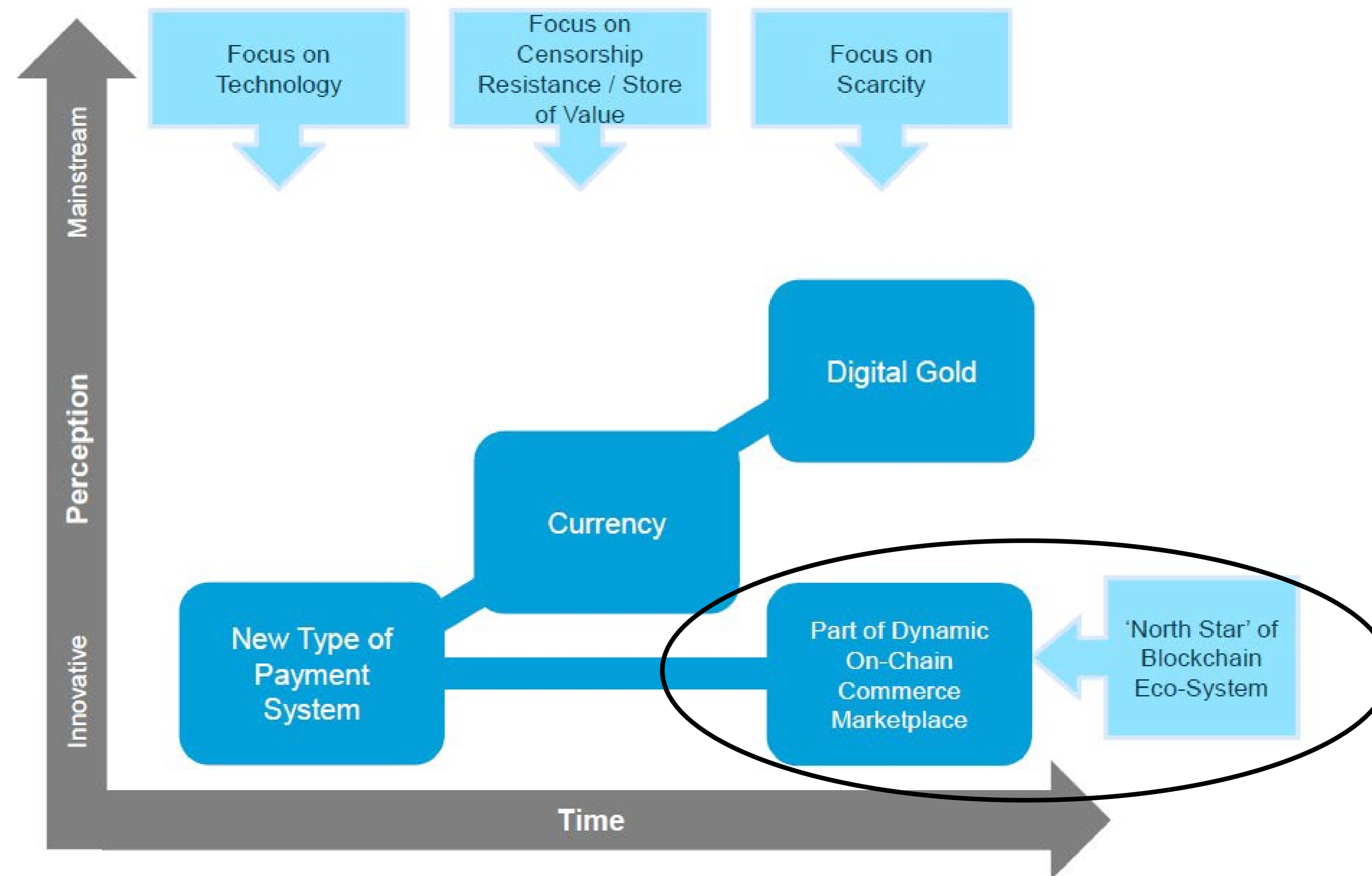
Note Statistics for the unbanked population from the [Global Findex Database](#) provided by the World Bank Group. Data as of 2017.

\* [Migration and Remittances Data](#) as of October 2019.

† Shadow activity based on estimates as a % of GDP as of 2015 by L. Median & F. Schneider, [Shadow Economies Around the World](#), IMF Working Paper 18/17, 2018, which covers 92% of the World Bank sample by count and more than 99% by GDP  
Source: J.P. Morgan, World Bank, Median & Schneider

# Blockchain

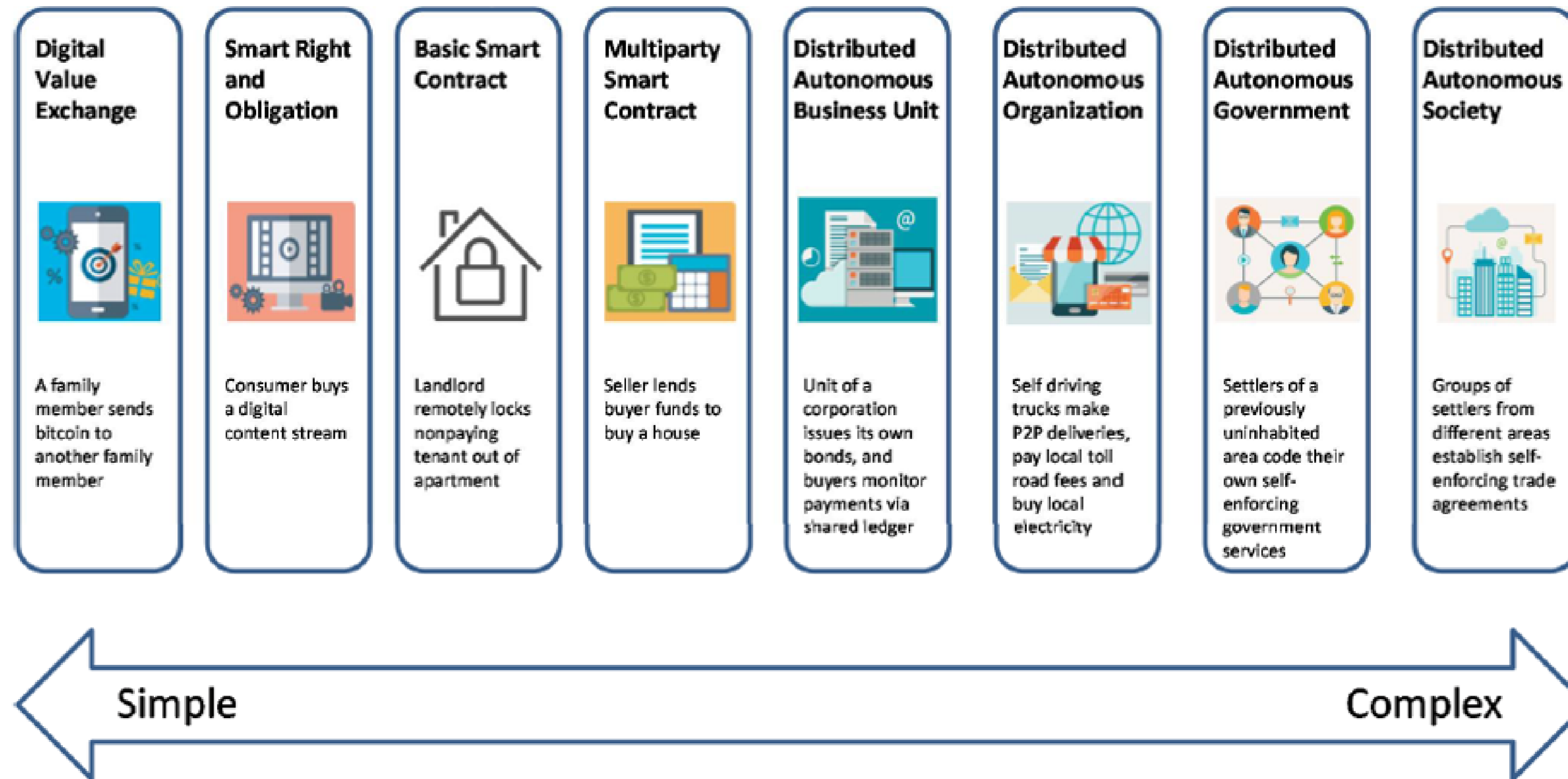
## What is Ethereum?



