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**MEASURING MONEY IN THE
DIGITAL AGE**

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#StatsForum



Crypto assets in U.S. macroeconomic statistics

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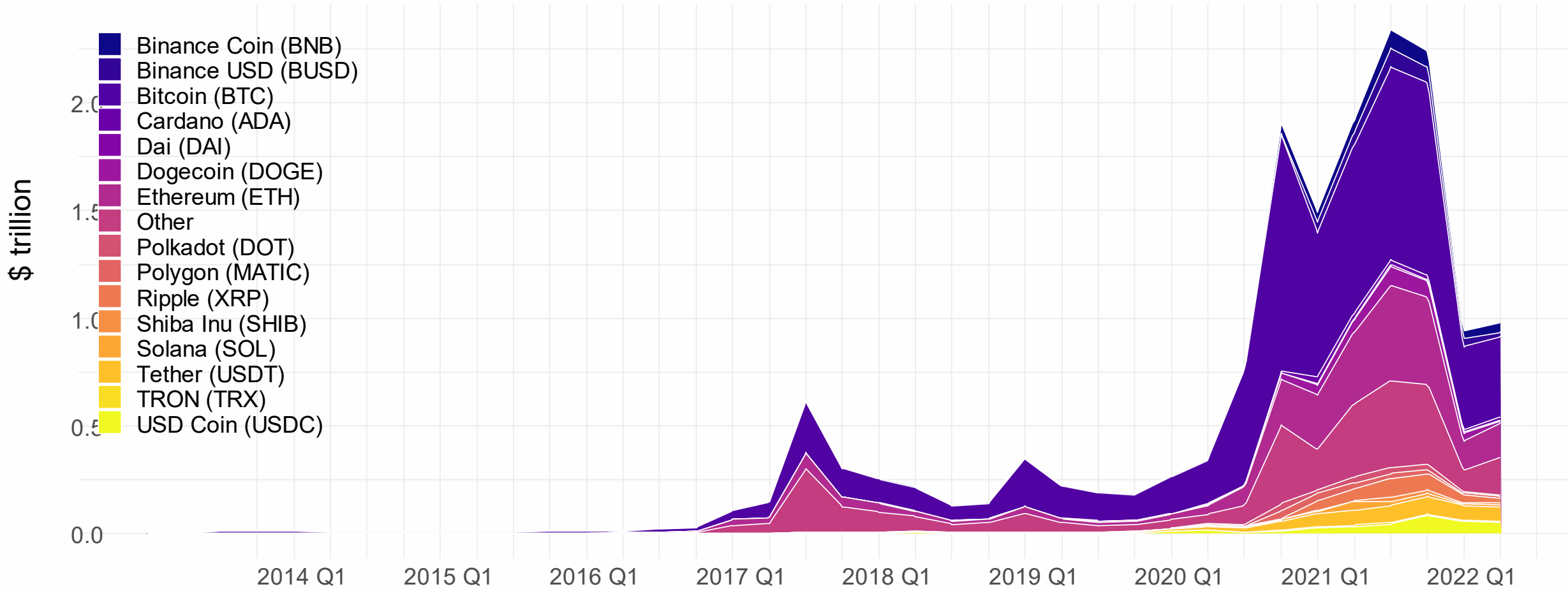
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Measuring crypto assets in the United States

- This presentation combines several data sources to describe crypto asset usage in the United States
 - ▶ Crypto asset ownership
 - ◆ Public disclosure of crypto asset ownership by U.S. companies
 - ◆ Bitcoin ETFs
 - ◆ Public blockchain data
 - ◆ 2021 and 2022 SHED survey
 - ▶ Bitcoin mining in the United States

