

Treasury Market Risks Amid Rising Federal Debt



An Outline:

1. Fundamentals
2. Market Risks
3. Economic Impact from Market Risks
4. Comparative Analysis
 - United Kingdom – Fiscal Irresponsibility at a Time of Weak Demand for Government Debt
 - Japan – Monetizing Debt

Fundamentals of the Treasury Market



What is The Treasury Market?

- The financial market where the U.S. borrows money
 - We issue Treasury securities to finance deficits
- Debt held by the public is ~\$30 trillion
 - Intragovernmental debt is not “sold” to investors or “owned” by individuals, so is not considered part of the market.

Why is the Treasury Market Important?

- Deepest and most liquid securities market
 - USD is the reserve currency of the world
- Cornerstone of the financial system
 - Used as a store of wealth, high-quality collateral, and to manage foreign currency stability
- “Risk-free” benchmark rate
 - Influences rates on loans, mortgages, etc.
- Key indicator of the macroeconomic outlook
 - Reflects expectations of inflation, policy, and growth

What are the Different Types of Treasurys?

Marketable securities can be bought and sold in a public exchange:

- Treasury bills (mature in one year or less)
- Treasury notes (mature anywhere from two to ten years)
- Treasury bonds (mature anywhere from 20 to 30 years)
- Treasury Inflation-Protected Securities, or TIPS (principal adjusts with inflation)
- Floating Rate Notes, or FRNs (interest rate changes with short-term rates)

What are the Different Types of Treasurys?

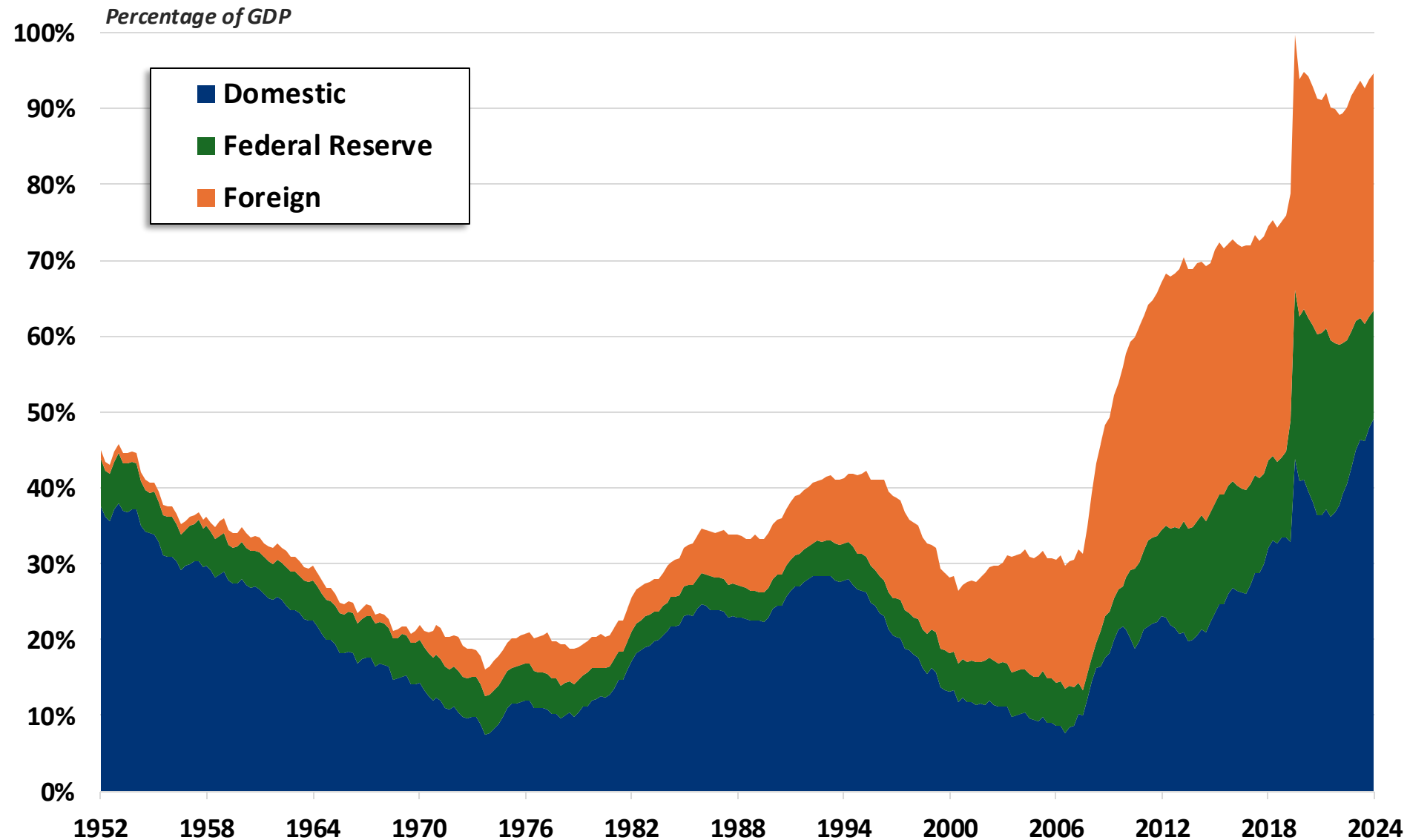
Nonmarketable securities cannot be bought and sold in a public exchange nor redeemed until maturity (without penalty):

- Savings securities (such as EE bonds and I Bonds)
- State and Local Government Series Securities (SLGS)
- Government Account Series (GAS) securities
 - (Held by the Thrift Savings Plan's G Fund)

Ways Debt is Measured

- **Market value:** The price at which the securities can be bought or sold in the secondary market – constantly fluctuating with economic conditions and market pricing
- **Face Value:** The total amount of money that the government promises to repay the holder of the security at maturity
- **Book Value:** Accounts for the difference between the price paid for the security and the face value
 - This is the measure CBO uses in their baseline estimates
 - All figures shown throughout this presentation are at book value, or are rough estimates of book value

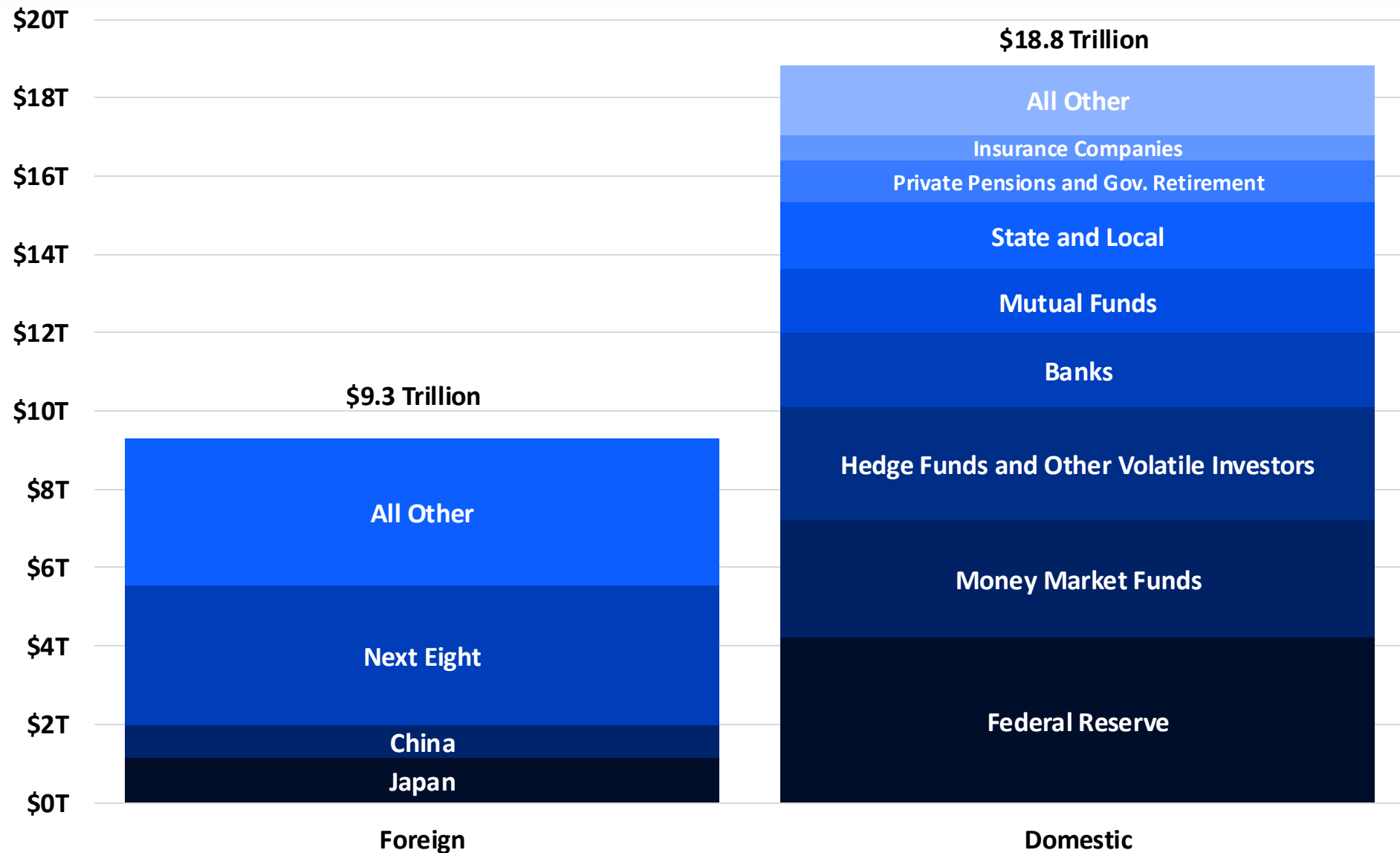
Who Holds Our Debt?



Sources: Author's calculations based on Federal Reserve data.

Notes: Graphic reflects marketable securities.

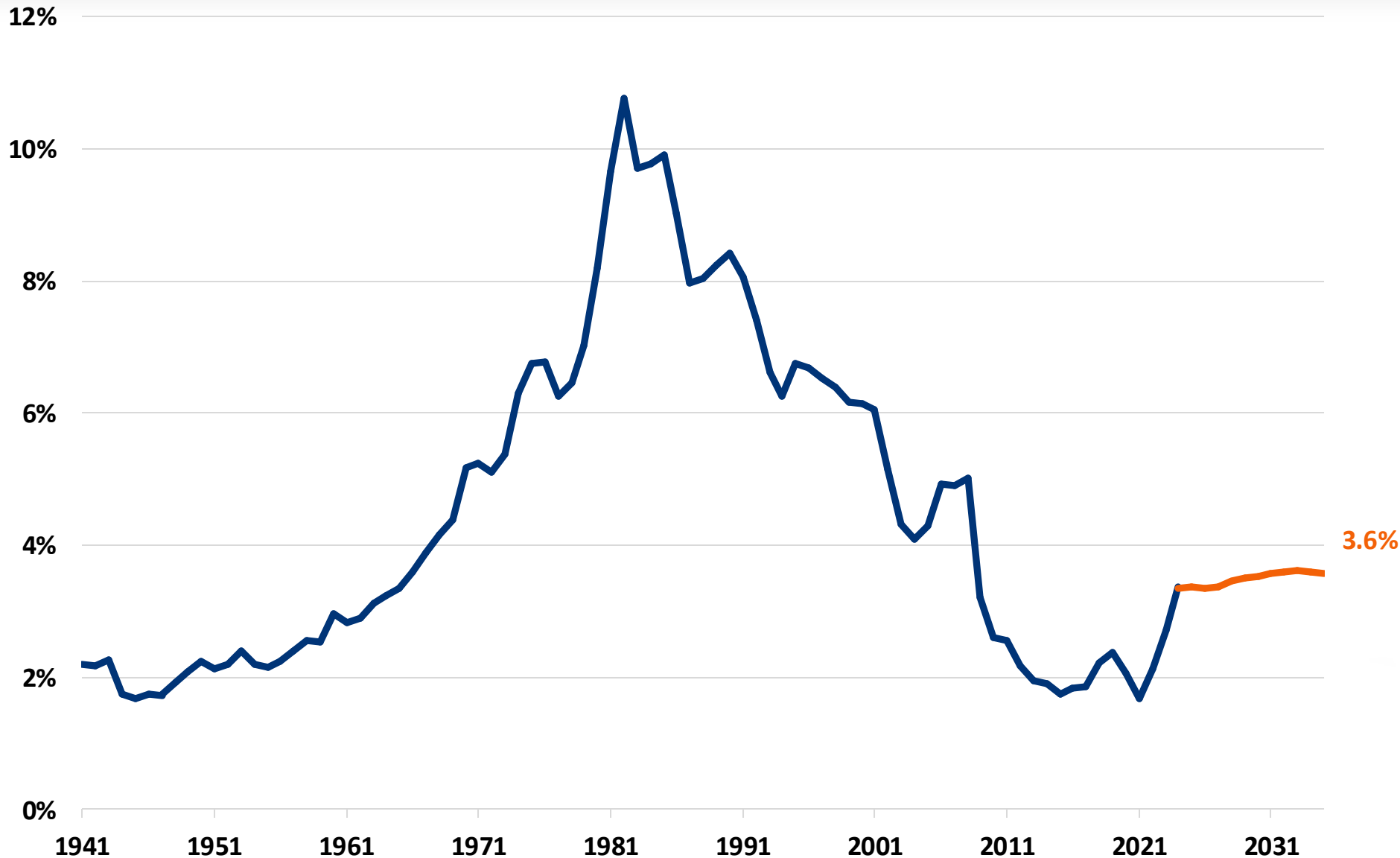
Who Holds Our Debt?



