



Who is buying Treasuries, Mortgages, Credit, and Munis?

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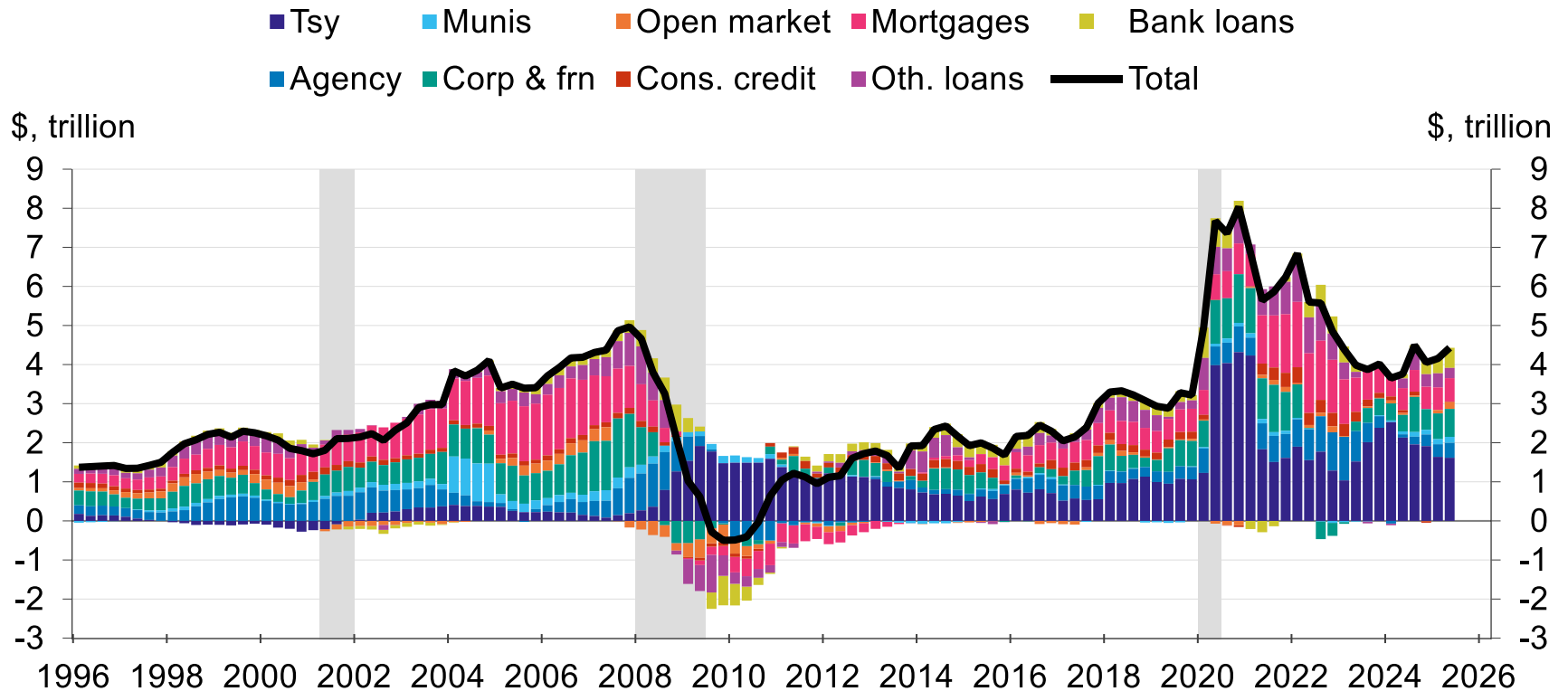


Featured charts



US fixed income markets expanded by \$4.4trn in from 2024Q2 to 2025Q2

Change in debt securities outstanding



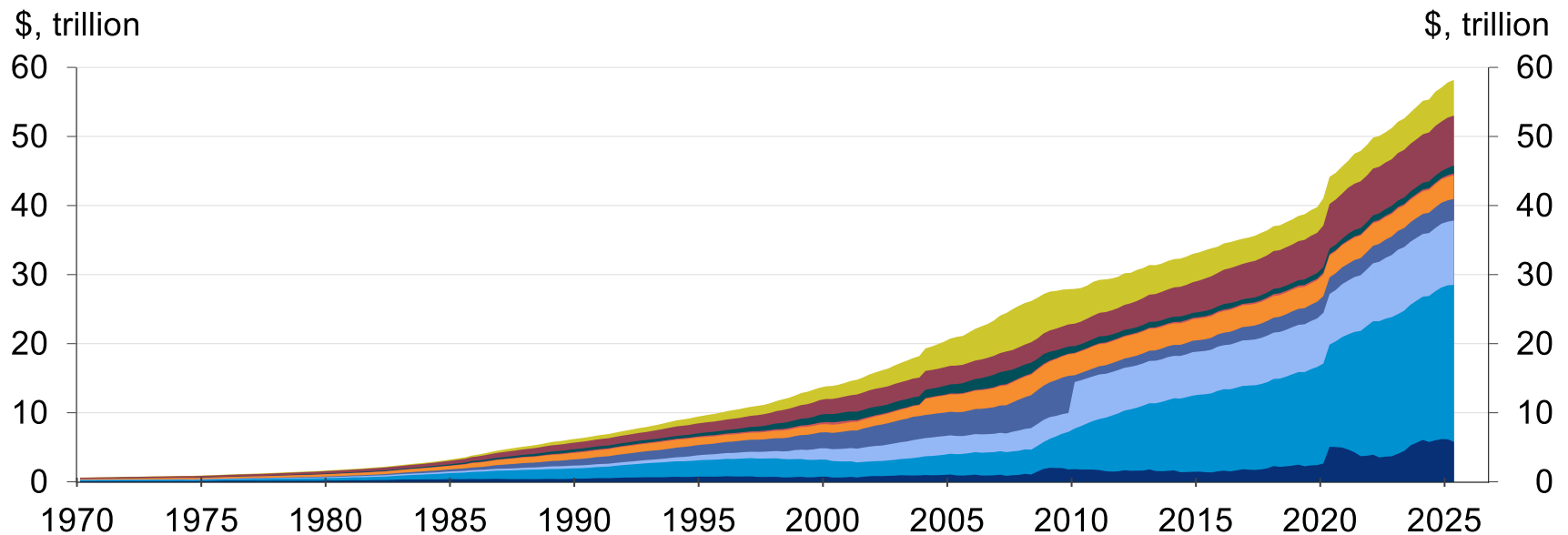
Source: Fed, Macrobond, Deutsche Bank



Total US fixed income securities outstanding: \$58trn at the end of 2025 Q2

Outstanding debt securities

- Treasury bills
- Treasury coupons
- Agency debt & MBS
- Agency Mortgage pools
- Munis
- Nonfin. CP
- Fin. CP
- Nonfin. corp. bonds
- Fin. corp. bonds



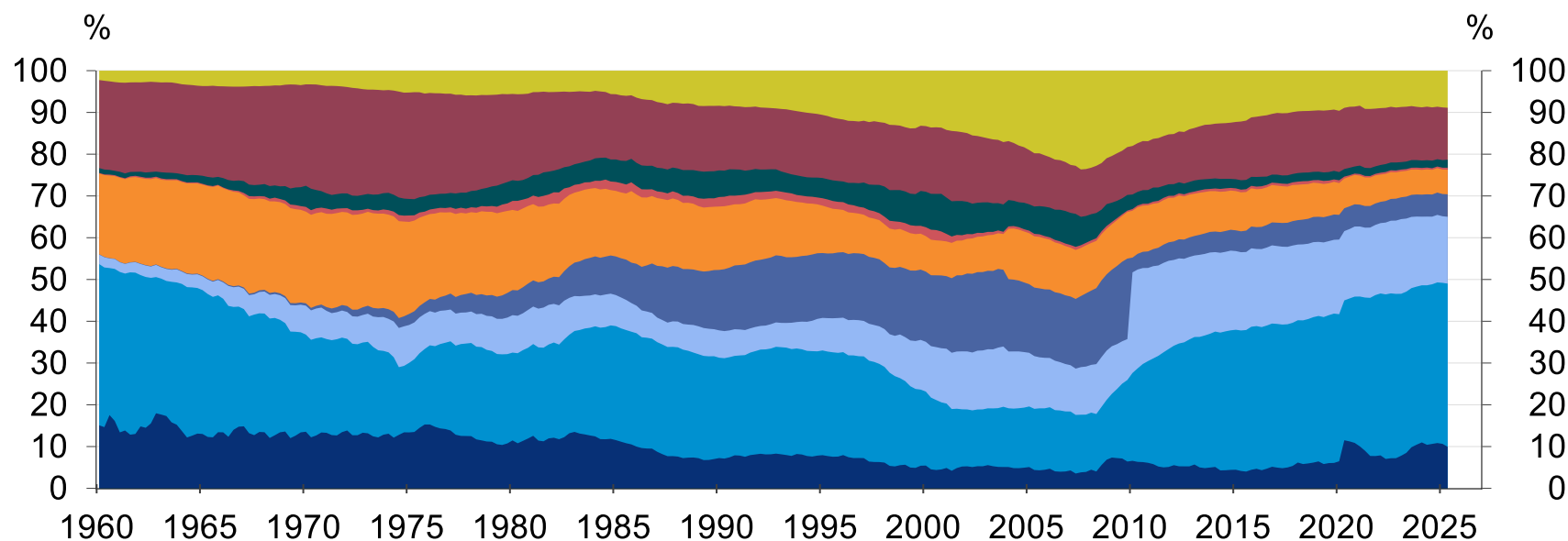
Source: Fed, Macrobond, Deutsche Bank



Treasury and agency securities make up about 70% of total US fixed income outstanding

Outstanding debt securities

- Treasury bills
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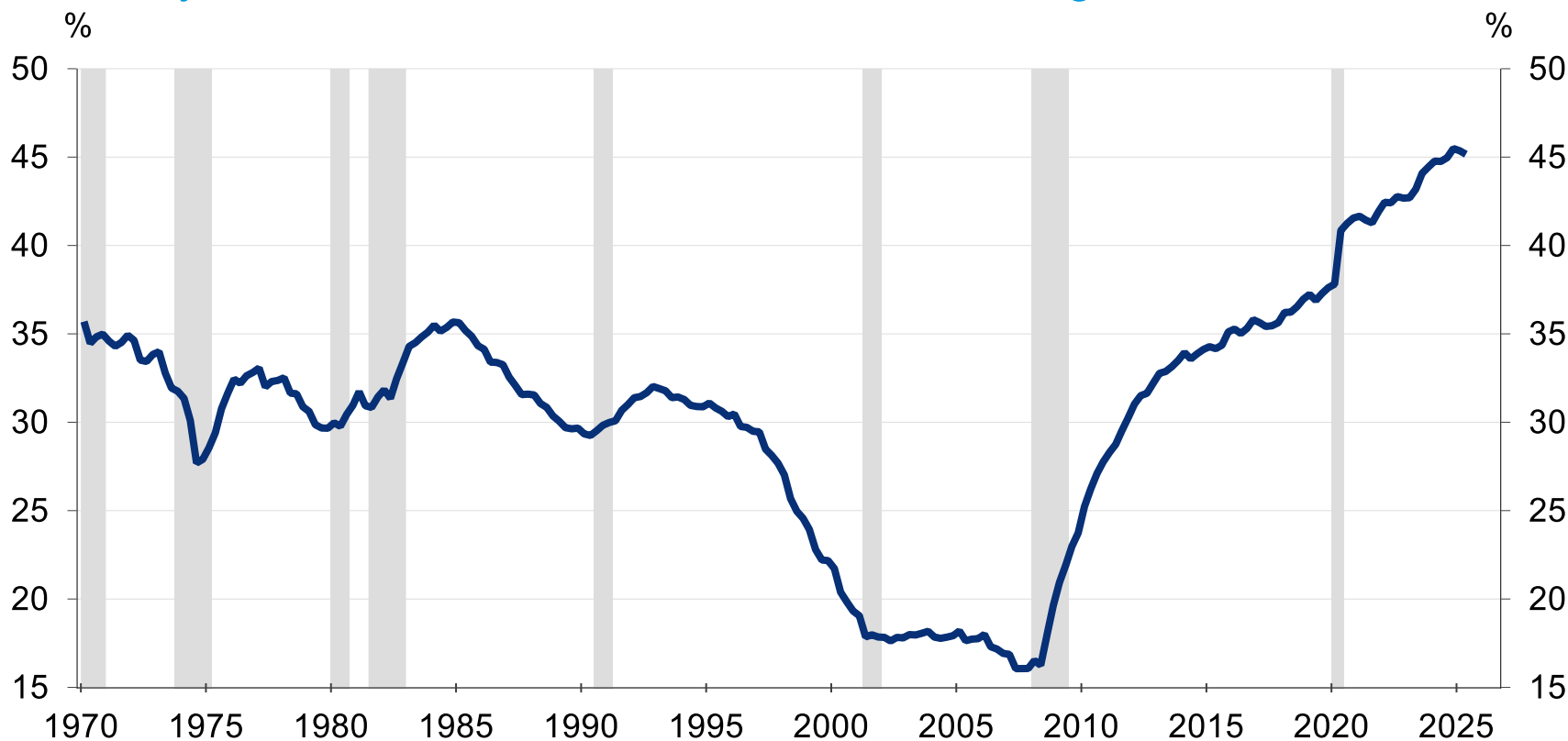


Source: Fed, Macrobond, Deutsche Bank



Treasuries' share of US fixed income has expanded significantly since the Global Financial Crisis

Treasury securities as a share of debt outstanding

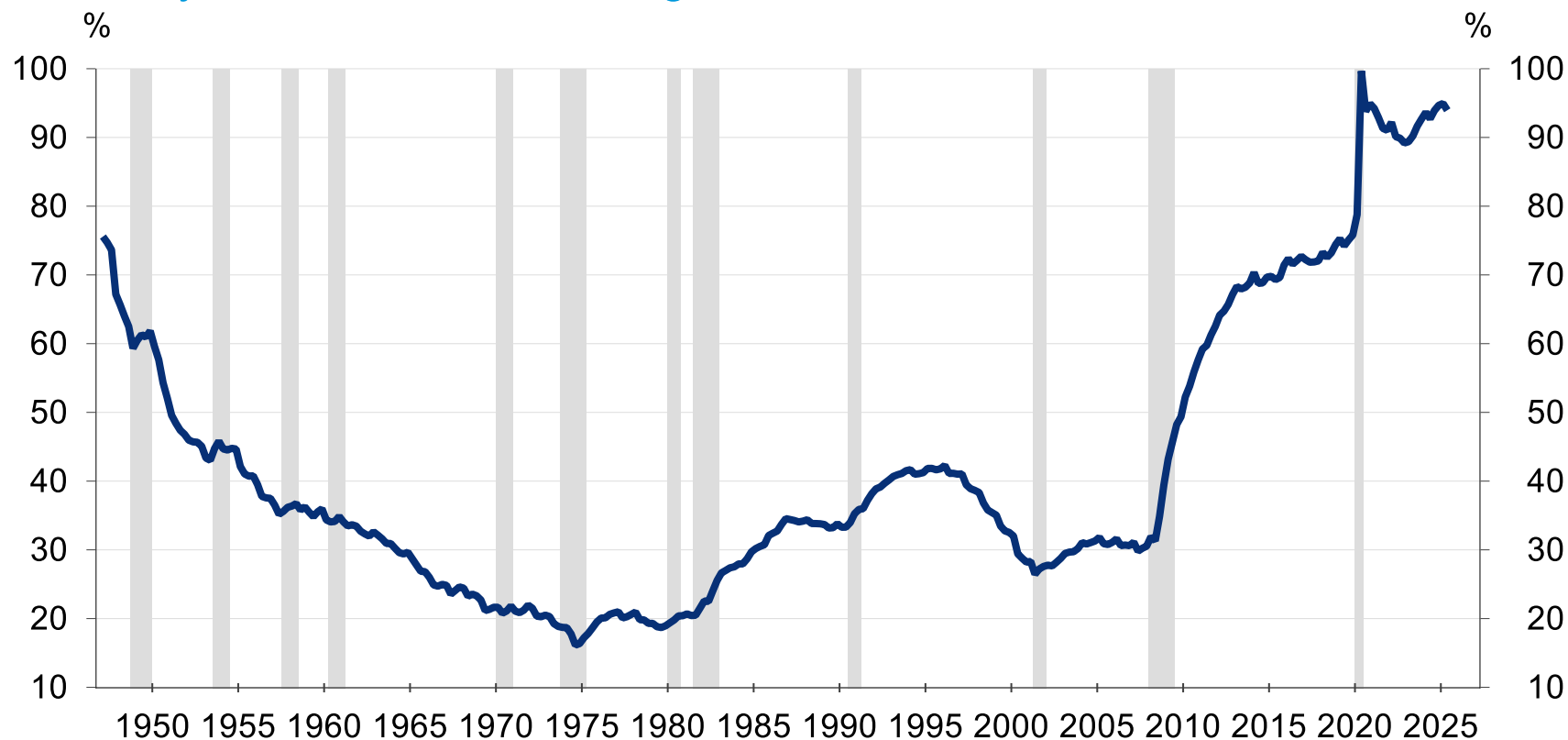


Source: Fed, Macrobond, Deutsche Bank



Treasuries as a share of GDP currently at 95%, up from 75% before Covid

Treasury securities outstanding as a share of GDP

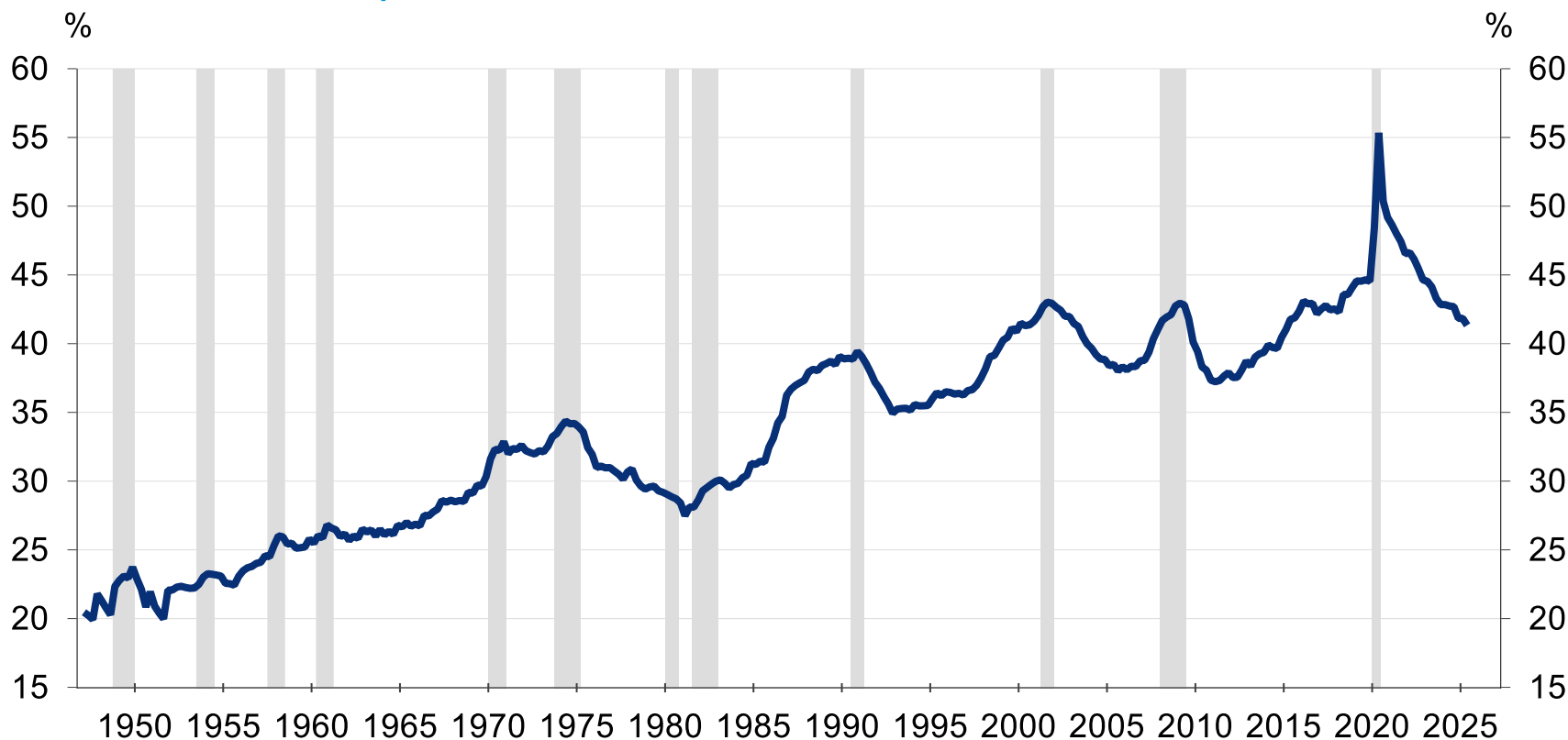


Source: Fed, BEA, Macrobond, Deutsche Bank



Non-financial corporate debt as a share of GDP declined from a peak of 55% during Covid to 42% currently

Non-financial corporate debt securities and loans as a share of GDP

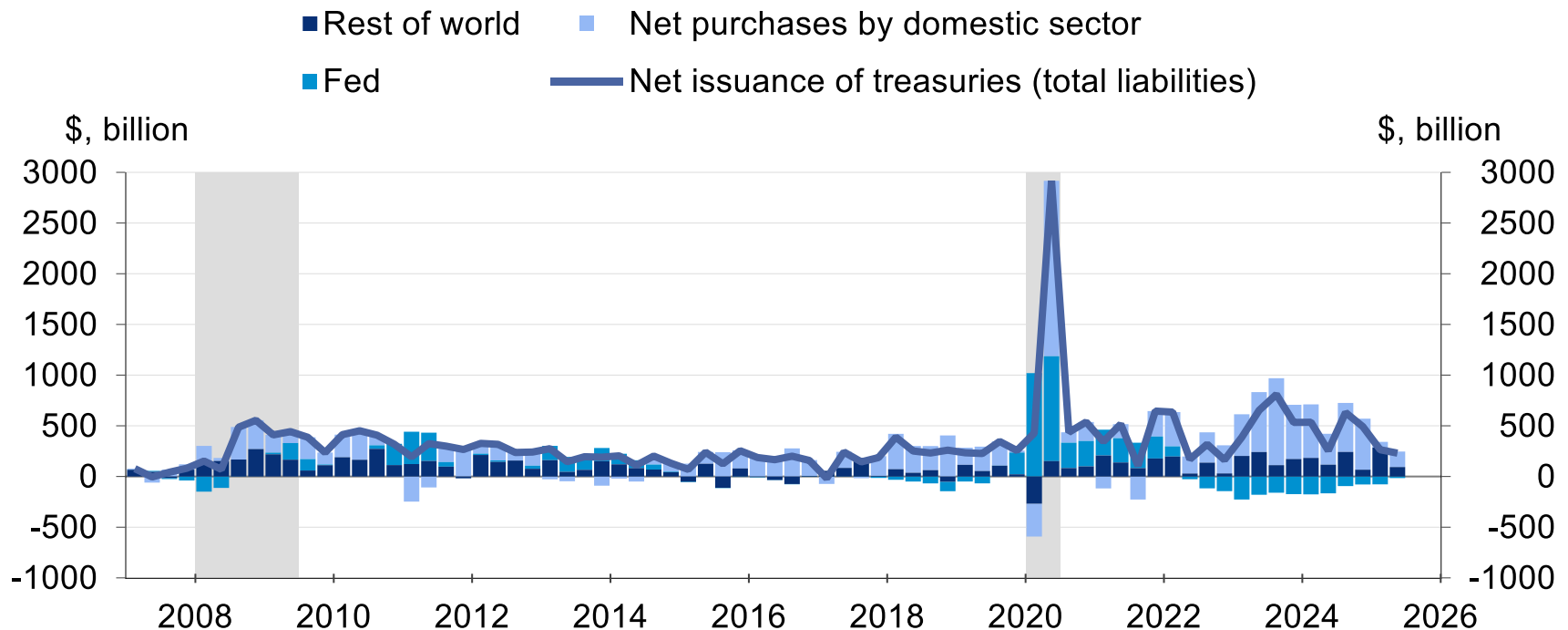


Source: Fed, BEA, Macrobond, Deutsche Bank



Domestic sector funds the bulk of the US budget deficit

Transactions in US Treasury securities



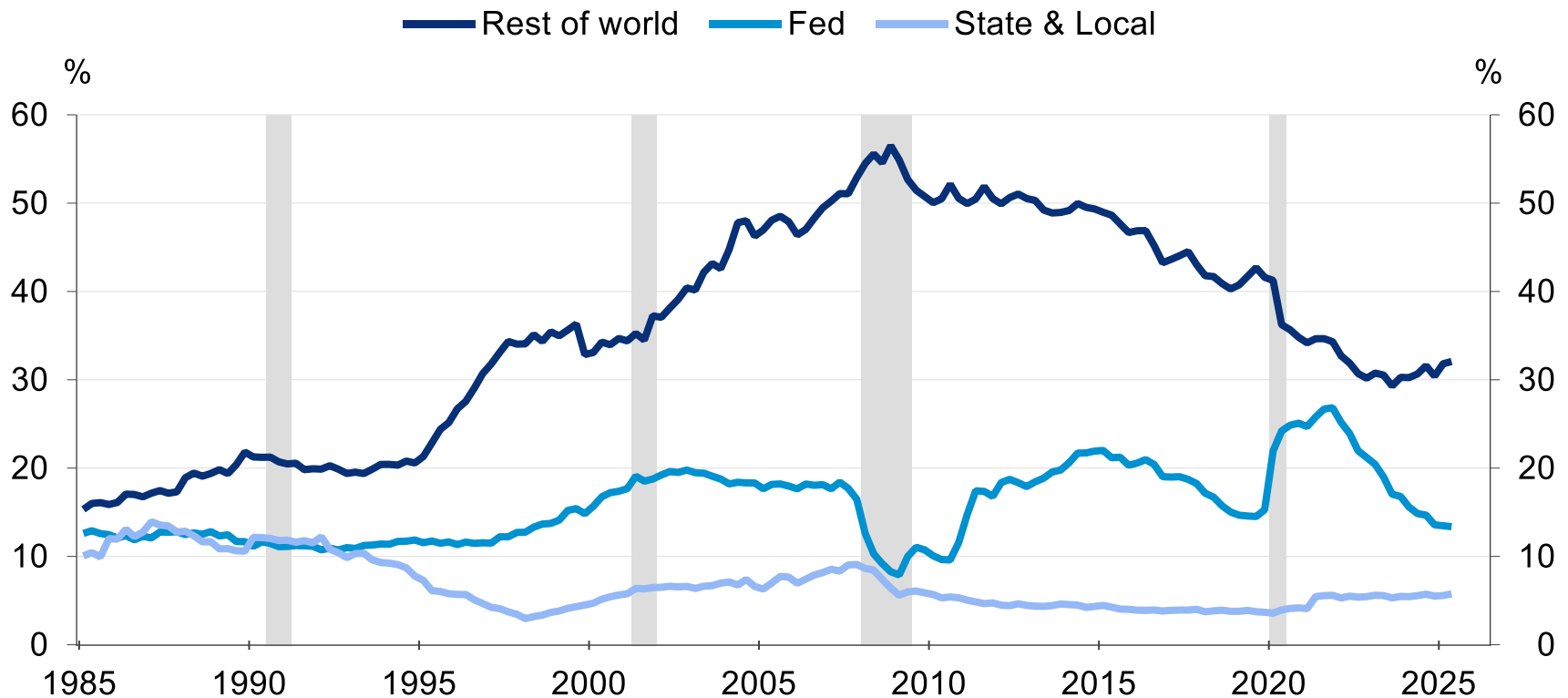
Source: Fed, Macrobond, Deutsche Bank

Note: Domestic sector includes households, banks, pension funds, insurance, govt. retirement funds, mutual funds, GSEs and others.