# Blockchain

## What Is a Smart Contract?

Smart Contracts-Simple to Complex

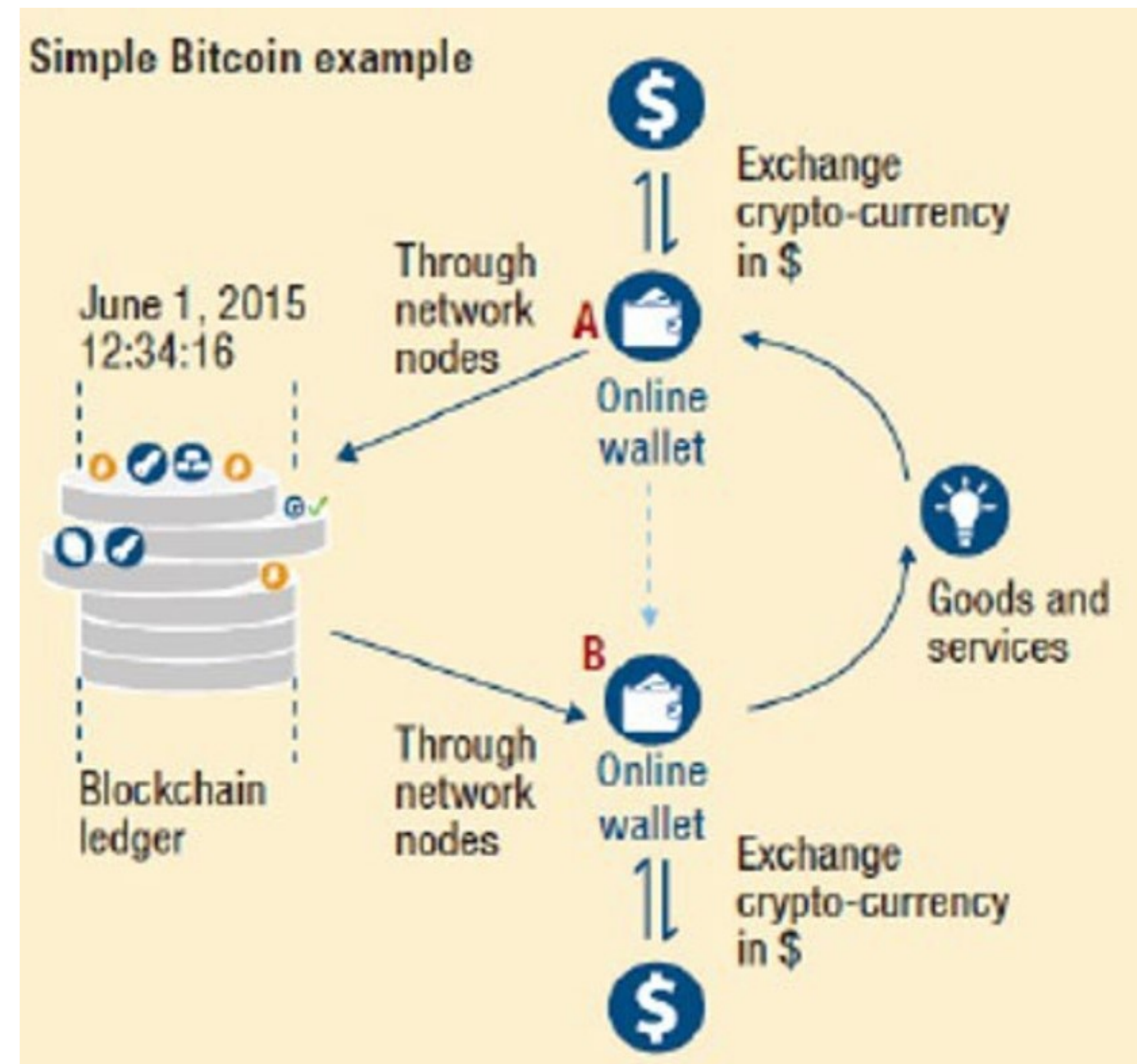


# Blockchain

## McKinsey Sees the Blockchain as One of the Most Disruptive Innovations Since the Advent of the Internet

### The Blockchain

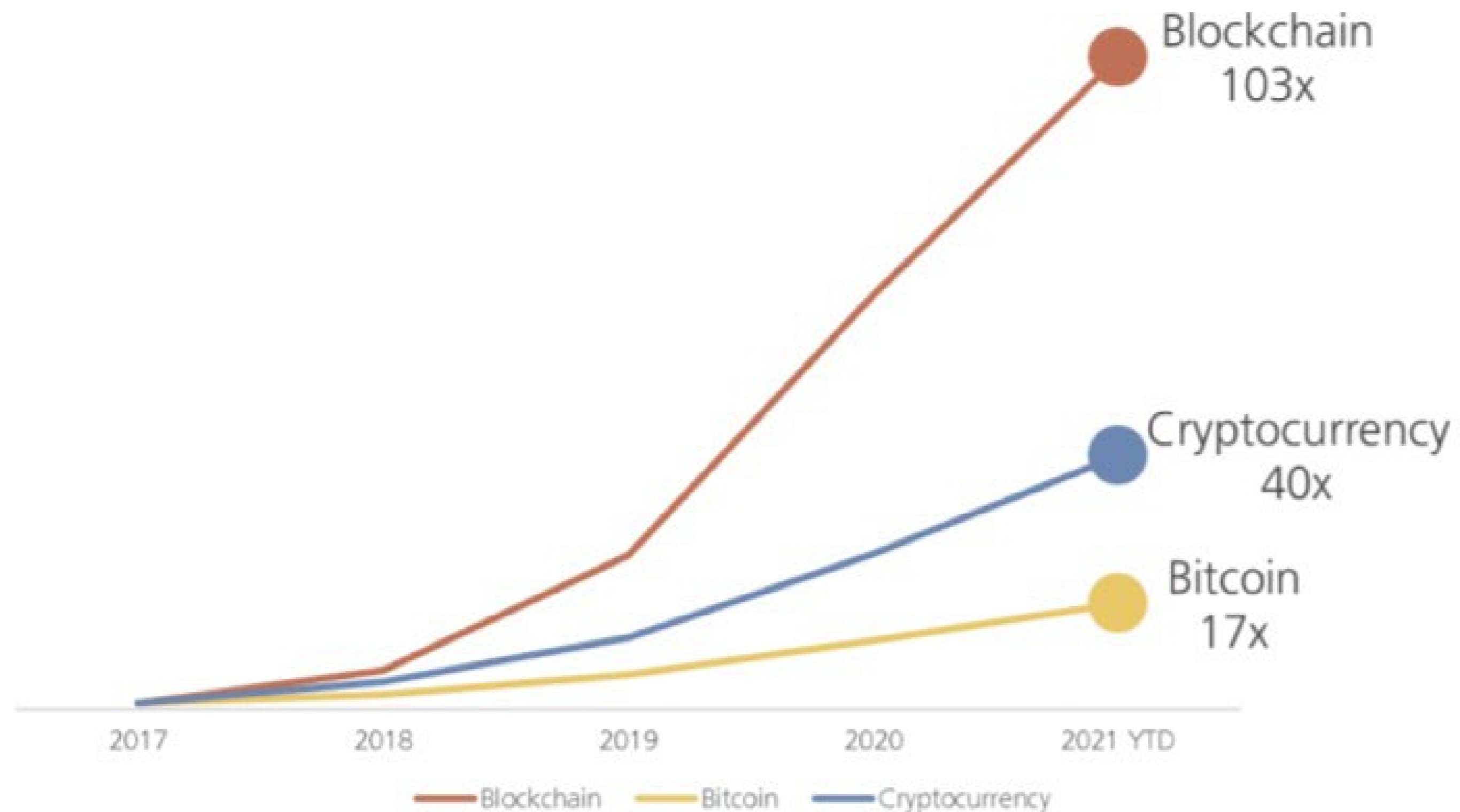
- A distributed public digital ledger that maintains, through cryptographic proof, a continuously growing secure list of transactions that is replicated repeatedly.
- A transaction network that potentially can be used by financial institutions and consumers to transact directly.
- Well-suited for applications requiring a rapid, permanent time and date stamp such as:
  - Payments
  - Financial asset transfers
  - Smart contracts
  - Ownership splits and notary services
- A technology that brings substantial benefits in terms of speed, security, transparency, convenience and cost.
- The decentralization of the transaction system will have an important impact on the way business is conducted throughout many industries.



# Blockchain

## Blockchain Patent Filings Exploded Since 2019

Cumulative Number of Global Cryptocurrency-Related Patent Filings Through 2021 YTD



Source: UBS Evidence Lab. Data as of May 25, 2021;

Note: Cryptocurrency-related patent filings are identified using the following keywords: blockchain, smart contracts, Bitcoin, digital currency, cryptocurrency, and digital ledger. Numbers are based on annual patent filings by the top 30 companies and are cumulative since 2010

# Blockchain

## Incumbency Makes Existing Players Skeptical of Technology Innovation

	Mid-1980's	Mid-1990's	Mid-2000's	Mid-2010s	Today
<b>New Entrants</b>	PCs	Internet-based Online Search Subscription Services Mobile Phones	Social Media Online Commerce Digital Only	Video Streaming Amazon again Subscription-based	Blockchain
<b>Incumbents</b>	Mainframes	Technology Hardware Software/CD Landline telephony	Retail Print and Media Newspapers	Cable/Media Retail Brands Grocery	Banks Security Companies Transaction platforms Trading, etc.

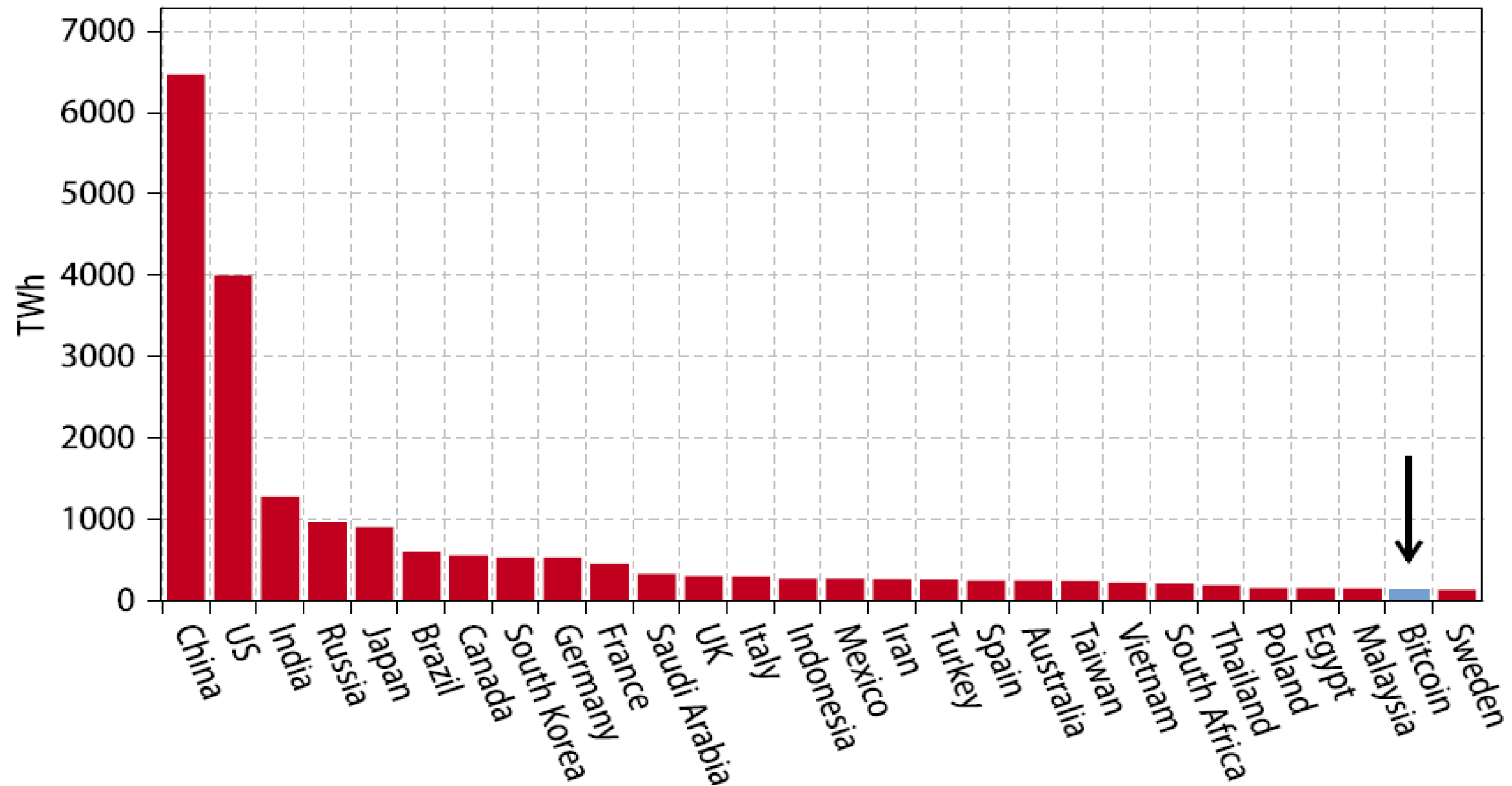
# Bitcoin Risks



# Mining And ESG Considerations

## Bitcoin Needs a Lot of Power

If Bitcoin Were a Country, It Would Be In The Top 30 Annual Electricity Consumers