Sources: Author's calculations based on Federal Reserve and Treasury International Capital (TIC) data.

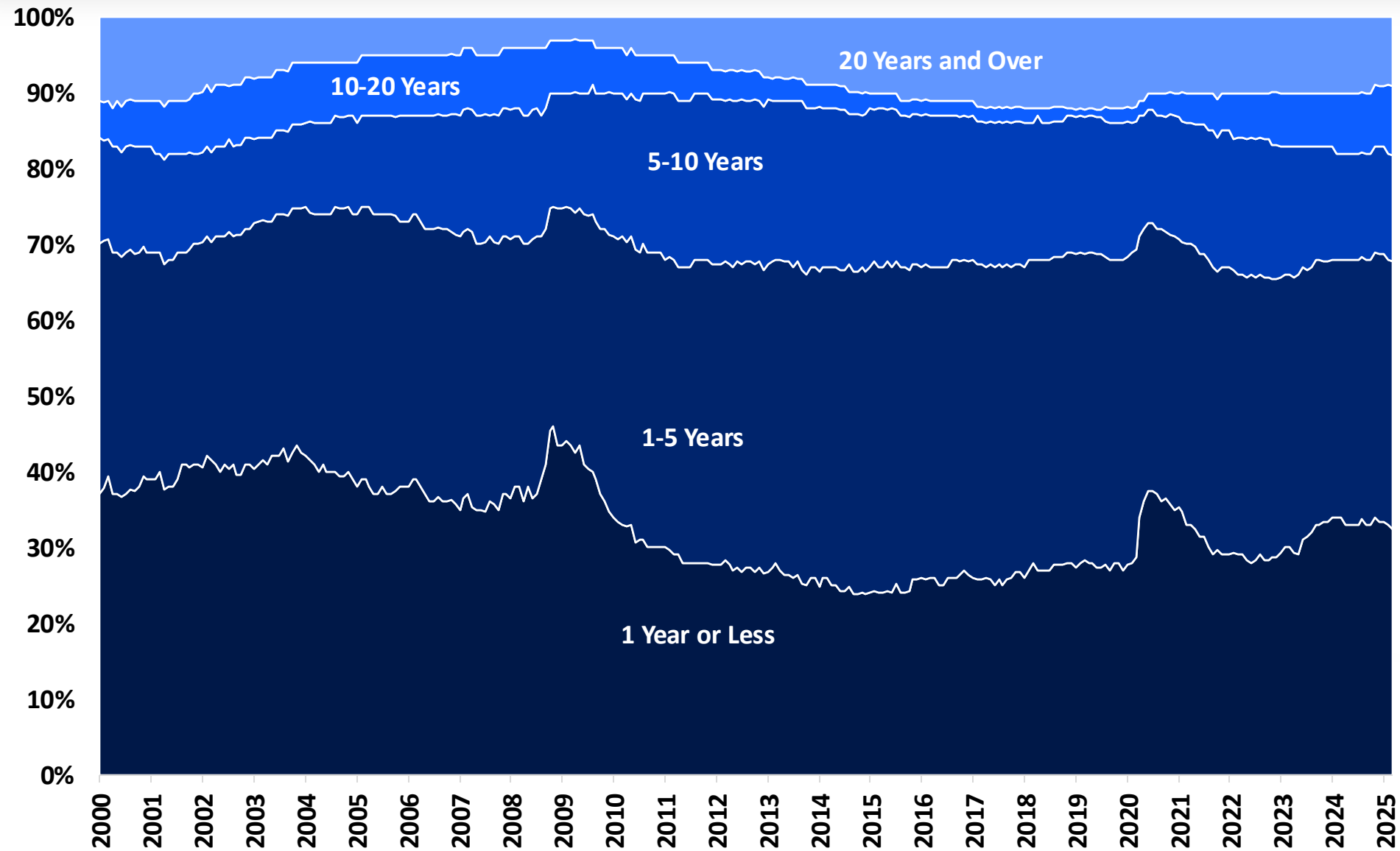
Note: Graphic reflects marketable securities.

Historic Average Interest Rate on Debt



Sources: Office of Management and Budget, Congressional Budget Office.

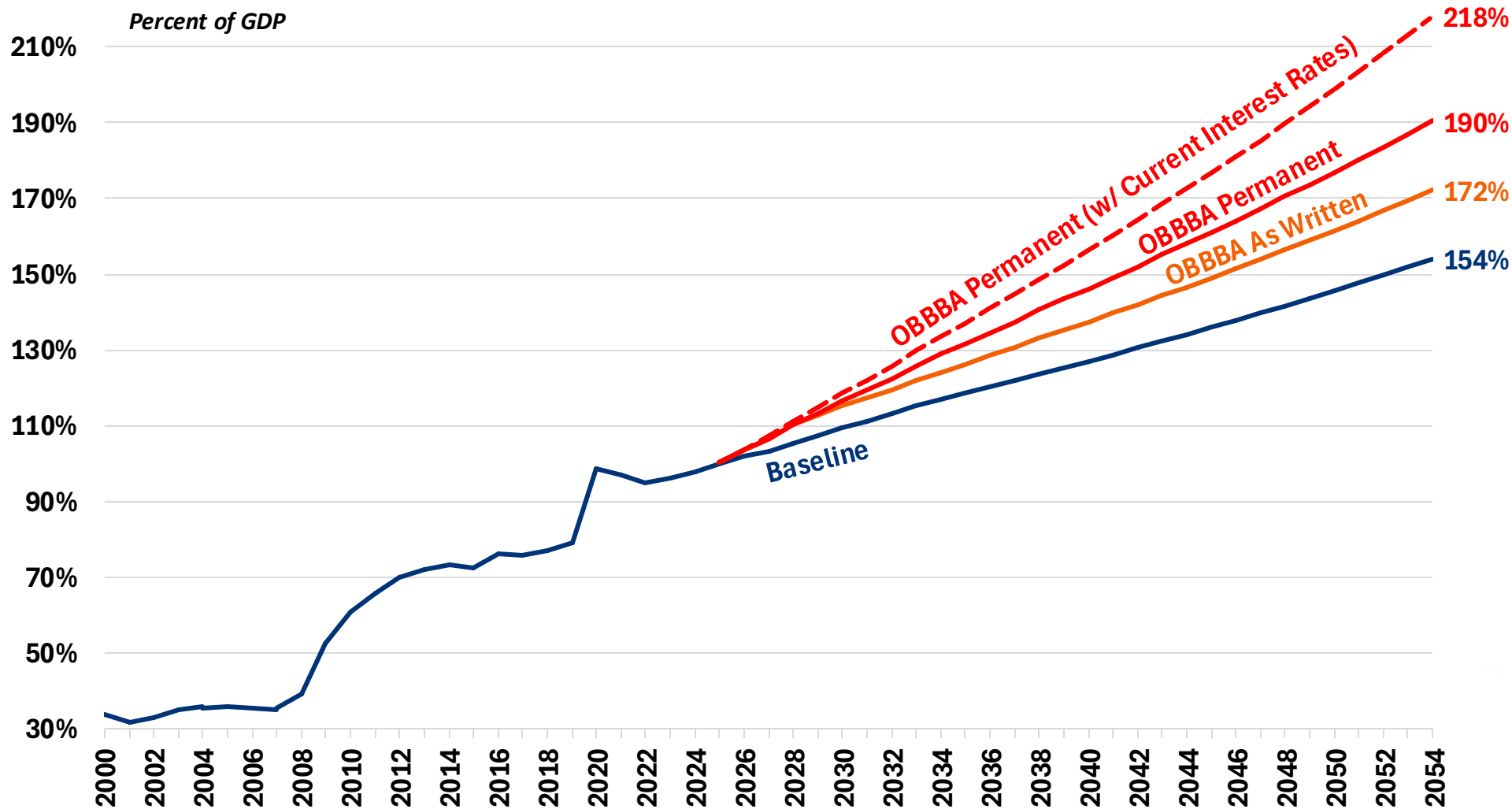
Maturity Structure of the Debt



Market Risks



Debt is Outpacing the Economy



Source: CRFB estimates based on data from the Congressional Budget Office.

Notes: "Current Interest Rates" assume the 10-year Treasury rate remains at 4.5% through 2054, with other rates rising in parallel through 2035 and thereafter following CRFB estimates based on CBO data.

As Debt Grows, Market Pressures Also Grow

- Market plumbing is strained
 - The growth in debt is outpacing the balance sheets of “primary dealers” that intermediate markets.
- Investor base becomes less stable
 - Price-sensitive & cyclical investors have become a larger portion of Treasury holders.

What is a Primary Dealer?

- The Federal Reserve's principal trading counterparties and market-makers for Treasurys
 - Expected to bid for the entire issuance amount at every auction at reasonably competitive prices
 - Provide continuous two-way price quotes (bid and ask) to facilitate trading
 - Will use their balance sheet to absorb securities when sellers outnumber buyers, and vice versa.

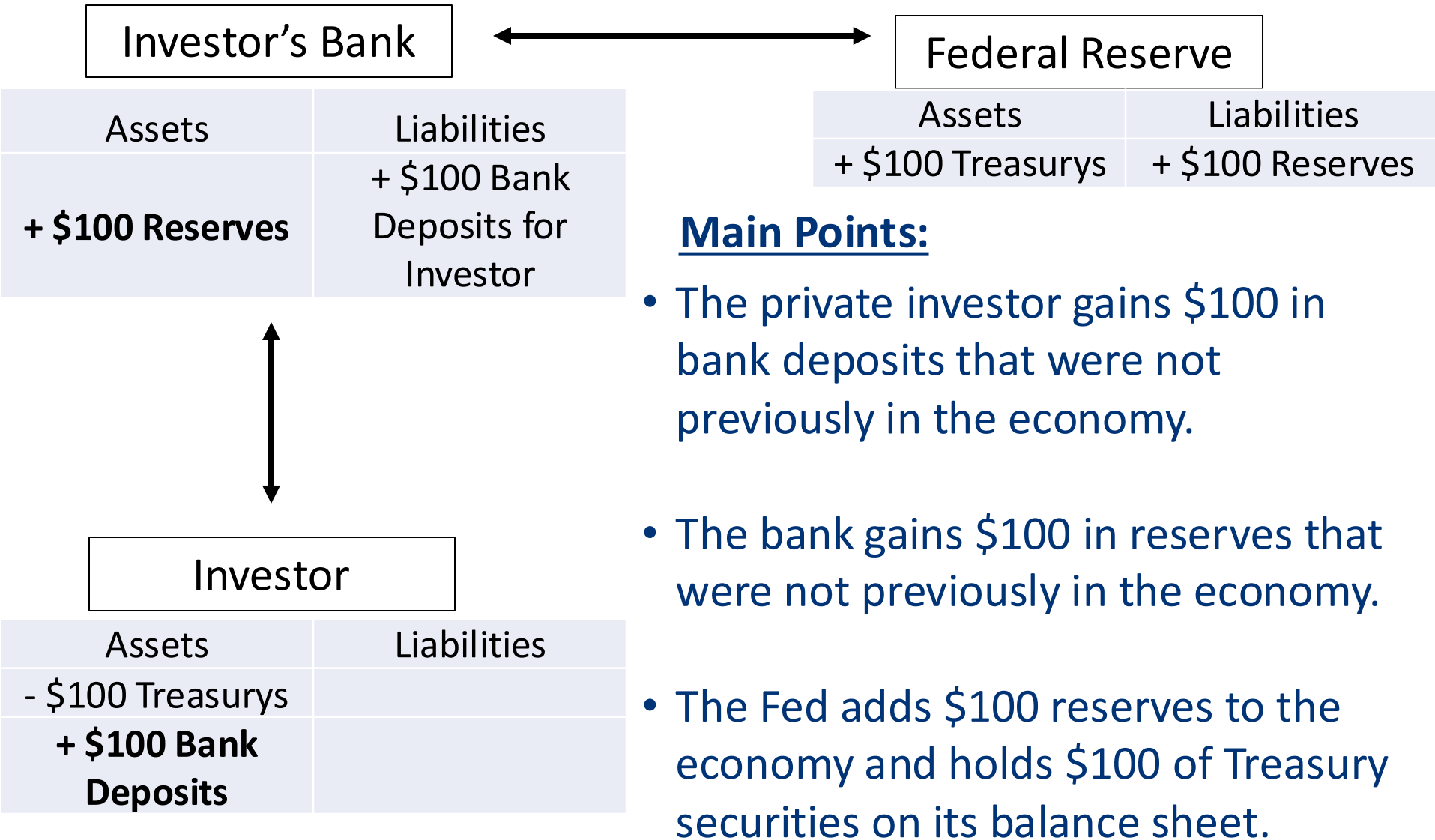
Primary Dealers Are Being Strained

- Since 2007, the ratio of Treasuries outstanding to the total assets of primary dealers has risen from less than 20% in 2007 to nearly 70% today.
- COVID exemplified that the Treasury market has outgrown the capacity of dealers to safely intermediate the market on their own balance sheets.

Primary Dealers Are Being Strained

- This could lead to loosening regulatory constraints that were meant to increase financial stability or a system for trading Treasuries that introduces new risks.
- This can also lead to the Federal Reserve having a bigger role during crises as a “buyer of last resort”
 - This can lead to economic and market distortions.
 - The Fed creates new money when it injects liquidity.
 - While newly created bank reserves pay an interest, it is banks that hold them and receive the interest
 - Sellers of Treasuries receive bank deposits – which don’t pay interest usually and are inflationary.