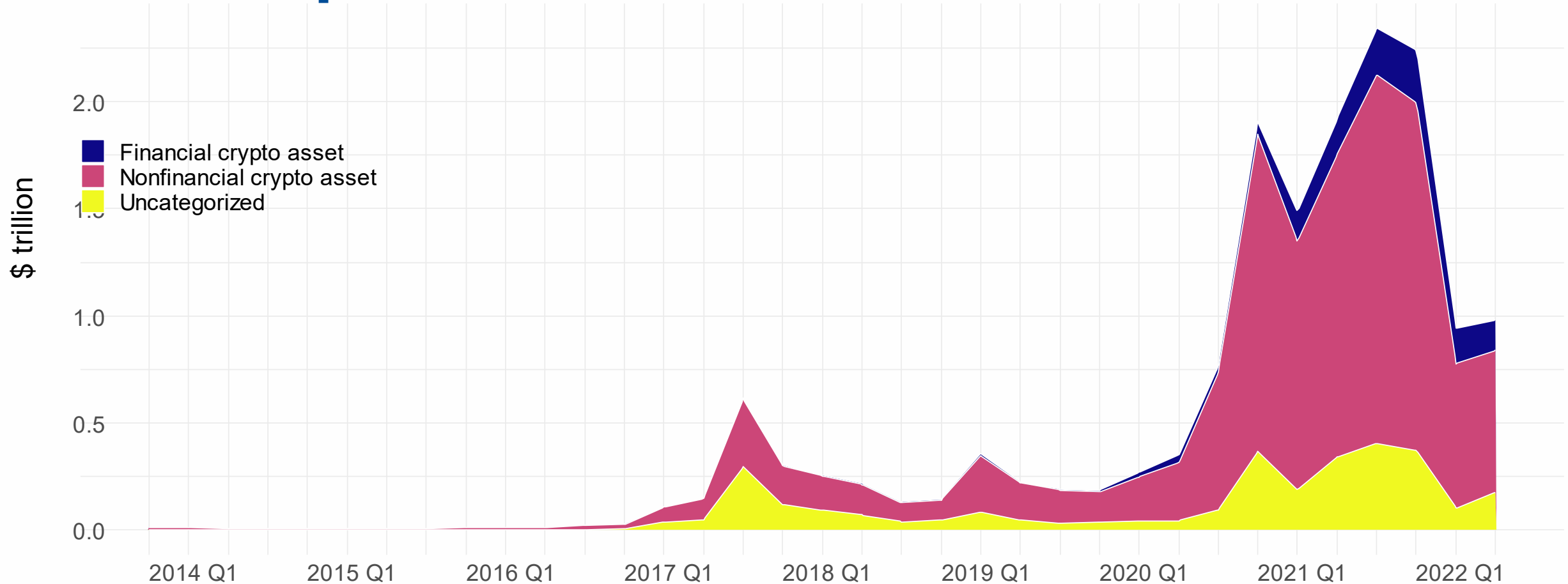
“Market capitalization” of all crypto assets

About \$1 trillion at end of Q3 2022



The “market capitalization” of all crypto assets (including unbacked and backed), calculated as the number of units in circulation multiplied by the current price.
Sources: CoinGecko; BitInfoCharts

Nonfinancial crypto assets comprise majority of crypto “market capitalization”



Financial crypto assets include stablecoins and other crypto assets with a corresponding liability, i.e., on the previous chart: Binance USD (BUSD), Dai (DAI), Tether (USDT), USD Coin (USDC). Nonfinancial crypto assets are those without a corresponding liability, i.e., on the previous chart: Bitcoin (BTC), Ether (ETH), Binance Coin (BNB), Ripple (XPR), Cardano (ADA), Solana (SOL), Dogecoin (DOGE), Shiba Inu (SHIB), Polygon (MATIC), Polkadot (DOT), and Tron (TRX). The other category at this time contains uncategorized coins due to data source. Sources: CoinGecko; BitInfoCharts

Focus on gathering data on bitcoin ownership

- Bitcoin is the original crypto asset and the largest by “market capitalization”
- There tends to be more data on ownership for bitcoin than any other crypto asset
- The primary focus of this presentation will be on available data on bitcoin ownership
 - ▶ Some data on ownership of other crypto assets
- All data presented is for the purposes of better understanding crypto asset usage and ownership in the United States
 - ▶ None of the presented data should be considered an official estimate

Crypto asset usage and ownership: companies, governments, and large investors

Some U.S. firms publicly disclose crypto asset holdings

- Public companies in the U.S. disclose digital asset holdings (e.g., in 10-Ks)
 - ▶ ~ 2.34% of current bitcoin supply
- Private companies sometimes disclose bitcoin holdings
 - ▶ Stone Ridge Holdings Group (10,000 bitcoin) and Massachusetts Mutual (3,500 bitcoin) own another .07%
- Note: Estimates of bitcoin value and supply use the circulating supply of bitcoin (19,500,413) and the price (\$26,916.91) on September 30, 2023.