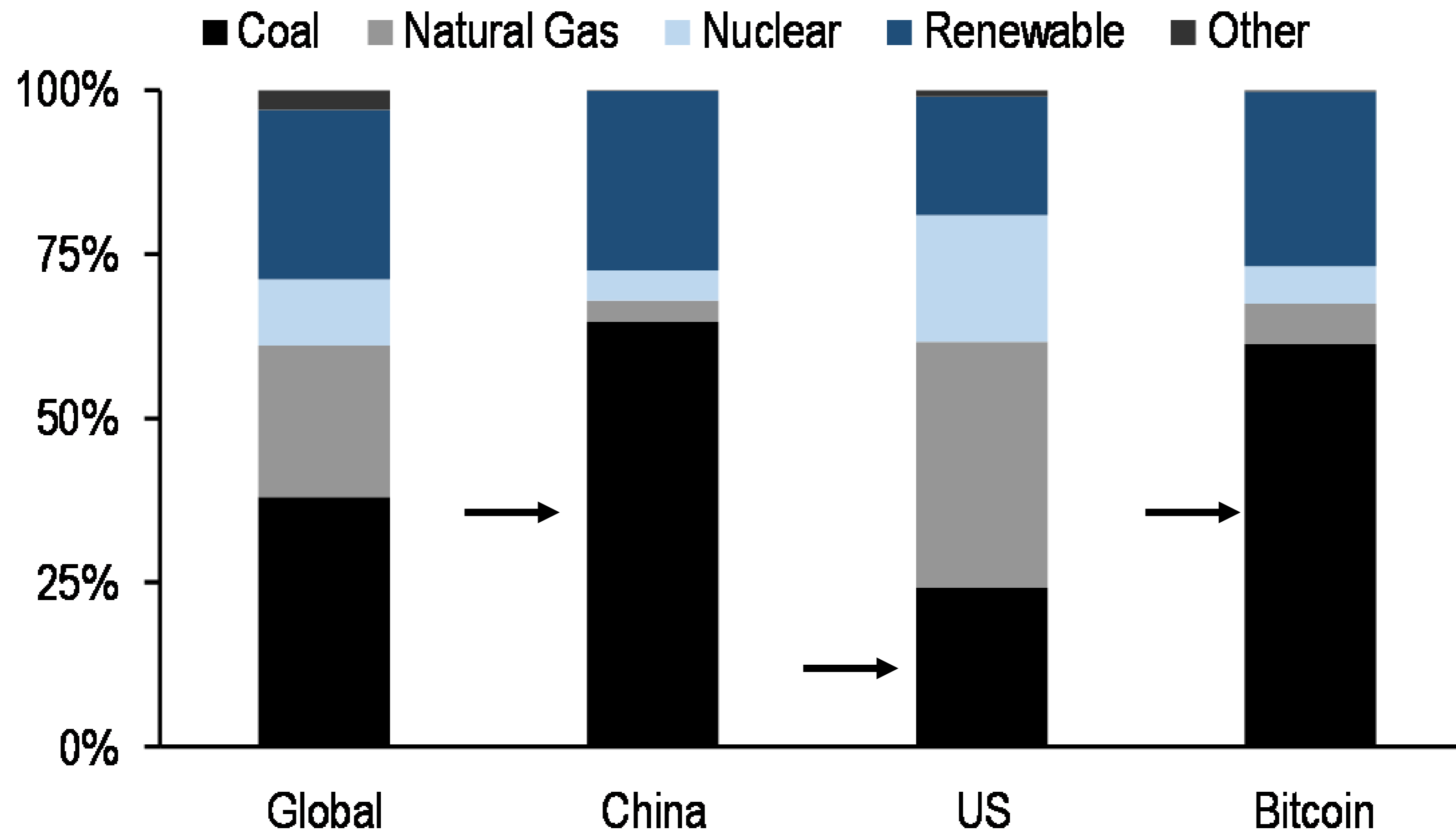
Source: Cambridge Centre for Alternative Finance, Gavekal Research/Macrobond. March 24, 2021



# Mining And ESG Considerations

## China's Kicking Out the Bitcoin Miners, and Texas Is Becoming a Mecca for Them

Fraction of Gross Electricity Supply by Fuel Type Globally As Compared to China, the United States, and the Bitcoin Network



Source: J.P. Morgan, CBEI, IEA. April 9, 2021

# Regulation

## World Governments Will Not Relinquish Hard-Fought Monopolies Over Money Supply

COUNTRY POSITIONS ON CRYPTO-CURRENCIES					
COUNTRY	CRYPTO-CURRENCIES				
	LEGAL TENDER?	TRADING PERMITTED?	OWNERSHIP PERMITTED?	CRYPTO-EXCHANGES	INITIAL COIN OFFERINGS (ICOs)
CANADA	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGULATION VARIES BY PROVINCE	REGULATED
CHINA	NO	NO	YES	ILLEGAL	BANNED
INDIA	NO	YES	YES	LEGAL	BANNED
JAPAN	NO, BUT WIDELY ACCEPTED	YES	YES	LEGAL, REGULATED BY PSA	REGULATED
RUSSIA	NO	NO	YES	ILLEGAL	GREY AREA
SWITZERLAND	NO, BUT WIDELY ACCEPTED	YES	YES	LEGAL, REGULATED BY SFTA AND FINMA	REGULATED
UK	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGISTER WITH THE FCA	GREY AREA
US	NO, BUT PARTIALLY ACCEPTED	YES	YES	LEGAL, REGULATION VARIES BY STATE	REGULATED

Source: VisualCapitalist, Chain Analysis, Comply Advantage and The SEC; BCA Research. May 21, 2021

## Regulation

# “Nobody’s Going To Ban Bitcoin”–Brian Brooks, US Comptroller of the Currency (December 4, 2020)

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Now, As to the Tax Haven Benefits of Cryptos

The latest US tax form included the following question for the first time:

“At any time during 2020, did you receive, sell, send, exchange, or otherwise acquire any financial interest in any virtual currency?”

Unsurprisingly, the only possible answers are “yes” or “no”.