Foreign share of US Treasuries up slightly to 32% in 2025 Q2 from a low of 29% in 2023 Q3

Holdings of Treasuries as % of treasury debt outstanding

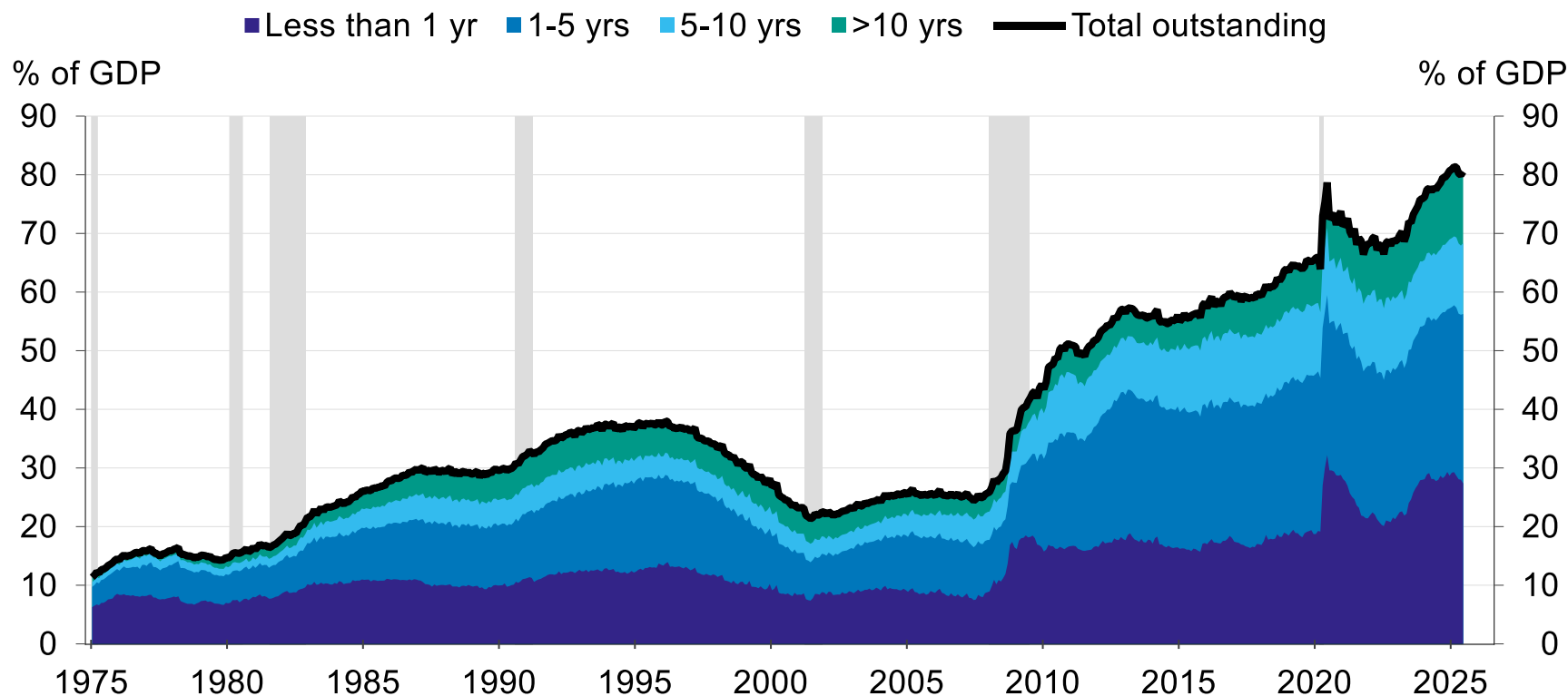


Source: Fed, Macrobond, Deutsche Bank



Private sector holdings of US Treasuries concentrated in maturity of 5 years or less

Marketable debt held outside the Federal Reserve: Maturity breakdown

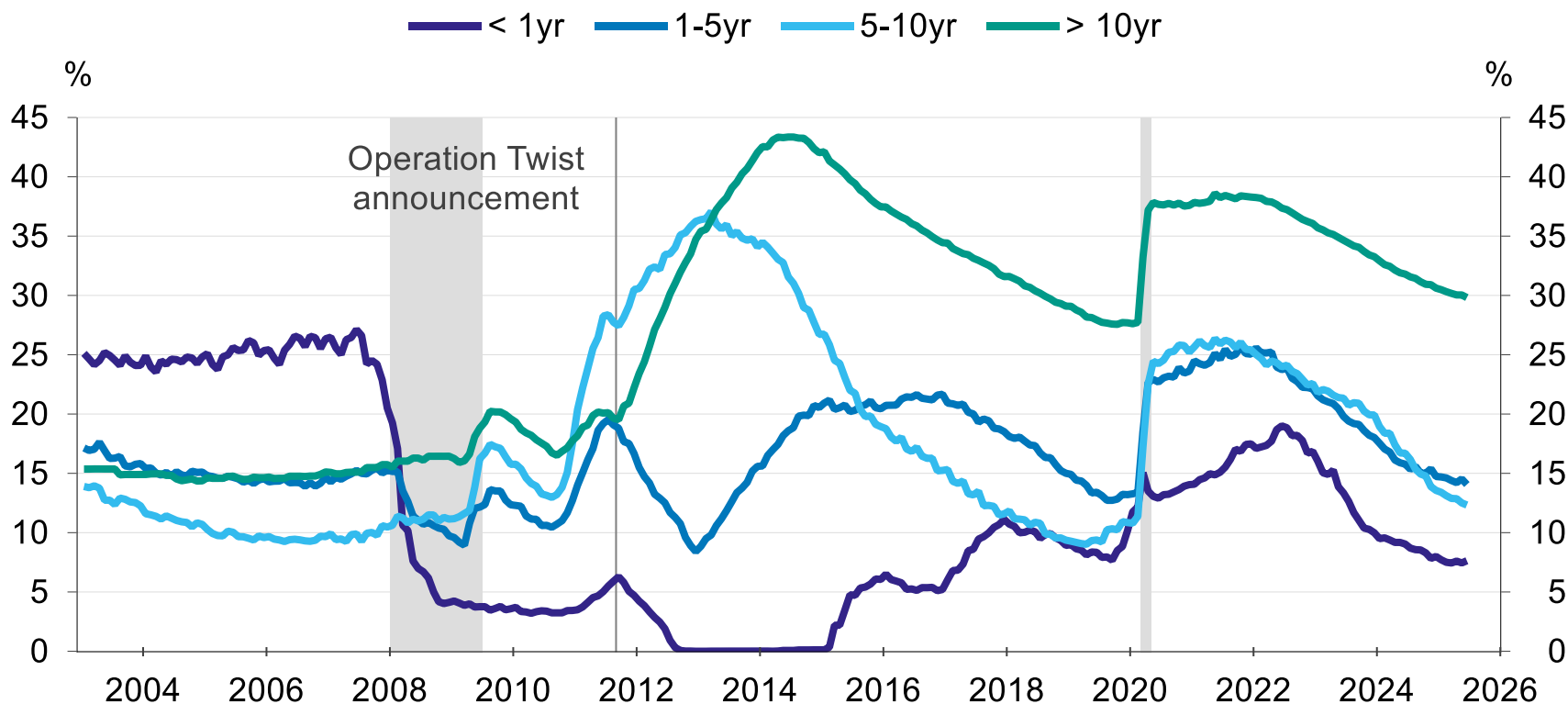


Source: U.S. Treasury, BEA, Macrobond, Deutsche Bank



Federal Reserve's share of the Treasury market is most concentrated in 10 years or more with 30% of outstanding

Fed holdings of Treasury securities outstanding (% by maturity)

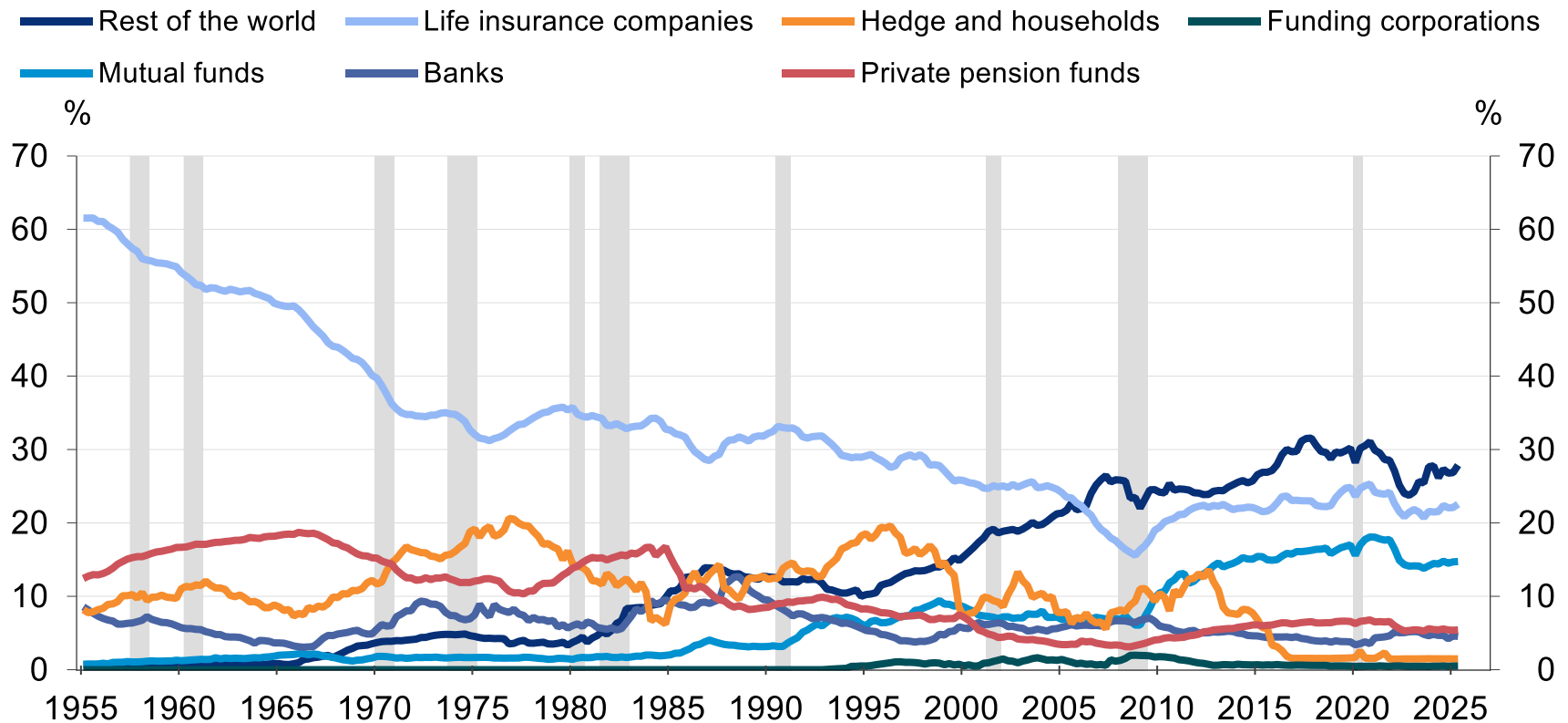


Source: Fed, U.S. Treasury, Macrobond, Deutsche Bank



Foreigners, insurance, and mutual funds make up majority of investors in IG, HY, and loans

Holdings of corporate and foreign bonds as % outstanding

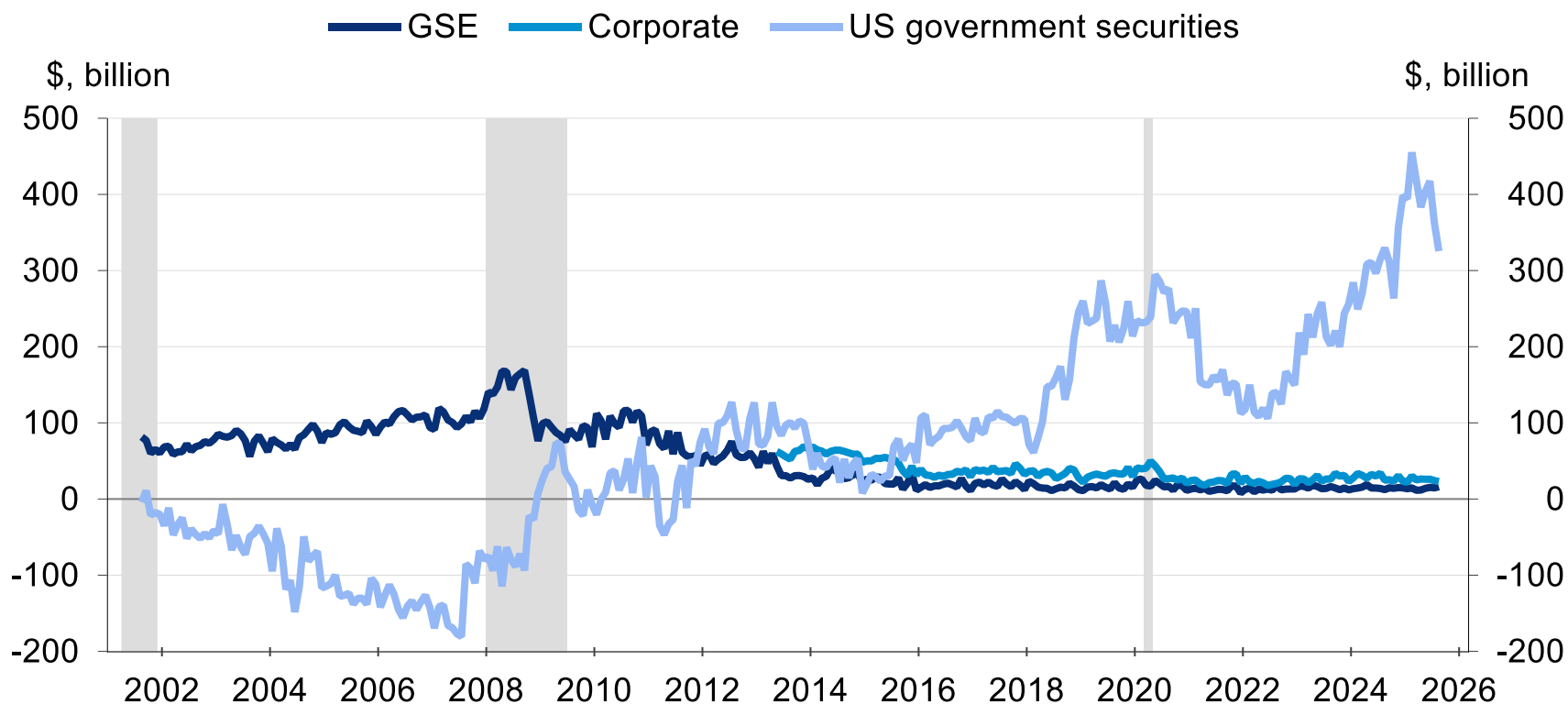


Source: Fed, Macrobond, Deutsche Bank



Primary dealer holdings of Treasuries off their recent highs

Primary dealer positions by asset class

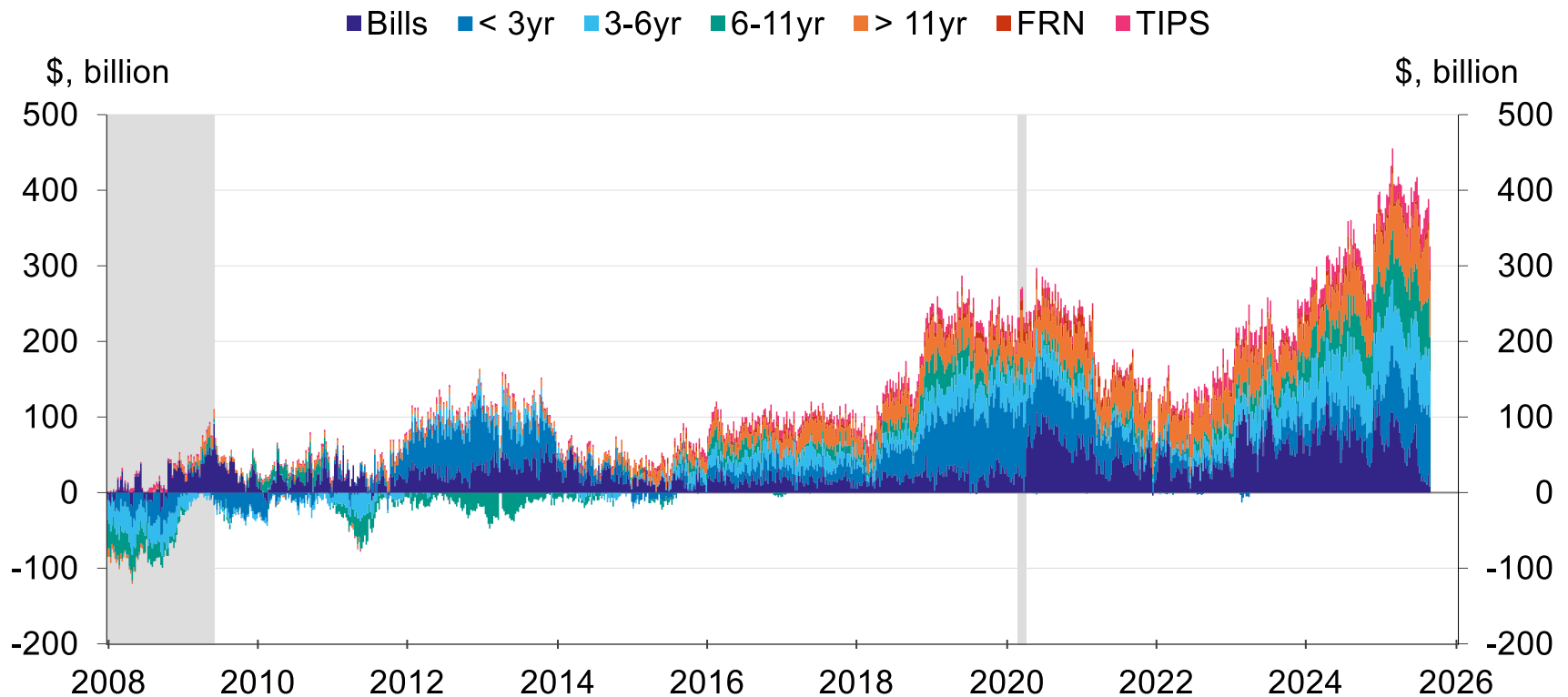


Source: New York Fed, Macrobond, Deutsche Bank



Composition of maturities in primary dealers' inventory of Treasuries

Primary Dealer Net Outright Position in US Govt. securities by category

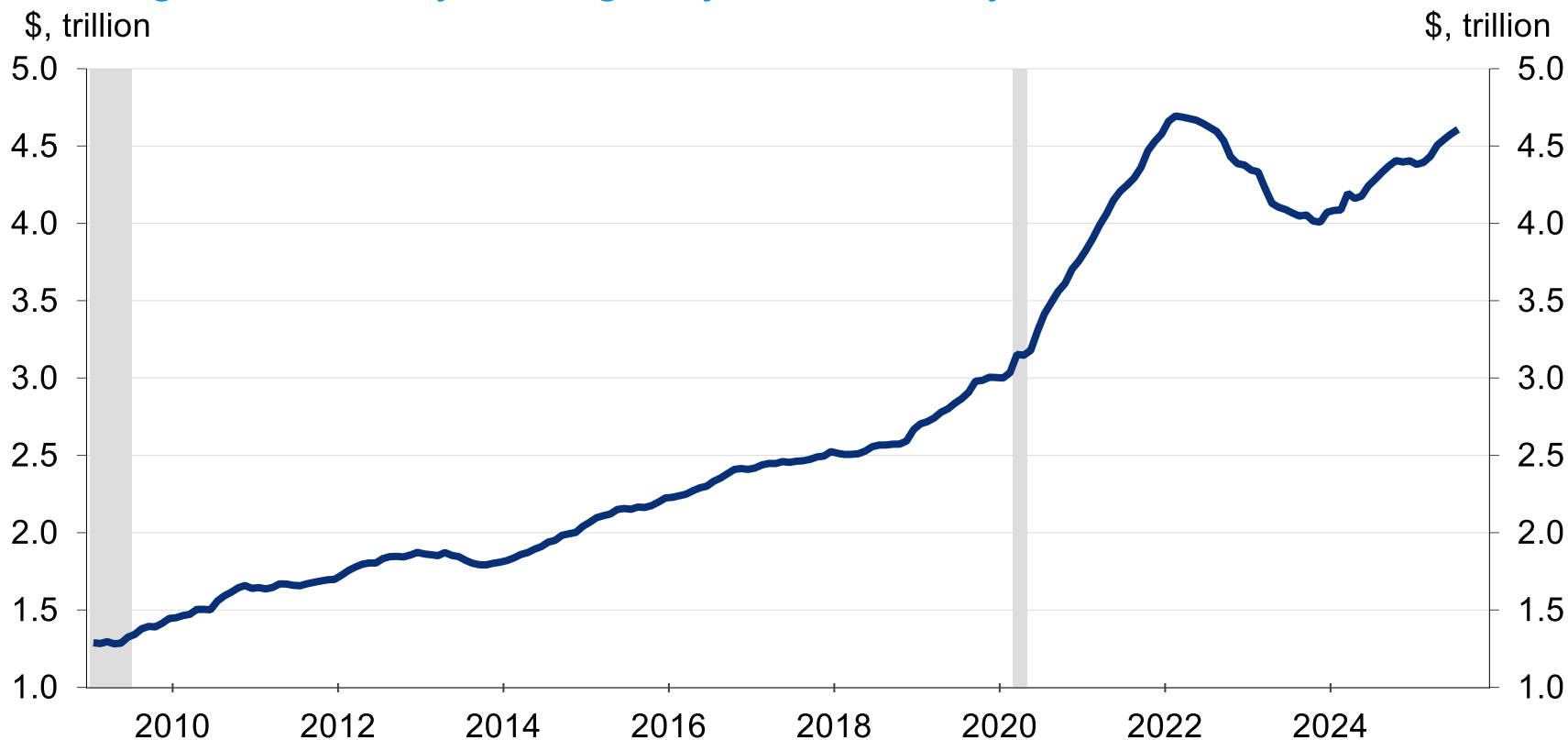


Source: New York Fed, Macrobond, Deutsche Bank



Banks growing their Treasury and agency holdings again after a contraction during the last Fed hike cycle

Holdings of Treasury and agency securities by commercial banks

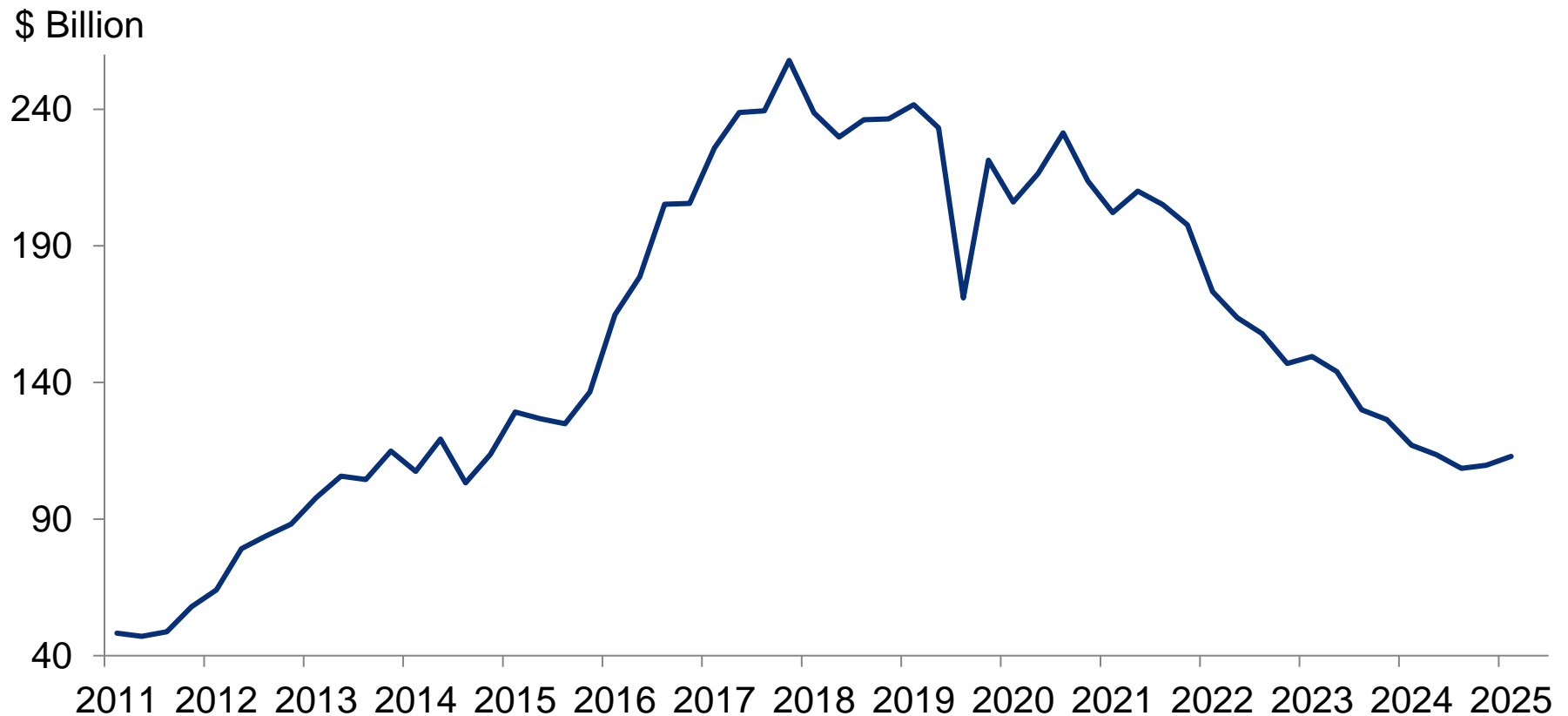


Source: Fed, Macrobond, Deutsche Bank



Tech companies' stockpile of Treasuries steadily fallen after the 2018 TCJA repatriation tax

Total Treasury Holdings (Apple, Google, Amazon, Facebook & Microsoft)



Source: US SEC Filings, Company sources, Deutsche Bank

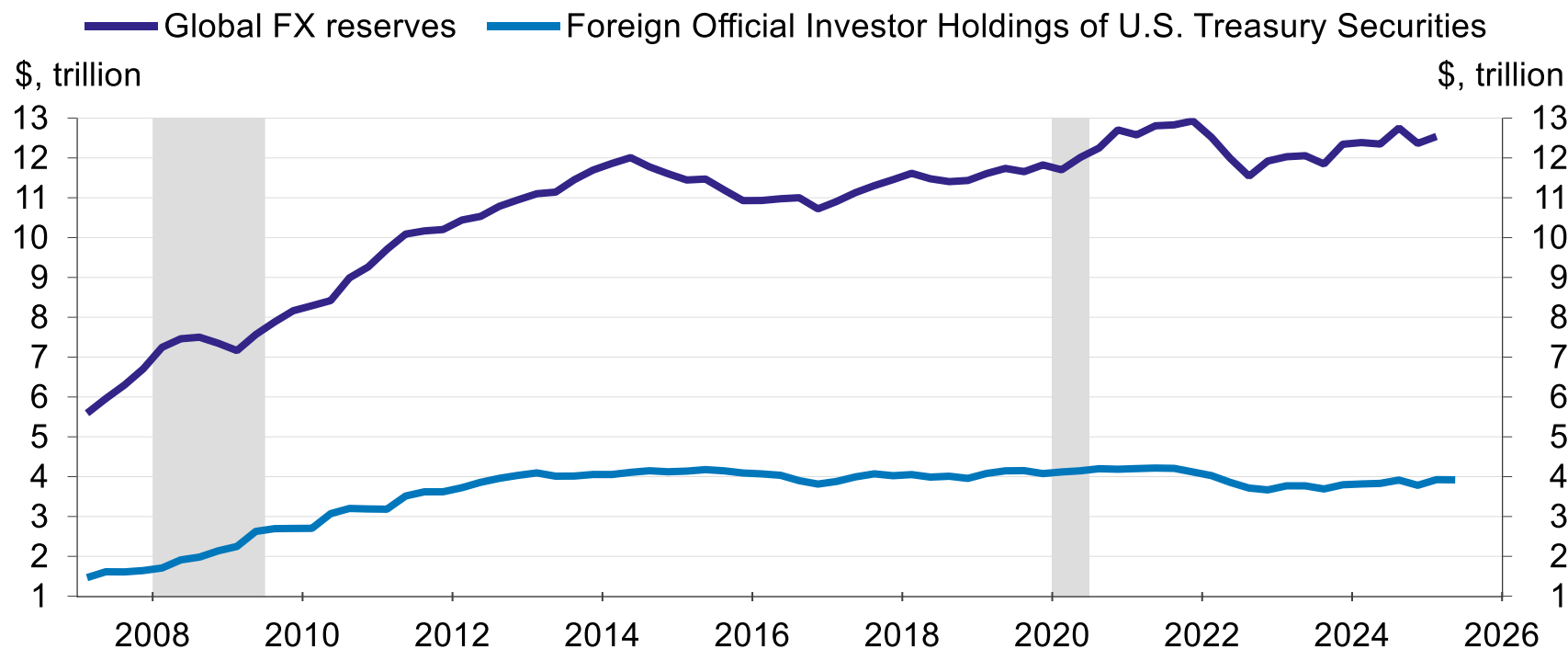


What are foreign central banks doing?