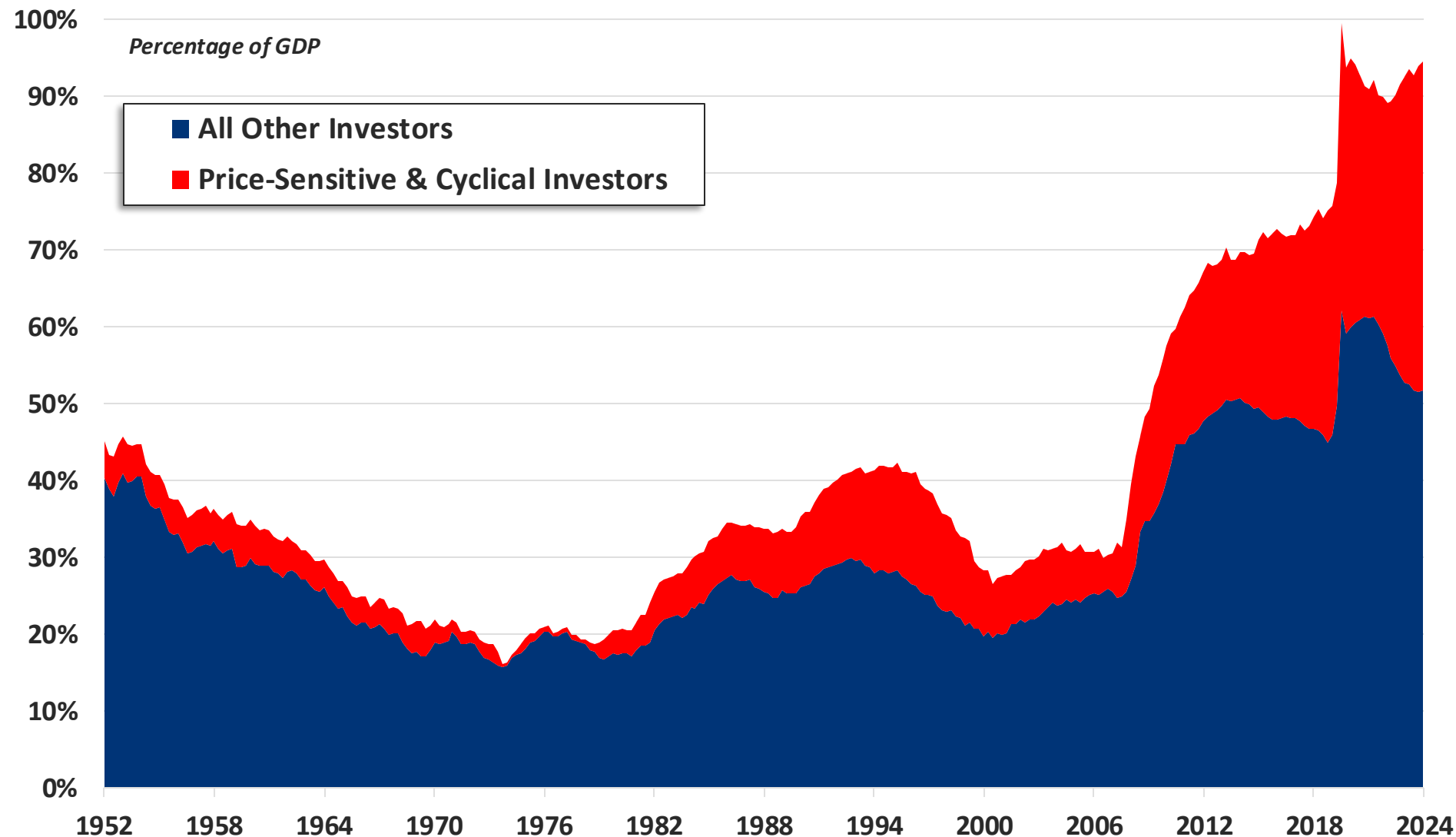
Federal Reserve buys \$100 of Treasury securities from a private investor



The Investor Base Is Becoming Less Stable

- As debt grows, the marginal buyer of Treasuries becomes more sensitive to pricing relative to traditional buyers.
 - These investors will demand higher yields and quickly change their behavior in response to economic and market conditions.
- Treasury holdings of hedge funds (and other similarly volatile holders), mutual funds, money market funds, and foreign private investors have grown from around 0% to 5% of GDP prior to the 1980s to 43 percent today.

More Price-Sensitive Investors Are Needed



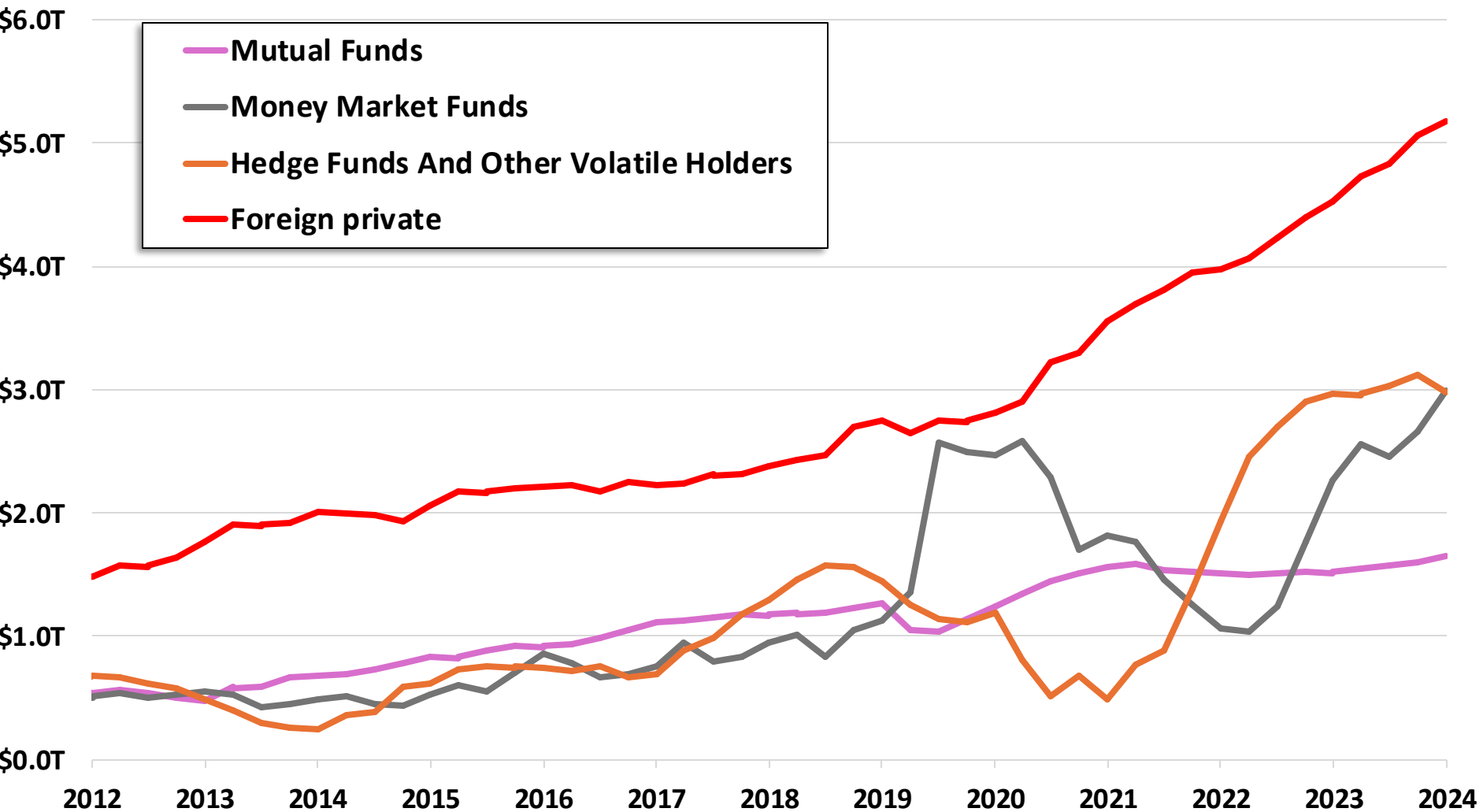
Sources: Author's calculations based on Federal Reserve and Treasury International Capital (TIC) data.

Note: Price-sensitive & cyclical investors include Z.1 L.210 categories of households & nonprofits (the residual of total issuance), mutual funds, and money market funds as well as author's estimates of private foreign holdings.

Price-Sensitive & Cyclical Investors

- Hedge funds: Highly leveraged players that are engaged in the Treasury cash-futures basis trade
- Mutual funds: Can face significant redemption risks during crises and have less demand during rate hiking cycles
- Money market funds: Very responsive to economic conditions and monetary policy
- Foreign private investors: Increase their holdings when non-US sovereign yields are low or decrease relative to Treasury yields

Holdings of Price-Sensitive & Cyclical Investors

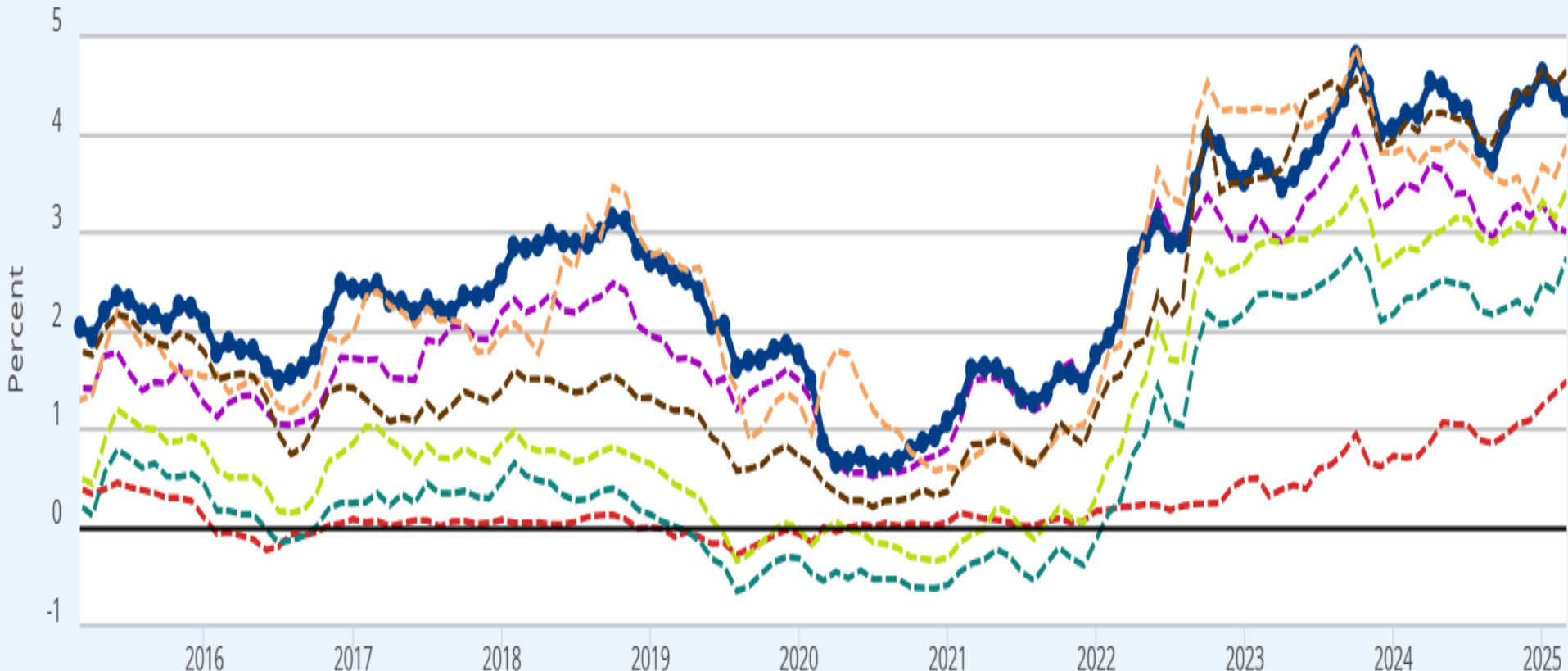


Sources: Author's calculations based on Federal Reserve and Treasury International Capital (TIC) data.