# Volatility

## Bitcoin, Not Quite a Safe Haven

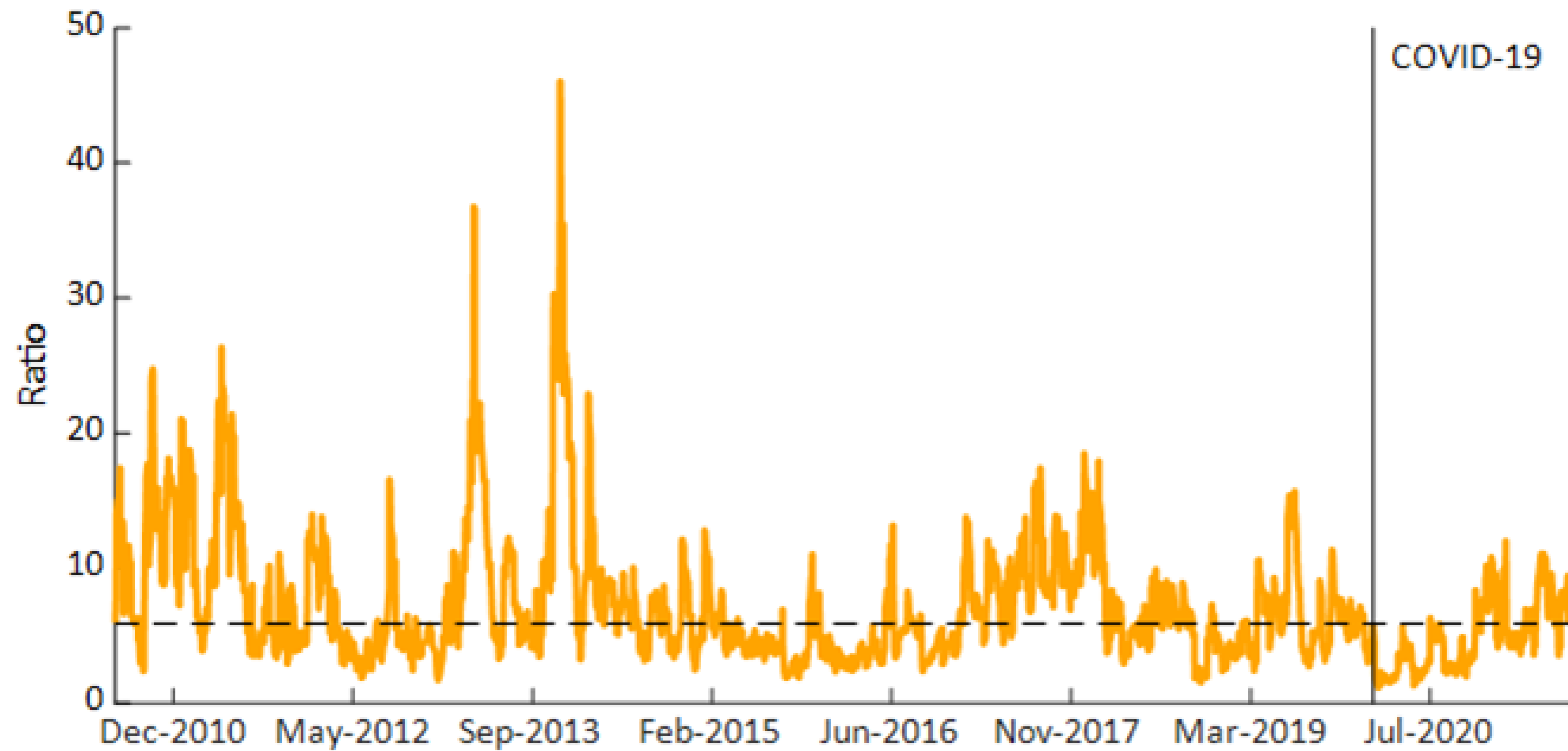


Source: Bloomberg, Goldman Sachs Global Investment Research. June 2021

# Volatility

## Just How Volatile Is Bitcoin?

Bitcoin to S&P Volatility Ratio

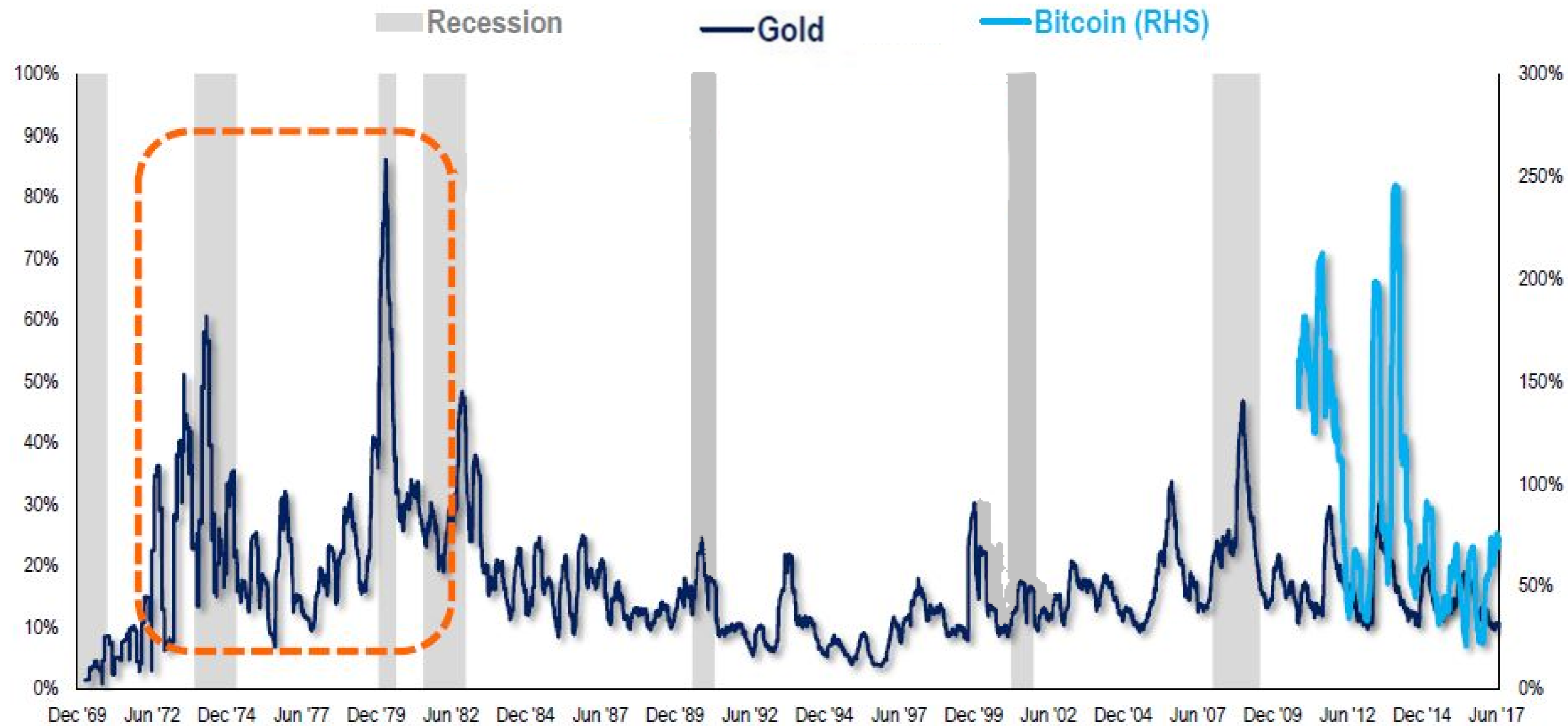


Source: Cornerstone Macro. August 23, 2021

# Volatility

## Interestingly, Gold Was Volatile Back in the Day

90 Days Rolling Volatility on Daily Return (Annualized) Since 1969

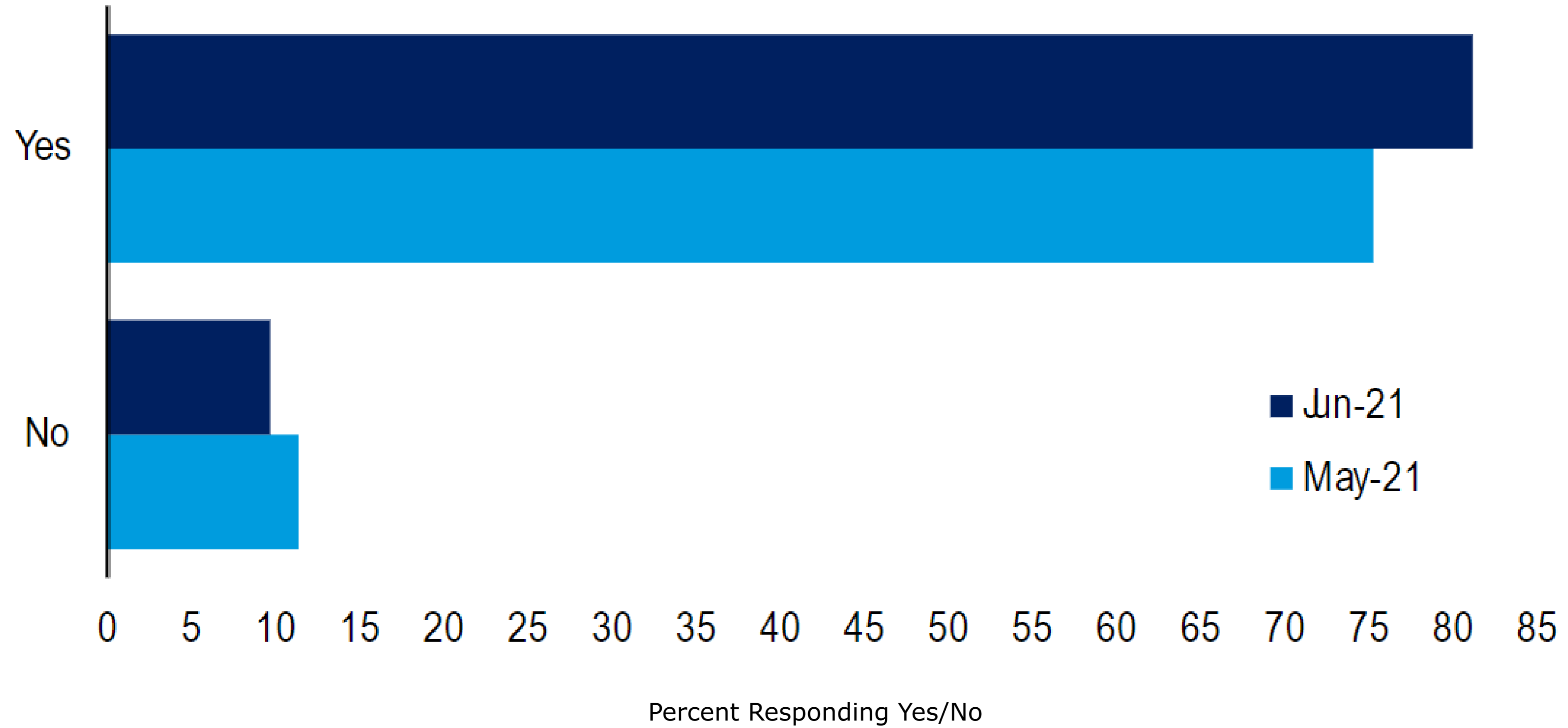


Source: Fundstrat; Bloomberg. June 30, 2021

# Bubble

## Is Bitcoin A Bubble?

81% of Financial Management Service Investors Still Think Bitcoin is a Bubble



Source: BofA Global Fund Manager Survey, June 15, 2021

# Thefts

## Crypto Theft Problem

Crypto Hacks

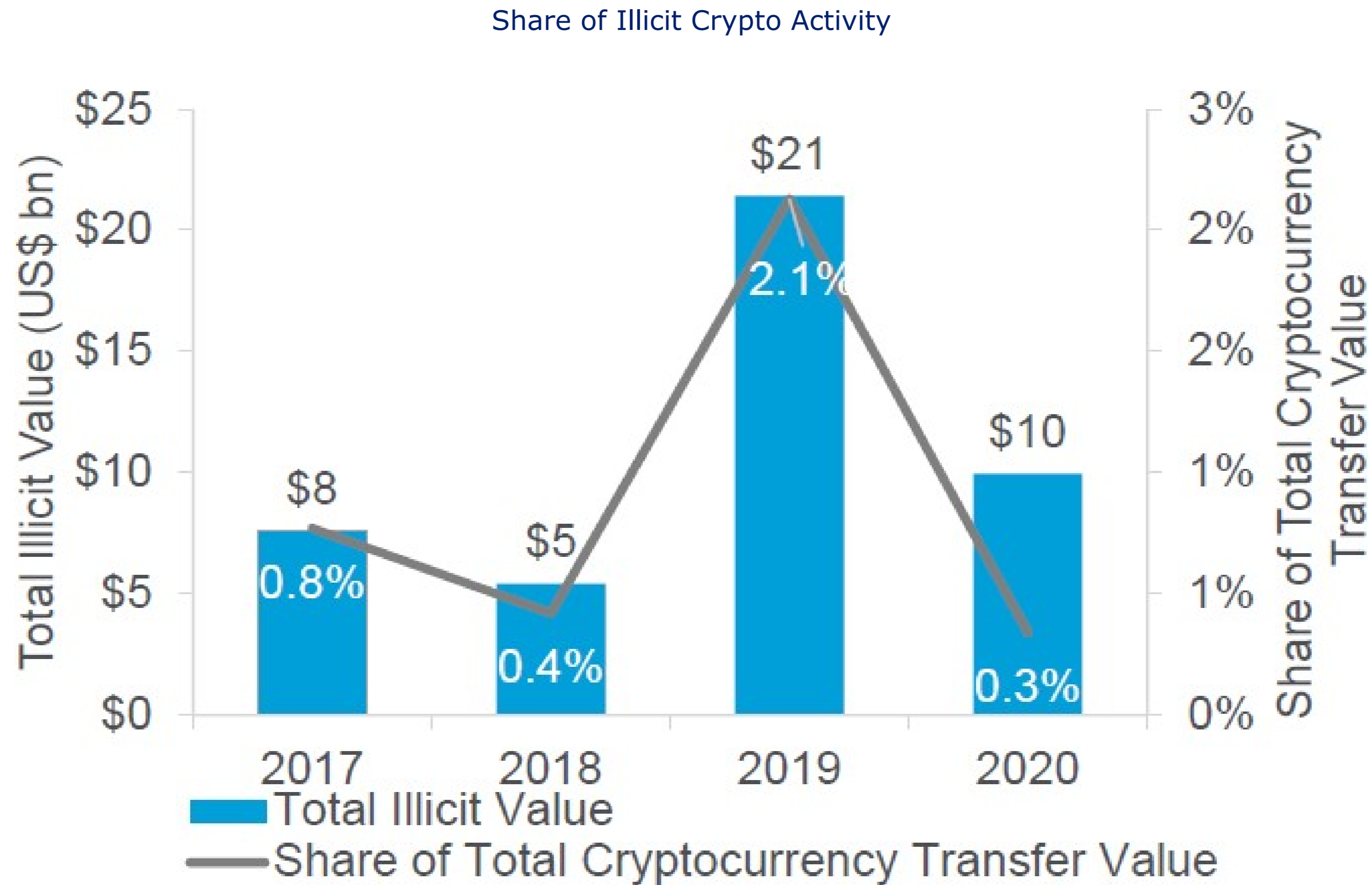
Date	Exchange	Amount Stolen (\$)	Amount Stolen (Units)
2011	Mt. Gox	\$230,928,049	792,500 BTC
2014	Poloniex	\$64,231	97 BTC
2015	Bitstamp	\$5,333,230	18,866 BTC
2016	Bitfinex	\$72,200,000	119,756 BTC
2018	Coincheck	\$487,387,361	43,611 BTC
2018	Bancor	\$23,500,000	3,504 BTC
2019	Cryptopia	\$16,000,000	4,171 BTC
2019	Bithumb	\$19,100,000	4,732 BTC
2019	Binance	\$41,167,638	7,074 BTC
2019	BITPoint	\$32,000,000	2,821 BTC
2019	Upbit	\$49,116,778	7,003 BTC

Source: Cointelegraph, Citi Business Advisory Services, "Bitcoin, At The Tipping Point" Citi. March 1, 2021



# Illicit Activity

## Known Illicit Bitcoin Flow As % of Total Flows



Source: Chainanalysis, Citi Business Advisory Services, "Bitcoin, At The Tipping Point" Citi. March 1, 2021

## CBDCs

# Are Central Banks a Threat to Bitcoin?

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Most central banks are doing active work on Central Bank Digital Currencies (CBDCs).

- Different central banks are at different stages in their work, but for the most part we are still early in the game.
- The final outcome for CBDC will likely be highly diversified by country.