Supply of global FX reserves: \$12.5trn in Q1

Global FX Reserves and Foreign Official Investor Holdings of U.S. Treasury Securities

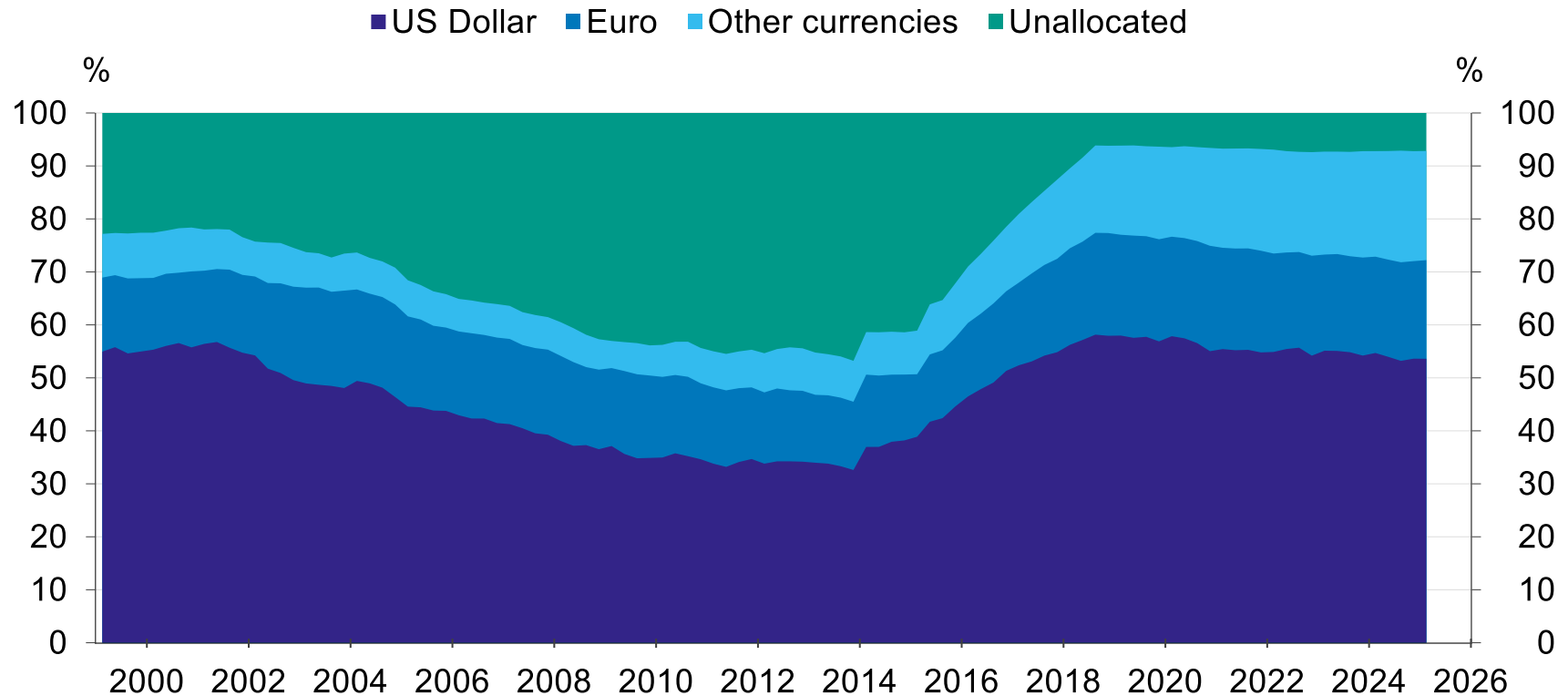


Source: IMF, U.S. Treasury, Macrobond, Deutsche Bank



USD share of global FX reserves have shifted lower but just over 50%

Reserves in different currencies

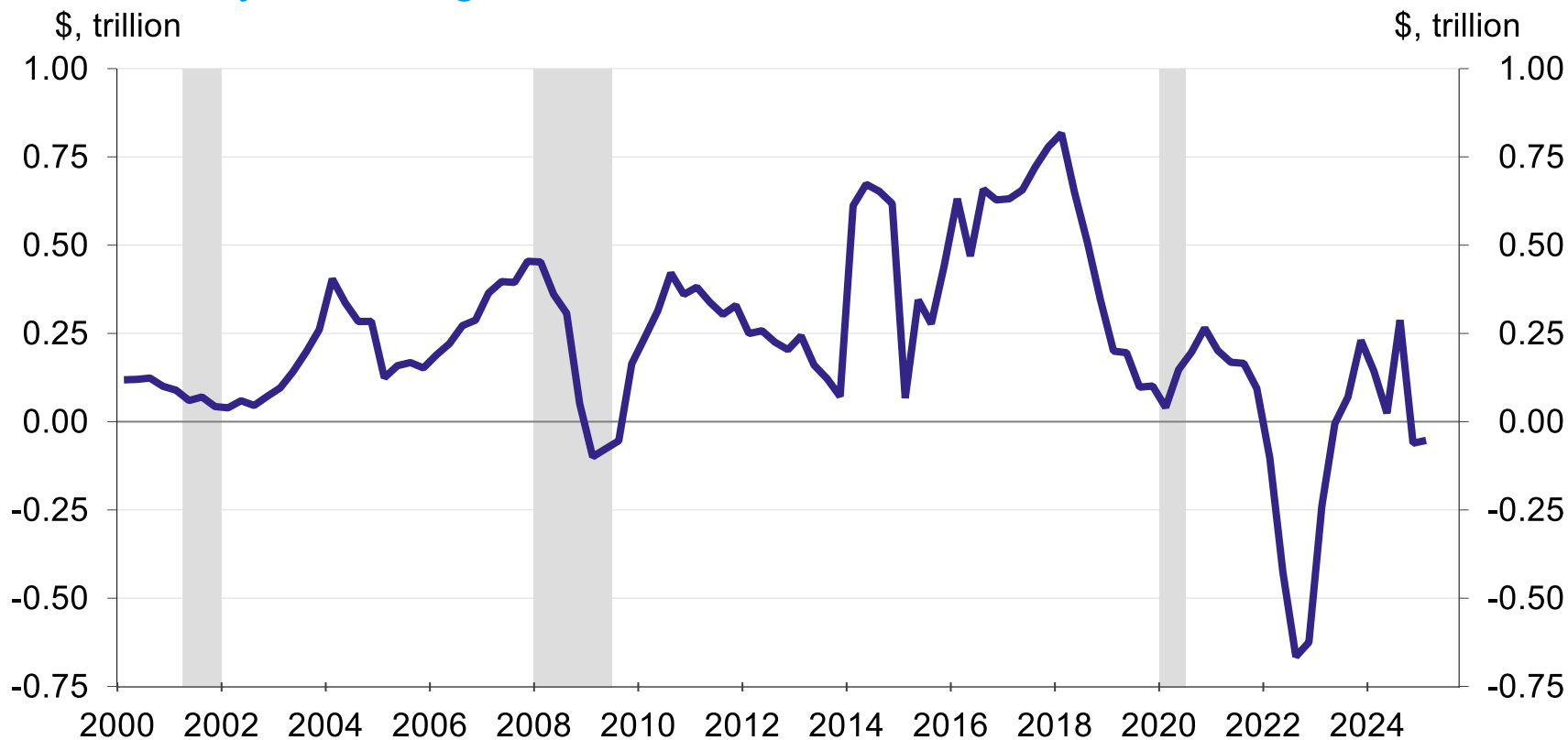


Source: IMF, Macrobond, Deutsche Bank



Large decline in the value of USD reserves during the last Fed rate hike cycle

Year-over-year change in world USD reserves

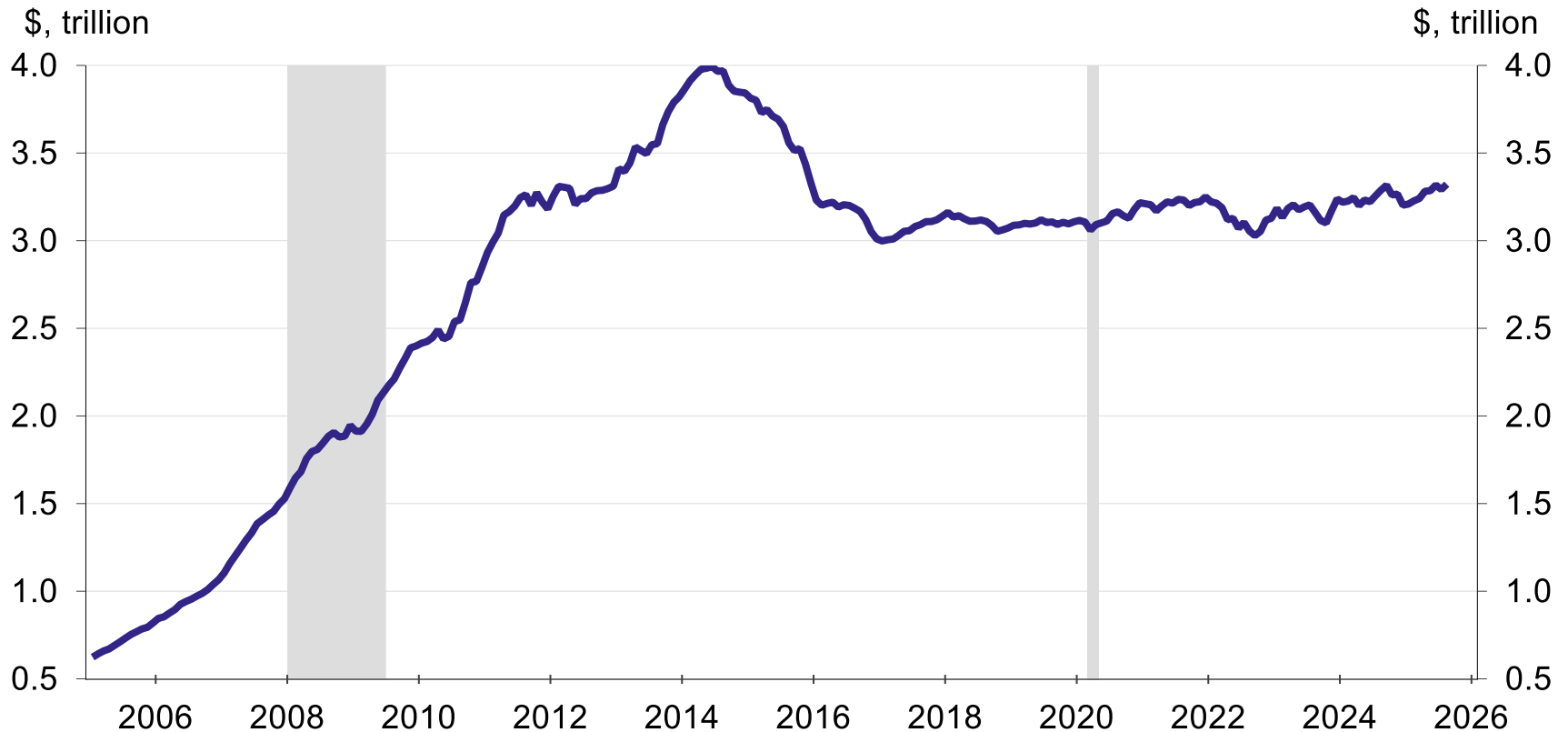


Source: IMF, Macrobond, Deutsche Bank



China's foreign FX reserves have been stable at \$3.3 trillion

China's foreign reserves

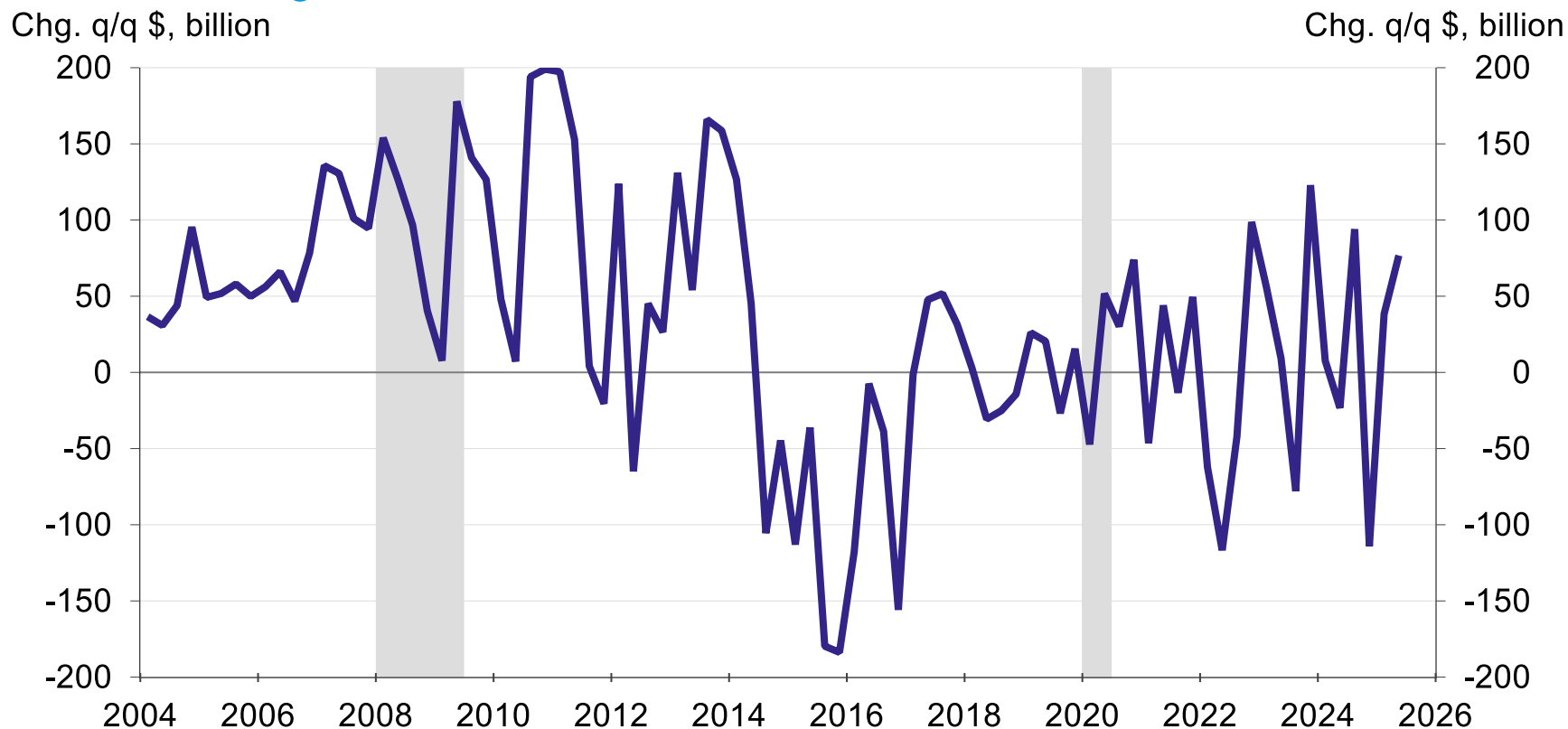


Source: SAFE, Macrobond, Deutsche Bank



No notable trend in China's foreign FX reserves in recent years

China's foreign reserves



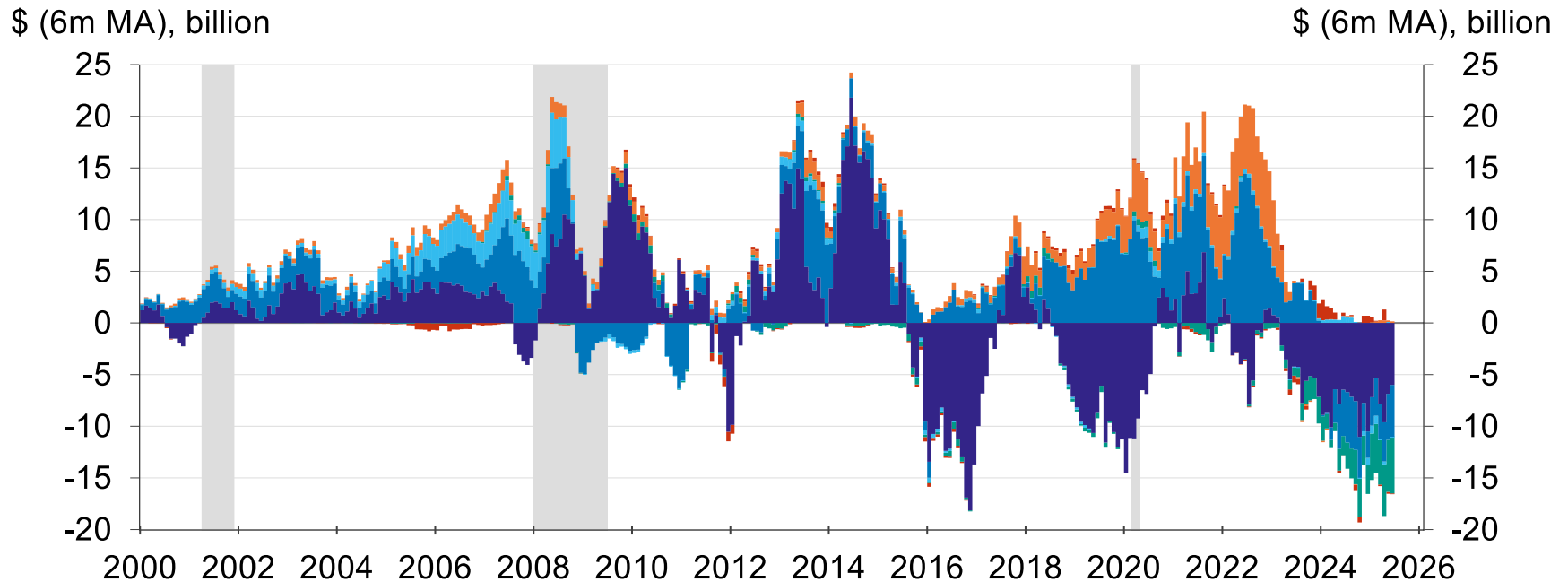
Source: SAFE, Macrobond, Deutsche Bank



Reported transactions by China in USD assets have been very negative since 2024

China net purchases by asset class

- LT Treasury notes/bonds
- Corporate bonds
- Foreign bonds
- LT Agency bonds
- Corporate stocks
- Foreign stocks

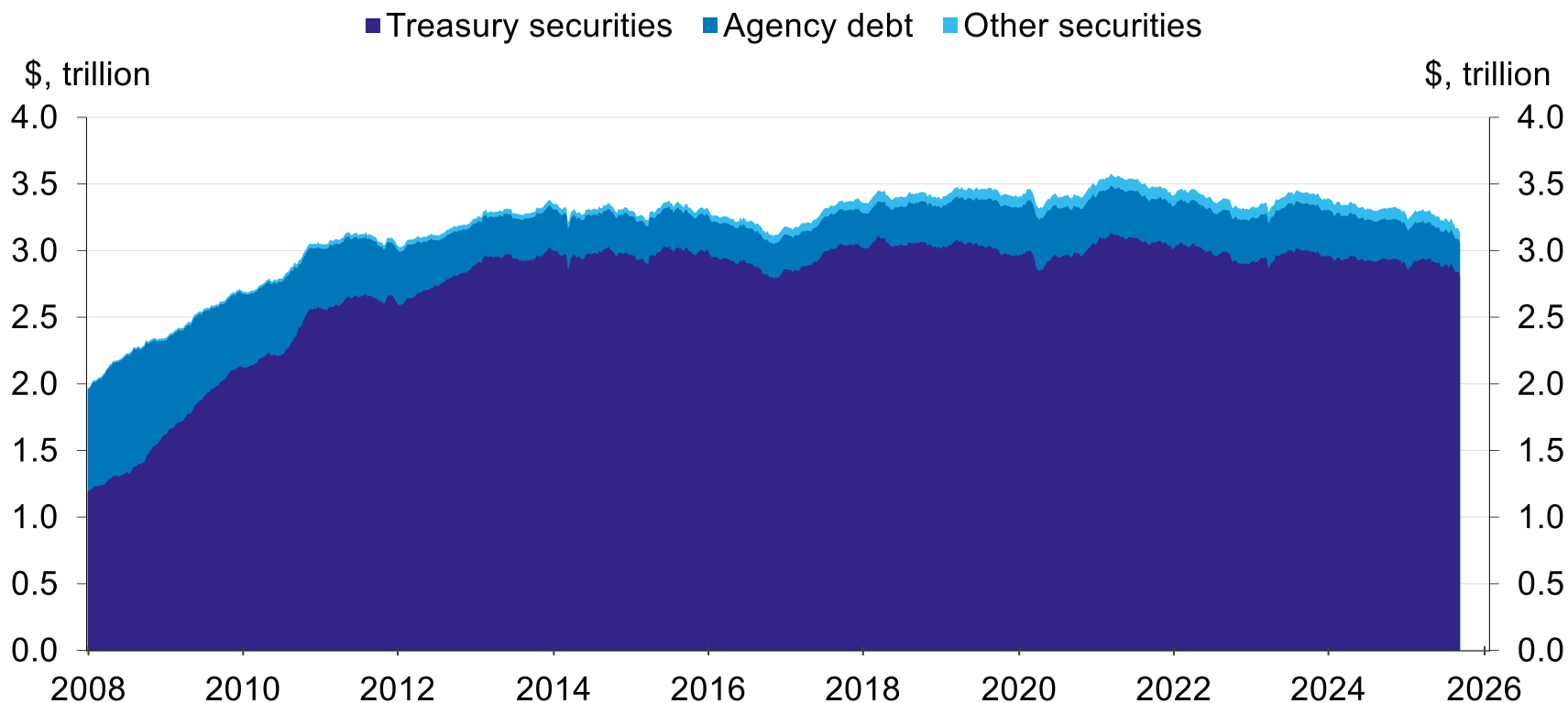


Source: U.S. Treasury, Macrobond, Deutsche Bank



Federal Reserve's custodial holdings for foreign official accounts remain relatively stable

Fed custody holdings of securities for foreign central banks

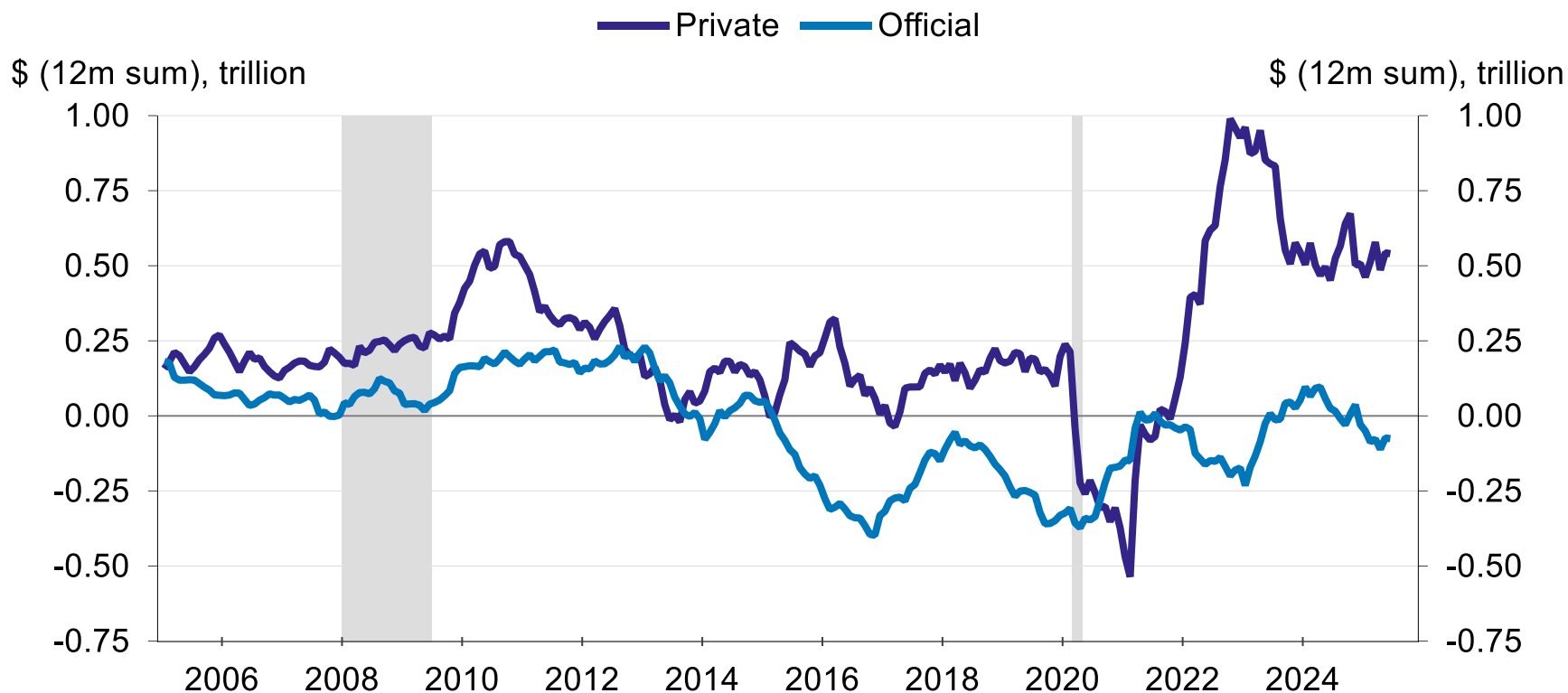


Source: Fed, Macrobond, Deutsche Bank



Foreign purchases of Treasury securities driven predominantly by the private sector