Top 10 Public Companies	Bitcoin	Value (end 2023Q3 prices)
MicroStrategy	158,245	\$4,259,466,423
Robinhood Markets, Inc.	118,300	\$3,184,270,453
Gemini	118,000	\$3,176,195,380
Marathon Digital Holdings Inc	13,726	\$369,461,507
Tesla, Inc	10,725	\$288,683,860
Coinbase Global, Inc.	9,000	\$242,252,190
Galaxy Digital Holdings	8,100	\$218,026,971
Block, Inc.	8,027	\$216,062,037
Riot Platforms, Inc.	7,327	\$197,220,200
CleanSpark Inc	2,240	\$60,293,878

Sources: EDGAR searches; <https://buybitcoinworldwide.com/treasuries>; River Intelligence; Blockchain.com API

Exchange Traded Funds (ETFs)

- U.S. ETFs hold about 3.41% of bitcoin supply
 - ▶ Shares could be purchased by non-US residents
- Recently other companies have filed for their own digital asset ETFs
- Trade in these funds is small relative to the broader financial market

ETFs	Bitcoin	Current Value
Grayscale Bitcoin Trust	643,572	\$17,322,969,603
Bitwise 10 Crypto Index Fund	10,784	\$290,271,957
Grayscale Digital Large Cap Fund	7,346	\$197,731,621
Osprey Bitcoin Trust	2,820	\$75,905,686
Fidelity Advantage Bitcoin ETF	878	\$23,633,047

Sources: <https://buybitcoinworldwide.com/treasuries>; River Intelligence; Blockchain.com API

Other crypto “whales” (entities with at least 10,000 bitcoin)

U.S. government

- Bitcoin is acquired during asset seizures, e.g., Silk Road
- Much of the bitcoin was auctioned off but the U.S. is still estimated to hold 69,640 bitcoin
 - ▶ ~ 0.36% of current supply

Individuals

- E.g., Tyler and Cameron Winklevoss, Michael Saylor, and Tim Draper
- Estimated to hold about 120,000 bitcoin or 0.6% of current supply

Brings bitcoin held by U.S. companies, the U.S. government, U.S. crypto whales, and in U.S.-based ETFs to about **6.8% of current bitcoin supply**

Sources: Sachin, Jaitly (2023); <https://buybitcoinworldwide.com/treasuries>; River Intelligence; Blockchain.com API; Forbes; Wall Street Journal

Crypto asset usage and ownership: individuals

Federal Reserve Board's Survey of Household Economics and Decisionmaking (SHED)

SHED survey asked U.S. adults whether they held or used cryptocurrency (i.e., crypto assets designed to act as a medium of exchange) in October 2021 and 2022

- Holding cryptocurrency as an *investment* may have declined (11 to 8 percent of U.S. adults)
- Percentage of adults using cryptocurrency for *transactions* may have slightly increased (3 to 4 percent of U.S. adults)
- Total usage declined by 2% points

Use	2021	2022
Bought or held as an investment	11%	8%
Used to buy something or make a payment	2%	2%
Used to send money to friends or family	1%	2%
Any use of crypto assets	12%	10%

Sources: Federal Reserve Board (2023 and 2022)

Crypto asset usage by family income

- Crypto assets more likely to be used as an investment by higher income adults
 - ▶ If used as an investment, more likely to be held for long periods
- More likely to be used for transactions by lower income adults
 - ▶ If used for transactions, unlikely to be held for long periods
- Overall usage most prevalent among highest income adults

Family income	Investment only	Transactions	Any usage
Less than \$25,000	5%	4%	9%
\$25,000–\$49,999	5%	2%	7%
\$50,000–\$99,999	8%	2%	10%
\$100,000 or more	10%	2%	12%

Sources: Federal Reserve Board (2023 and 2022)