→ **In any case, we are years away from implementation.**

The Bank for International Settlements is coordinating CBDC work among a group of large central banks. Core principles include:

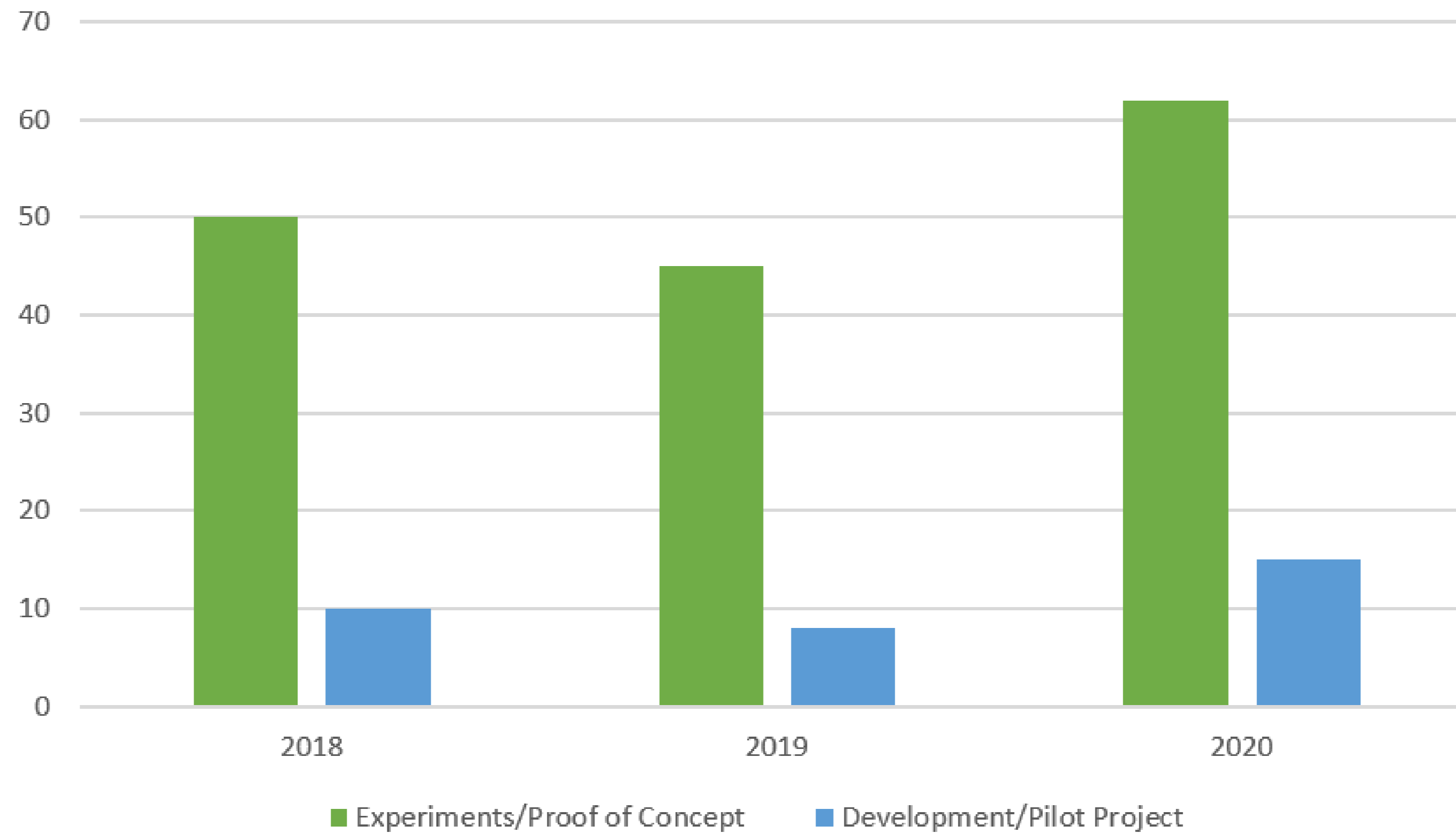
- CBDCs should not compromise monetary and financial stability;
- CBDCs need to coexist with and compliment existing forms of money;
- CBDC should promote innovation and efficiency.

→ **The second point would have been phrased very differently if the goal was to regulate Bitcoin out of existence.**

# CBDCs

## Central Banks Advancing on CBDC Work

% of Respondents Engaging In Type of CBDC Work



# CBDCs

## Why Are Central Bank Digital Currencies Being Studied?

### **Modern Means of Payment**

- Compliment to cash.
- More efficient payments than provided by current systems (safe, immediate clearing, etc.).
- The final outcome for CBDC will likely be highly diversified by country.

### **Monetary Policy Efficiency**

- Interest-bearing CBDC's can pass on monetary policy decisions quickly to CBDC holders (i.e., ideally to every single household and business).
- CBDC facilitate new forms of monetary policy stimulus (e.g., "helicopter drops," which are cumbersome to implement under the current system).

### **Financial Stability Challenges**

- Potential disintermediation of banks.
- Reduce risk that alternative units of account dominate.

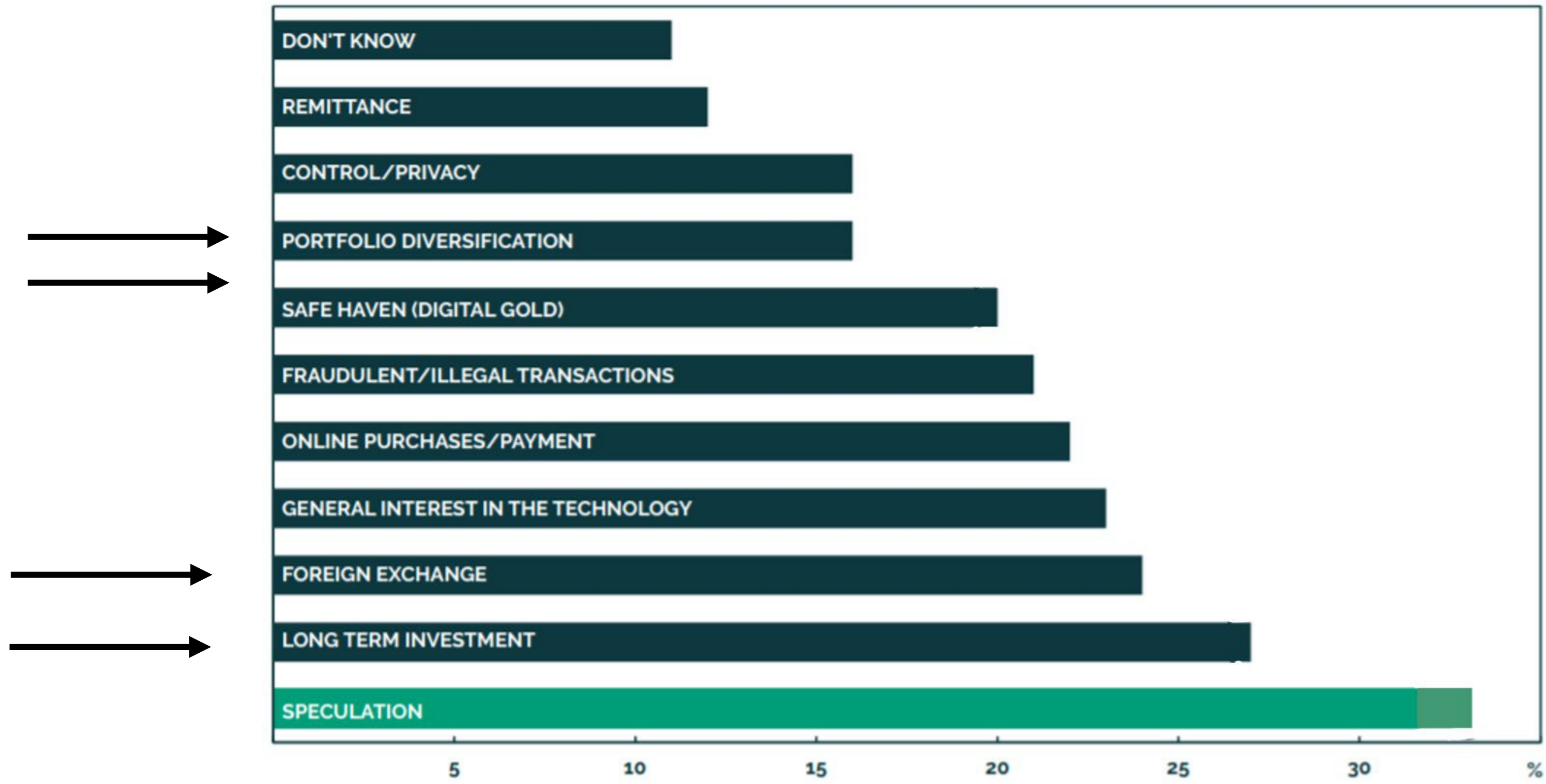
➔ **Most central banks are operating in a context of coexistence with Bitcoin and similar, rather than in a context of "us vs. them" conflict. CBDCs and Bitcoin will live together and perform different functions.**

Should You Own Bitcoin?



# Why Would You Want To Own Bitcoin?

US: Reasons For Using/Buying a Cryptocurrency



NOTE: SURVEY DATA DOES NOT ADD UP TO 100% AS RESPONDENTS WERE PERMITTED TO MORE THAN ONE RESPONSE. RESPONDENTS AGES VARIED FROM 18YRS TO 45YRS.

# Diversifier

## Bitcoin Has Been Marching to Its Own Drummer

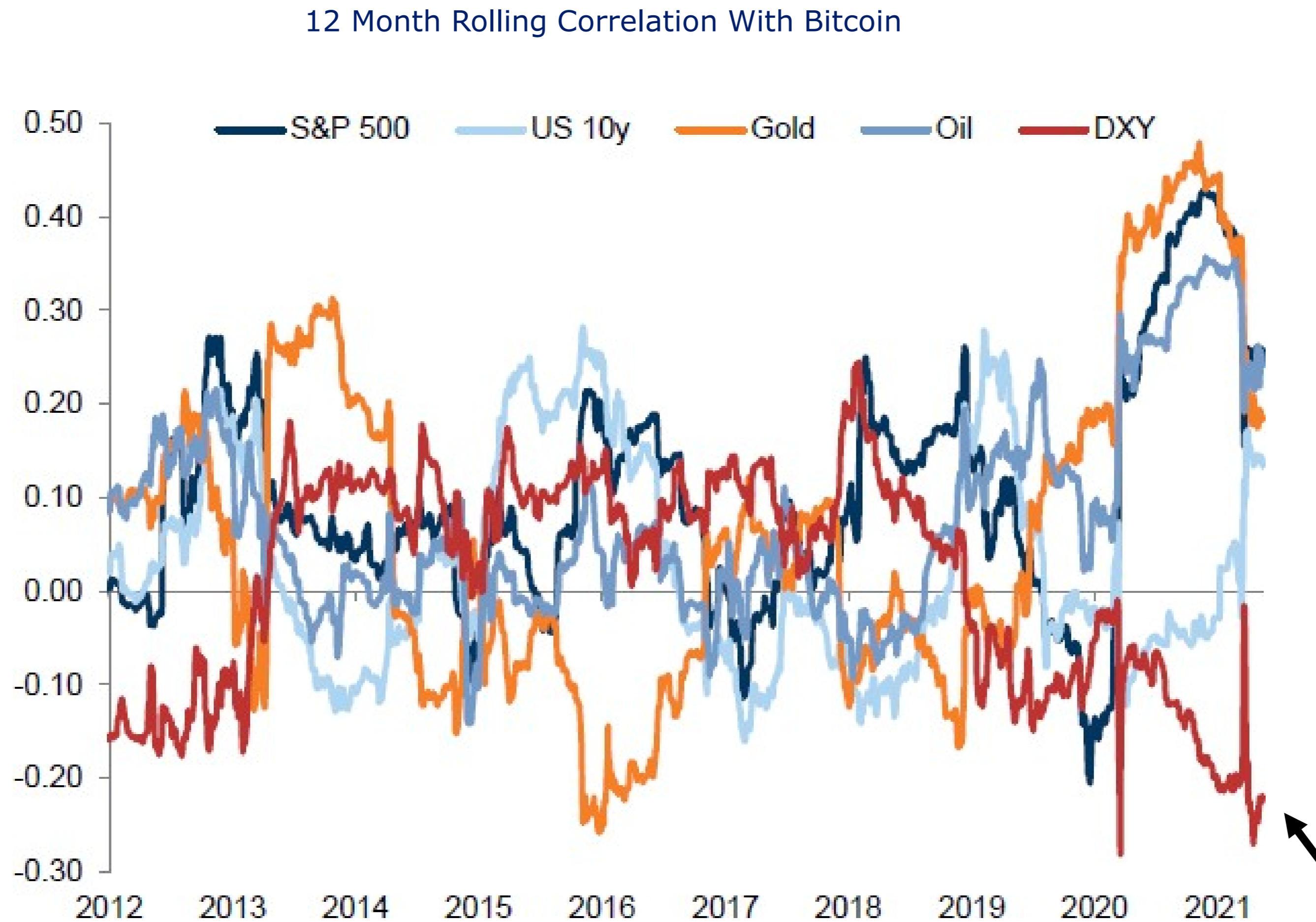
Correlation of Weekly Returns Over Past Five Years