Net foreign purchases: Treasury bonds and notes

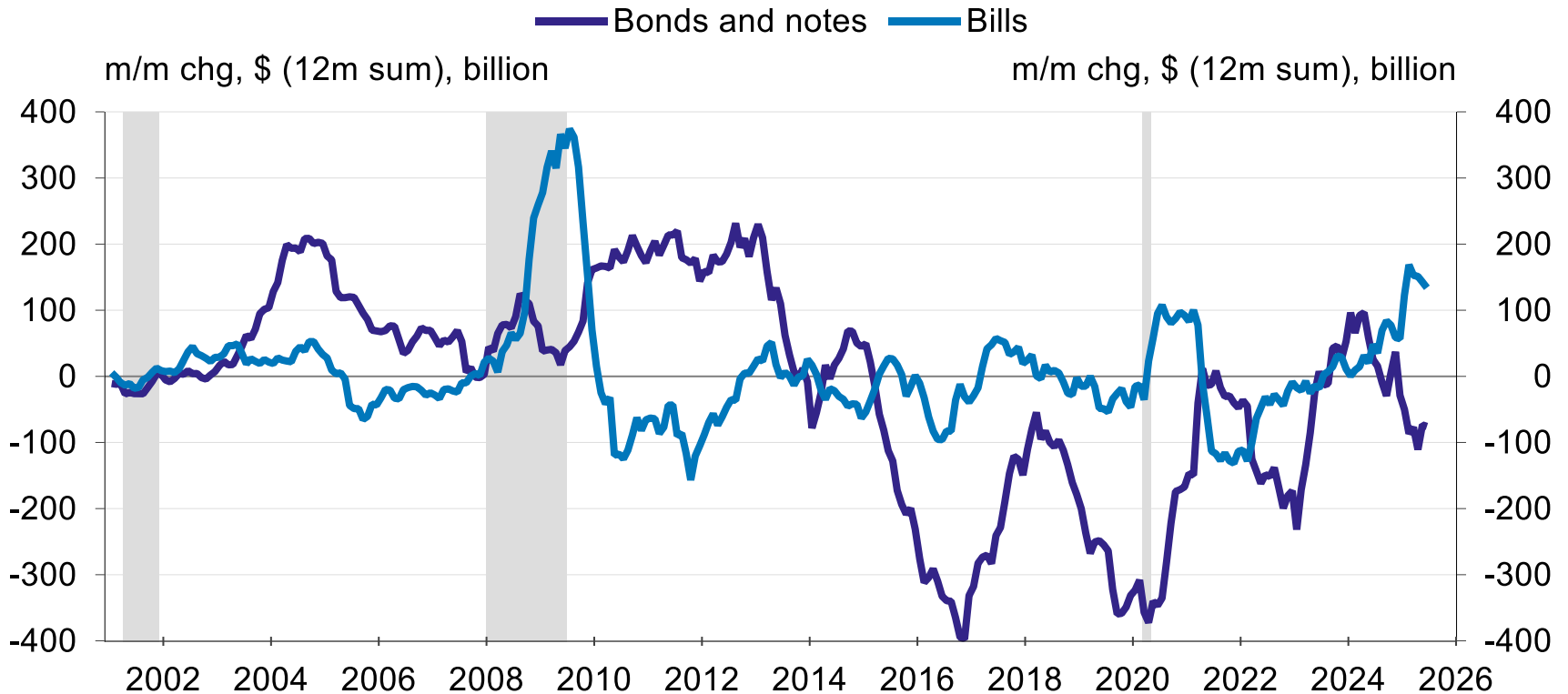


Source: U.S. Treasury, Macrobond, Deutsche Bank



Foreign official institutions shifting more Treasury holdings into T-bills

Holdings of US Treasury: Foreign official institutions

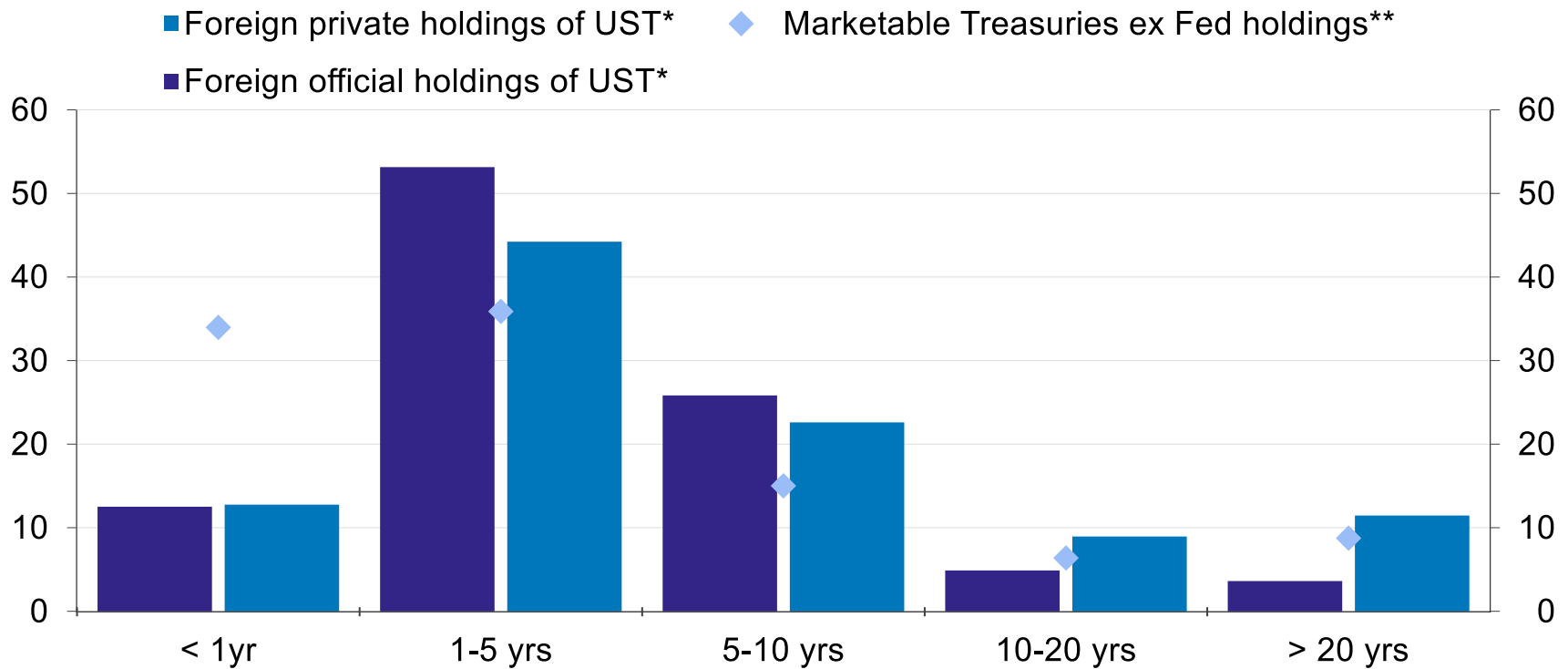


Source: U.S. Treasury, Macrobond, Deutsche Bank



Foreign holdings of Treasuries concentrated in 1- to 5-year maturity

Maturity structure of Treasury holdings



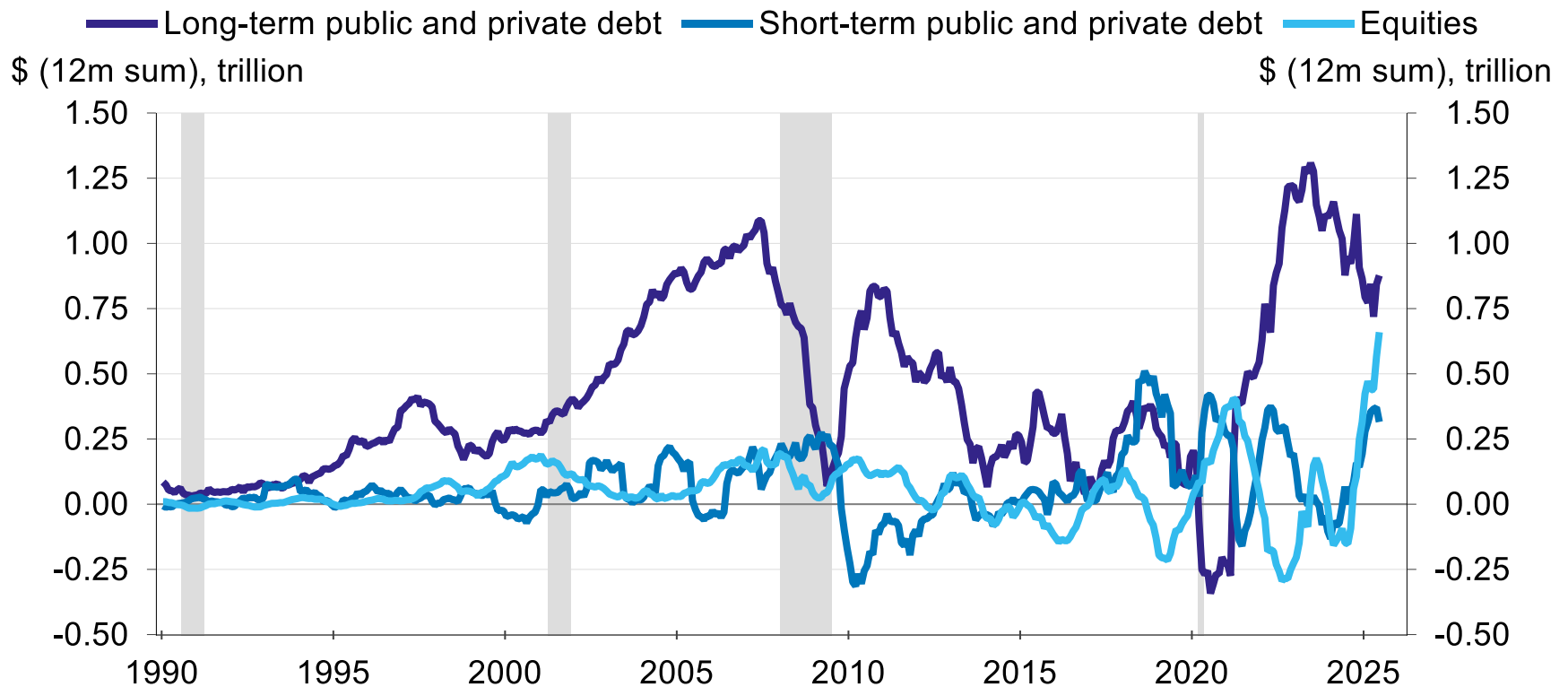
Source: U.S. Treasury, Macrobond, Deutsche Bank

* Latest data for 2024 released on 4/30/2025 ** Latest data for June 2025 released on 9/9/2025



Foreign demand shifting toward short-term debt and equities

Net foreign buying of all US securities

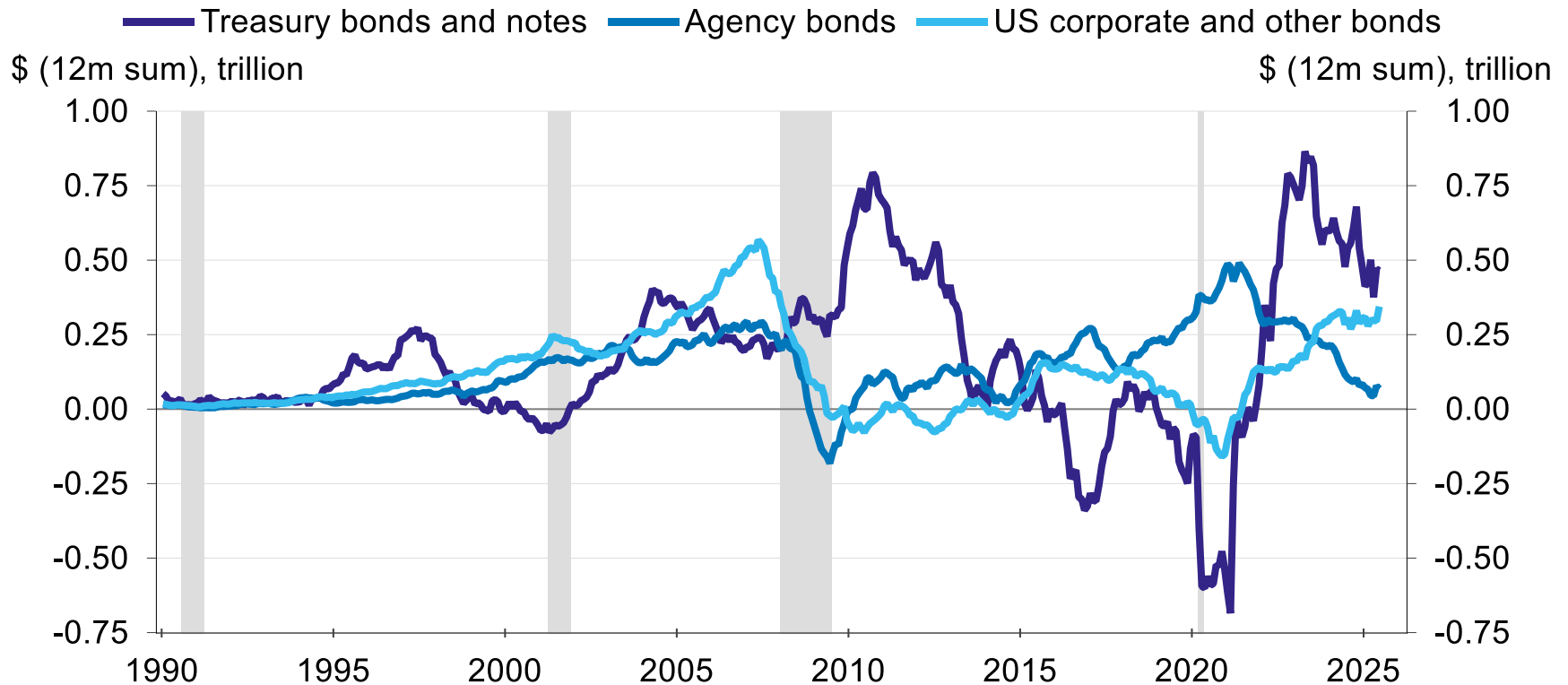


Source: U.S. Treasury, Macrobond, Deutsche Bank



Rising foreign demand for corporate bonds versus falling demand for Treasury and agency bonds

Net foreign buying of US debt securities

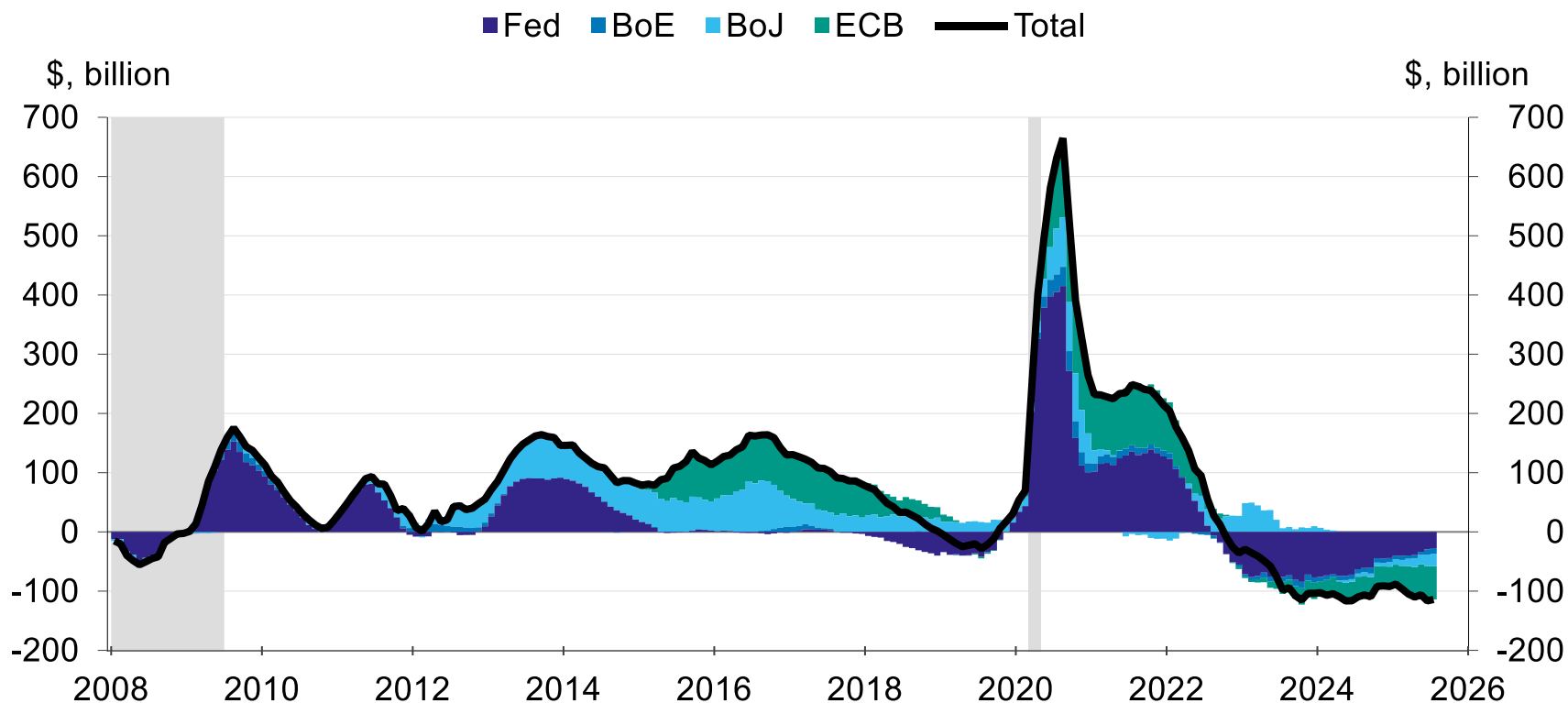


Source: U.S. Treasury, Macrobond, Deutsche Bank



Global central banks continue asset reductions at a robust pace

Monthly flow of G4 central bank asset purchases (6m moving average)