Average crypto investment per adult fell from 2021 to 2022

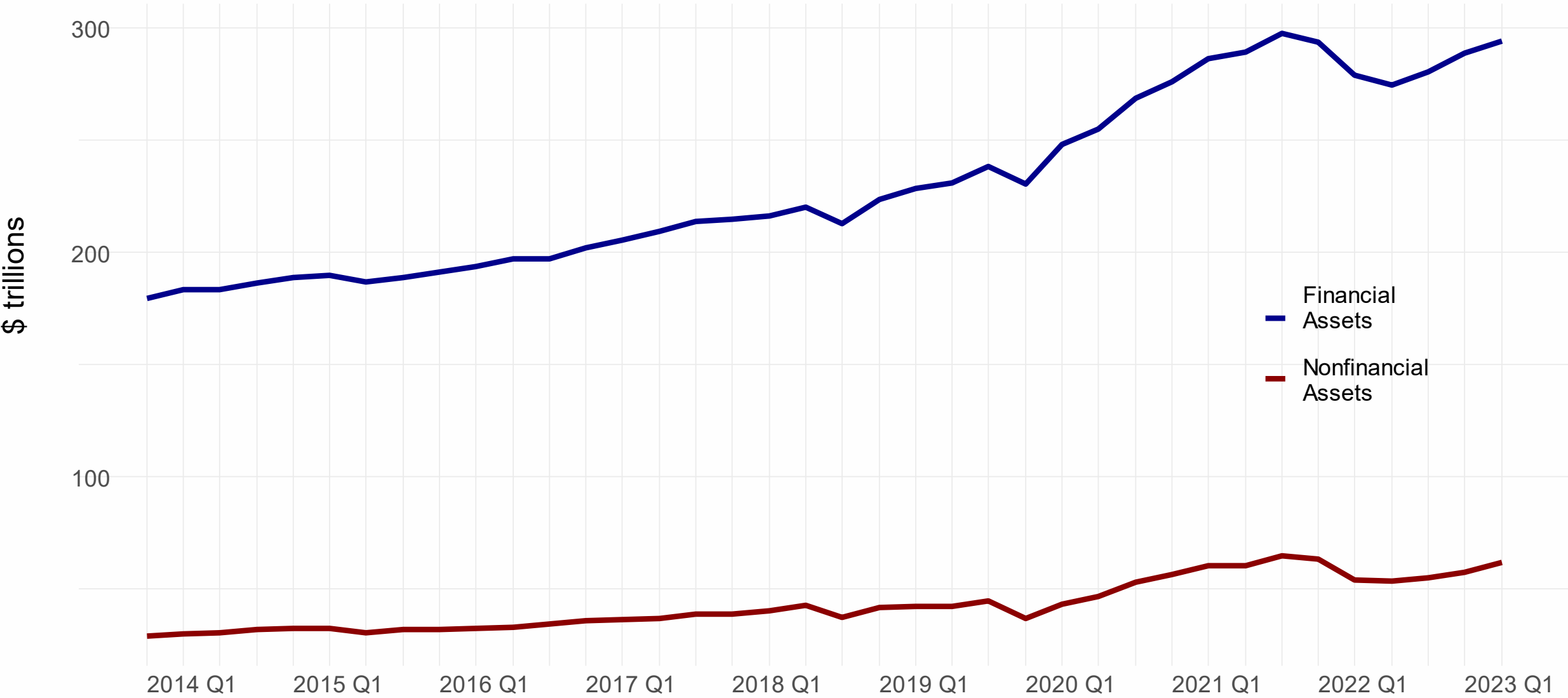
- If it mirrors the U.S. share of global GDP, then the U.S. share of bitcoin holdings would be about 16%
- With at least 6.8% estimated to be with U.S. firms, ETFs, and crypto “whales,” that leaves at least 9.2% for U.S. households
- Average investment fell due to a decrease in the percentage of adults investing in and the price of crypto assets

Use	2021	2022
U.S. Resident Population 18+ (October, Census estimate)	259,673,033	261,437,361
Percent of U.S. adults that invest in crypto assets	11%	8%
Estimated number of U.S. adults that invest in crypto assets	28,564,034	20,914,989
9.2% of bitcoin market cap on October 31	\$89 billion	\$35 billion
Average investment per U.S. adult	\$3,124	\$1,678