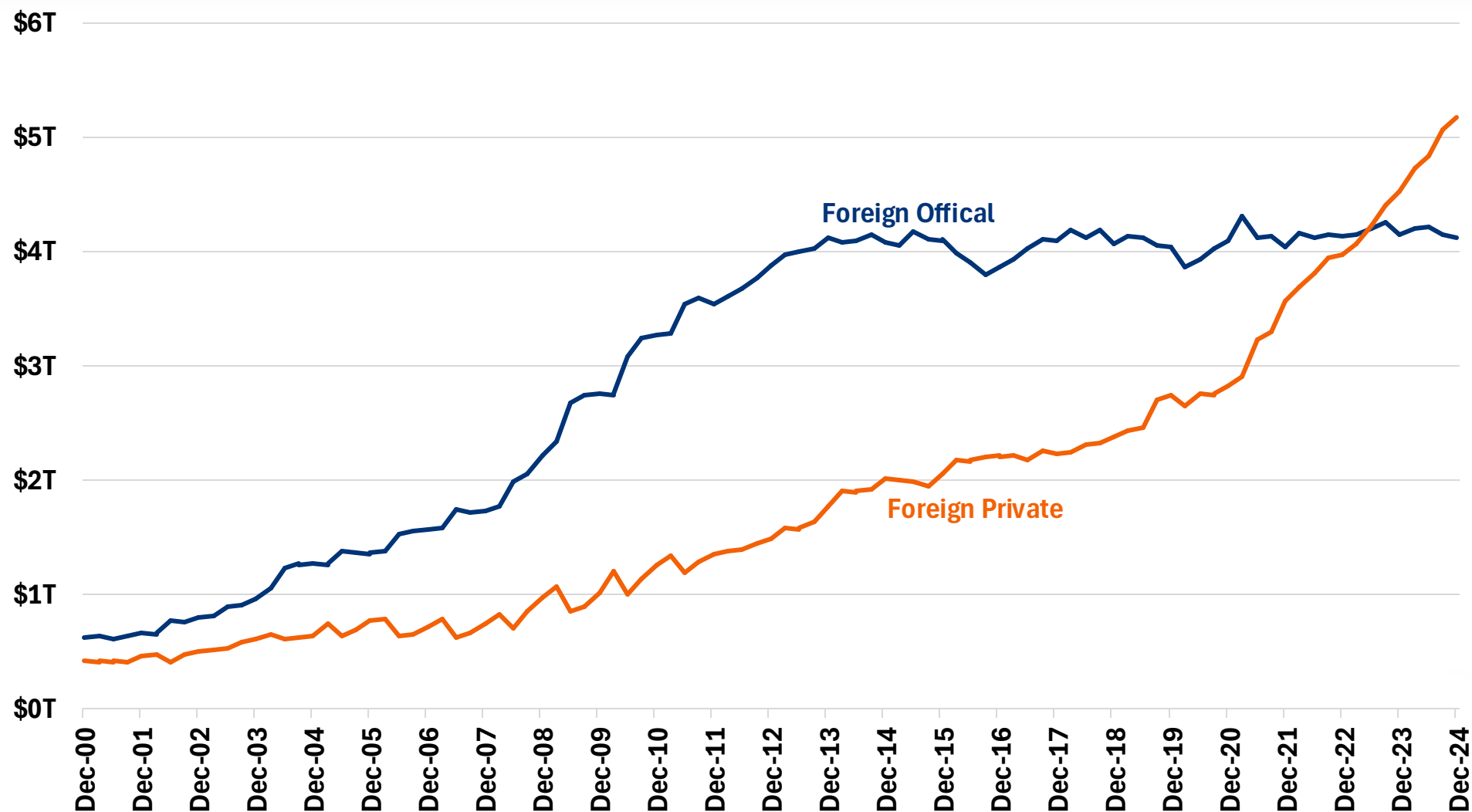
Foreign Private Investor Holdings Surged

- Foreign private investors – who are sensitive to pricing – have been increasing their holdings significantly.
 - U.S. Treasury yields – relative to other advanced economies – are quite high.
 - If U.S. Treasury yields fell relative to other countries, then demand by foreign private investors would likely fall as well.
- An appreciating/stable US dollar has also made Treasuries attractive to private foreign investors
 - The threat of USD devaluation – for example, during a trade war – could impact this investor base

10-Year U.S. Yield is Higher Than Other G7 Nations



Foreign Official Holdings Have Stagnated



Sources: Author's calculations based on Federal Reserve and Treasury International Capital (TIC) data.

Foreign Official Holdings

- Although still the dominant reserve currency, the dollar's share of global reserves has fallen from 70% in 2000 to around 60% today.
 - Foreign official demand for Treasuries has stagnated.
- Foreign official holders are price-insensitive, but some worry geopolitical conflict could result in malicious selling.
- As with any crisis, if the market was unable to absorb a malicious foreign official flash sale of Treasuries then the Federal Reserve would step in as the “buyer of last resort.”
 - This can lead to an increase in the money supply and inflationary consequences.

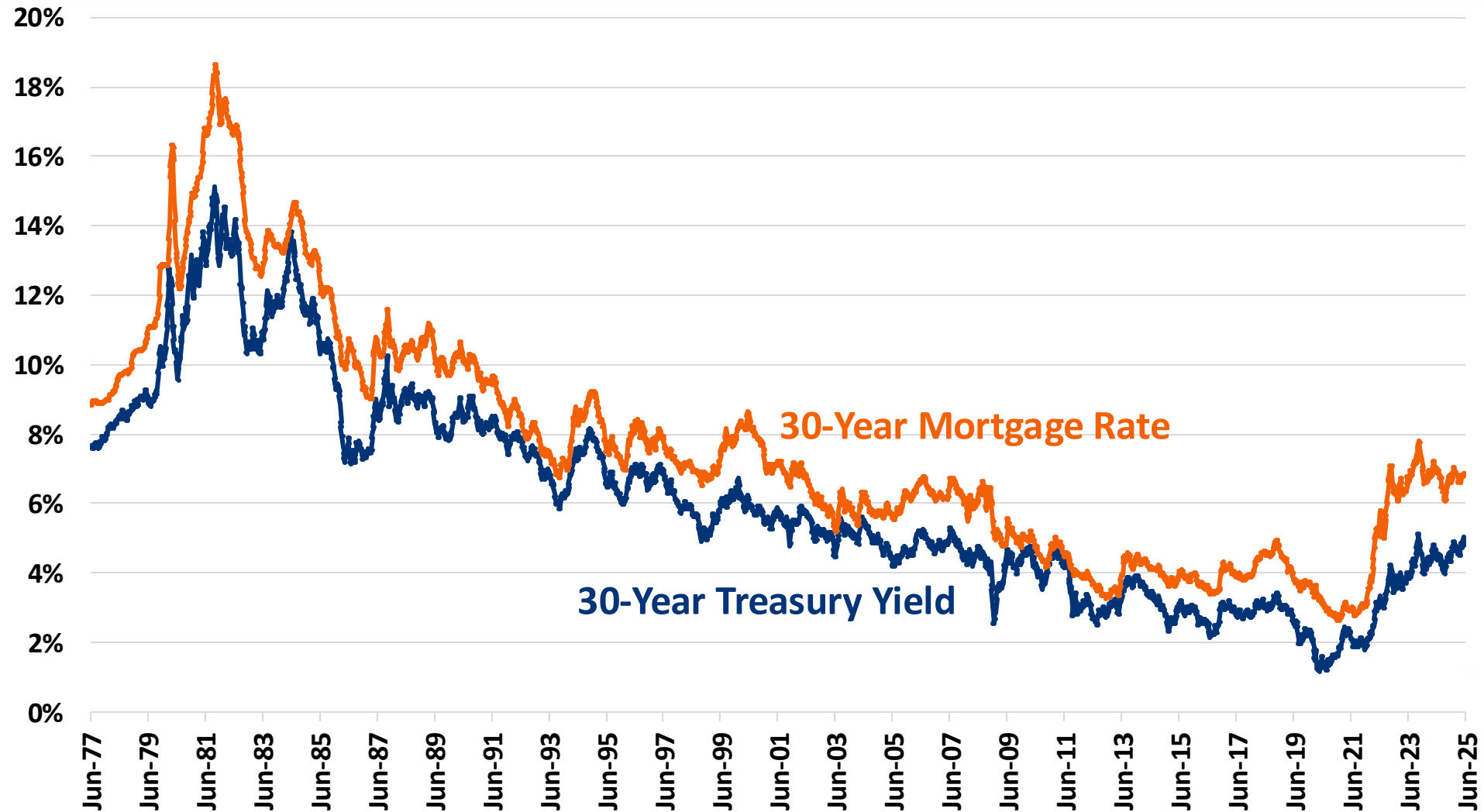
Economic Implications



Treasury Market Strain Impacts the Economy

- Interest Rates Rise
 - Higher yields on Treasuries translates to higher interest rates on loans
 - Creates financial crisis risk due to devaluing all outstanding assets
 - High interest on the debt limits the government's fiscal space
- Intervention from the Fed and Treasury to mitigate market strain has consequences

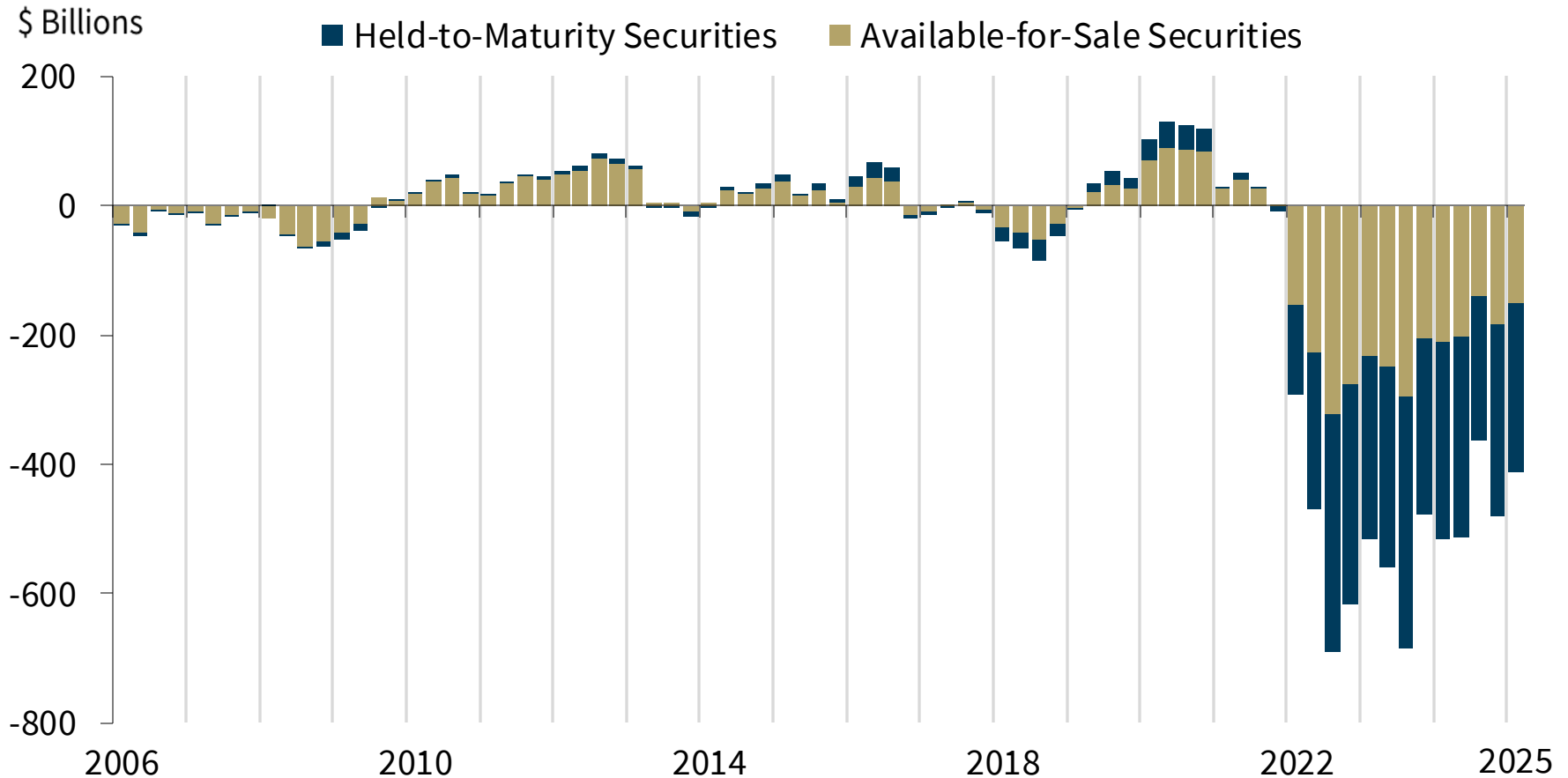
Mortgage Rates Are Correlated w/ Treasurys



Sources: Board of Governors of the Federal Reserve System (US) via FRED®

Non-Equities Lose Relative Value When Yields Rise

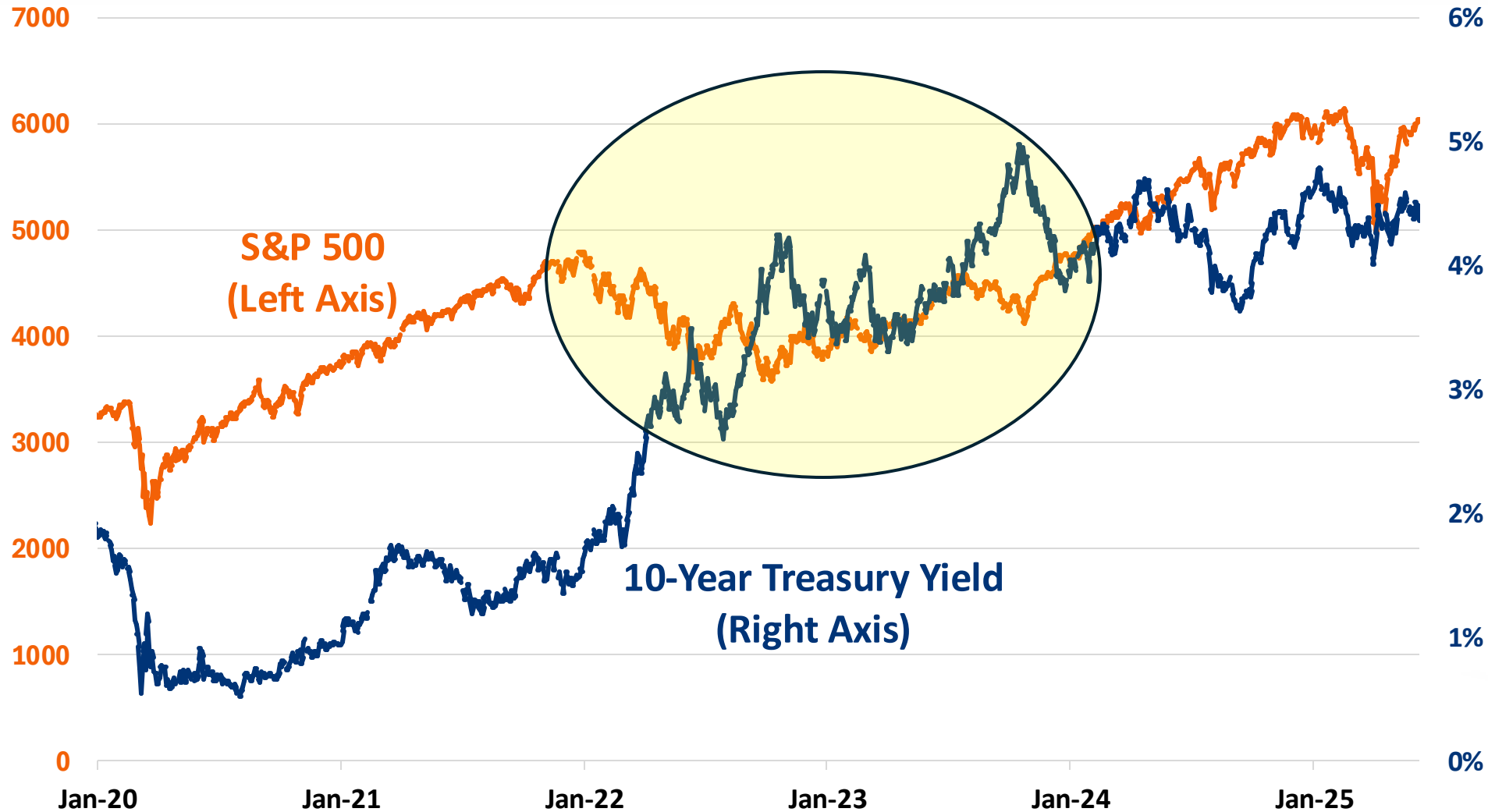
Unrealized Gains (Losses) on Investment Securities



Source: FDIC.