	S&P500	USTs	US HG Credit	EM Local	TIPS	USD trade-wtd	Commodities	Gold	Yen cash	BTC
S&P500	1	-0.25	0.45	0.51	0.15	-0.44	0.56	0.20	-0.12	0.14
USTs		1	0.54	0.08	0.76	-0.09	-0.20	0.46	0.54	0.03
US HG Credit			1	0.52	0.70	-0.48	0.31	0.49	0.41	0.12
EM Local				1	0.37	-0.85	0.51	0.49	0.28	0.17
TIPS					1	-0.35	0.20	0.61	0.45	0.16
USD trade-wtd						1	-0.51	-0.52	-0.43	-0.17
Commodities							1	0.27	-0.01	0.17
Gold								1	0.54	0.19
Yen cash									1	0.11
Bitcoin										1

Source: JP Morgan; Bloomberg Finance February 18, 2021

# Safe Haven

## Recently, Bitcoin Has Acted As Dollar Debasement Hedge



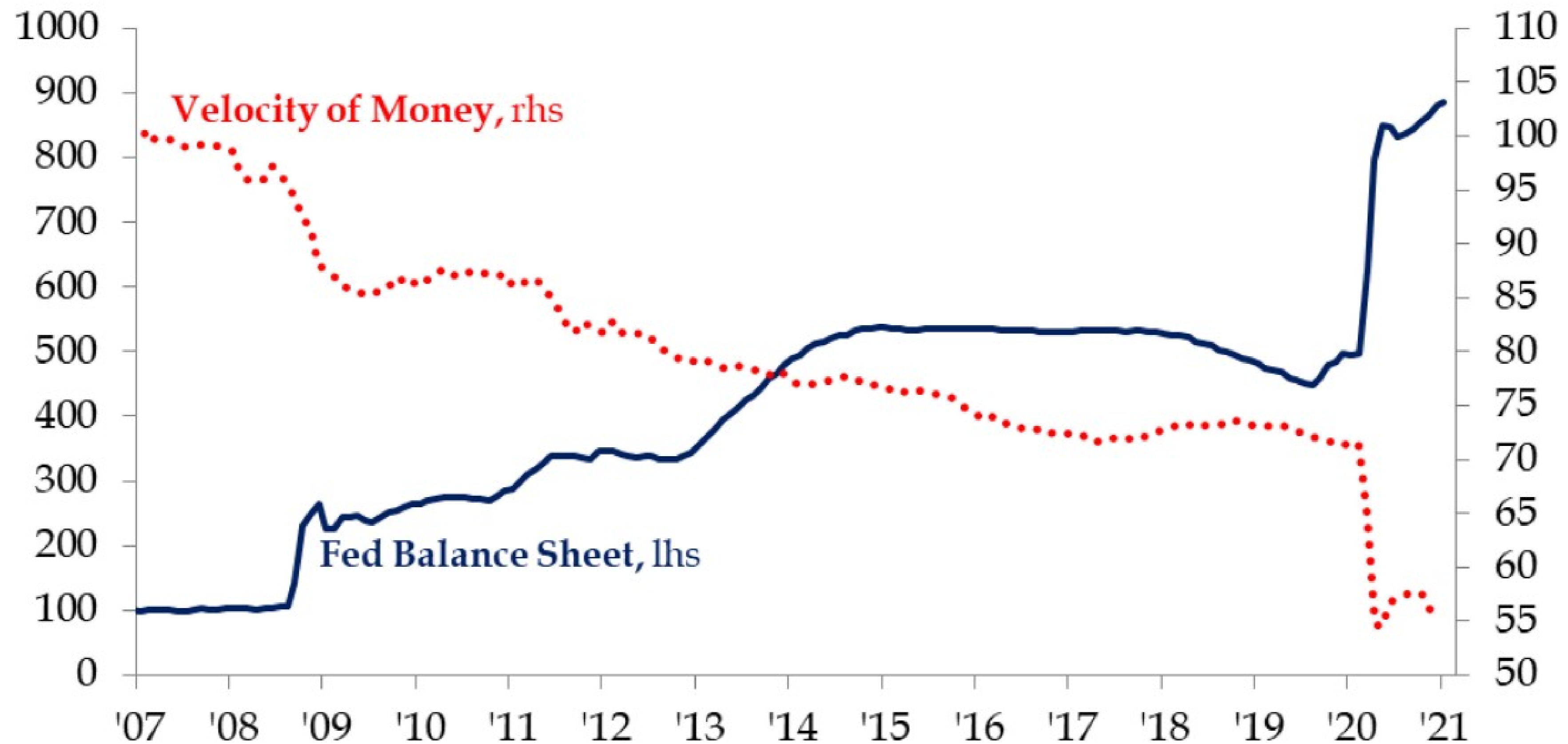
Source: Bloomberg, Goldman Sachs Global Investment Research. June 2021



# Safe Haven

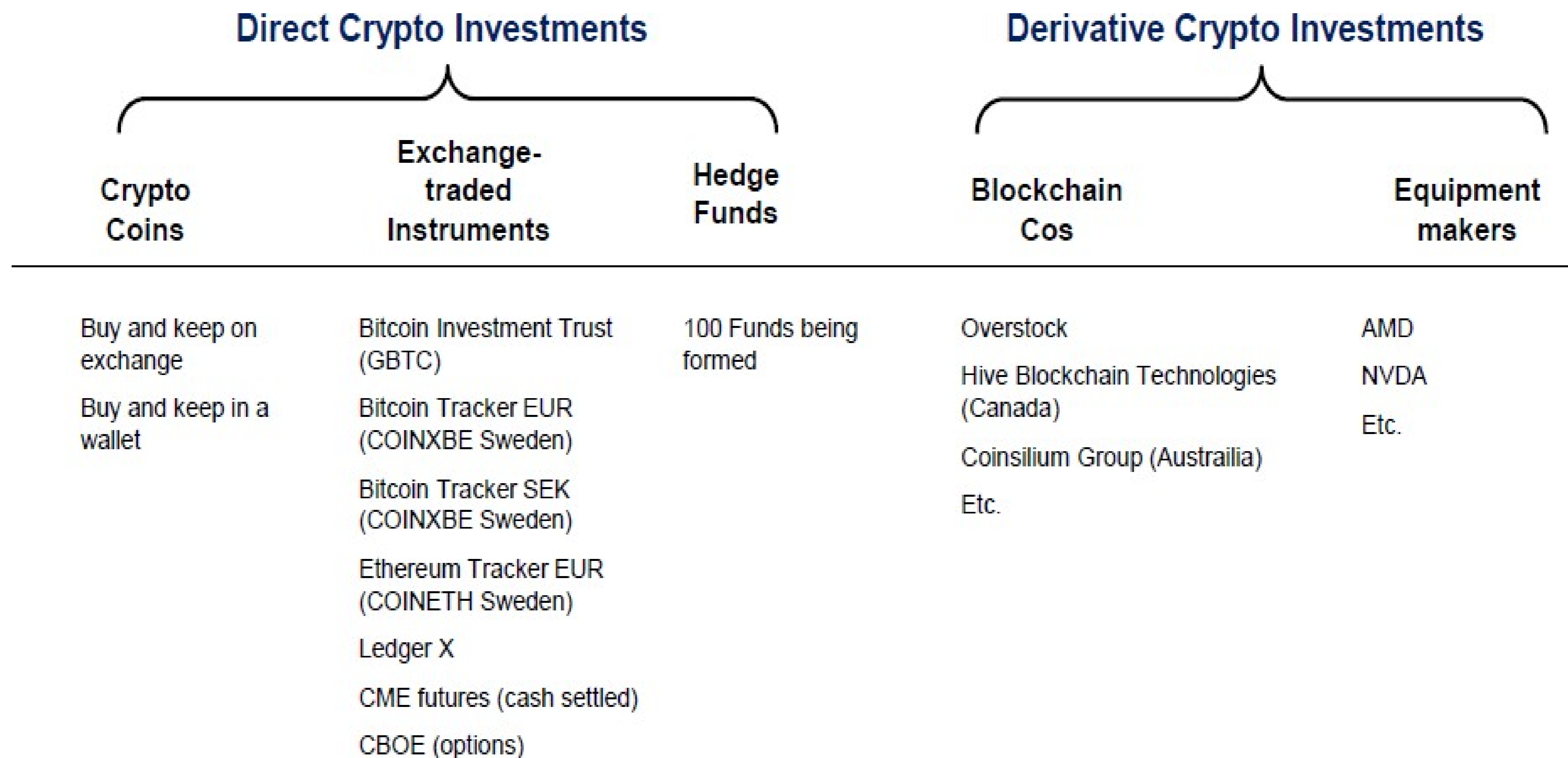
## Real Questions About How “Limited” The Supply Of Dollars Really Is

Fed Balance Sheet vs. Velocity of Money  
(Indexed to 100, January 1, 2007)