Sources: U.S. Census Bureau; Federal Reserve Board; Blockchain.com API

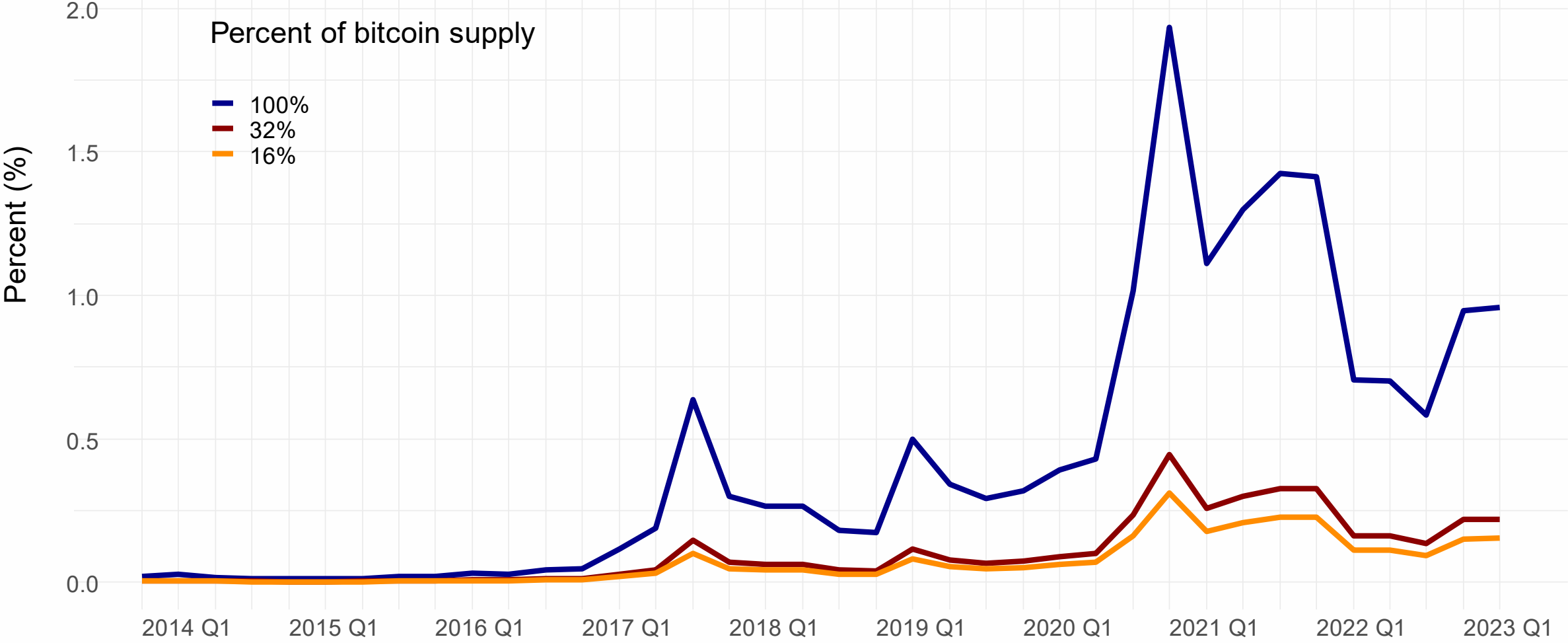
Crypto assets relative to existing U.S. assets

Total U.S. financial and nonfinancial assets, 2014-2023Q2



Source: Board of Governors of the Federal Reserve System, <https://fred.stlouisfed.org/>

Potential U.S. bitcoin holdings as a share of U.S. nonfinancial assets, 2014-2023Q2



Bitcoin value is based on end-of-quarter prices multiplied by the estimated number of bitcoin in circulation.
Source: Board of Governors of the Federal Reserve System; blockchain.com