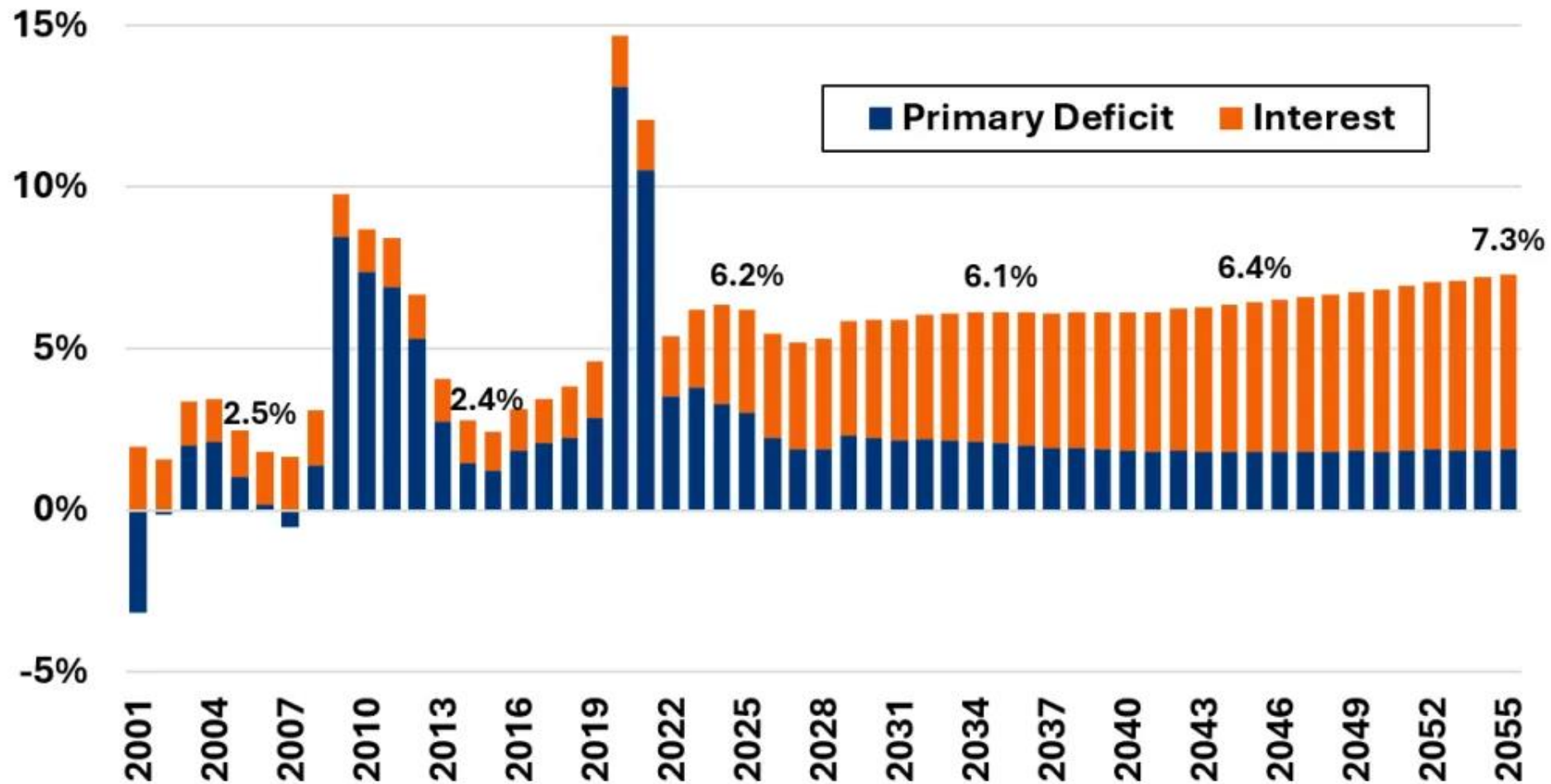
Note: Insured Call Report filers only. Unrealized losses on securities solely reflect the difference between the market value and book value of non-equity securities as of quarter end. This chart does not reflect unrealized gains or losses in other parts of the balance sheet.

Equities Lose Relative Value When Yields Rise



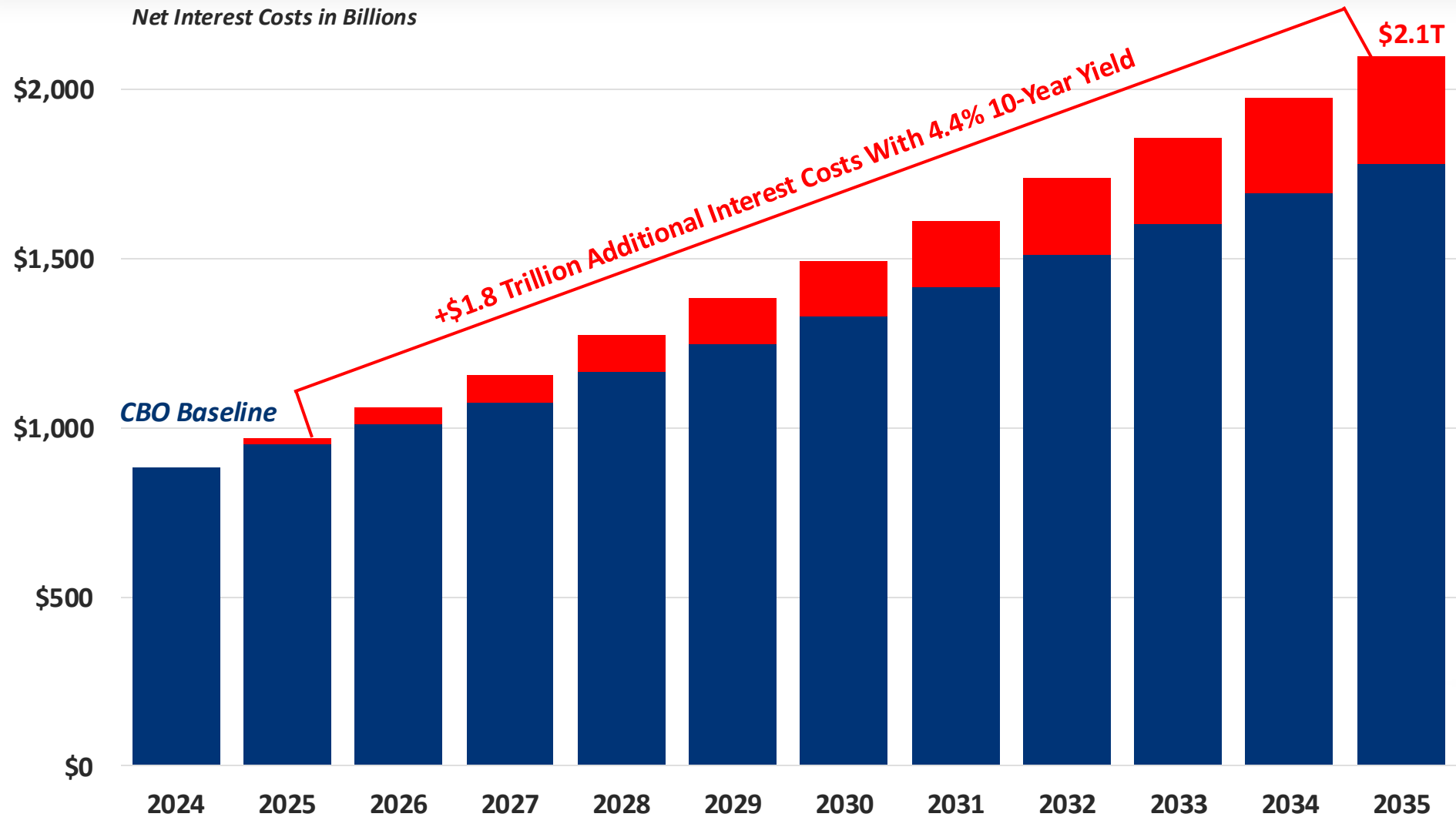
Interest Grows Substantially Under Current Law

Budget Deficits Under CBO's Long-Term Budget Outlook (Percent of GDP)



Source: Congressional Budget Office. Note: projected deficits are adjusted to remove the effect of timing shifts.

And It Will Likely Be Larger Than Projected



Sources: Congressional Budget Office, Committee for a Responsible Federal Budget.

Note: Estimate assumes all yields rise above baseline by the same magnitude as the 10-year.

Real World Comparisons



Comparison to the UK (2022)

- The 2022 U.K. bond market hiccup is the most recent extreme example of demand for gov. securities drying up
 - In less than three days the 30-year Gilt rose by more than 160 basis points as a result of a fiscally irresponsible budget at a time of monetary tightening.
- To repair the market: BoE implemented QE, the Chancellor was fired, the Prime Minister resigned, and the fiscal expansion was reeled back entirely.
- While the global macro environment is not as severe, there are many similarities between the US today and the UK in 2022.

Comparison to the UK (2022)

2022 UK Mini-Budget vs. House Reconciliation Package

	UK 2022	US 2025
Select Metrics		
Primary Deficit Impact of Proposal in 2027	1.5% of GDP	1.7% of GDP
Total Deficit Under Proposal in 2027 [^]	3.9% of GDP	7.0% of GDP
Deficit in Year of Announcement [']	5.4% of GDP	6.2% of GDP
Debt in Year of Announcement [*]	~96% of GDP	~100% of GDP
10-Year Yield Before Announcement	~3.0%	~4.3%
10-Year Yield After Announcement	~4.4%	TBD

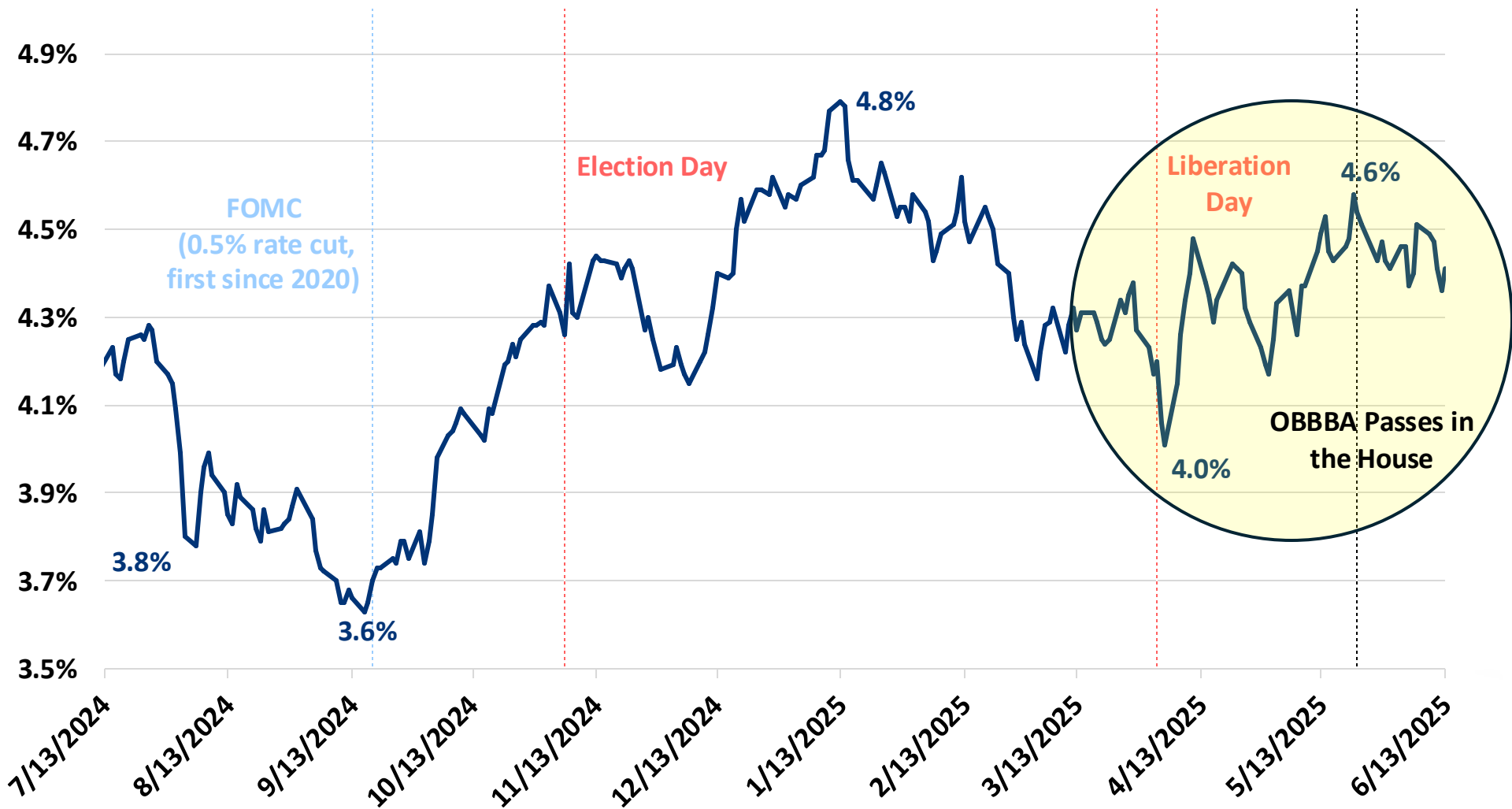
Sources: Committee for a Responsible Federal Budget, HM Treasury, Office for Budget Responsibility, Congressional Budget Office, and Institute for Fiscal Studies.