Source: Fed, BOJ, ECB, ONS, Macrobond, Deutsche Bank

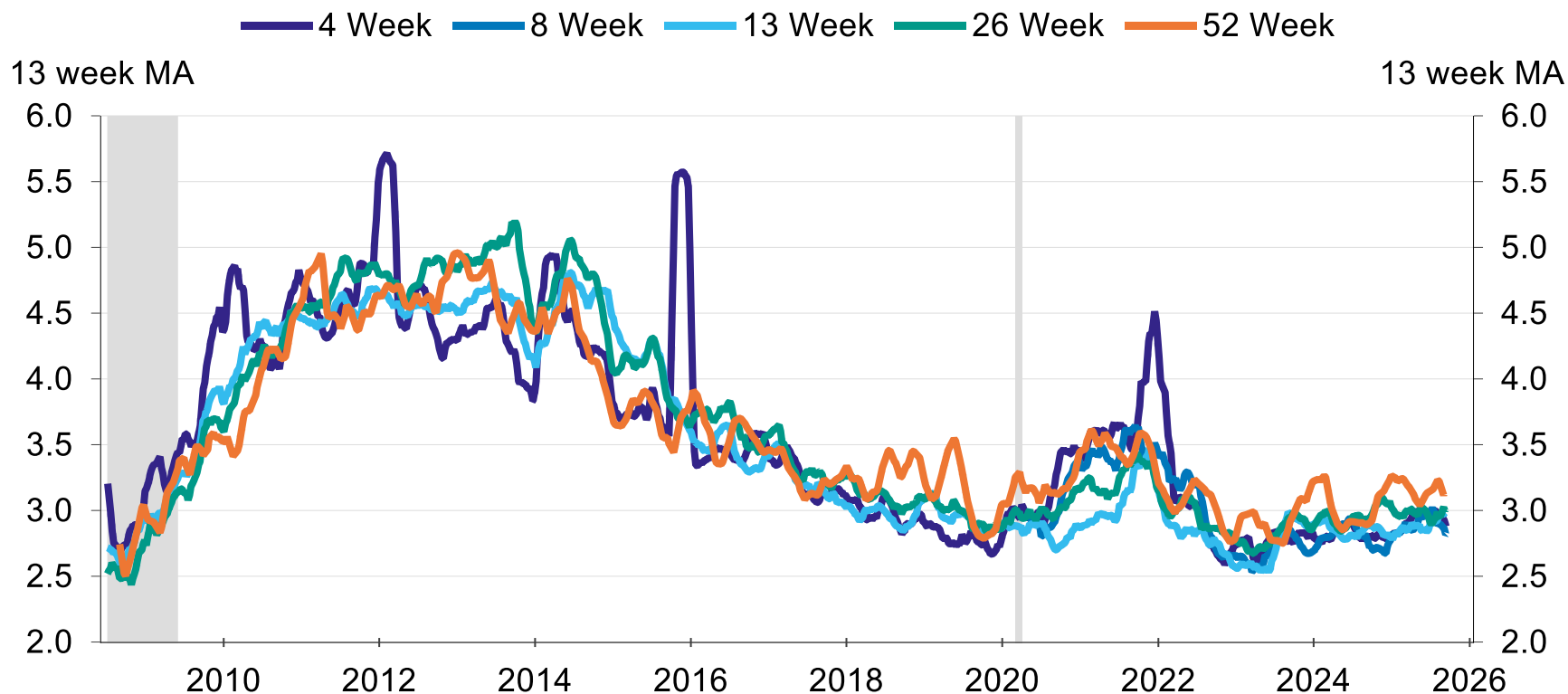


Auction demand



Modestly strengthening in Treasury bill auction bid-to-cover ratios

Bid-to-cover ratios for T-bill auctions

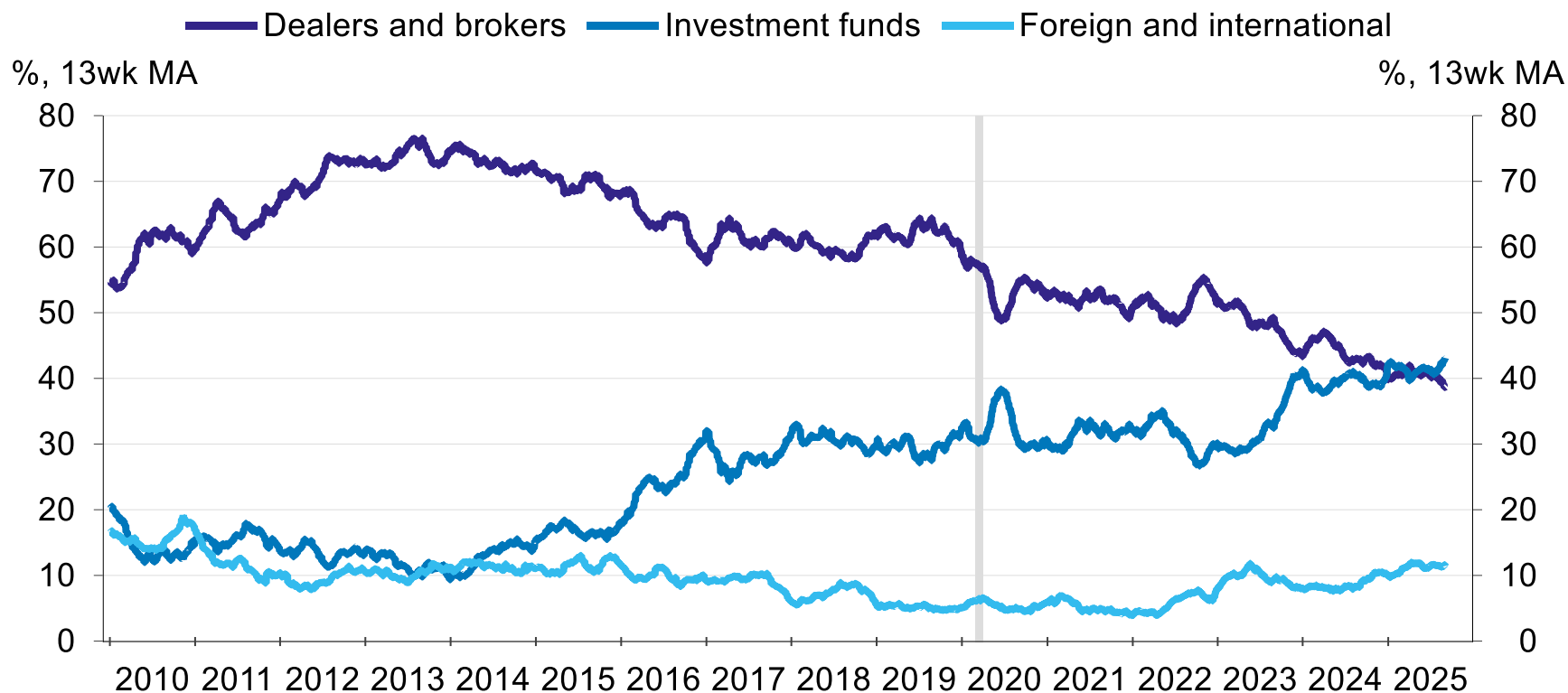


Source: U.S. Treasury, Macrobond, Deutsche Bank



Investment funds have overtaken primary dealers in Treasury bill auctions

Percent awarded by investor class for T-bills

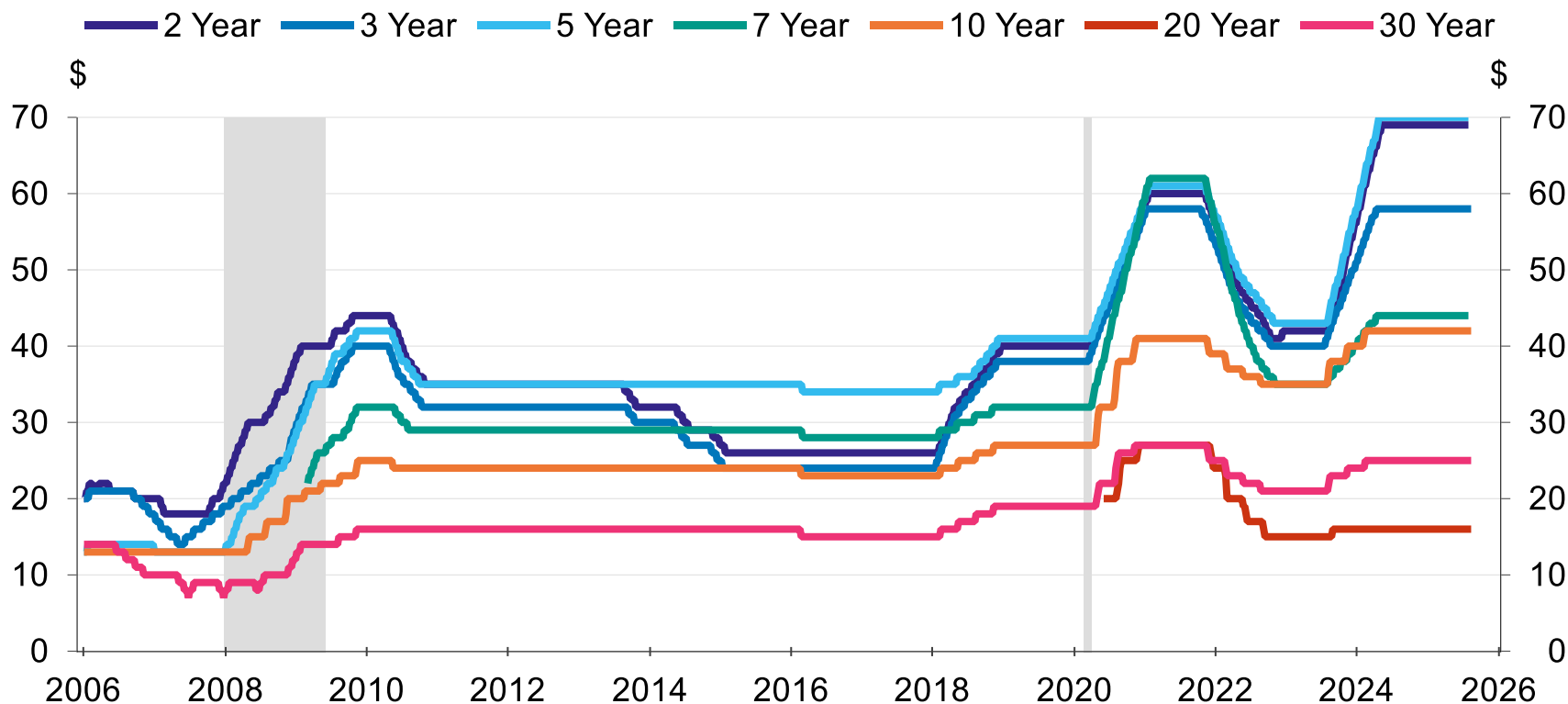


Source: U.S. Treasury, Macrobond, Deutsche Bank



Treasury nominal coupon auction sizes steady since 2024

Nominal security auction sizes

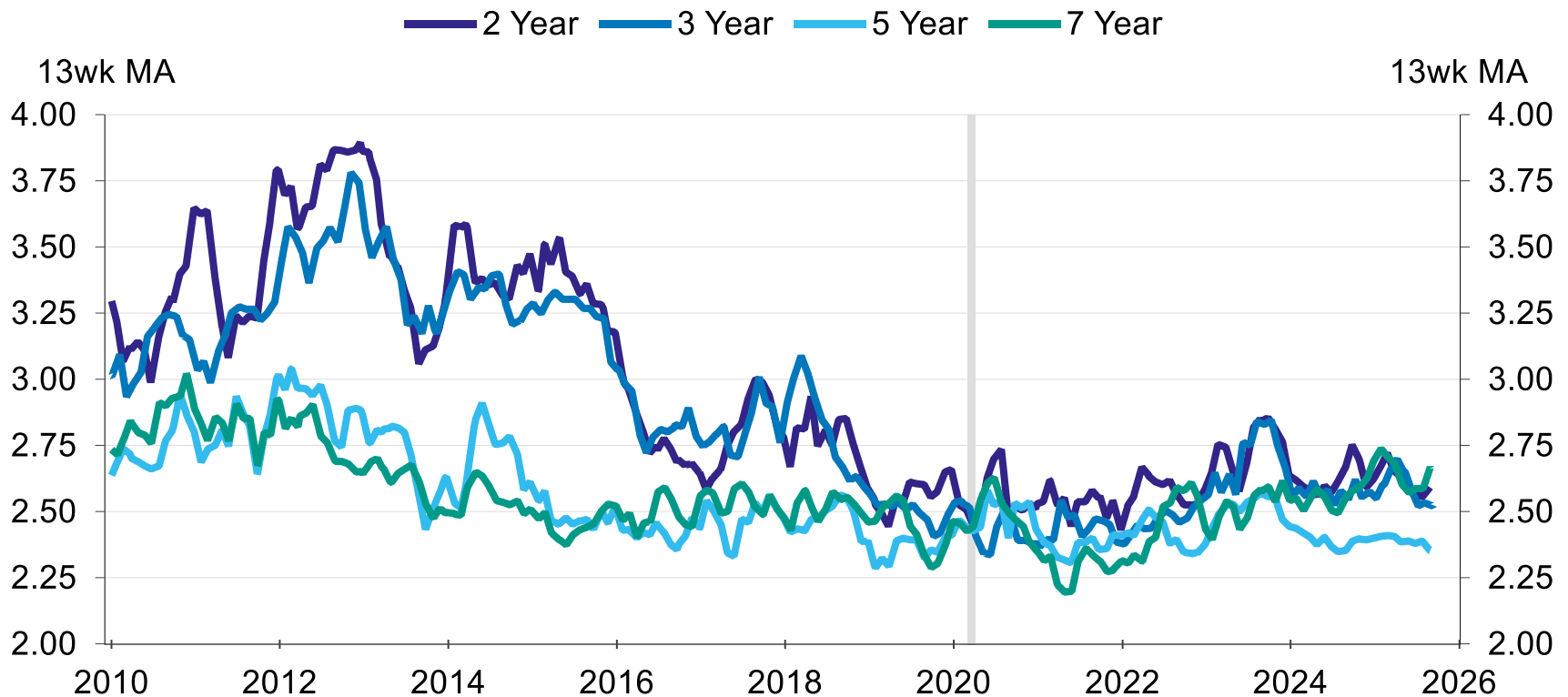


Source: U.S. Treasury, Macrobond, Deutsche Bank



Stable or strengthening trend in 2- to 7-year auction bid-to-cover ratios

Bid-to-cover ratios for 2yr, 3yr, 5yr & 7yr auctions

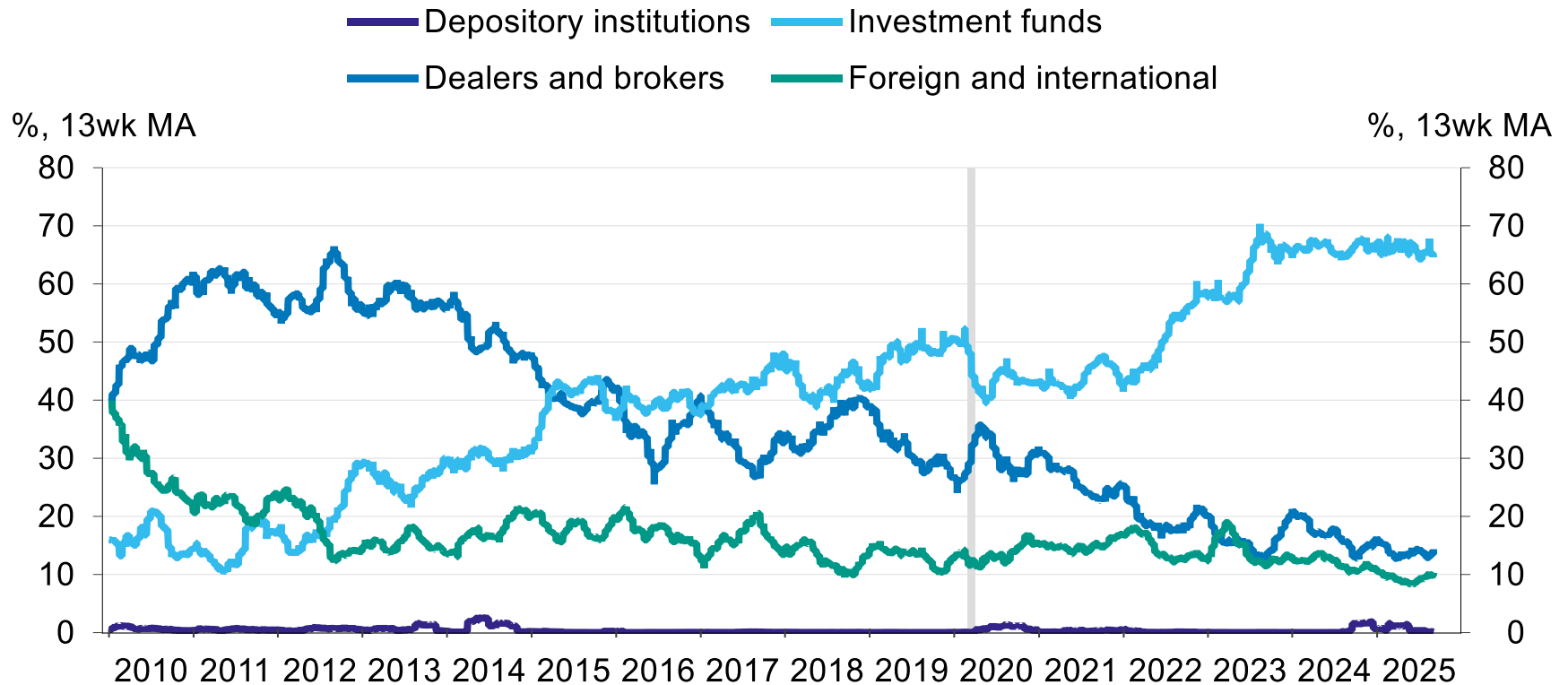


Source: U.S. Treasury, Macrobond, Deutsche Bank



Investment funds account for majority of allotments in 2- to 7-year auctions

Percent awarded by investor class: 2yr, 3yr, 5yr & 7yr auctions

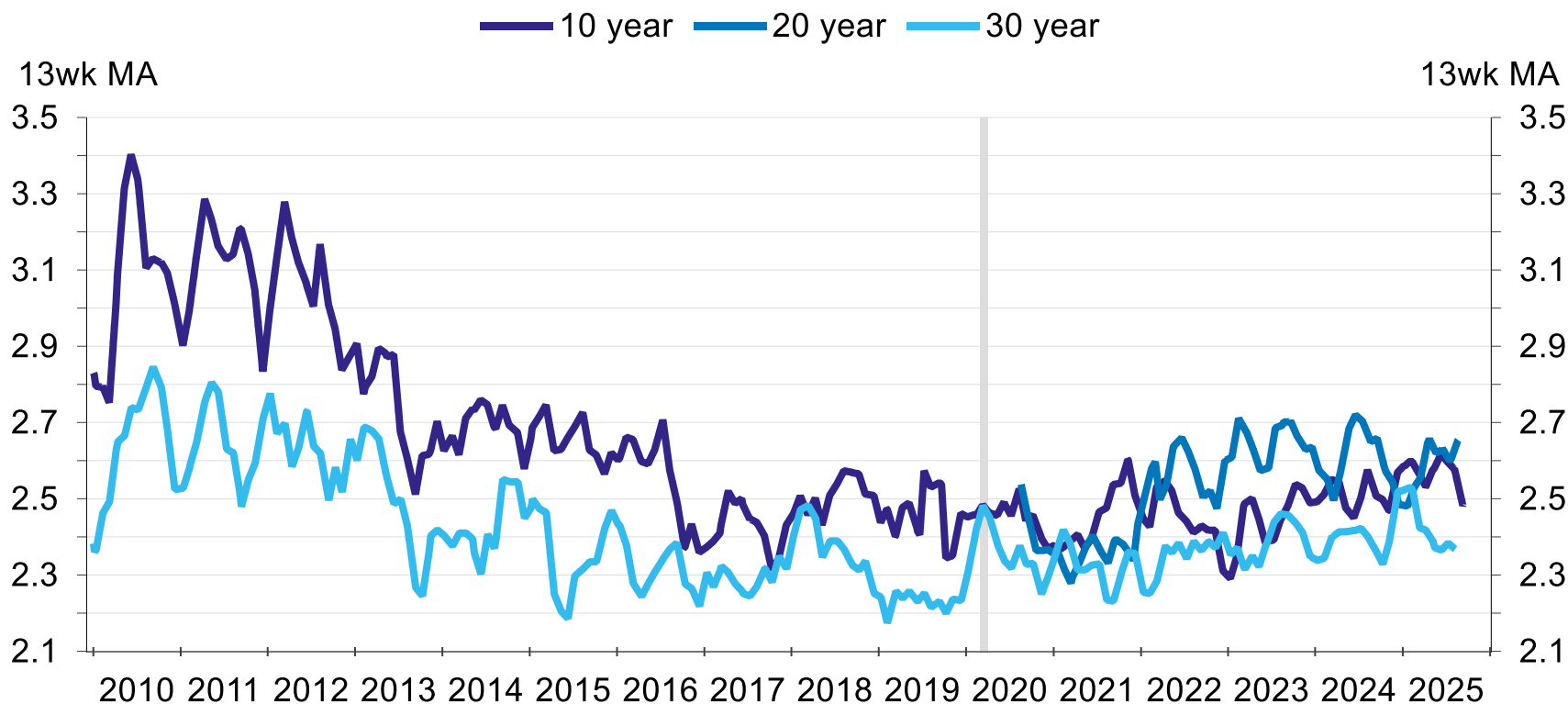


Source: U.S. Treasury, Macrobond, Deutsche Bank



Strengthening trend in 10- to 30-year auction bid-to-cover ratios

Bid-to-cover ratios for 10yr, 20yr & 30yr auctions

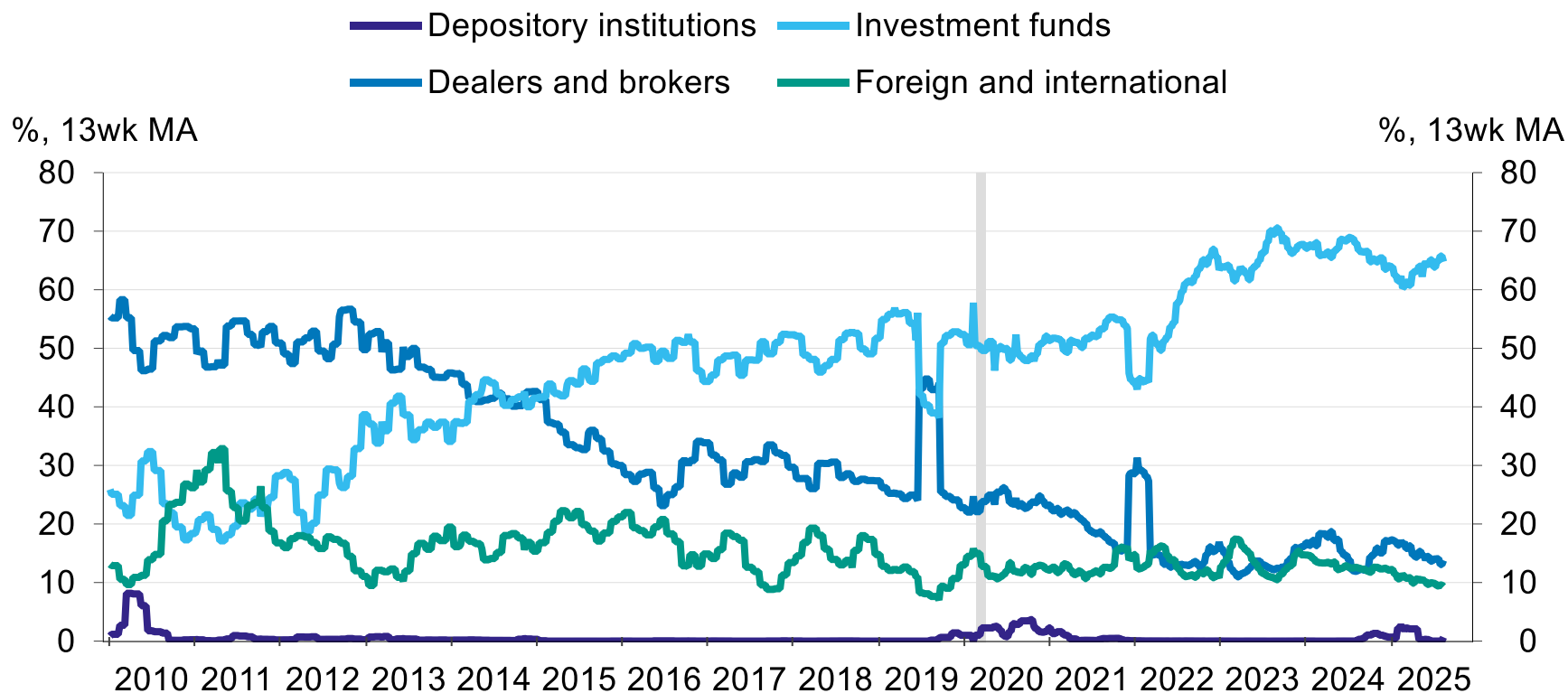


Source: U.S. Treasury, Macrobond, Deutsche Bank



Investment funds account for majority of allotments in 10- to 30-year auctions

Percent awarded by investor class: 10yr, 20yr, & 30yr auctions



Source: U.S. Treasury, Macrobond, Deutsche Bank

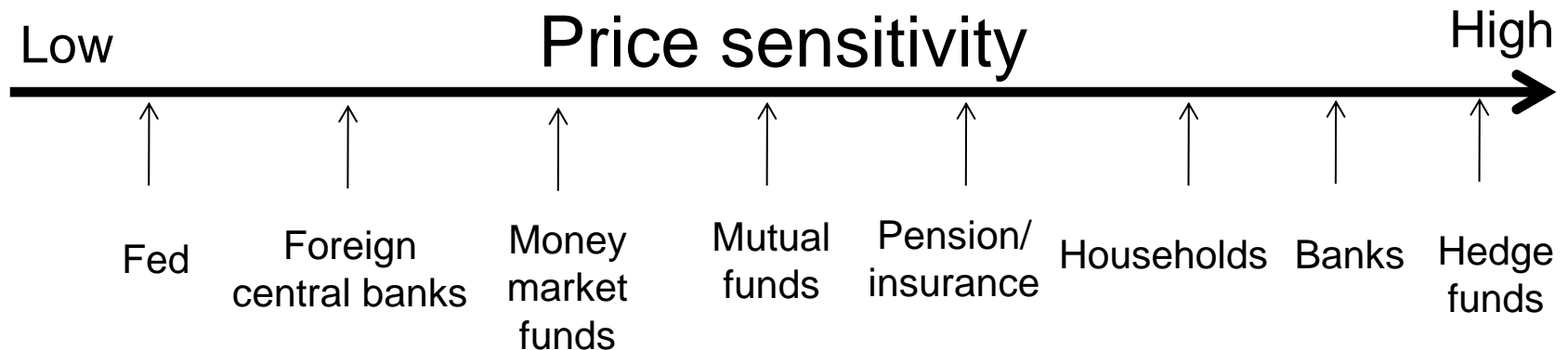


Who is buying Treasuries?



Framework for price elasticity of US fixed income investors

Different buyers of fixed income have different price sensitivities:



Source: Deutsche Bank



More balanced investor base for Treasury securities compared to previous decades

Holders of Treasury securities (%)

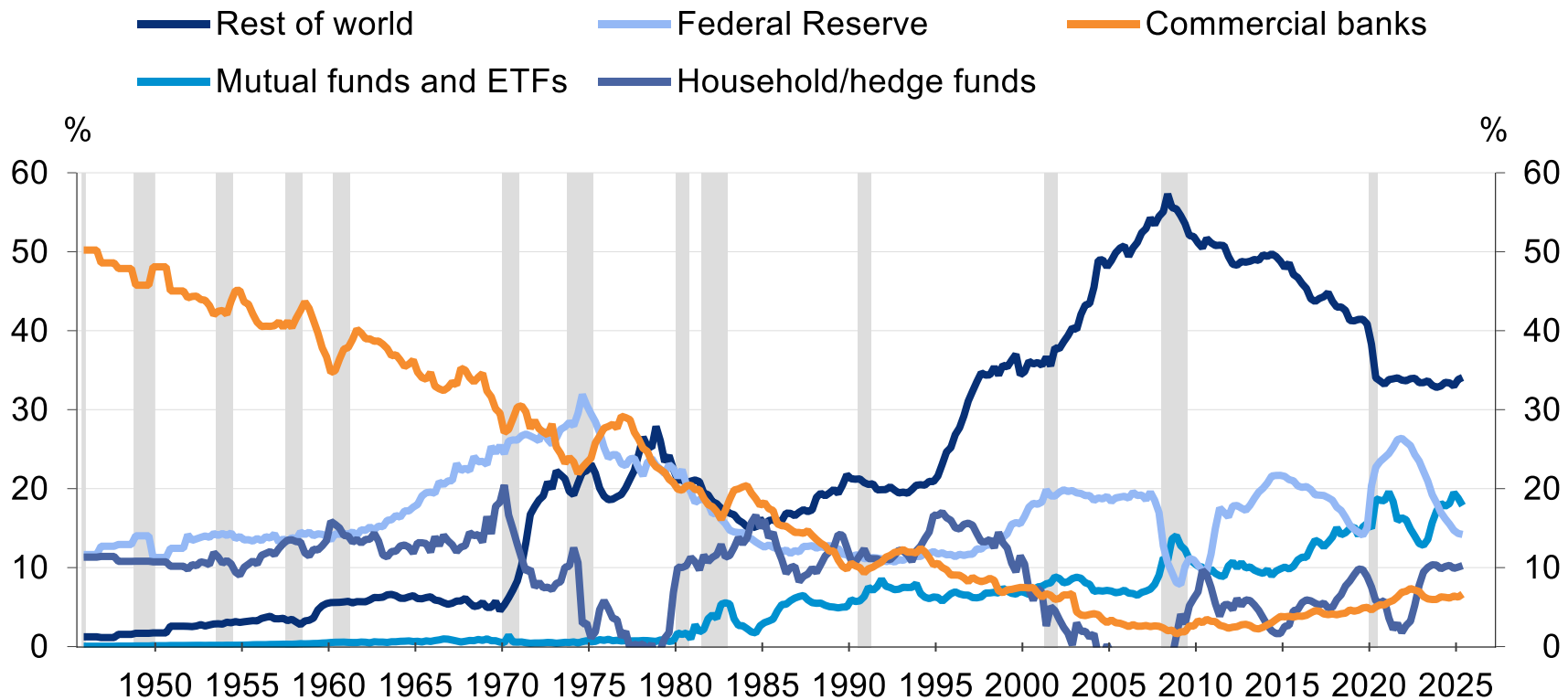
| | 2025 Q2 | 2019 Q2 | 2007 Q2 |
|-----------------------------|---------|---------|---------|
| Rest of world | 34.1 | 41.4 | 54.3 |
| Federal Reserve | 14.2 | 14.5 | 19.6 |
| Household/hedge funds | 10.3 | 9.8 | -6.8 |
| Commercial banks | 6.6 | 4.6 | 2.5 |
| State and local governments | 6.1 | 3.9 | 8.9 |
| Insurance companies | 2.2 | 2.3 | 4.4 |
| Private pensions | 2.0 | 2.6 | 3.2 |
| Government retirement funds | 1.8 | 2.6 | 4.5 |
| Investment banks | 2.4 | 2.0 | -2.7 |
| GSEs | 1.0 | 0.9 | 0.4 |
| ABS issuers | 0.1 | 0.2 | 1.7 |
| Mutual funds and ETFs | 17.9 | 14.1 | 7.3 |
| Others | 7.6 | 0.6 | 9.1 |

Source: Fed, Macrobond, Deutsche Bank. Note “Others” category includes i. Other Financial Business, ii. Non-financial Corporate and Noncorporate Business, iii. Credit Unions and iv. Instrument Discrepancies. Total may not sum to total 100% due to rounding.