Nonfinancial crypto assets as a share of total U.S. nonfinancial assets

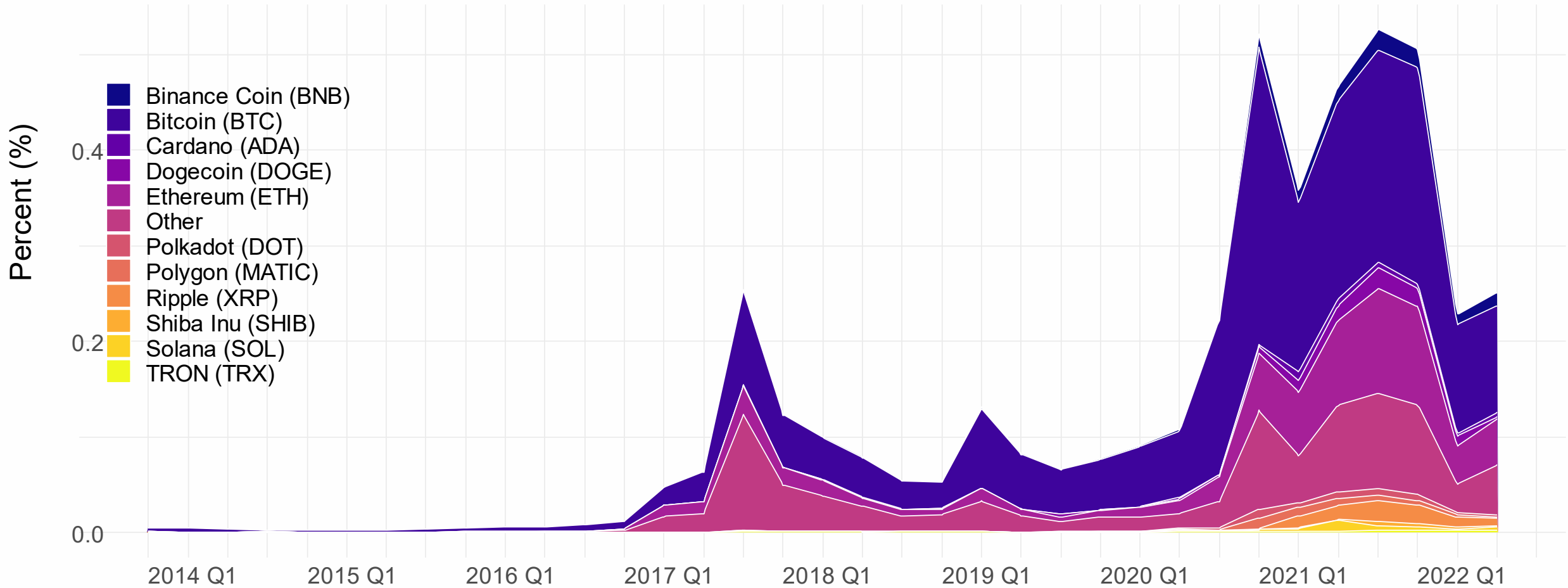
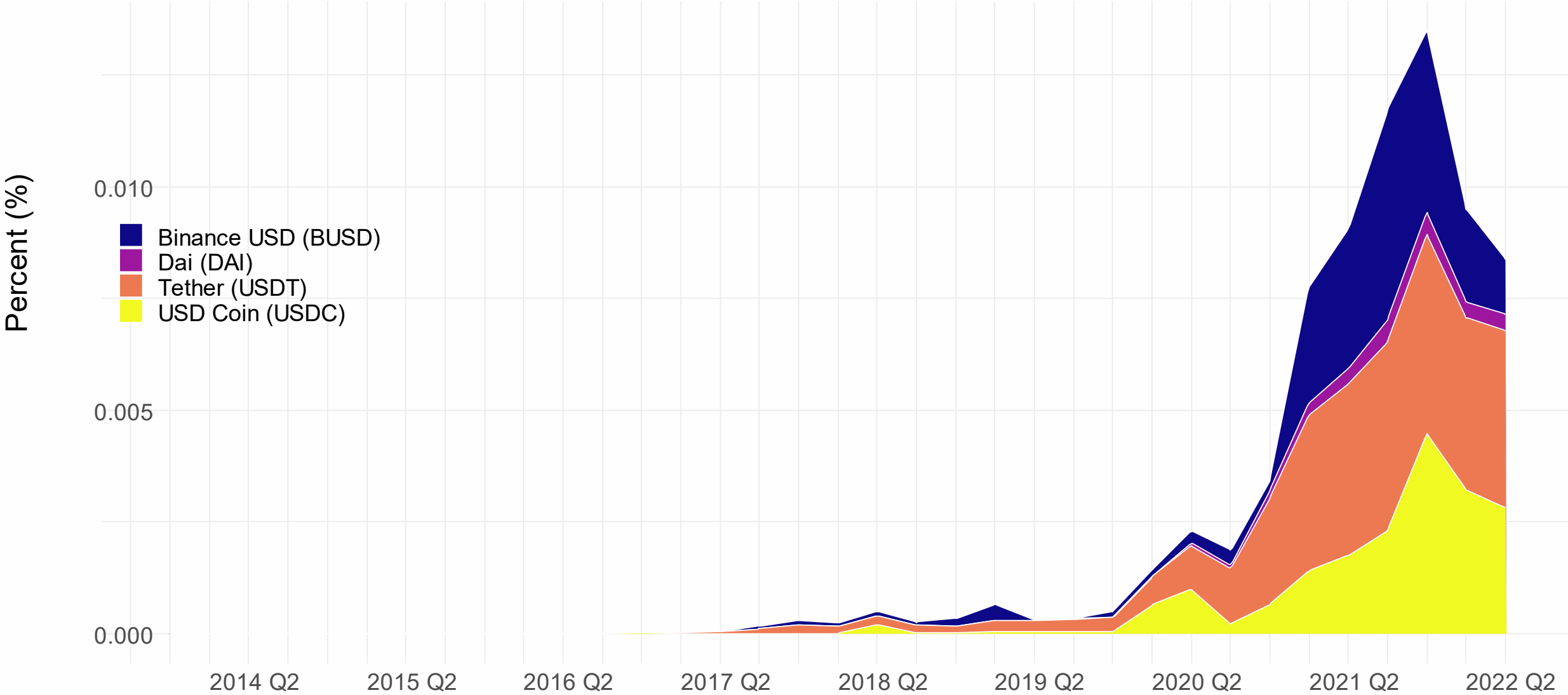