^{*} US debt figures reflect debt held by the public provided by the Congressional Budget Office, while UK debt figures reflect public sector net debt provided by the Office for Budget Responsibility.

[^] The UK figure was estimated by the Institute for Fiscal Studies.

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Comparison to the UK (2022)



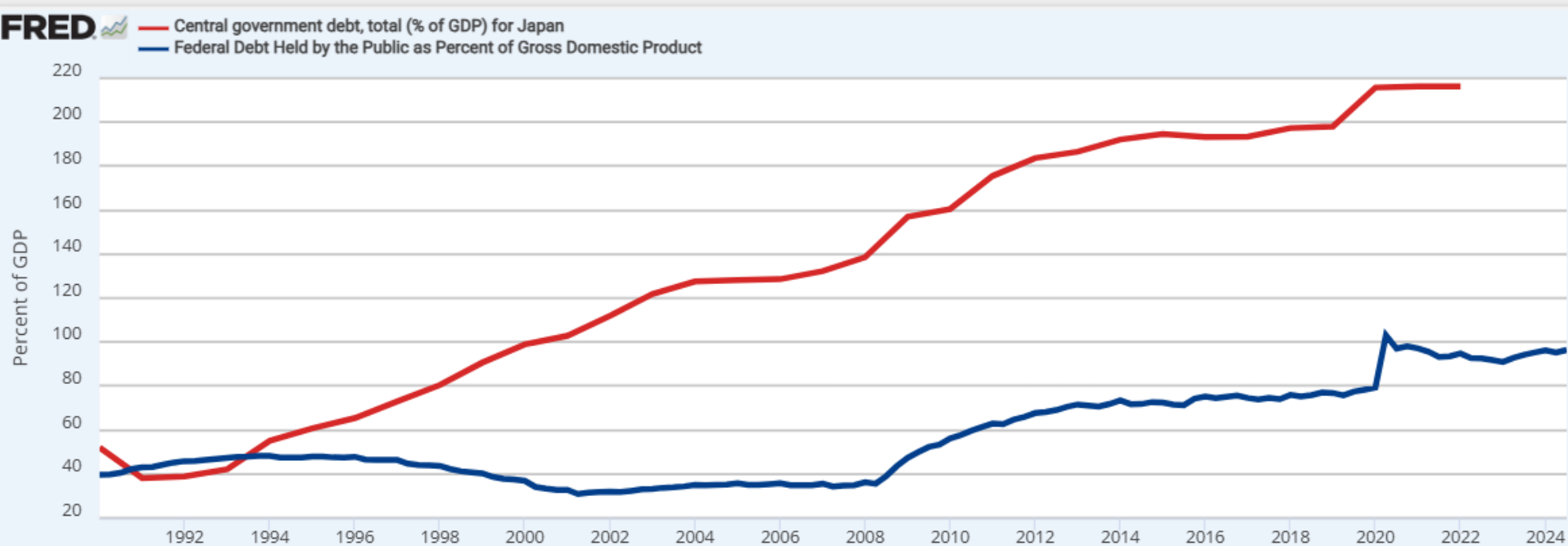
Comparison to the UK (2022)

- If the US becomes more politically or fiscally unstable, price-sensitive investors will demand compensation.
 - A trade war + reconciliation instructions worse than current policy = greater instability
- If investors expect USD devaluation, they will demand compensation.
 - The goal of a “trade surplus” implies USD devaluation to improve exports.
- Deficits reaching up to 12% of GDP within 30 years implies a debt crisis.
- Between USD devaluation and threat of a fiscal fallout, Treasuries lost value as a storehold of wealth.

Comparison to the UK (2022)

- While the UK was able to quickly assemble a plan for fiscal consolidation, the same degree of speed may not be possible in the US, where we're known for quickly putting together the opposite – increases in spending and decreases in taxes.
- Systems of governance in the UK and Europe are known for having less “paralysis” than in the US.
- The UK was in a much better fiscal situation than we are today

Comparison to Japan (Debt Sustainability)



Sources: Federal Reserve Bank of St. Louis; U.S. Office of Management and Budget; World Bank via FRED®

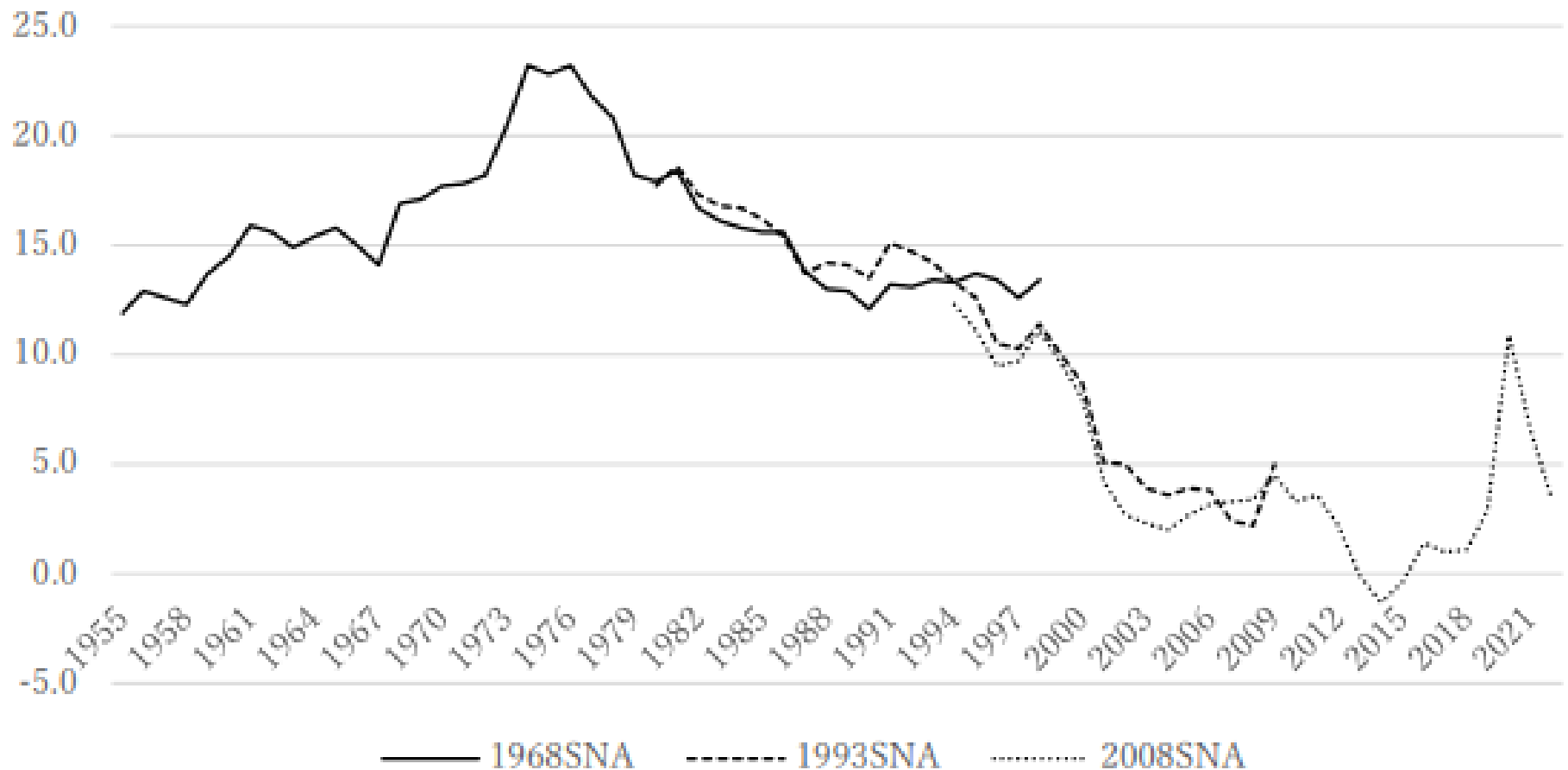
- Some argue that following a path similar to Japan is preferred over fixing our budget
- Japan's Debt was ~99% of GDP in 2000
- Japan is not THE reserve currency of the world
- And a debt crisis has been predicted for decades

Comparison to Japan (Debt Sustainability)

- Japan's situation is poorly discussed
- The main reasons provided as to why Japan can sustain its high debt levels are:
 - Higher household savings rate (wrong)
 - Unconventional monetary policy (not satisfying)

Comparison to Japan (Debt Sustainability)

Fig. 1: Trends in Japan's Household Saving Rate



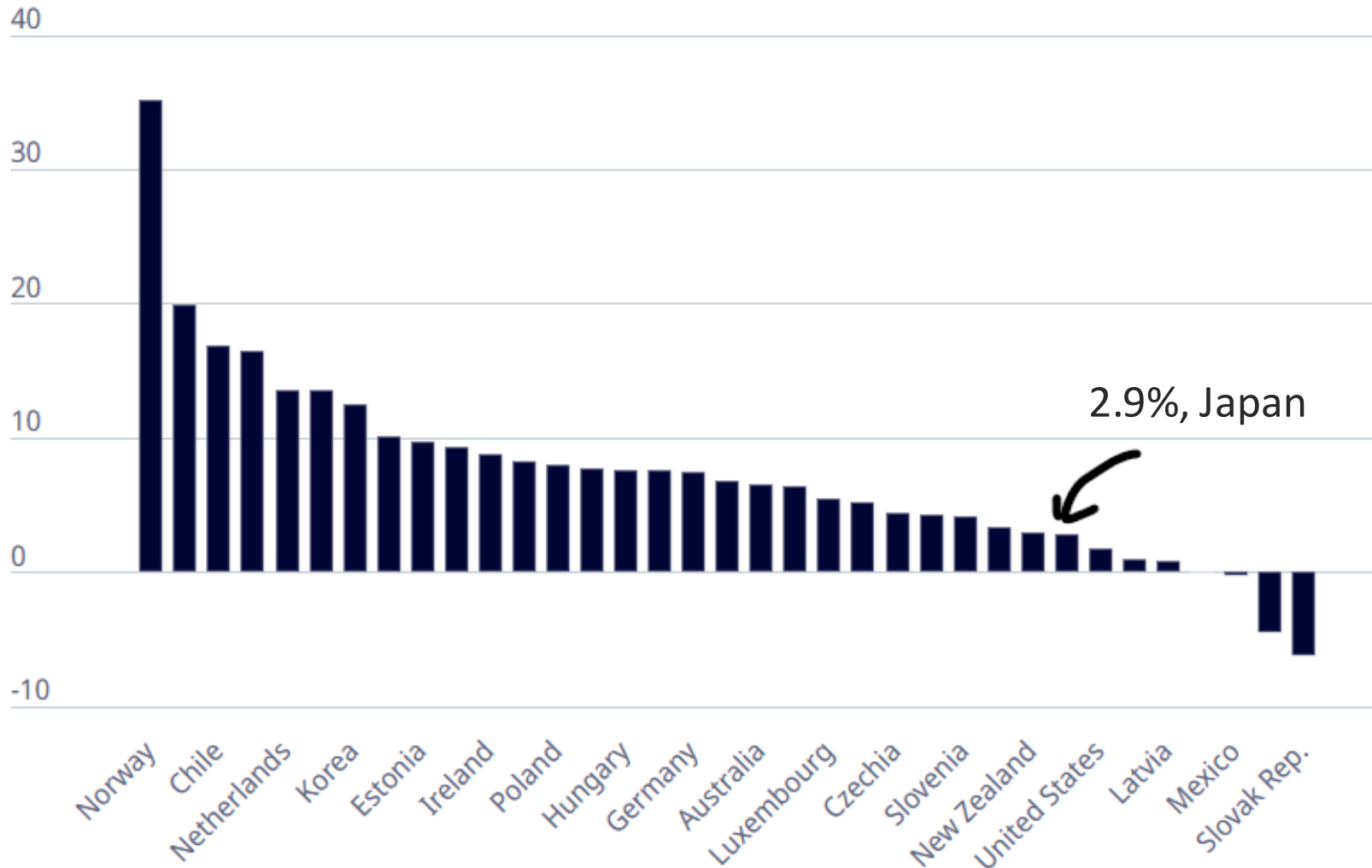
Source: Asian Growth Research Institute. (2024). Japan's fiscal sustainability and debt dynamics (Working Paper No. 2024-22).