Share of US Treasuries held by top 5 largest investors

Holdings of Treasuries as a % of Treasury debt outstanding - Top 5

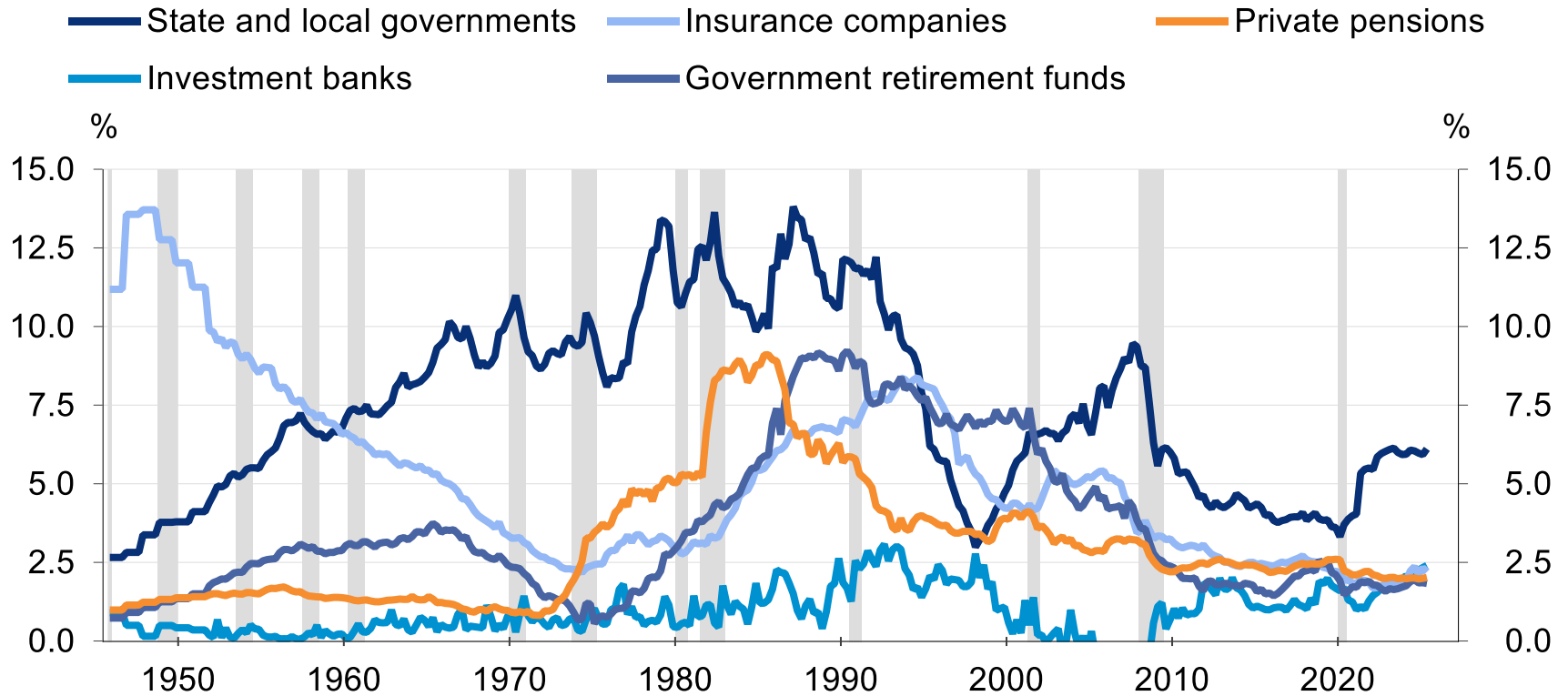


Source: Fed, Macrobond, Deutsche Bank



Share of US Treasuries held by 6th-10th largest investors

Holdings of Treasuries as a % of Treasury debt outstanding - Next 5

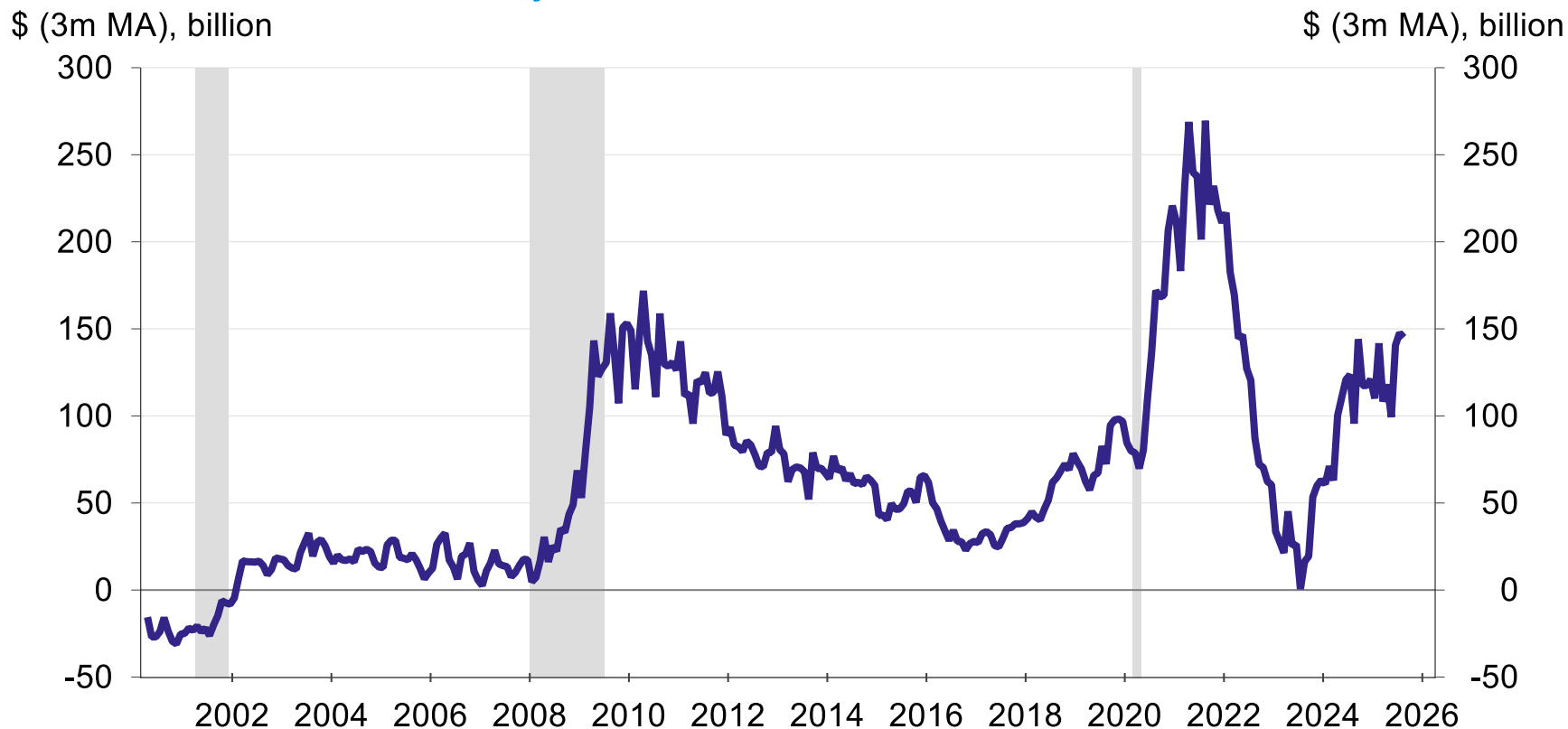


Source: Fed, Macrobond, Deutsche Bank



Net issuance of Treasury notes and bonds on the rise

Net issuance of Treasury notes and bonds

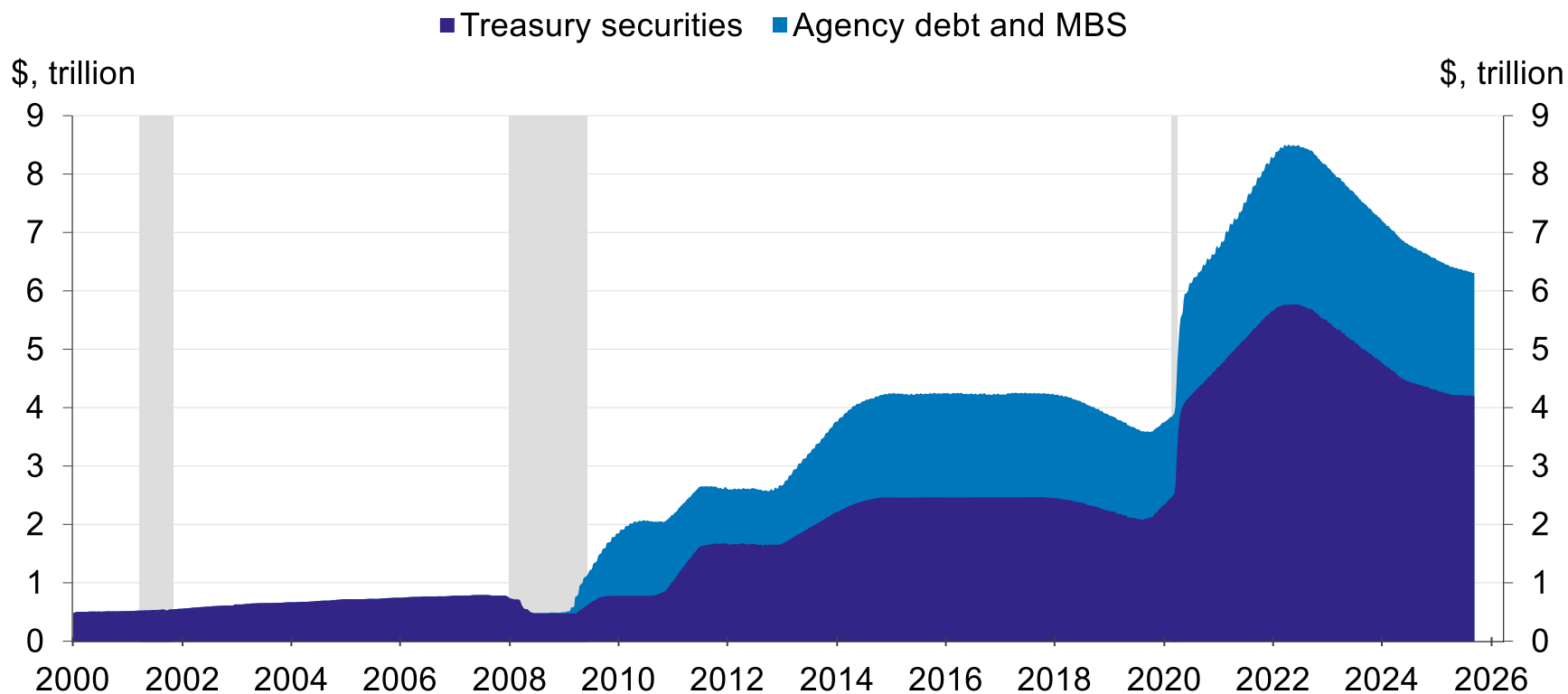


Source: SIFMA, Macrobond, Deutsche Bank



The Fed's bond portfolio has shrunk by more than \$2trn since QT

Treasuries and MBS outstanding held by the Fed

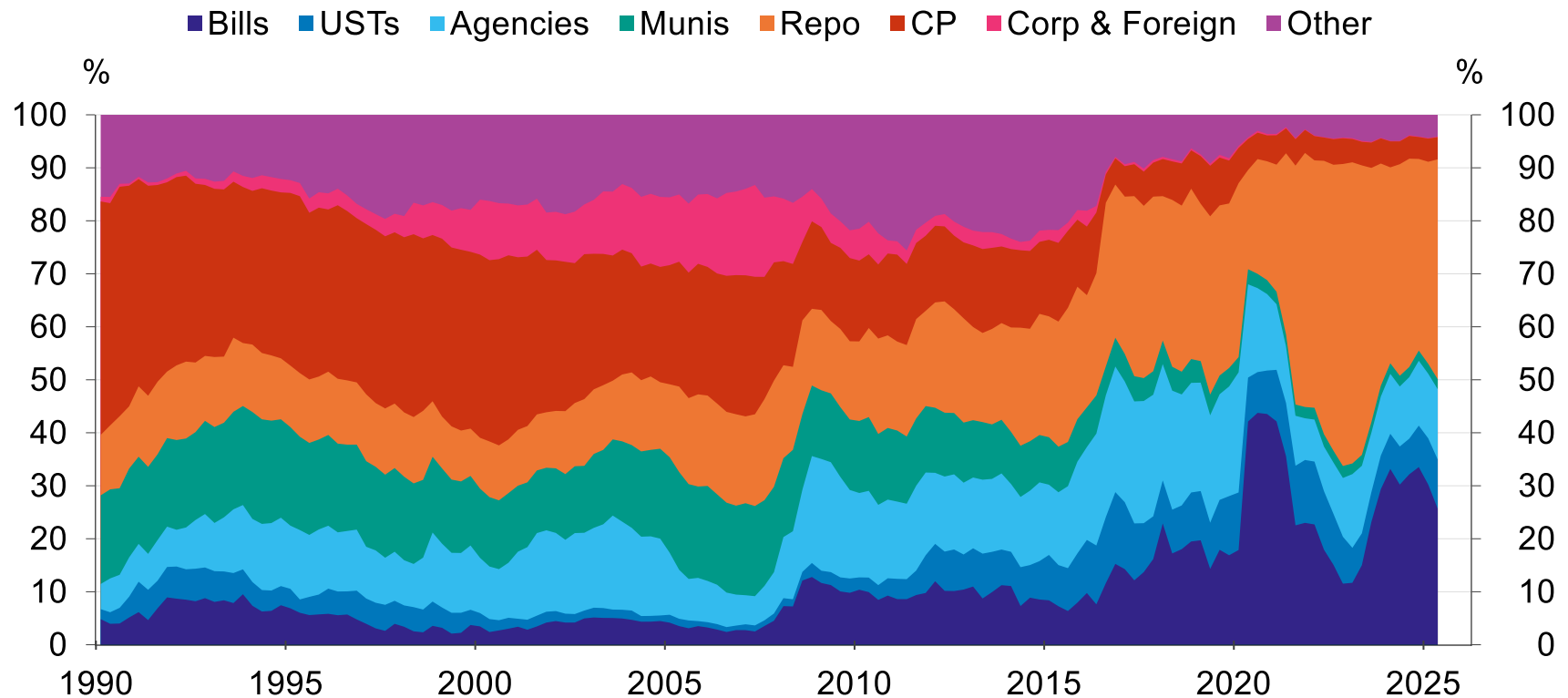


Source: Fed, Macrobond, Deutsche Bank



Money market funds hold primarily short-term Treasury securities and repo

Money market mutual funds holdings

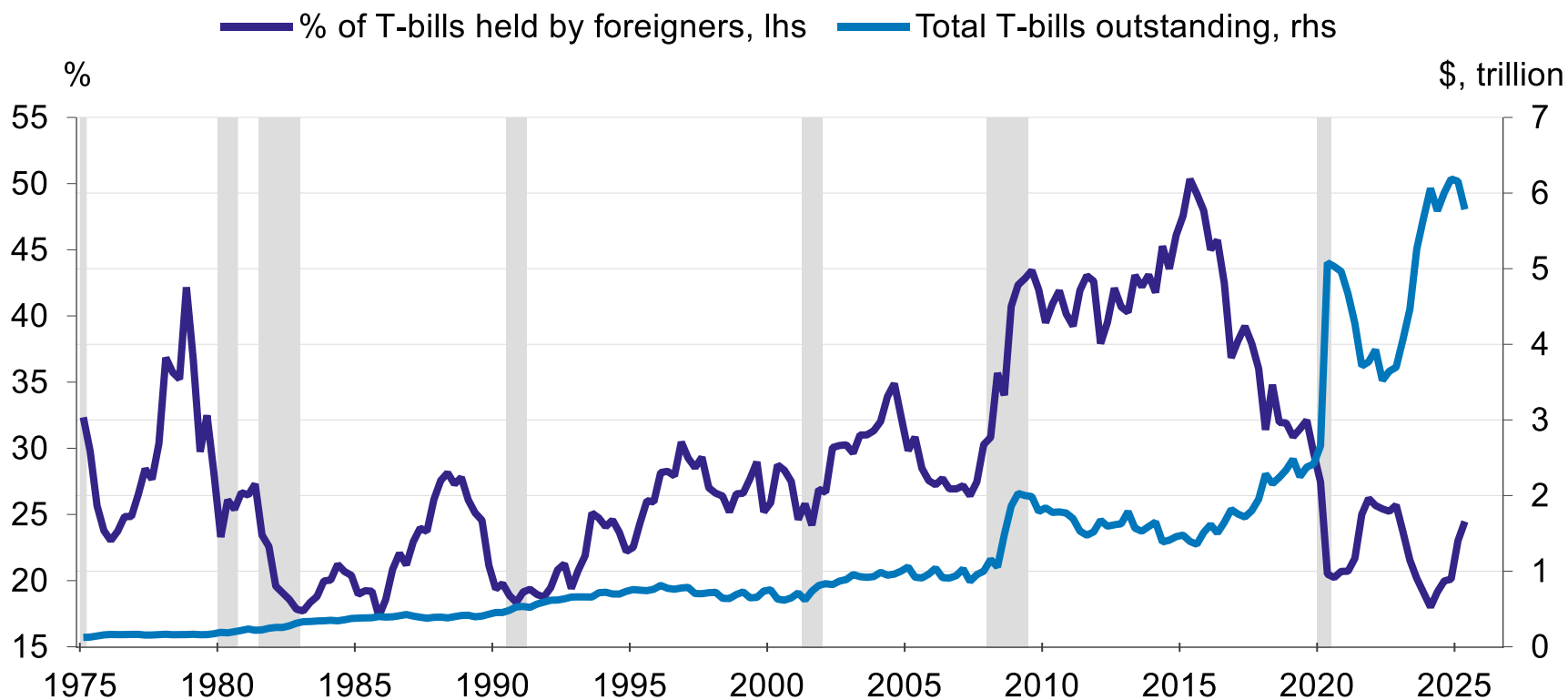


Source: Fed, Macrobond, Deutsche Bank



Foreign holdings of Treasury bills recovered in recent quarters

Treasury bills held by foreigners as % of outstanding

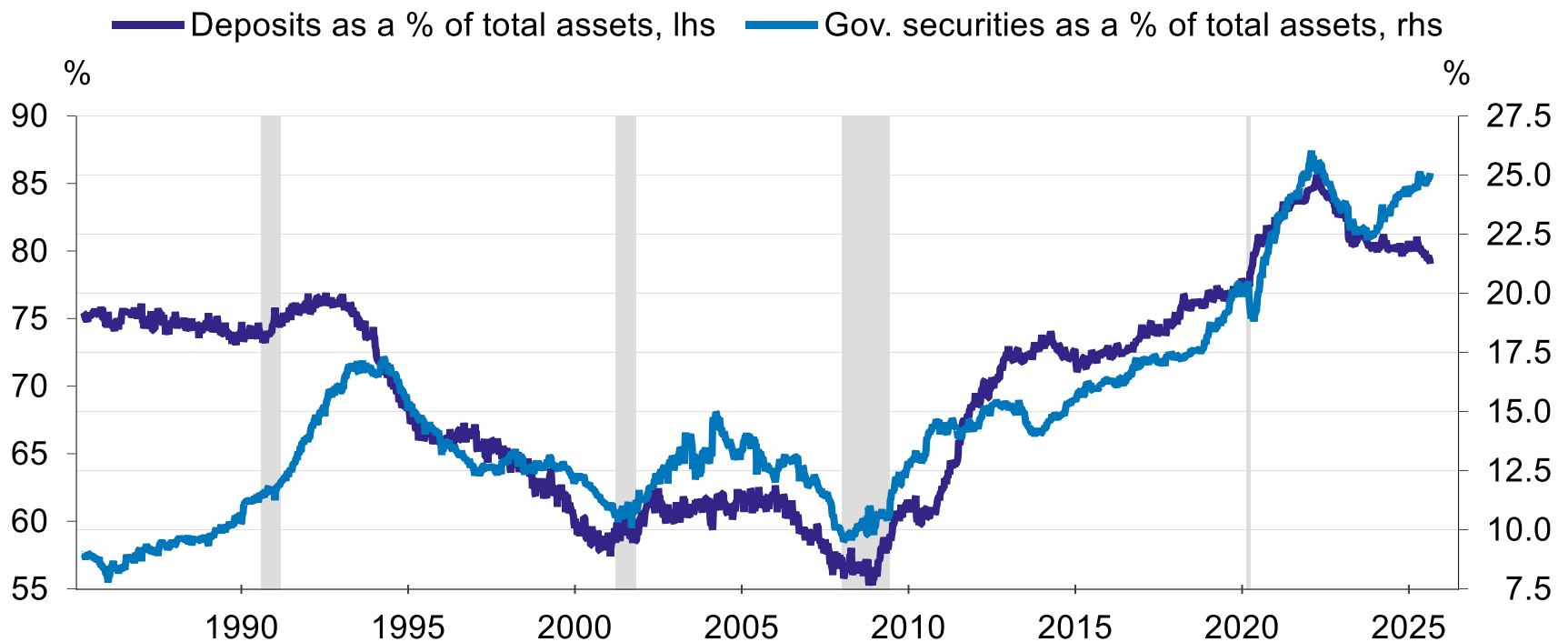


Source: Fed, Macrobond, Deutsche Bank



Banks currently hold approximately 25% of assets in Treasury and agency securities

Large domestically chartered commercial banks holdings of US Treasuries & Deposits

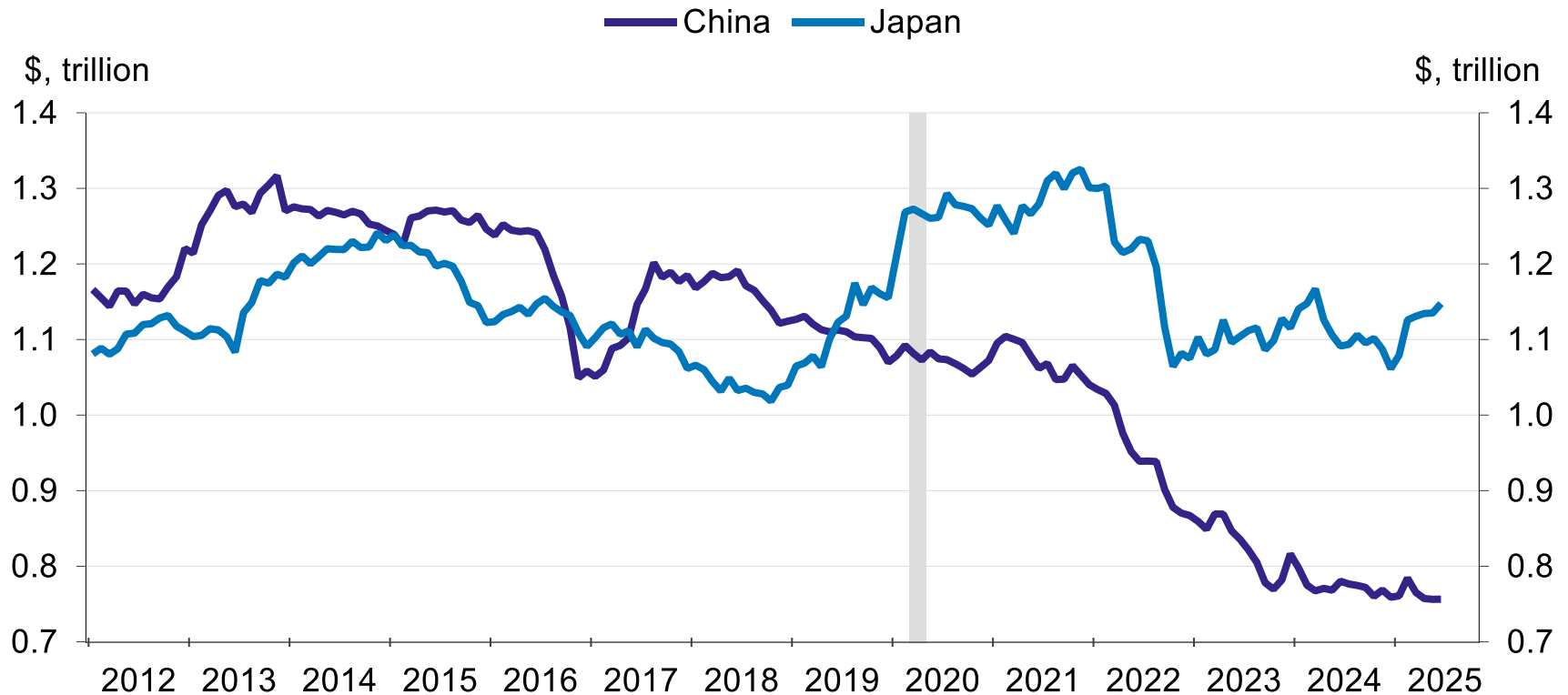


Source: Fed, Macrobond, Deutsche Bank



China's reported holdings of Treasuries fell to \$756bn vs Japan's holdings of \$1,148bn in June

Holdings of US Treasury securities



Source: U.S. Treasury, Macrobond, Deutsche Bank



Who is buying GSE MBS and agency debt?



Commercial banks are the largest investor with 25% of outstanding agency securities

Holders of agency and GSE-backed debt securities (%)

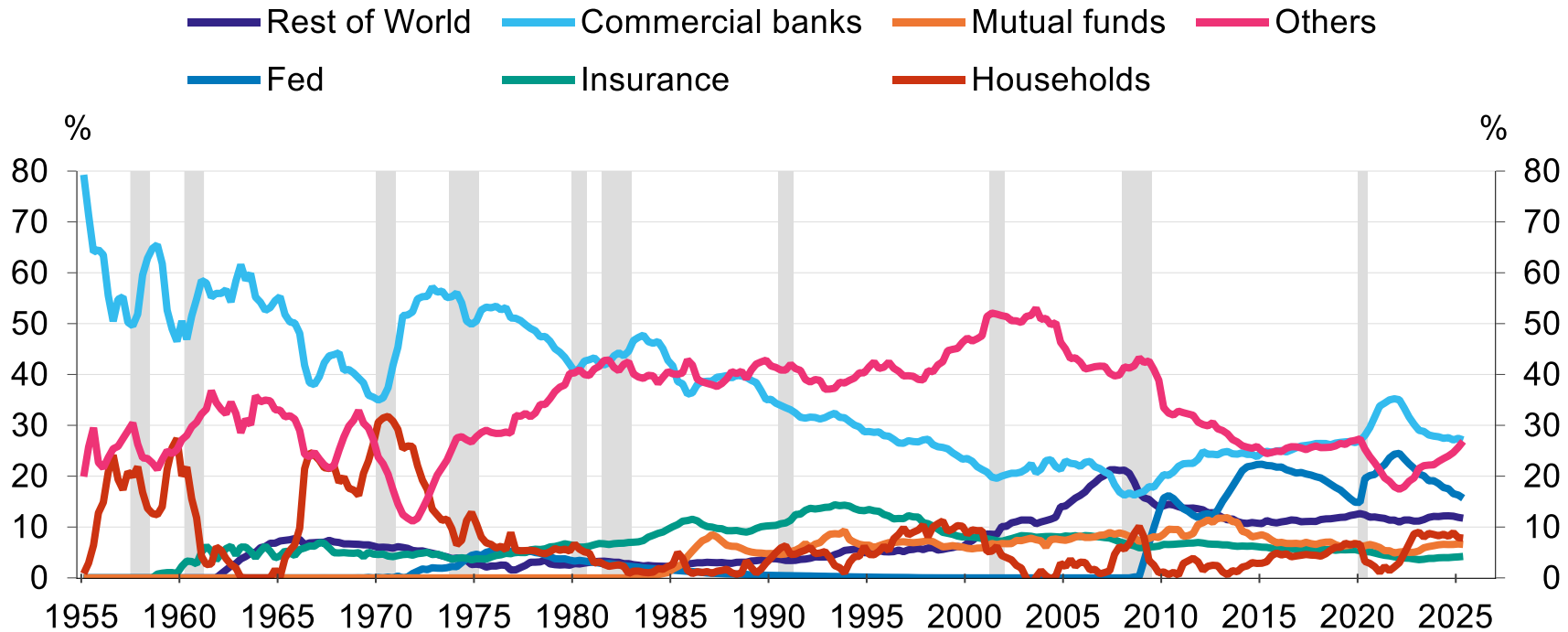
| | 2025 Q2 | Q2 2019 | Q2 2007 |
|-----------------------------|---------|---------|---------|
| Commercial banks | 24.9 | 25.1 | 19.2 |
| Federal Reserve | 15.7 | 16.4 | 0.0 |
| Others | 15.6 | 6.7 | 11.5 |
| Mutual funds | 15.1 | 13.9 | 11.0 |
| Rest of world | 11.7 | 11.9 | 21.2 |
| Households/Hedge funds | 7.8 | 6.8 | 1.4 |
| Investment banks | 5.4 | 3.1 | 7.4 |
| Insurance companies | 4.2 | 5.5 | 7.8 |
| GSEs | 2.4 | 2.7 | 10.3 |
| Private pensions | 2.4 | 2.3 | 2.7 |
| Government retirement funds | 1.7 | 1.6 | 3.8 |
| ABS issuers | 0.0 | 0.0 | 5.0 |

Source: Fed, Macrobond, Deutsche Bank. Note “Others” includes i) Non-financial Corporate ii) Government, iii. Credit Unions , iv) REITs, Holding companies and v) Instrument Discrepancies. Total may not sum to total 100% due to rounding.



Agency MBS ownership relatively spread out among investor categories

Holdings of agency securities as % of outstanding

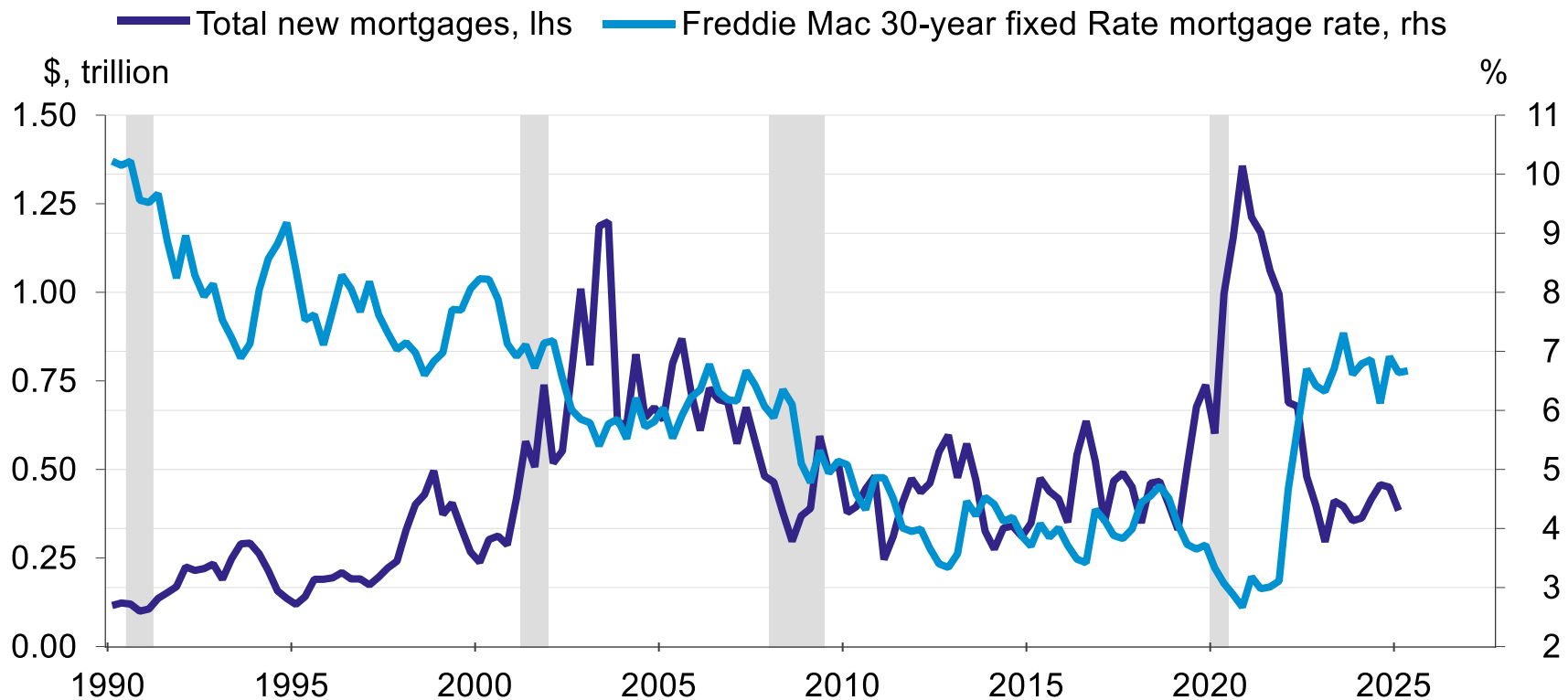


Source: Fed, Macrobond, Deutsche Bank. Note: Banks consists of Commercial banking , U.S. Chartered depository institutes, Foreign banking offices, Banks in U.S. possessions and Holding Companies



Higher rates have driven mortgage activity back to pre-Covid levels

Total new mortgages



Source: MBA, Freddie Mac, Macrobond, Deutsche Bank



Who is buying Corporate and Foreign Bonds?



Foreign investors and insurance companies own combined 54% of corporate and foreign bonds

Holders of corporate and foreign bonds (%)

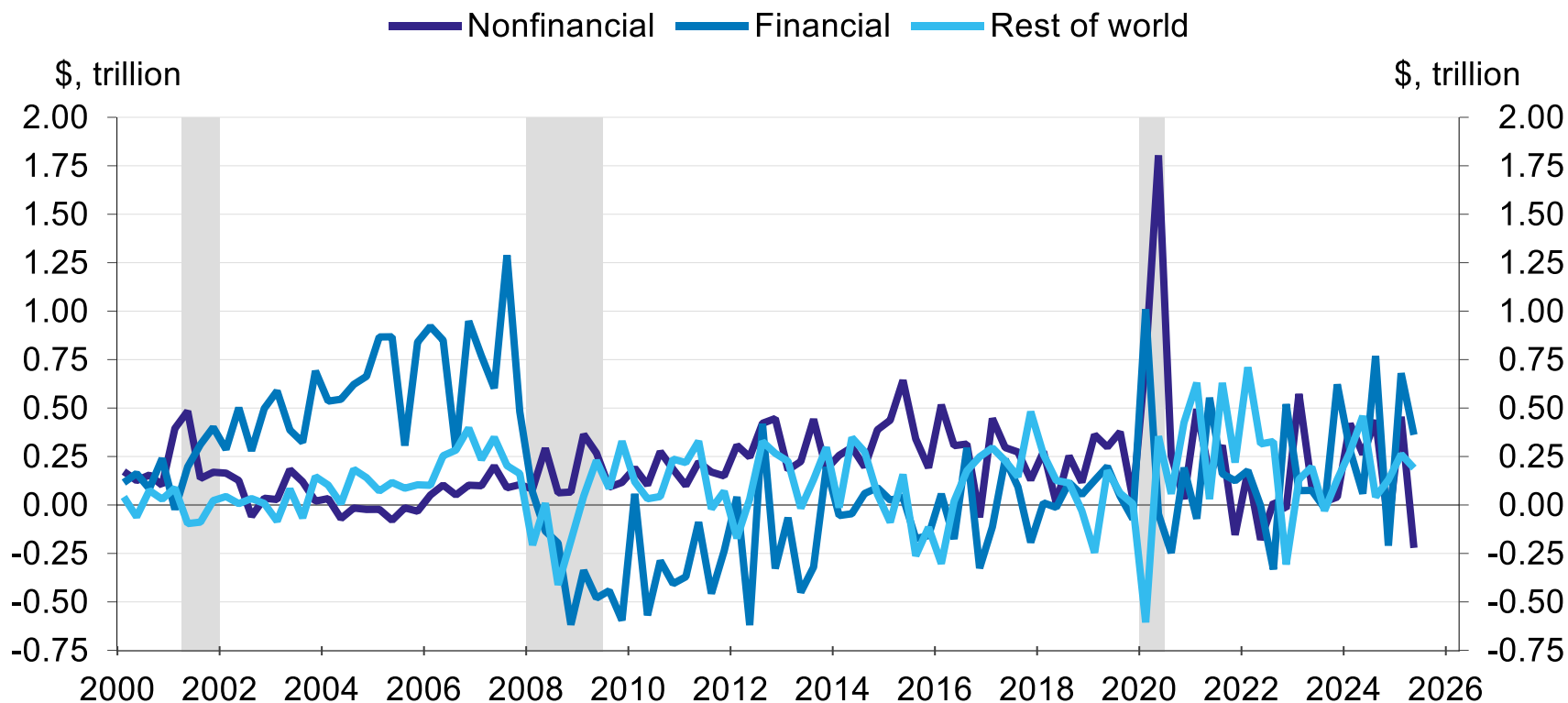
| | 2025 Q2 | Q2 2019 | Q2 2007 |
|-----------------------------|---------|---------|---------|
| Insurance companies | 28.2 | 28.3 | 22.3 |
| Rest of World | 25.8 | 26.6 | 18.1 |
| Mutual funds and ETFs | 22.9 | 20.8 | 12.5 |
| Others | 6.2 | 3.3 | 23.6 |
| Commercial banks | 5.8 | 5.0 | 9.9 |
| Private pension funds | 5.5 | 6.5 | 3.5 |
| Government retirement funds | 3.8 | 3.8 | 4.0 |
| Government | 2.1 | 2.5 | 1.7 |
| Households/hedge funds | 1.5 | 1.6 | 5.7 |
| Finance companies | 0.1 | 0.4 | 2.0 |

Source: Fed, Macrobond, Deutsche Bank. Note “Others” includes i) Instrument Discrepancies, ii) Holding Companies, iii) Security Brokers & Dealers, iv) REITs, v) Govt-Sponsored Enterprises and vi) Credit Unions. Total may not sum to total 100% due to rounding.



Growth in financial corporate and foreign bond supply remains positive

Net issuance of corporate & foreign bonds



Source: Fed, Macrobond, Deutsche Bank



Who is buying municipal securities and loans?



Household sector accounts for 48% of outstanding municipal bonds

Holders of Municipal securities and loans (%)

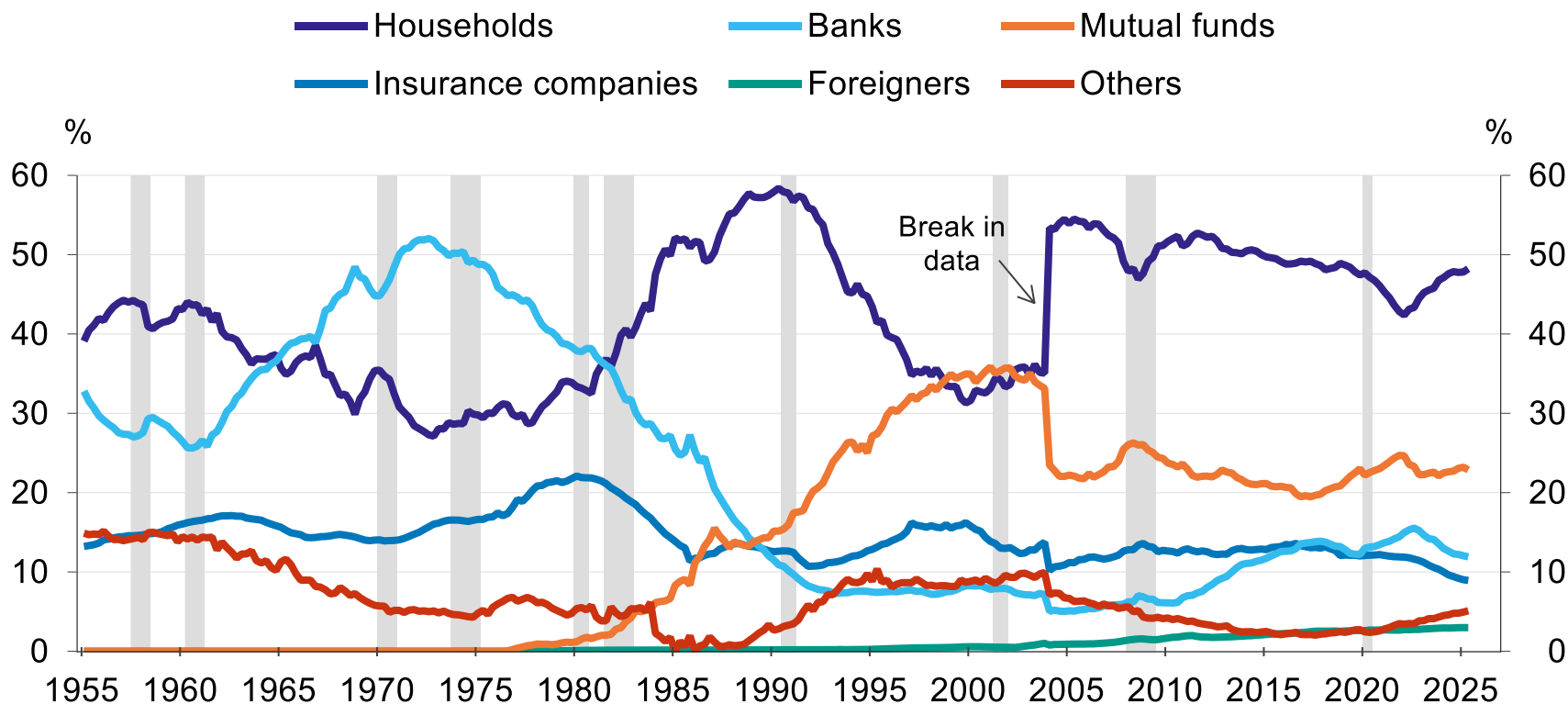
| | 2025 Q2 | Q2 2019 | Q2 2007 |
|------------------------|---------|---------|---------|
| Households/hedge funds | 48.2 | 48.4 | 52.1 |
| Mutual funds and ETFs | 28.2 | 25.2 | 25.9 |
| Commercial banks | 11.7 | 12.2 | 5.8 |
| Insurance companies | 8.9 | 12.1 | 11.9 |
| Other | 7.6 | -4.3 | 2.0 |
| Rest of world | 3.0 | 2.6 | 1.1 |
| Security brokers | 0.5 | 0.4 | 1.6 |

Source: Fed, Macrobond, Deutsche Bank. Note “Others” mainly includes i) Non-financial corporate & non-corporate ii) S&L Government, iii. Credit Unions , iv) Government retirement funds v) GSEs and vi) Instrument Discrepancies. Total may not sum to total 100% due to rounding.