Chart uses 16% as the U.S. share of total nonfinancial crypto assets.
Sources: Board of Governors of the Federal Reserve System; CoinGecko; BitInfoCharts

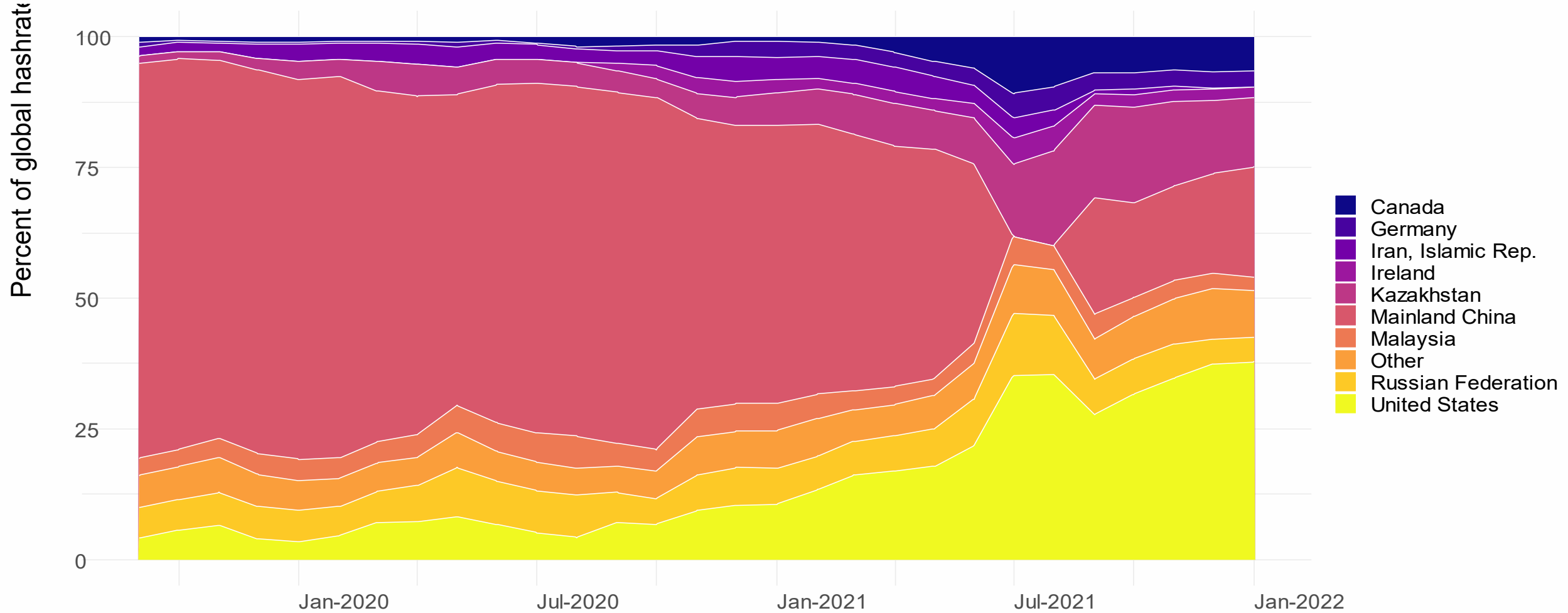
Financial crypto assets as a share of U.S. financial assets



Sources: Board of Governors of the Federal Reserve System; CoinGecko; BitInfoCharts