Note: The Household saving rate is defined as net household saving (net of depreciation on housing and other fixed assets) divided by net household disposable income

Comparison to Japan (Debt Sustainability)

Saving rate

Net saving, % of GDP, 2022



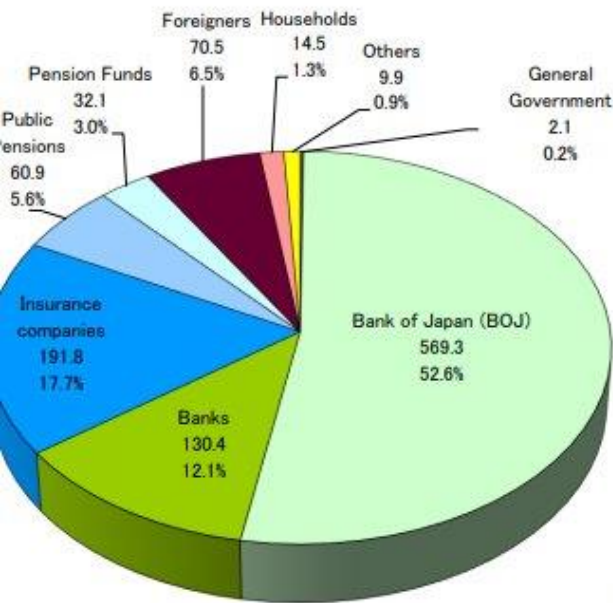
Source: [OECD](#)

Note: Saving rate is the amount of GDP that is saved by households, businesses and the government.

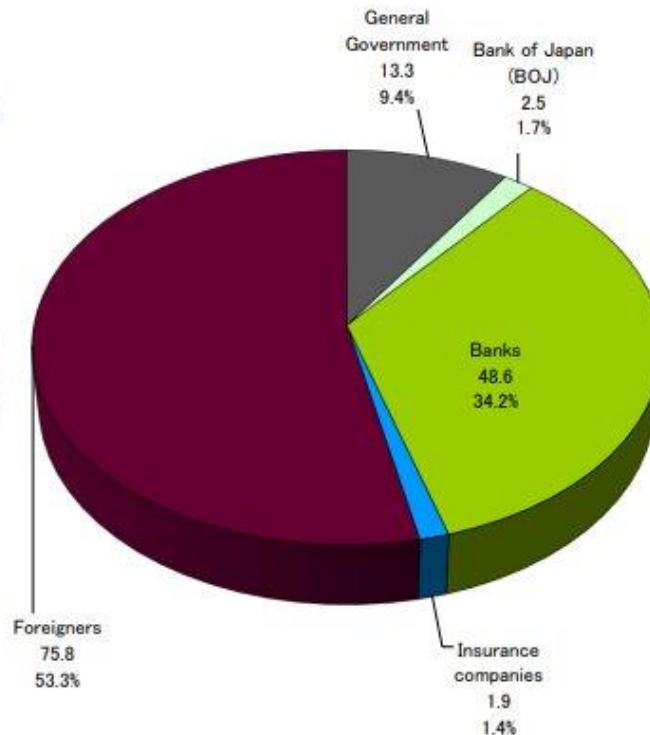
Comparison to Japan (Debt Sustainability)

Breakdown by JGB and T-Bill Holders (Sep. 2024, Preliminary Figures)

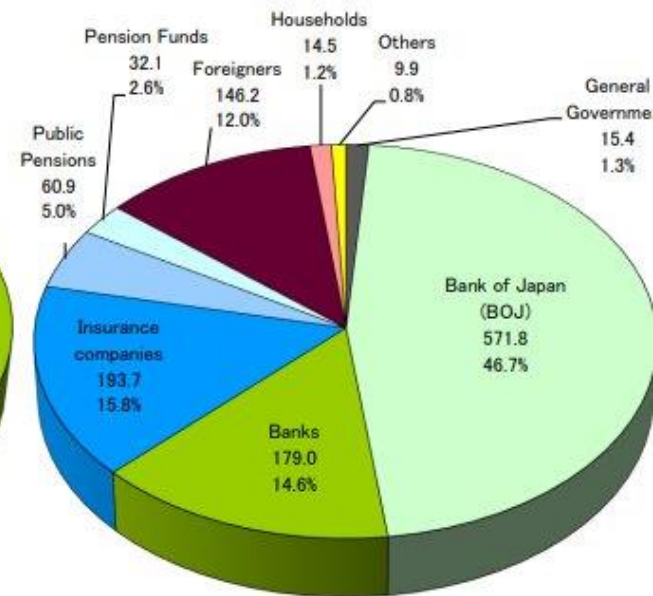
JGB Holders
Total 1,081.5 trillion yen



T-Bill Holders
Total 142.1 trillion yen



JGB and T-Bill Holders
Total 1,223.6 trillion yen



(Unit: trillion yen)

Source: Bank of Japan "Flow of Funds Accounts (Preliminary Figures)"(December 18, 2024)

Note1 : "JGB" includes "FILP Bonds."

Note2 : "Banks" includes "Japan Post Bank," "Securities investment trusts," "Securities companies," etc.

Note3 : "Insurance companies" includes "Life insurance," "Nonlife insurance," and "Mutual aid insurance."

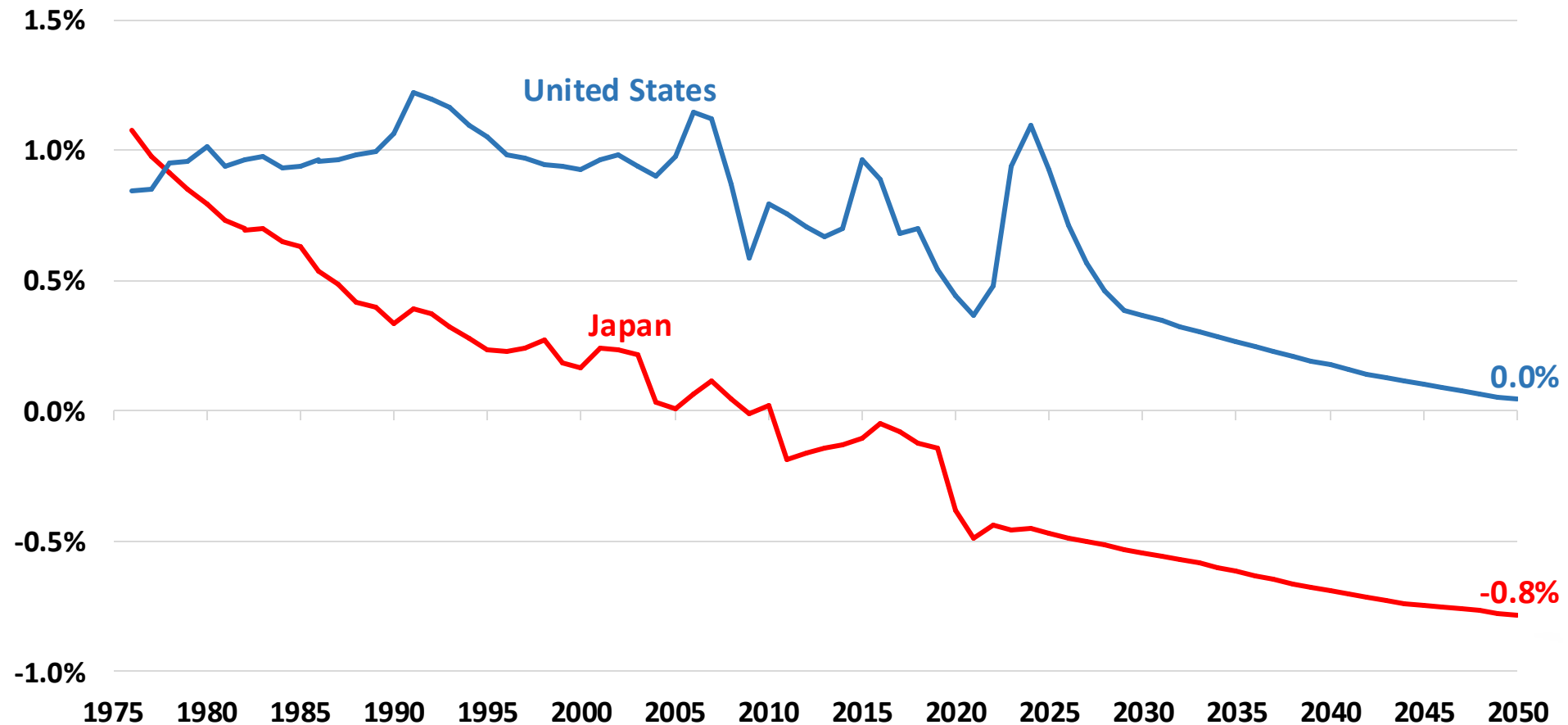
Note4 : "General Government" excludes "Public Pensions."

Comparison to Japan (Debt Sustainability)

- Japan's strong deflationary and recessionary pressures from its declining population have forced the country to implement aggressive unconventional monetary policy

Comparison to Japan (Debt Sustainability)

Population Growth Rate



Sources: Congressional Budget Office, National Institute of Population and Social Security Research, World Bank

Comparison to Japan (Debt Sustainability)

A shrinking population =

- Less output
- Less demand
- Less investment
- Less productivity growth

Deflationary and Recessionary Pressures

Comparison to Japan (Debt Sustainability)

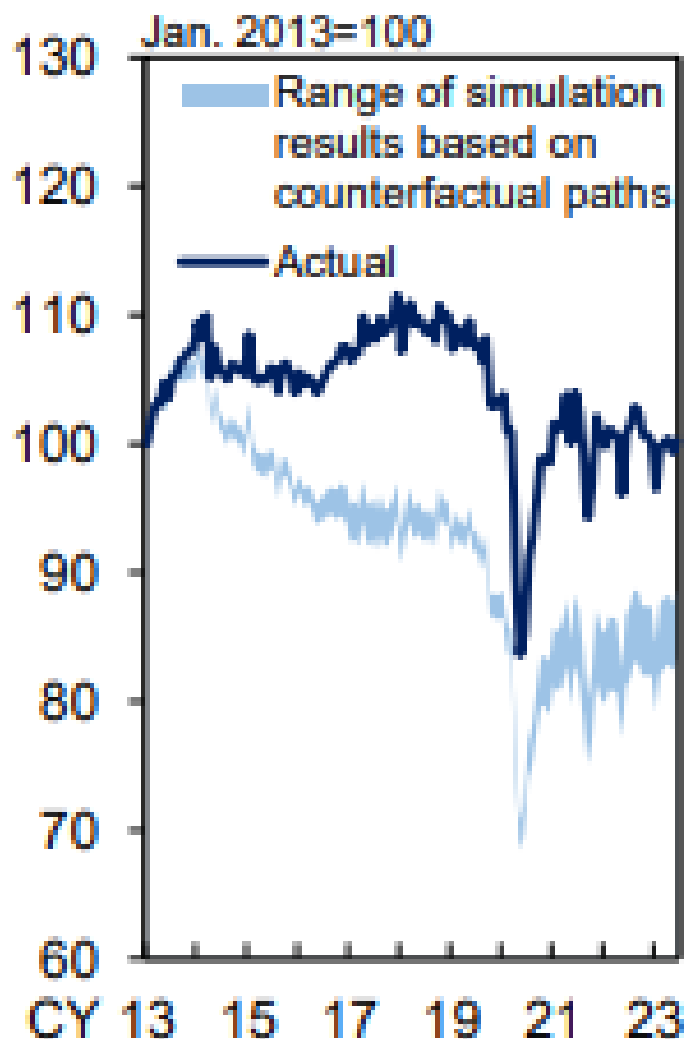
- A government's worst nightmare is a deflationary recession (Great Depression is the most famous)
- BOJ is battling the deflationary and recessionary pressures of a declining population
- Japan's response follows conventional wisdom
- BOJ is pulling any levers it can to achieve its SINGLE MANDATE of stable prices (2% inflation)

Comparison to Japan (Debt Sustainability)

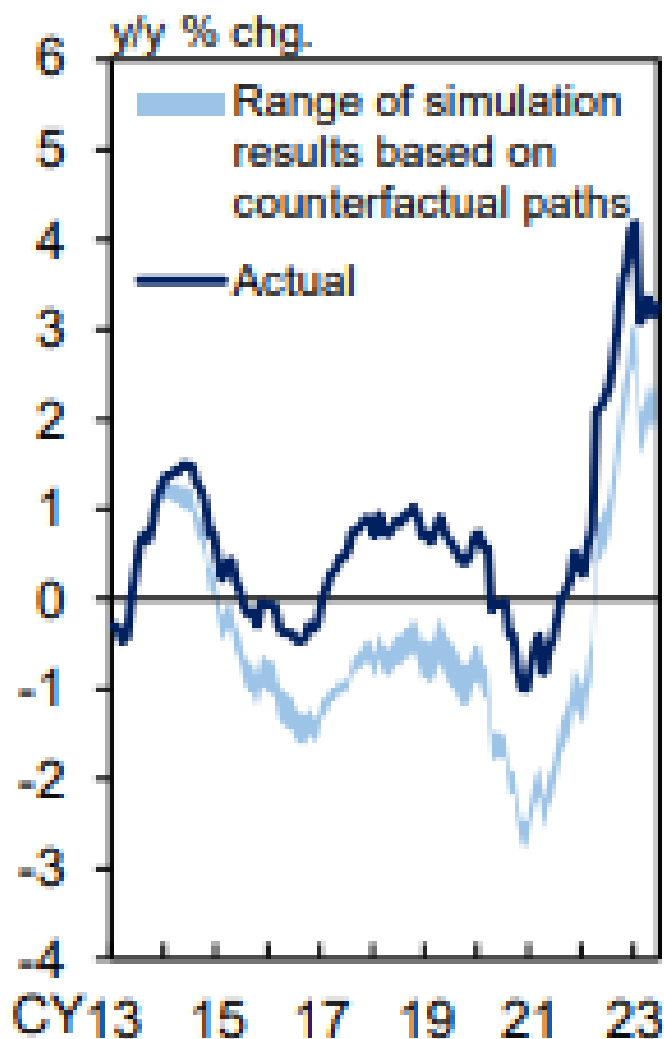
- The consequences of Japan's actions are inflation and economic stimulus (and market responses)
- But the consequences are offset by deflationary and recessionary pressures of a declining pop.
- If we followed Japan's playbook, we'd suffer the typical consequences bc our private sector is strong
- In other words, a weak private sector gives the public sector leeway for aggressive action