Key investor groups in municipal debt

Holdings of municipal securities as % of outstanding

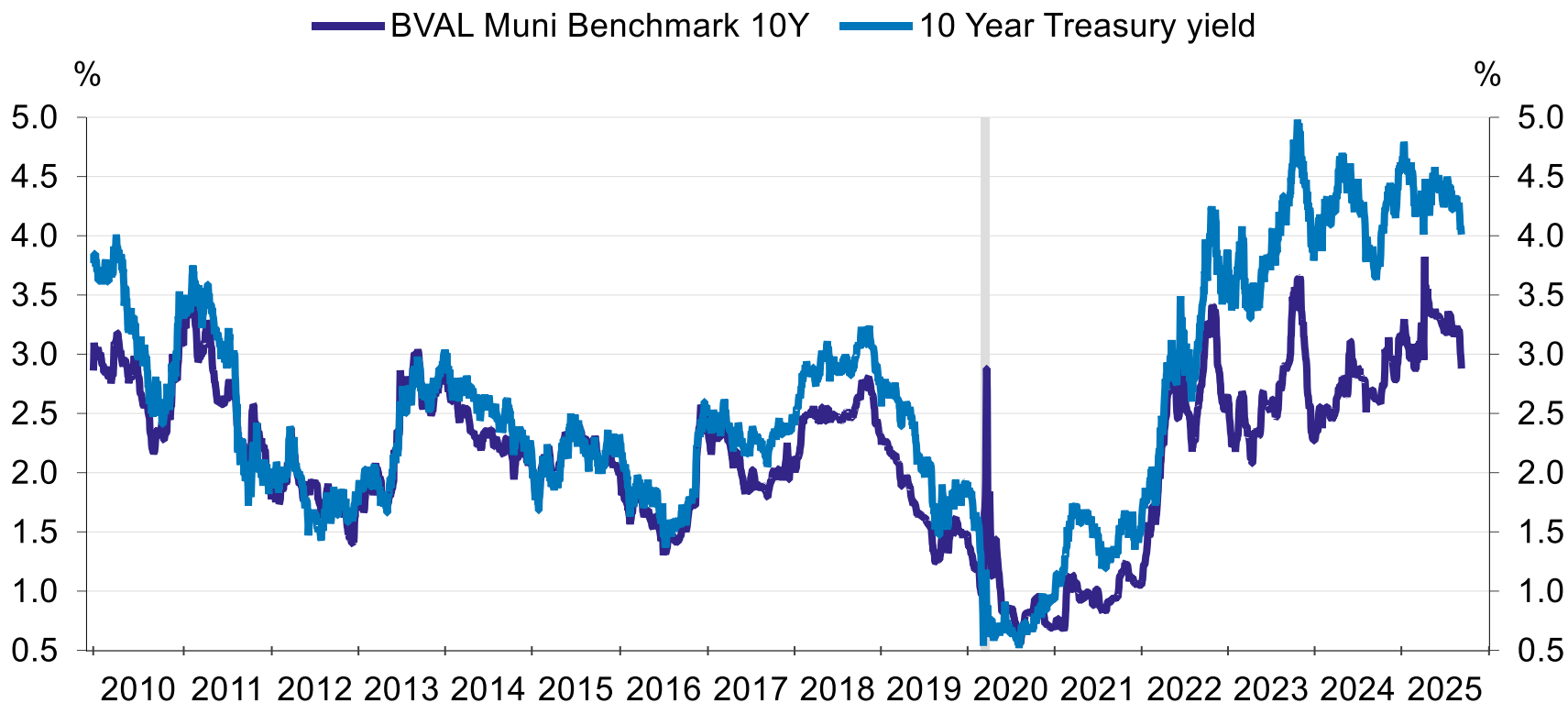


Source: Fed, Macrobond, Deutsche Bank



Benchmark 10-year municipal and Treasury yields

Treasury and muni yields



Source: U.S. Treasury, Bloomberg Finance LP, Macrobond, Deutsche Bank

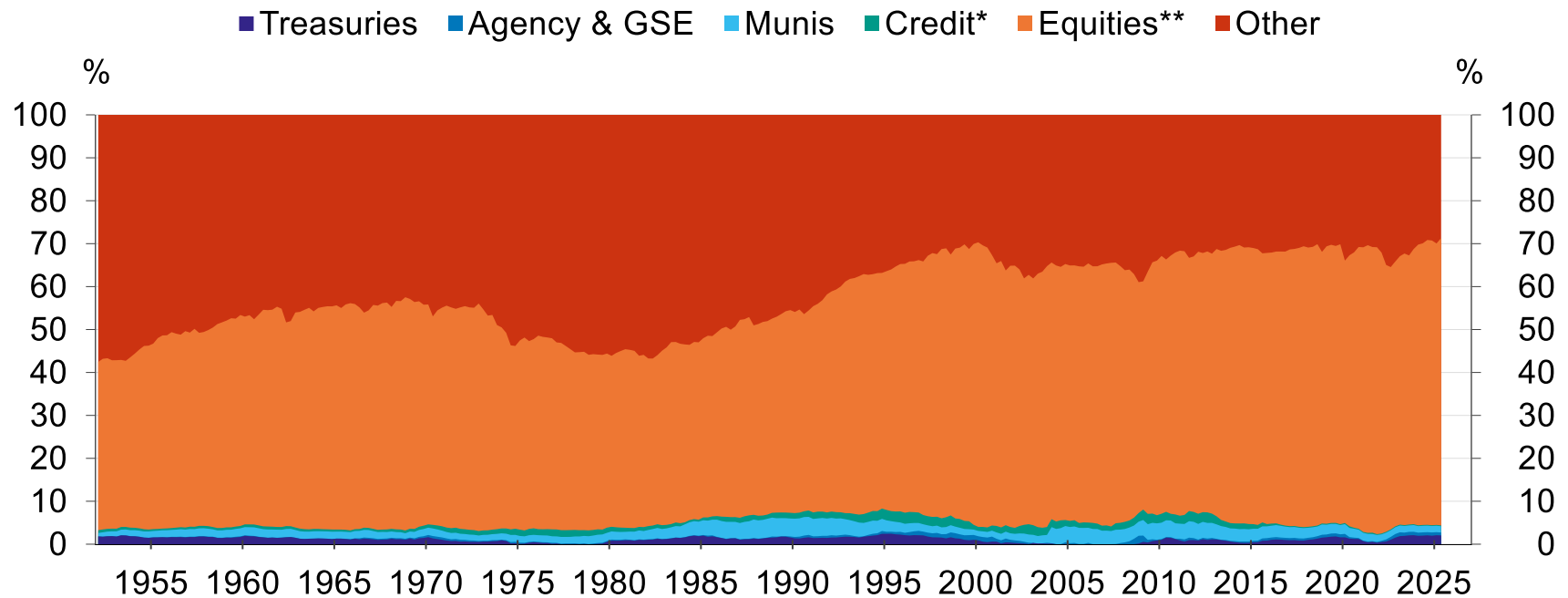


Asset allocations by investor type



US households are heavily overweight in equities relative to fixed income

Households' (incl. hedge fund) asset allocation



Source: Fed, Macrobond, Deutsche Bank.

*Credit includes corporate & foreign bonds

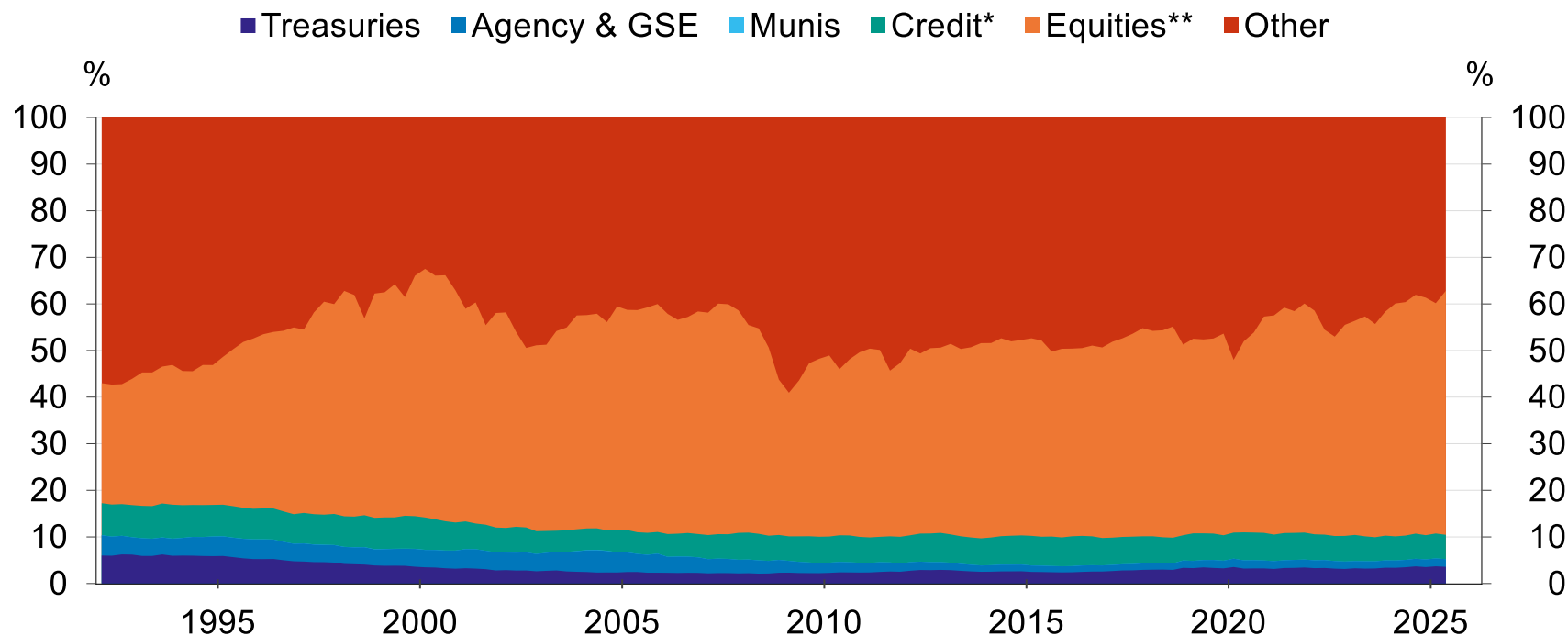
**Equities includes corporate equities, mutual fund shares, life insurance reserves and pension funds reserves

Source: FRB, Haver Analytics, Deutsche Bank



Pension funds are roughly equally allocated to equities and fixed income

Pension funds' asset allocation



Source: Fed, Macrobond, Deutsche Bank.

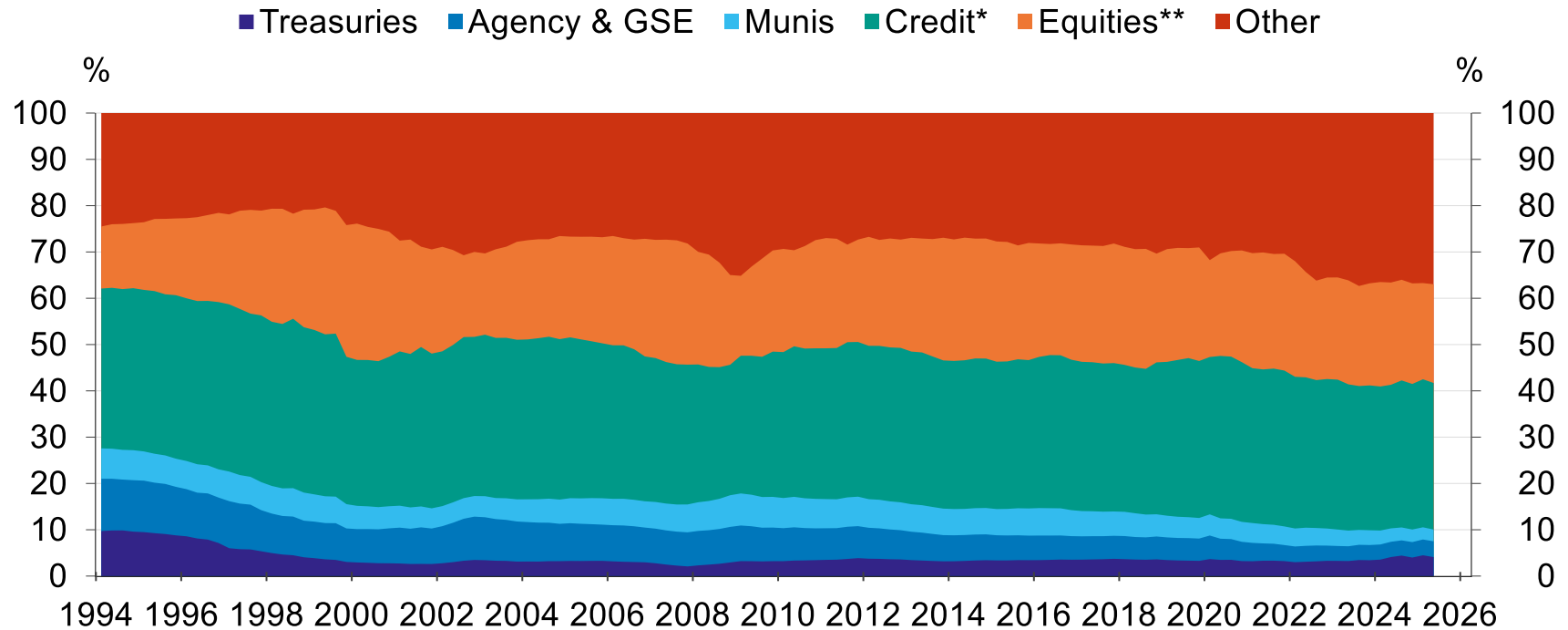
Pension funds incl. Private, State & local gov. retirement and Federal gov. retirement funds

*Credit includes corporate and foreign bonds **Equities includes corporate equities and mutual fund shares



Insurance companies are overweight credit and equities

Insurance companies' asset allocation



Source: Fed, Macrobond, Deutsche Bank.

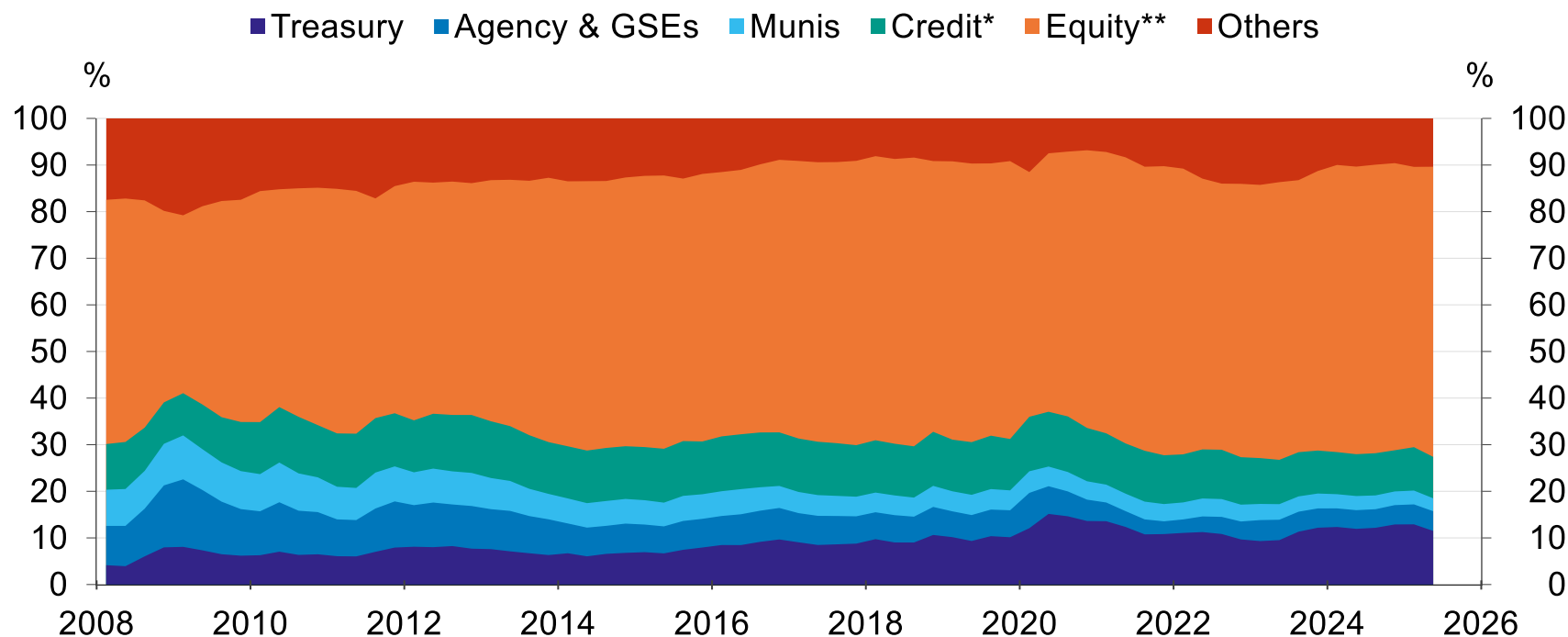
Insurance sector includes both life and non-life insurance

*Credit includes foreign and corporate bonds; **Equities include mutual fund shares and corporate equities



Mutual fund allocations to financial assets

Mutual funds' asset allocation

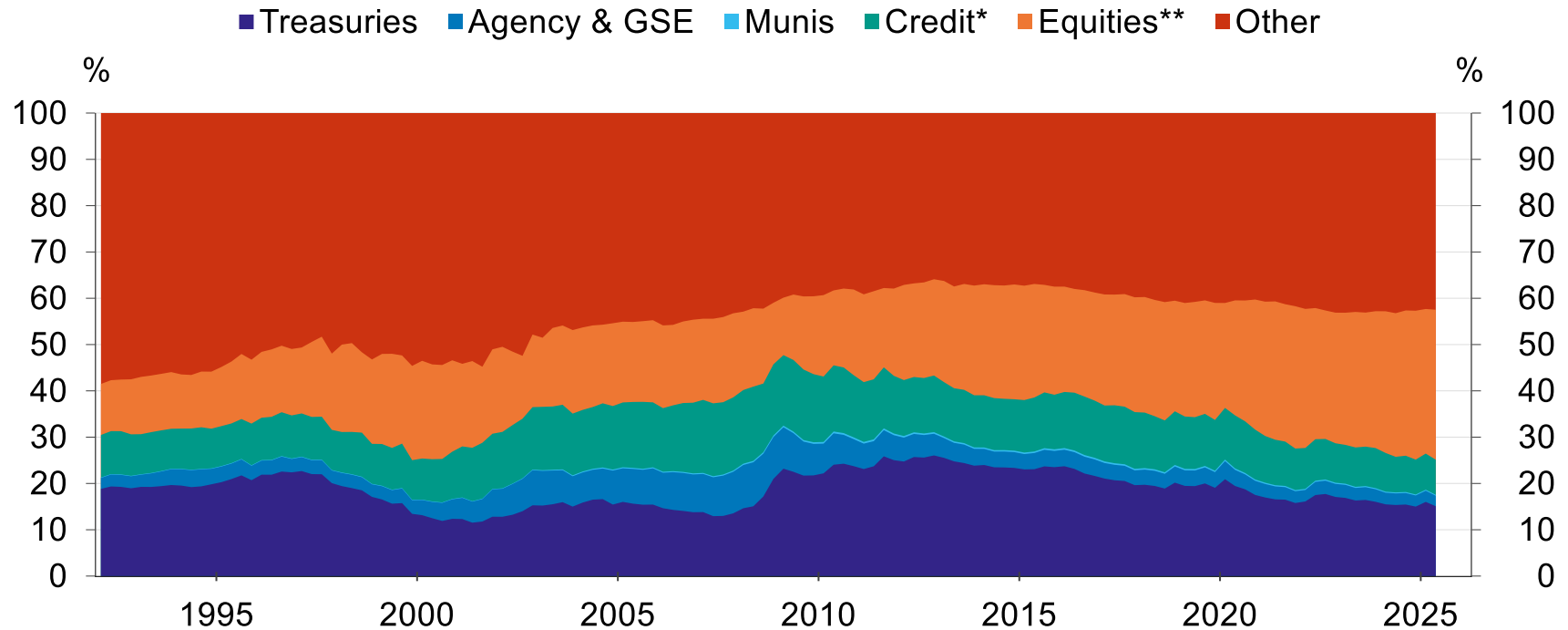


Source: Fed, Macrobond, Deutsche Bank. Mutual funds incl. traditional mutual funds, money mkt. MFs, exchange traded MFs & open ended MFs. *Credit includes corporate and foreign bonds; **Equity includes corporate equities and mutual fund shares.



Foreign investors increased allocations to US equities in the last decade

Asset allocation of foreigners in US assets



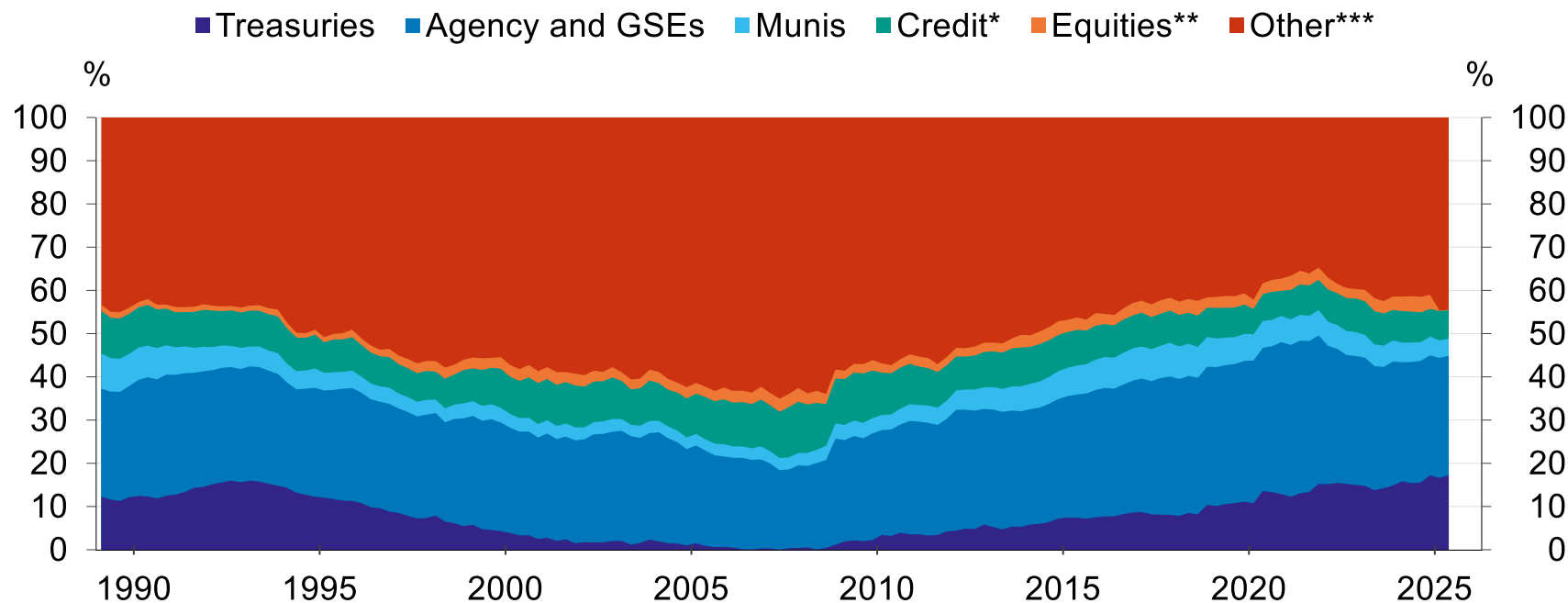
Source: Fed, Macrobond, Deutsche Bank.

*Credit is Corporate bonds held by Foreign sector; **Equities is calculated as sum of corporate equities and mutual fund shares



Commercial bank allocations to Treasuries continue to increase after the GFC

Banks' asset allocation



Source: Fed, Macrobond, Deutsche Bank.

Banks incl. all commercial banks and brokers and dealers

*Credit includes corporate and foreign bonds; **Equities includes corporate equities and mutual fund shares,

***Excludes vault cash, reserves at Fed, fed funds and repos, loans, life ins. reserves and US direct investment abroad

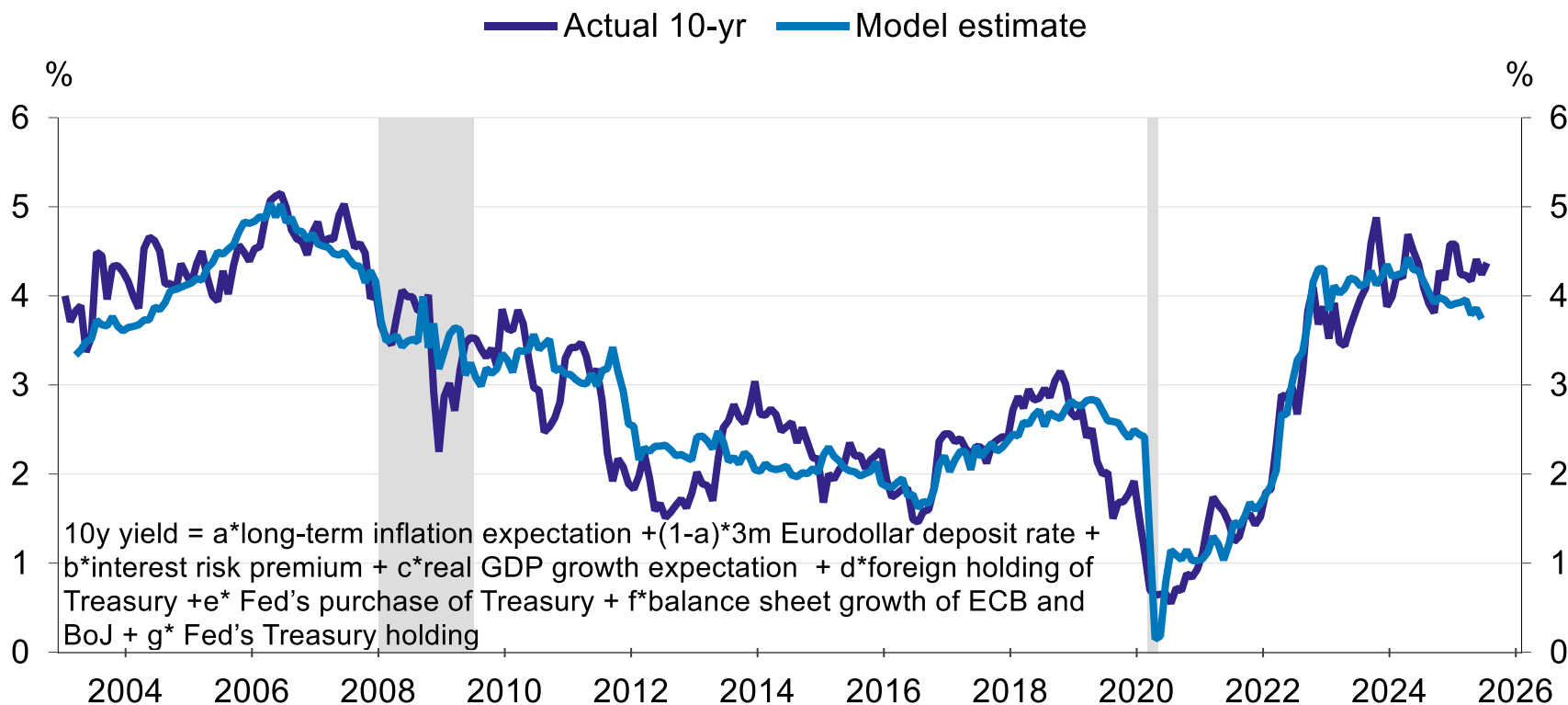


Outlook



10-year model accounting for central bank purchases suggests a fair value of 3.74%