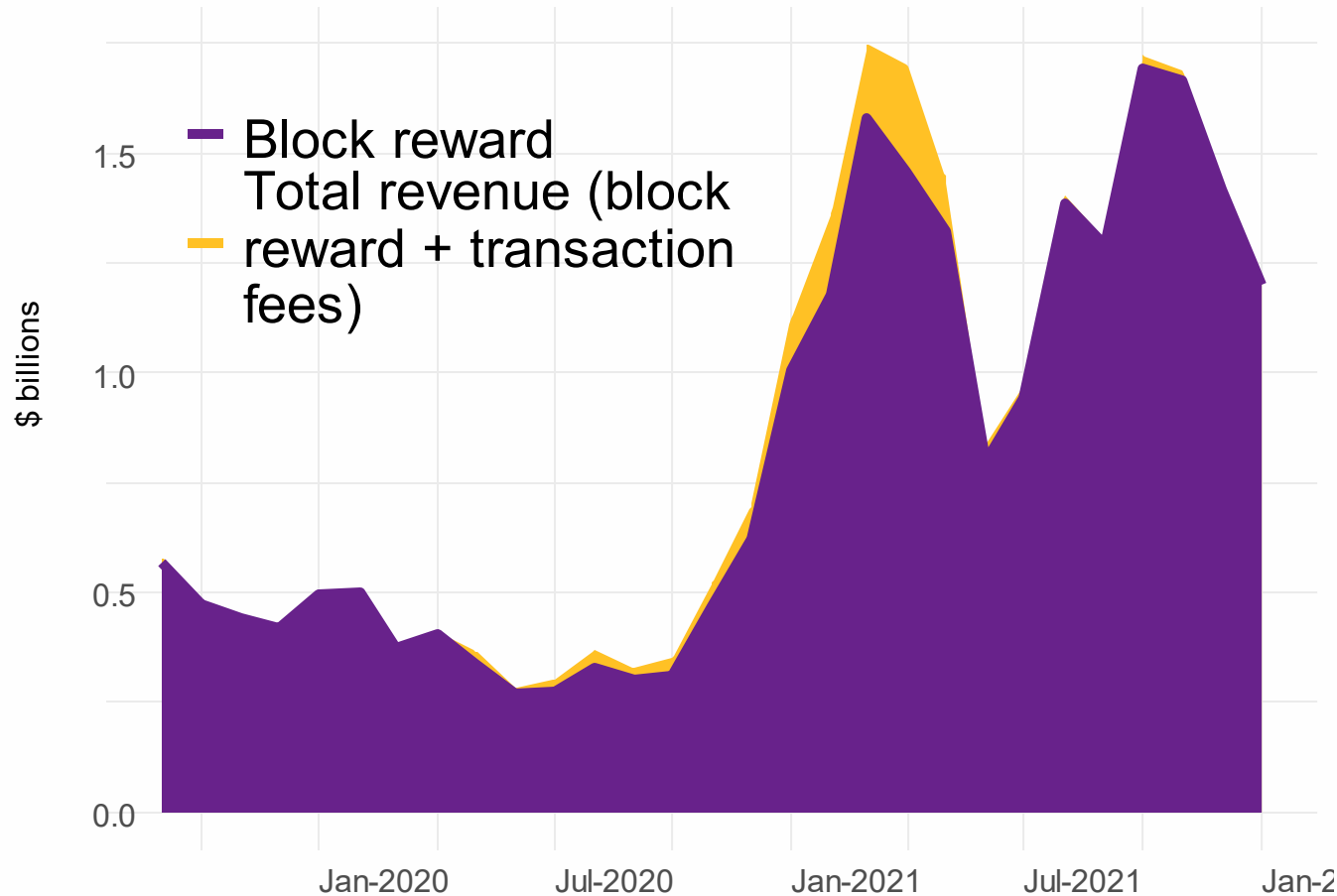
Crypto asset mining

United States' Share of Bitcoin Mining Increased in 2021



Hashrates approximate computing power on the bitcoin network and can approximate a country's share of newly minted bitcoin and transaction fees.
Source: Cambridge Centre for Alternative Finance

Estimated U.S. bitcoin mining revenue



- Total estimated revenue was **\$5 billion in 2020**; \$4.7 billion was from newly minted coins
- Increased to about **\$16.7 billion in 2021**; \$15.7 billion was from newly minted coins
- Miners' costs include electricity consumption and computing equipment

Historical bitcoin data on miner's revenue from the public Bitcoin blockchain (Messari.io). Estimated monthly country shares of bitcoin mining from Cambridge Centre for Alternative Finance (see previous slide).

Conclusion

- The value of U.S. crypto asset ownership is small relative to existing U.S. financial and nonfinancial assets
 - ▶ Nonfinancial crypto asset holdings likely ranged from 0.05% to 0.6% of U.S. nonfinancial assets from 2018 to 2022
 - ▶ Financial crypto asset holdings likely ranged from <0.005% to 0.02% of U.S. financial assets from 2018 to 2022
- If these shares continue to be small, crypto assets are unlikely to introduce much volatility into U.S. macroeconomic statistics

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