Comparison to Japan (Debt Sustainability)

1. Industrial Production



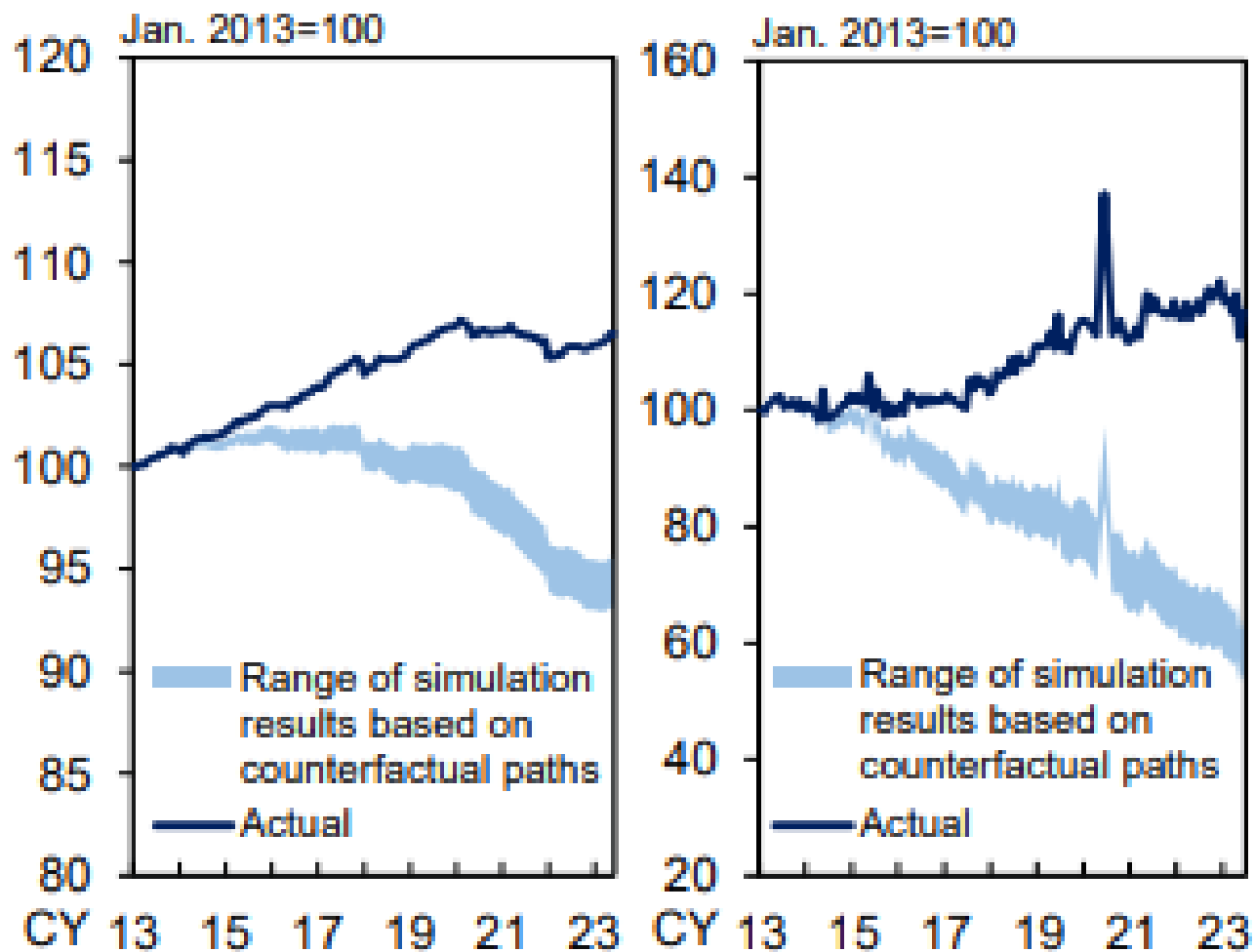
2. CPI (Less Fresh Food)



Source: [Bank of Japan](#)

Comparison to Japan (Debt Sustainability)

3. Number of Employees 4. Nominal Disposable Income



Source: [Bank of Japan](#)

Comparison to Japan (Debt Sustainability)

- The United States has as strong private sector and a growing population. Instead of offsetting the deflationary and recessionary pressures of a declining population, we would be fueling inflation and overheating the economy.

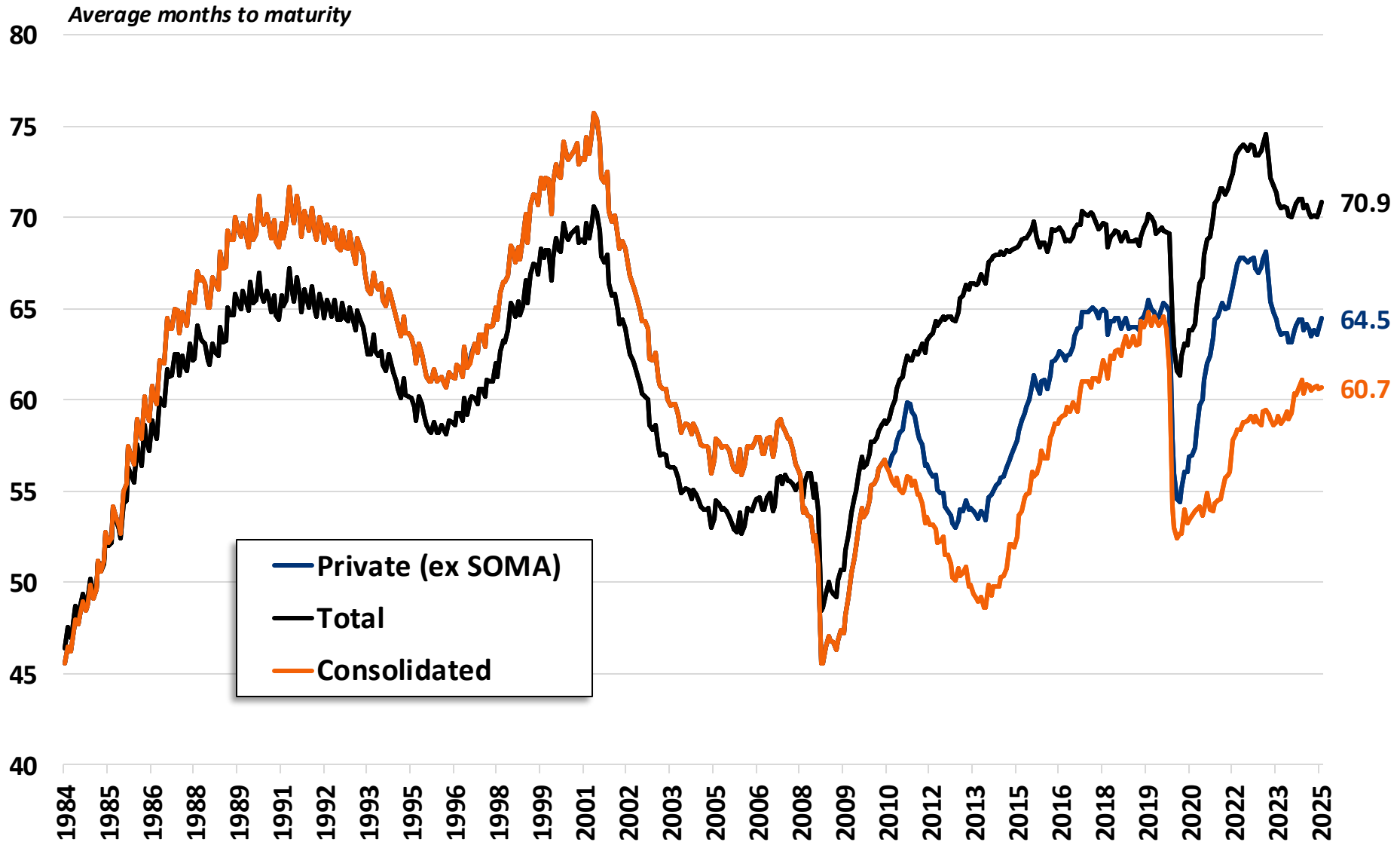
Are We At Risk of A Debt Crisis?

- Estimates suggest that debt held by the public cannot exceed about 175 to 200 percent of GDP (under favorable assumptions) without financial markets unravelling.
- Market “tipping” points are possible well in advance of this theoretical limit, especially if the U.S. becomes more fiscally, economically, or politically unstable.
- Without corrective action, a debt crisis is likely to occur over the next 30 years due to the nation’s large primary deficits, rapidly rising interest costs, and dysfunctional political partisanship.

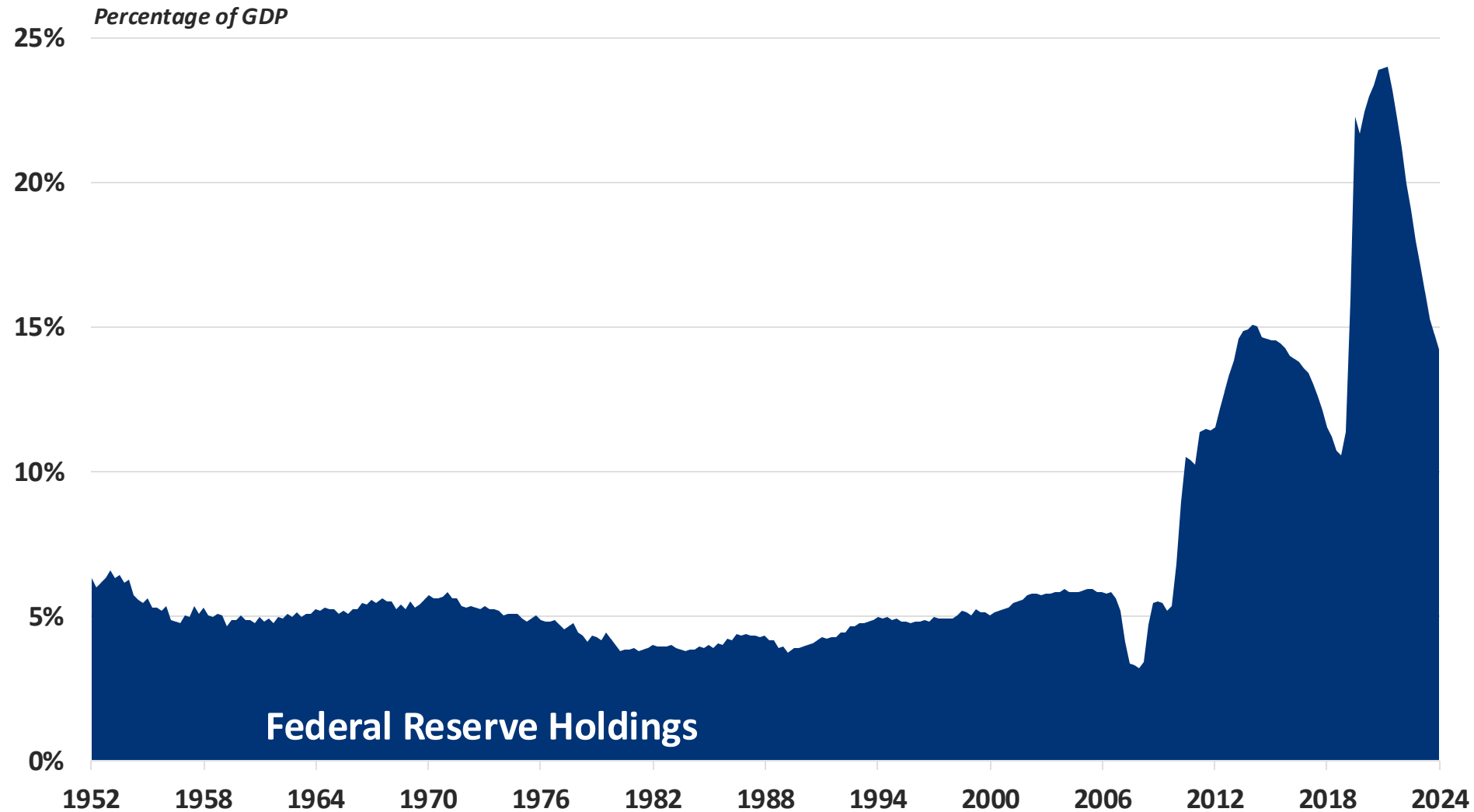
Questions?



Weighted Average Next Reset Rate (WANRR)



Federal Reserve's “Last Resort” Role Grows



Sources: Author's calculations based on Federal data.

Note: Graphic reflects marketable securities.