Crypto assets in U.S. macroeconomic statistics

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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)

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

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

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

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

<table>
<thead>
<tr>
<th>Use</th>
<th>2021</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bought or held as an investment</td>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>Used to buy something or make a payment</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Used to send money to friends or family</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Any use of crypto assets</td>
<td>12%</td>
<td>10%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Family income</th>
<th>Investment only</th>
<th>Transactions</th>
<th>Any usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $25,000</td>
<td>5%</td>
<td>4%</td>
<td>9%</td>
</tr>
<tr>
<td>$25,000–$49,999</td>
<td>5%</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>$50,000–$99,999</td>
<td>8%</td>
<td>2%</td>
<td>10%</td>
</tr>
<tr>
<td>$100,000 or more</td>
<td>10%</td>
<td>2%</td>
<td>12%</td>
</tr>
</tbody>
</table>

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.

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

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

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

Percent of bitcoin supply

- 100%
- 32%
- 16%

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
References


Board of Governors of the Federal Reserve System (US), All Domestic Sectors; Total Financial Assets, Level [BOGZ1FL884090005Q], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/BOGZ1FL884090005Q, October 11, 2023.

Board of Governors of the Federal Reserve System (US), All Domestic Sectors; Market Value Estimate of Nonfinancial Assets, Level [BOGZ1FL882010405Q], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/BOGZ1FL882010405Q, October 11, 2023.