Source: Strategas Research, February 11, 2021

# Long Term Investment Investment Opportunities in Blockchain



# Long Term Investment

## Bitcoin Has Topped The Leaderboard of Global Asset Returns for Most Years Since 2010

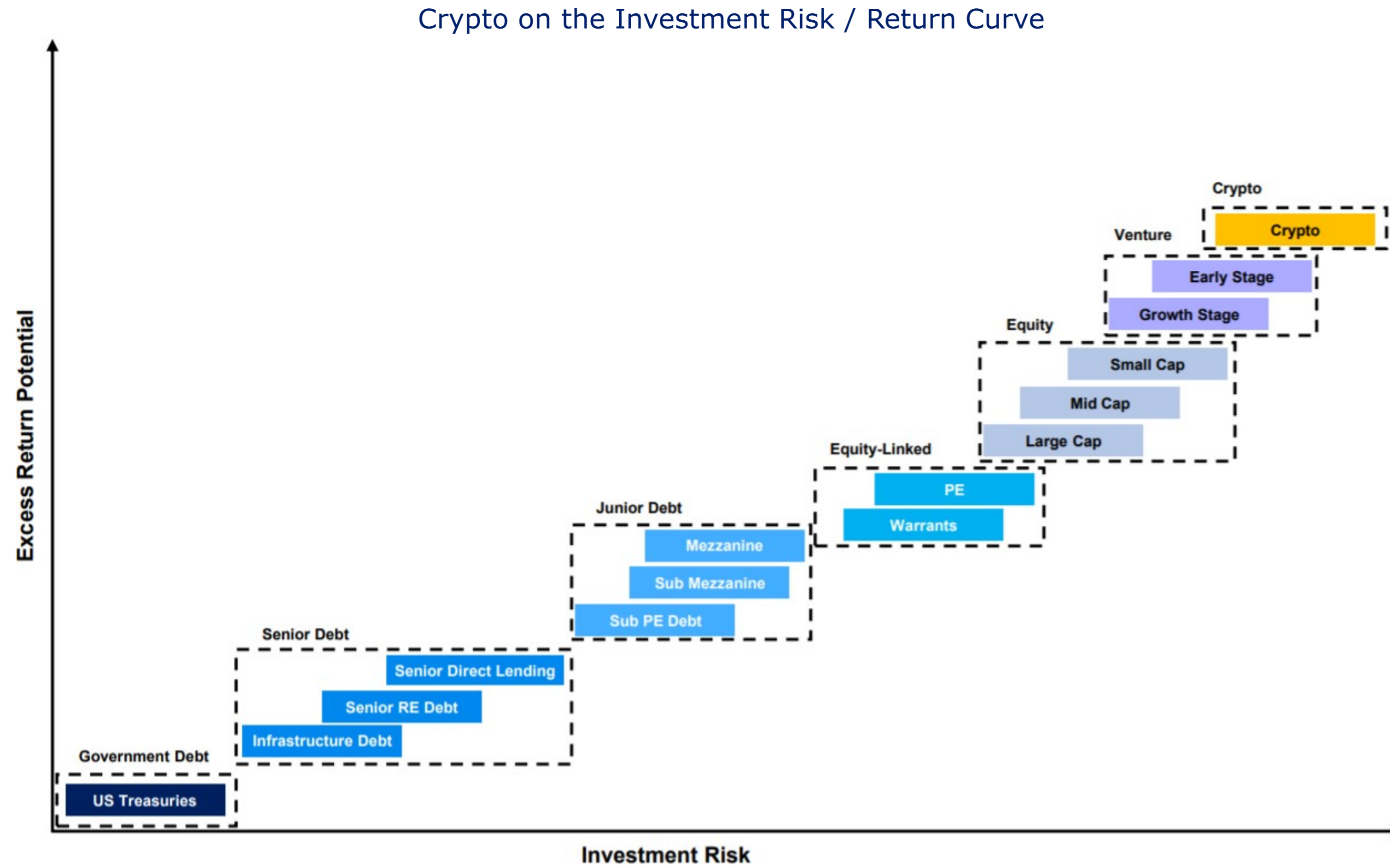
Global Macro Asset Returns

BEST FY 2010	BEST FY 2011	BEST FY 2012	BEST FY 2013	FY 2014	BEST FY 2015	BEST FY 2016	BEST FY 2017	FY 2018	BEST FY 2019	BEST FY 2020	YTD 2021
Bitcoin 39171%	Bitcoin 1471%	Bitcoin 187%	Bitcoin 5286%	Dollar 13%	Bitcoin 34%	Bitcoin 126%	Bitcoin 1337%	Dollar 4%	Bitcoin 94%	Bitcoin 305%	Oil 52%
Gold 30%	Gold 10%	MSCI EM 15%	S&P 500 30%	S&P 500 11%	Dollar 9%	Oil 45%	MSCI EM 34%	US Treasuries 1%	Oil 34%	Gold 25%	Commodities 17%
Commodities 17%	US Treasuries 10%	MSCI World 13%	MSCI World 20%	US Bonds 6%	US Treasuries 1%	Commodities 12%	MSCI World 22%	US Bonds 0%	S&P 500 29%	S&P 500 16%	S&P 500 12%
MSCI EM 16%	Oil 8%	S&P 500 13%	Oil 7%	US Treasuries 5%	US Bonds 1%	S&P 500 10%	S&P 500 19%	Gold -2%	MSCI World 24%	MSCI EM 16%	MSCI World 10%
Oil 15%	US Bonds 8%	Gold 7%	Dollar 0%	MSCI World 2%	S&P 500 -1%	MSCI EM 9%	Gold 14%	S&P 500 -6%	Gold 18%	MSCI World 14%	Bitcoin 9%
S&P 500 13%	Dollar 1%	US Bonds 4%	US Bonds -2%	Gold -1%	MSCI World -4%	Gold 8%	Oil 12%	MSCI World -11%	MSCI EM 15%	US Treasuries 8%	MSCI EM 5%
MSCI World 10%	S&P 500 0%	US Treasuries 2%	US Treasuries -3%	MSCI EM -5%	Gold -10%	MSCI World 6%	US Bonds 4%	Commodities -11%	US Bonds 9%	US Bonds 8%	Dollar 2%
US Bonds 7%	MSCI World -9%	Dollar -1%	MSCI EM -5%	Commodities -17%	MSCI EM -17%	Dollar 4%	US Treasuries 2%	MSCI EM -17%	Commodities 8%	Commodities -3%	US Bonds -2%
US Treasuries 6%	Commodities -13%	Commodities -1%	Commodities -10%	Oil -46%	Commodities -25%	US Bonds 3%	Commodities 2%	Oil -25%	US Treasuries 7%	Dollar -7%	US Treasuries -3%
Dollar 2%	MSCI EM -20%	Oil -7%	Gold -28%	Bitcoin -56%	Oil -30%	US Treasuries 1%	Dollar -10%	Bitcoin -74%	Dollar 0%	Oil -21%	Gold -6%
				WORST				WORST			

Source: Fundstrat. June 22, 2021

# Speculation

## Macro Matters: Bitcoin & Crypto Prices Don't Move in a Vacuum



# Speculation

## There Has Been a Lot of Risk Associated With Bitcoin's Reward

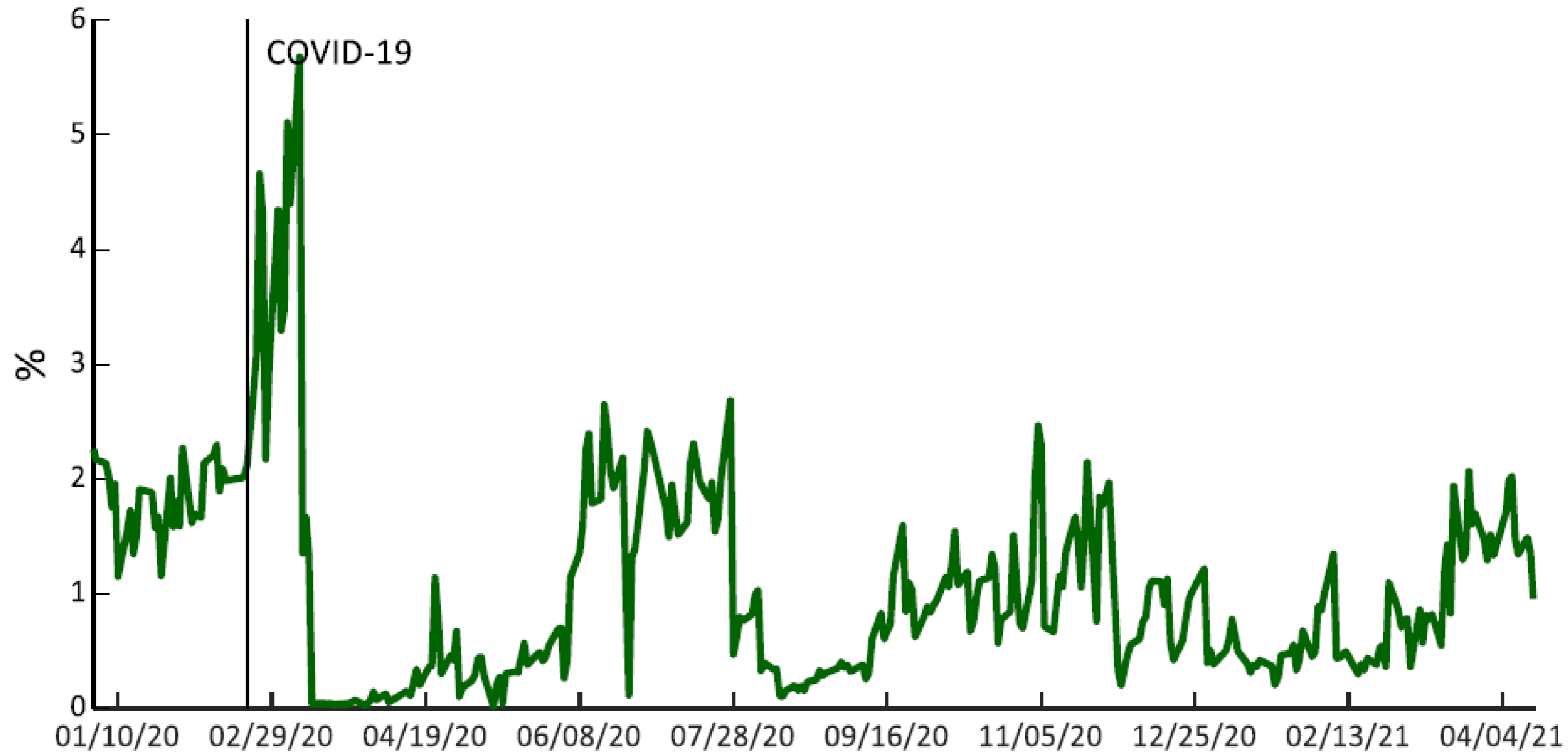
US Dollar vs. Gold vs. Bitcoin  
Trailing Returns and Standard Deviation

	<b>U.S. Dollar</b>	<b>Gold</b>	<b>Bitcoin</b>
1-Year Annualized Return	-0.3%	-7.0%	326.1%
1-Year Annualized Standard Deviation	5.2%	14.8%	72.1%
3-Year Annualized Return	-1.0%	15.0%	97.6%
3-Year Annualized Standard Deviation	5.7%	14.7%	70.9%
5-Year Annualized Return	-0.3%	6.2%	143.3%
5-Year Annualized Standard Deviation	5.8%	13.1%	74.3%
10-Year Annualized Return	2.3%	-0.1%	132.0%
10-Year Annualized Standard Deviation	6.6%	15.3%	89.4%

# Should You Own Bitcoin?

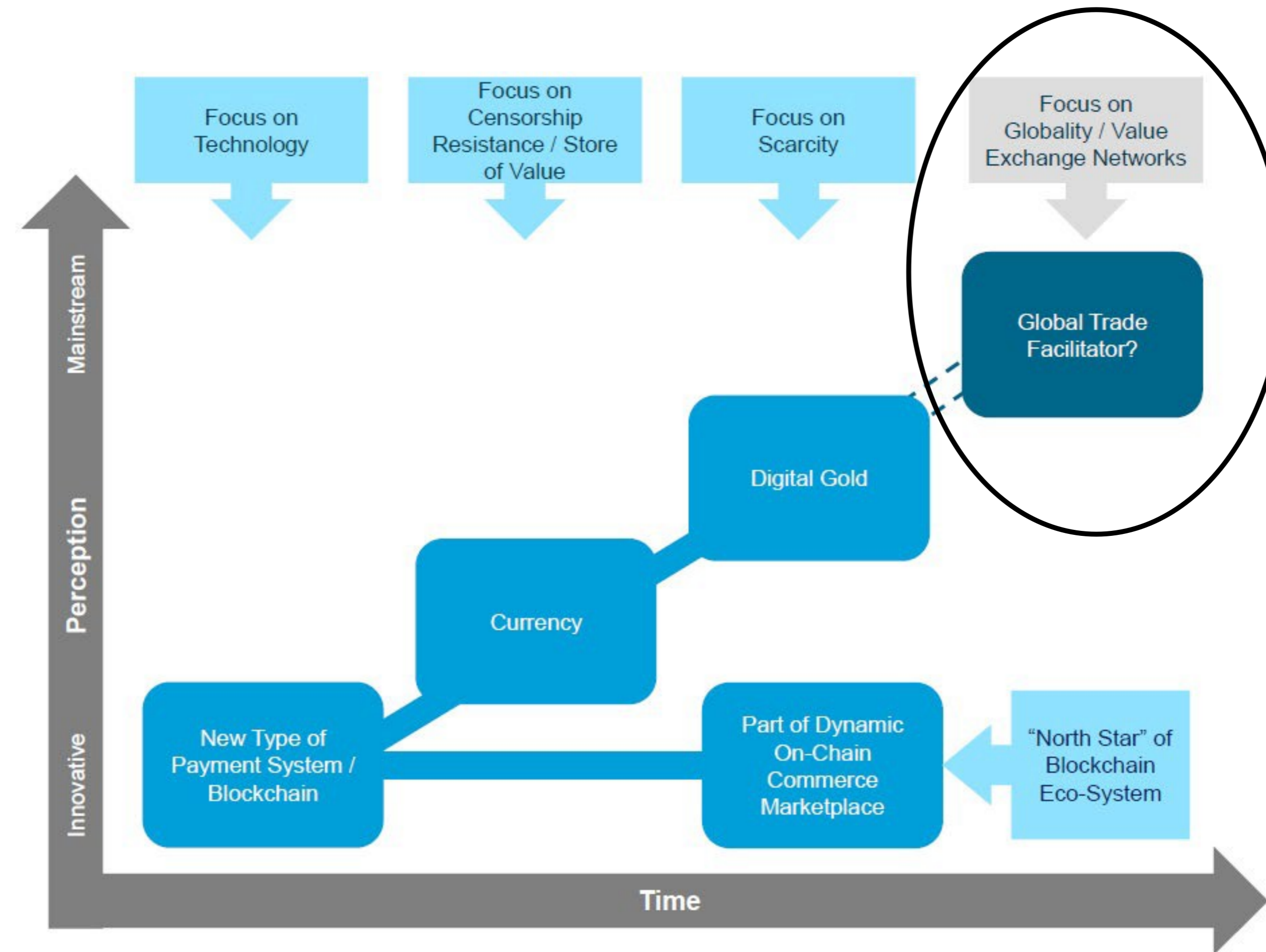
## Adding Bitcoin Lowered Overall Portfolio Risks During The Pandemic

Bitcoin Weight: Minimum Volatility Portfolio\*



\*Based on Optimizations and covariance of S&P 500, gold, and BTC daily returns (July 20, 2010-April 14, 2021)  
Source: Cornerstone Macro. April 15, 2021

# The DeFi Economy Is Inevitable Evolving Focus as a Global Trade Facilitator



Source: Citi Business Advisory Services, "Bitcoin, At The Tipping Point" Citi. March 1, 2021

# *The DeFi Economy Is Inevitable* > 150 Years Ago

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The philosopher Schopenhauer once remarked that “All truth passes through three stages. First it is ridiculed. Second it is violently opposed. Third it is accepted as being self-evident.”



# May 18, 2010 (Laszlo's Dubious Distinction)

## First Real-World Transaction: Bitcoin for Pizza

**laszlo**  
Full Member  
●●●

Activity: 199  
Merit: 487

**Pizza for bitcoins?**  
May 18, 2010, 12:35:20 AM  
Merited by DaRude (50), Seccour (50), Vod (20), alani123 (12), OgNasty (10), Nomad88 (10), Totscha (10), TimtheYoutuber (10), the\_poet (10), arthurbonora (10), leps (10), mnightwaffle (10), suchmoon (9), cheefbuza (7), d5000 (5), Behwong (5), bitbollo (5), ebeliever (5), krogothmanhattan (5), LiteBit (5), mia\_houston (5), nutildah (3), klondike\_bar (3), vapourminer (2), BitcoinFX (2), LFC\_Bitcoin (2), LoyceV (2), gbianchi (2), cygan (2), bones261 (2), Halab (2), ChiBitCTy (2), filippone (2), crypto\_curious (2), ivaxmm (2), malevolent (1), EFS (1), JayJuanGee (1), iluvbitcoins (1), HI-TEC99 (1), S3cco (1), batang\_bitcoin (1), ETFbitcoin (1), digit (1), coolcoinz (1), Astargath (1), TheQuin (1), jacktheking (1), frankenmint (1), bitart (1), lukax8 (1), Julien\_Olympic (1), apoorvathey (1), e\_e\_l\_e\_o (1), JanEmil (1), amishmanish (1), elianite (1), Toxic2040 (1), DireWolfM14 (1), VB1001 (1), pushups44 (1), chimk (1), taserz (1), Financisto (1), invincible49 (1), tim-bc (1), fishfishfish313 (1), nullius (1), SimpleFX (1), GazetaBitcoin (1), BobLawblaw (1), thirdprize (1), Toughit (1), barjan (1), M-BTC (1), dektor (1), lonchafina (1), grinbuck (1), alia (1), inkling (1), Kda2018 (1) #1

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I'll pay 10,000 bitcoins for a couple of pizzas.. like maybe 2 large ones so I have some left over for the next day. I like having left over pizza to nibble on later. You can make the pizza yourself and bring it to my house or order it for me from a delivery place, but what I'm aiming for is getting food delivered in exchange for bitcoins where I don't have to order or prepare it myself, kind of like ordering a 'breakfast platter' at a hotel or something, they just bring you something to eat and you're happy!

I like things like onions, peppers, sausage, mushrooms, tomatoes, pepperoni, etc.. just standard stuff no weird fish topping or anything like that. I also like regular cheese pizzas which may be cheaper to prepare or otherwise acquire.

If you're interested please let me know and we can work out a deal.

Thanks,  
Laszlo

# Interested In Hearing More?

Visit [federatedinvestors.com/LindaDuessel](https://federatedinvestors.com/LindaDuessel) to sign up for email updates, watch YouTube videos, connect on LinkedIn and more.

LINDA DUESSEL



## Mind on the Market

With more than 30 years of experience, Linda Duessel is nationally recognized for her expertise in analyzing equity market conditions. Linda discusses personal finance with investor groups across the country on topics of interest ranging from the impact of the alternative minimum tax to investing for retirement. Additionally, Linda has been extensively quoted by Associated Press, The Wall Street Journal and Barron's, as well as featured in the annual roundtable for USA Today.

As senior equity market strategist, Linda is part of the equity income team, which is responsible for formulating Federated's views about the market and the firm's positioning strategies within the equity income team. As senior client portfolio manager, she is responsible for articulating the strategy, process, positioning and performance of Federated's equity income products.

Interested in hearing more from Linda? Here are two ways:

1. **Read her weekly market views**  
Look for them on our site and in our weekly email.
2. **Connect with her on LinkedIn**

# Appendix

## Crypto Definitions

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- **Active Crypto Users:** Estimated users based on the greater of Blockchain.info Bitcoin wallets or the lower bound of crypto users estimated by Cambridge University.
- **Average Revenue Per User:** Annual transaction fee revenue divided by the number Active Crypto Users.
- **Bitcoin:** The most popular blockchain cryptocurrency, has been evolving into a store of value, while another popular blockchain cryptocurrency, Ethereum, is developing use cases in areas such as decentralized applications, smart contracts and token insurance.
- **Blockchain:** A distributed database existing on multiple computers at the same time. It is constantly growing as new sets of recordings, or “blocks”, are added to it. Each block contains a series of transactions or other information, a timestamp and a link to the previous block, and a cryptographic hash or signature. Any change to a block changes the signature, which affects the header field for the next and subsequent blocks. Thus, any altered block is immediately identifiable, making the blockchain immutable.
- **Consensus:** The process by which all the computers reconcile their version of the database and come to an agreement as to which entries to add into their database in the latest block, and to discard their block and replace it with the one a minimum percentage of other computers (typically 51%-67%) all agree is the valid block.
- **Distributed Ledger:** A more general version of a blockchain, and encompasses other constructs, as long as the ledger is independently replicated across multiple computers with no single computer acting as the source of data in the ledger.
- **Major Central Banks:** Collectively, the Federal Reserve (FED, European Central Bank (ECB), Bank of Japan (BOJ), and the Peoples Bank of China (PBOC).
- **Mining:** The process by which Bitcoin or other token “Miners” process and validate transactions, with the first miner to solve a cryptographic puzzle validating the block and receiving a reward (Currently 6.25 bitcoin each); other miners have to then replicate the result to confirm and move on to the next block.
- **Payment Processing Costs:** Value of all newly issued Bitcoin paid to miners as block rewards which dilute (inflate) the existing supply.

# Appendix

## Central Banks Can Choose a Variety of Design Options

### Design Choices for a Central Bank Digital Currency

- **Accounts at the central bank:** A CBCD can be held and exchanged through accounts. Individuals could access accounts either directly through the central bank or indirectly through commercial banks and other intermediaries. If the CBDC is not account-based, it would instead take the form of exchangeable tokens.
- **Tokens:** A CBDC can take the form of a token, a digital asset that functions as a bearer instrument like cash. Tokens are usually stored in a digital wallet and exchanged via a ledger. Tokens and accounts can coexist to allow both types of transactions, similar to cash and electronic deposit accounts today.
- **Transaction clearing and settlement:** Transactions can be cleared by the central bank or a distributed ledger. This choice is likely to depend on both security considerations and the importance of transactions being visible to the central bank.
- **Access to central bank clearing:** Direct access to central bank clearing can be offered only to banks, to a broader but still limited set of banks and financial technology firms, or even more broadly to households and businesses.
- **Offline transaction capability:** A CBDC that can be exchanged person-to-person via online or uncleared digital transactions would mimic the convenience of cash but also increase the risk of fraud. Possible compromises include setting transaction size limits and requiring offline transaction records to be uploaded later.
- **Pays interest:** A CBDC intended as a pure digital cash replacement would likely not pay interest. A CBDC that paid interest could improve monetary policy transmission but would be more competitive with bank deposits. Both positive and negative interest rates would be possible.
- **Anonymity:** Transactions and user identities could be visible to authorities, or the CBDC platform could allow anonymous transactions to provide privacy. Permitting anonymity on transactions below some threshold amount is a possible compromise.
- **Programmable:** The CBDC platform could be programmable. Examples include automatically deducting tax payments during transactions or adjusting interest rates in response to economic conditions.

# Appendix

## Approaches Central Banks Have Taken to Managing the Risks Posed by CBDCs

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### **Risk #1: Disintermediating banks by absorbing customer deposits.**

- No country currently plans to adopt a CBDC that pays interest.
- The ECB is considering imposing balance limits or setting tiered interest rates that would pay less than the rate on safe assets on holdings beyond some threshold.
- Sweden is considering imposing balance caps on wallets and potentially charging negative interest rates on CBDC.
- In China digital wallets have balance caps and transaction limits.
- In the Eastern Caribbean, financial institutions can limit the amount of deposits that can be exchanged for CBDC.

### **Risk #2: Facilitating illicit activity via anonymous transactions that do not require large volumes of cash.**

- A number of countries have determined that financial regulatory laws prohibit fully anonymous CBDC accounts.
- Most countries require ID verification for access to digital wallets, with some exceptions for those subject to strict balance caps and transaction limits.
- Countries generally require commercial bank intermediaries who provide access to CBDC to the public to follow Anti-Money Laundering and Know-Your-Customer laws and to report large or suspicious transactions.
- The ECB is considering granting financial intelligence units access to user identities on individual transactions in special cases when criminal activity is suspected.