10-year Treasury yield model forecasts

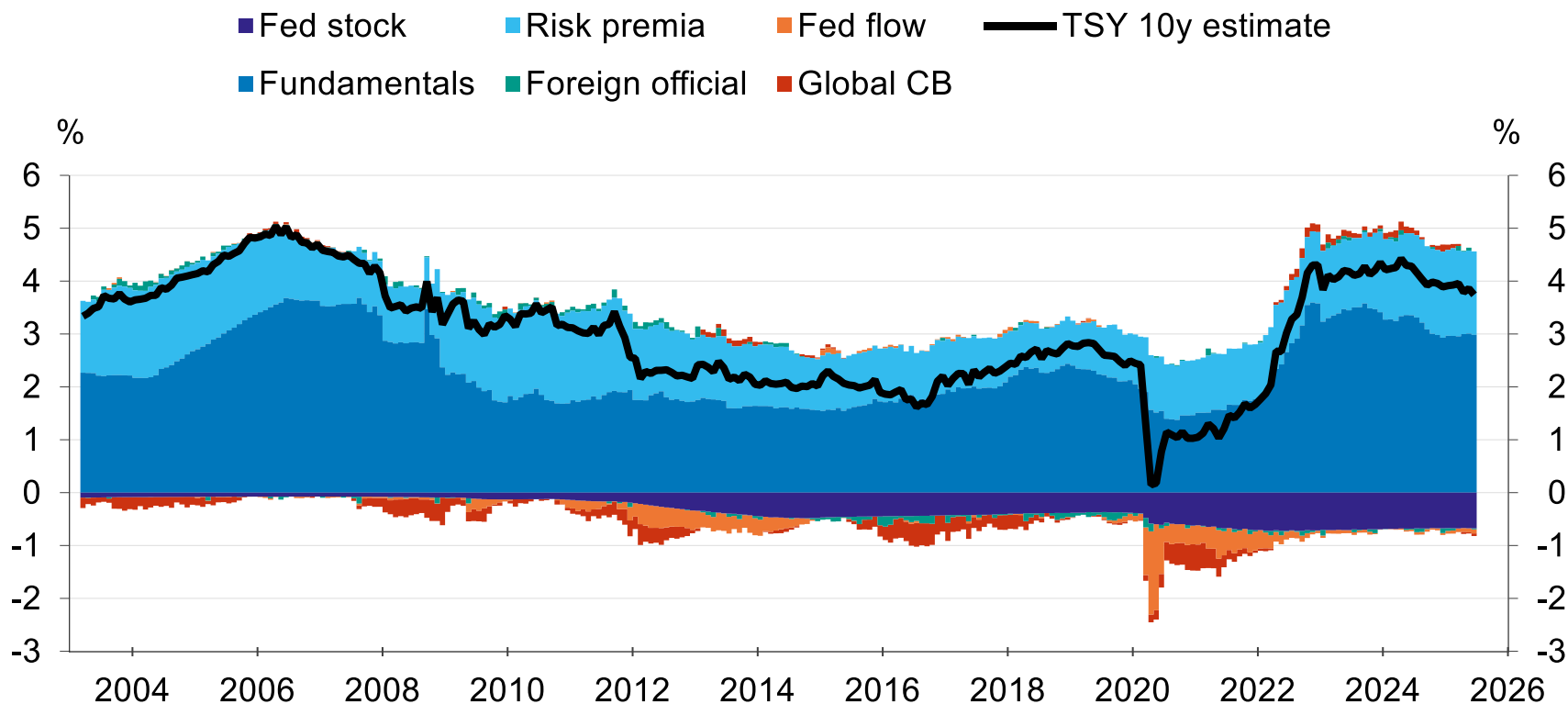


Source: U.S. Treasury, Philadelphia Fed, Macrobond, BEA, Fed, ECB, BOJ, Macrobond, Deutsche Bank



Decomposition of 10y model estimates

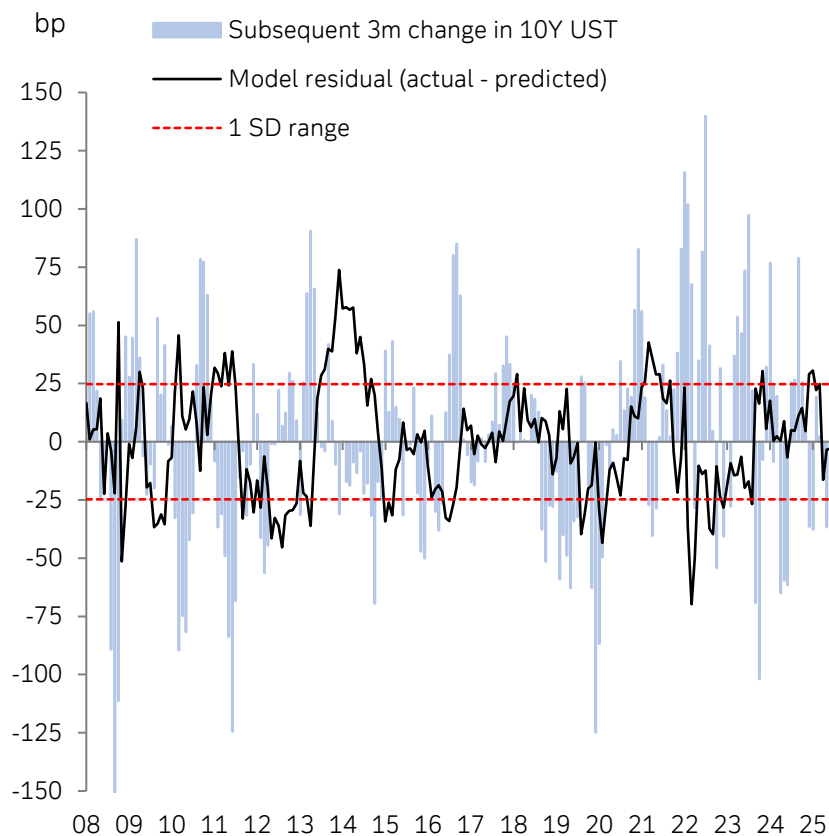
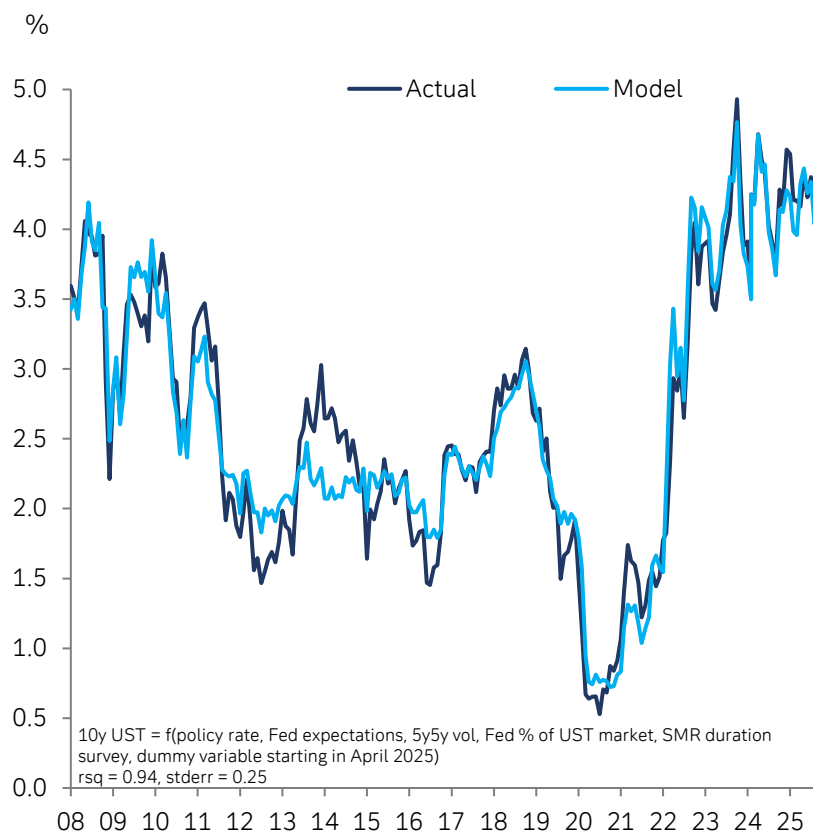
Model decomposition of 10-year Treasury yield



Source: U.S. Treasury, Philadelphia Fed, Macrobond, BEA, Fed, ECB, BOJ, Macrobond, Deutsche Bank



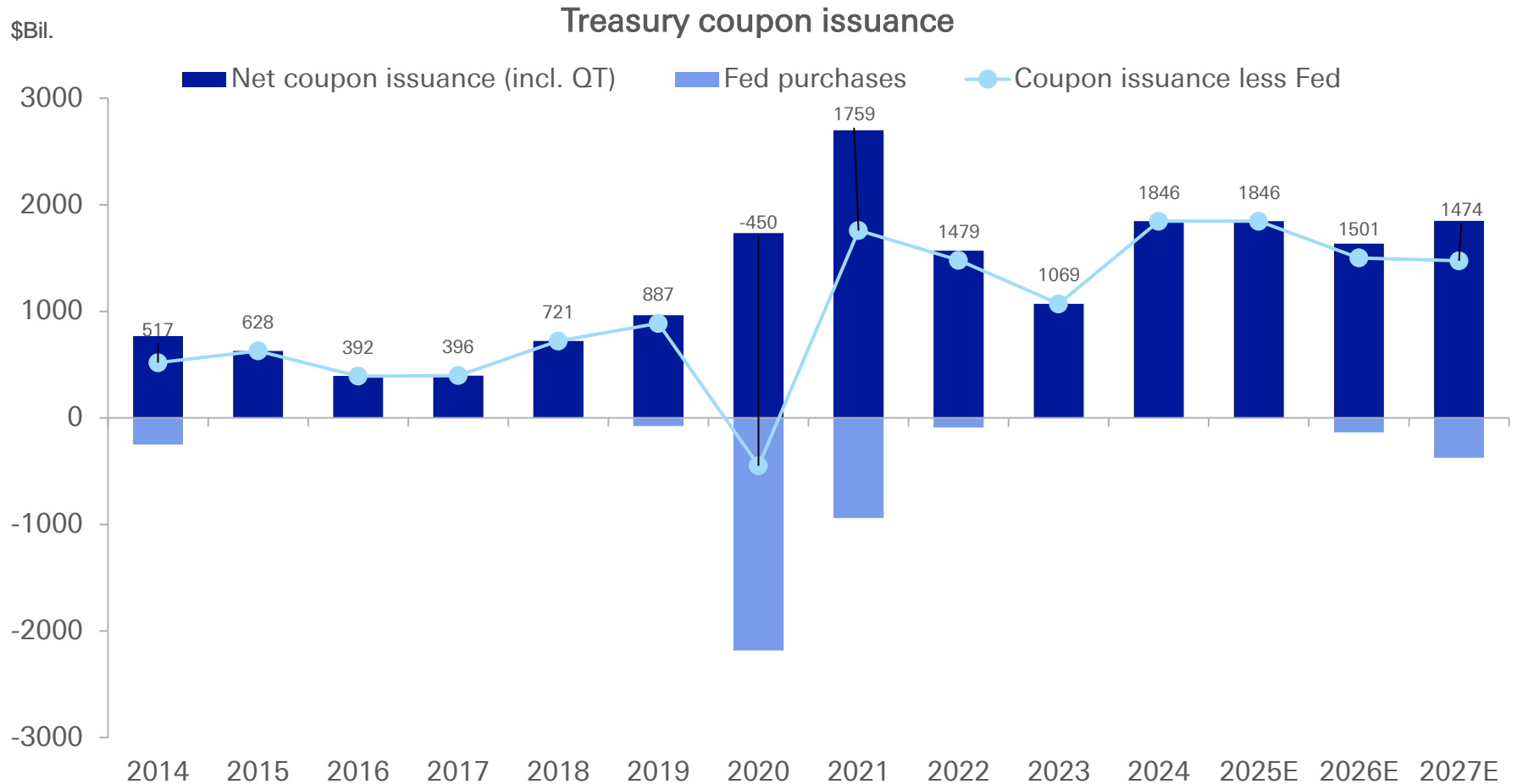
10-year model incorporating market variables suggests a fair value of 4.1%



Source: FRB, BEA, Haver Analytics, Deutsche Bank



High levels of Treasury coupon issuance projected for 2025-2027

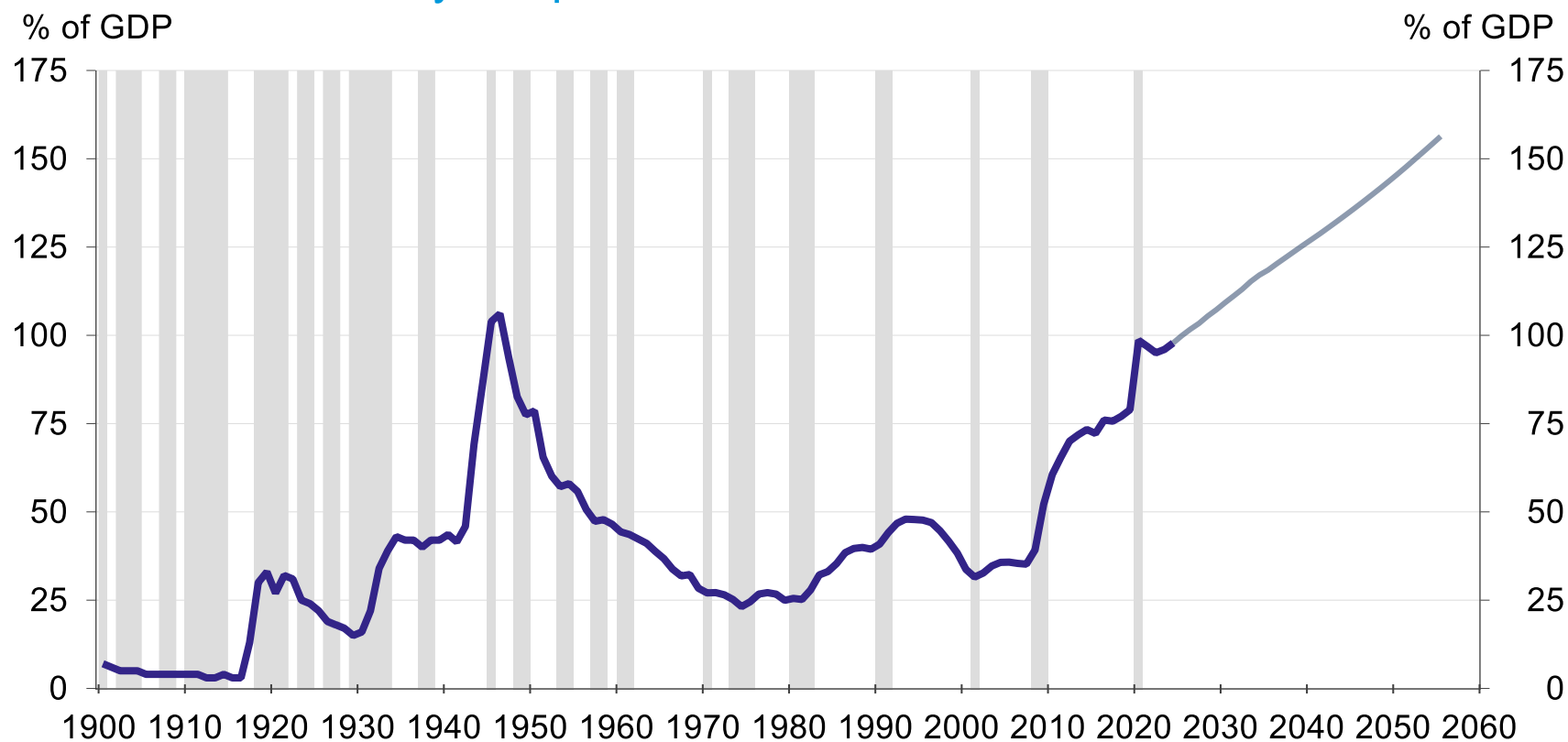


Source: FRB, BEA, Haver Analytics, Deutsche Bank



CBO's projection of US debt

Federal debt held by the public

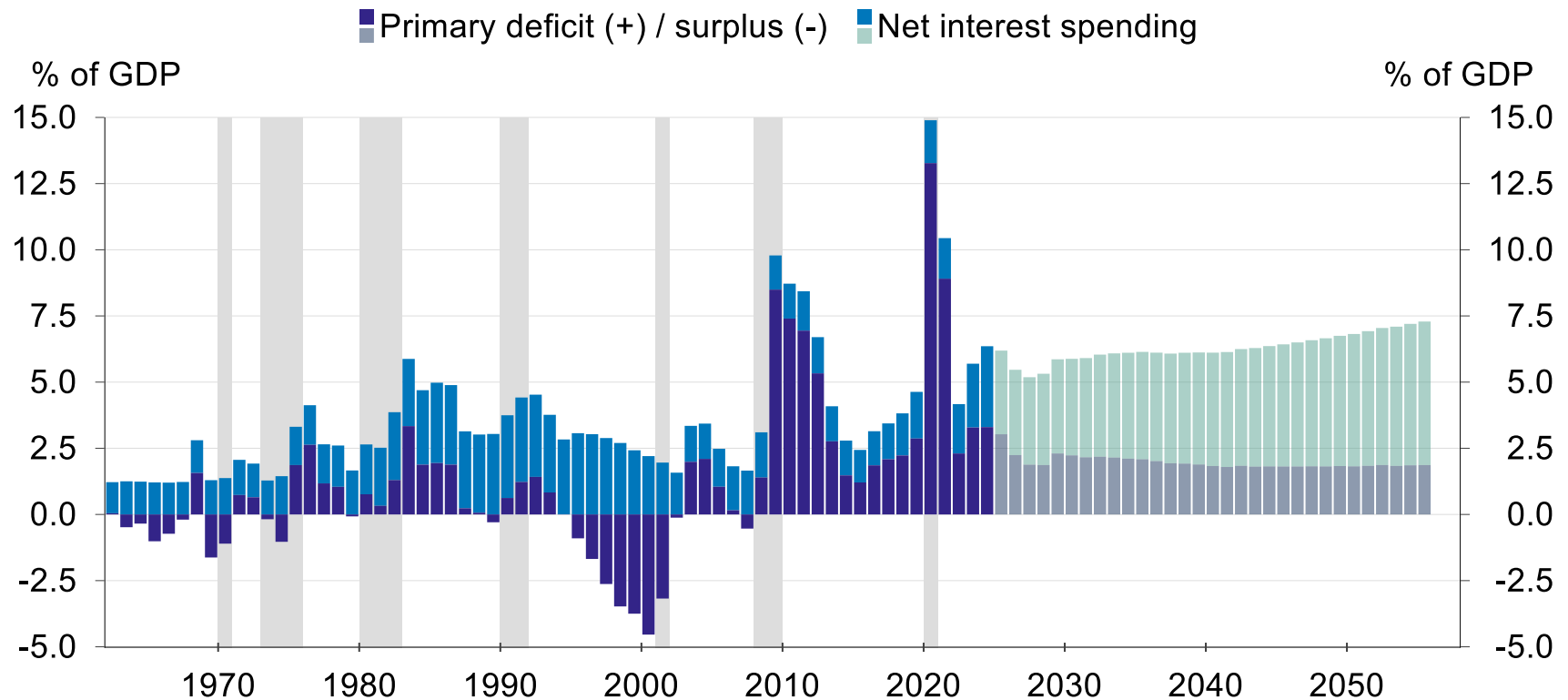


Source: CBO, Macrobond, Deutsche Bank



Interest expense projected to be a rising share of the US deficit due to high interest rates

Total Deficit, Net Interest Outlays, and Primary Deficit

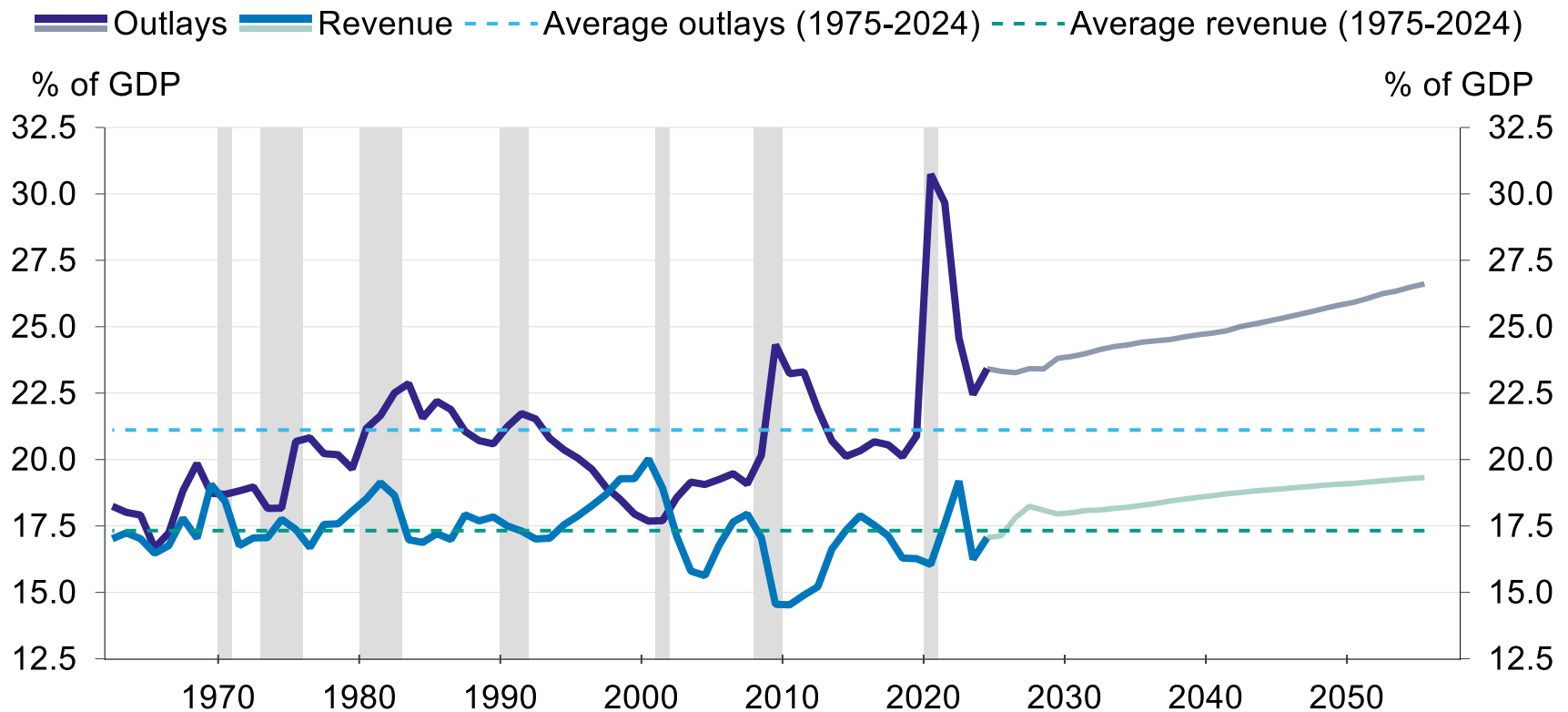


Source: CBO, Macrobond, Deutsche Bank



Rising outlays and more stable revenue growth contributes to the primary deficit

Total Outlays and Revenues

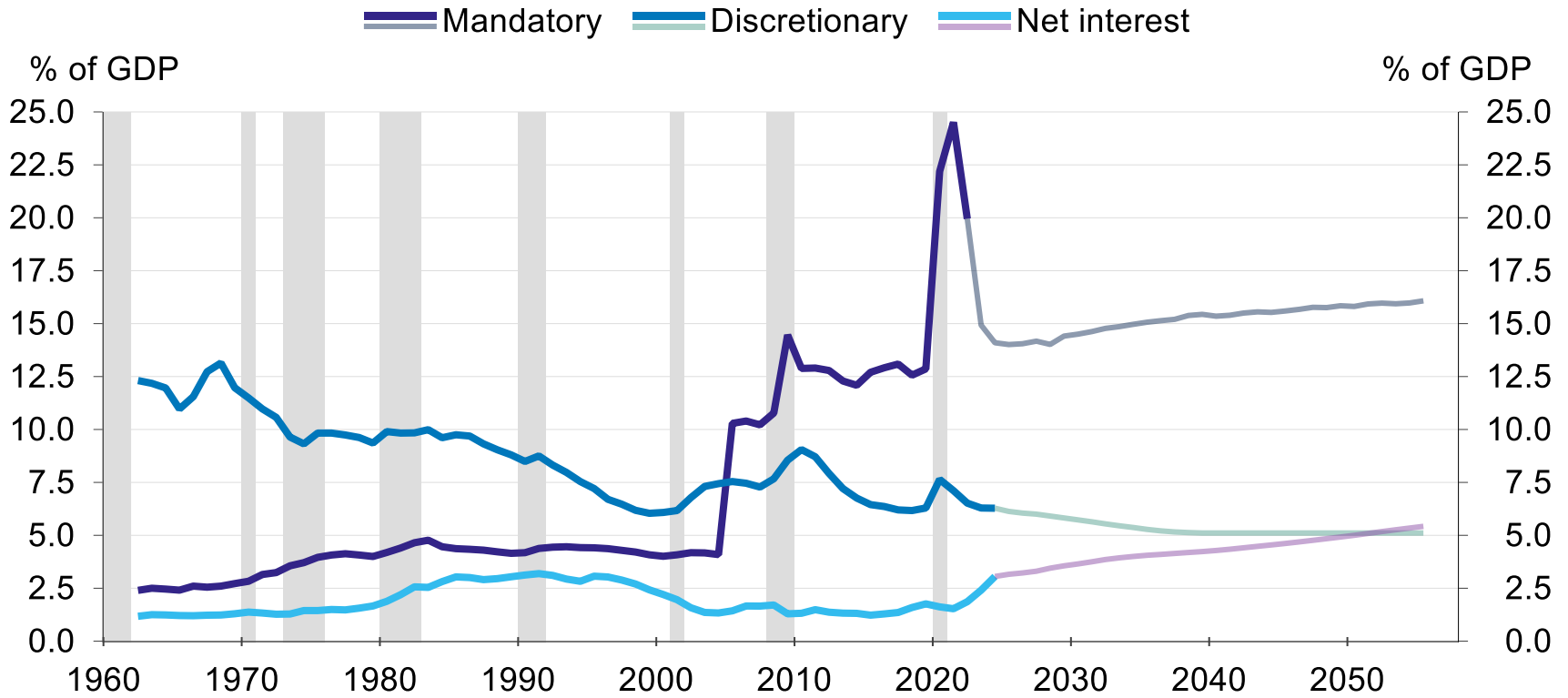


Source: CBO, Macrobond, Deutsche Bank



Mandatory spending expected to grow faster than discretionary as net interest rises too

Outlays, by Category

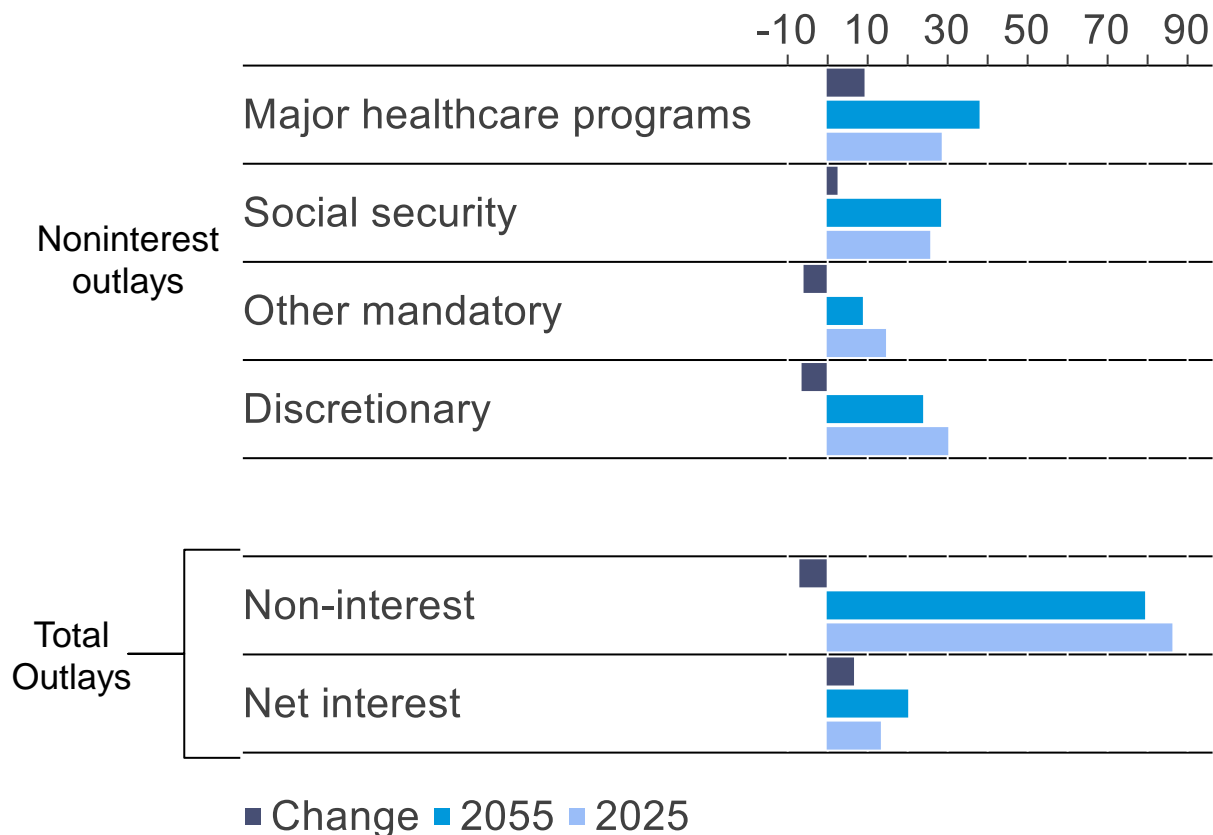


Source: CBO, Macrobond, Deutsche Bank



CBO projection of outlays from 2023 to 2054

Composition of Outlays 2025 & 2055 (%)

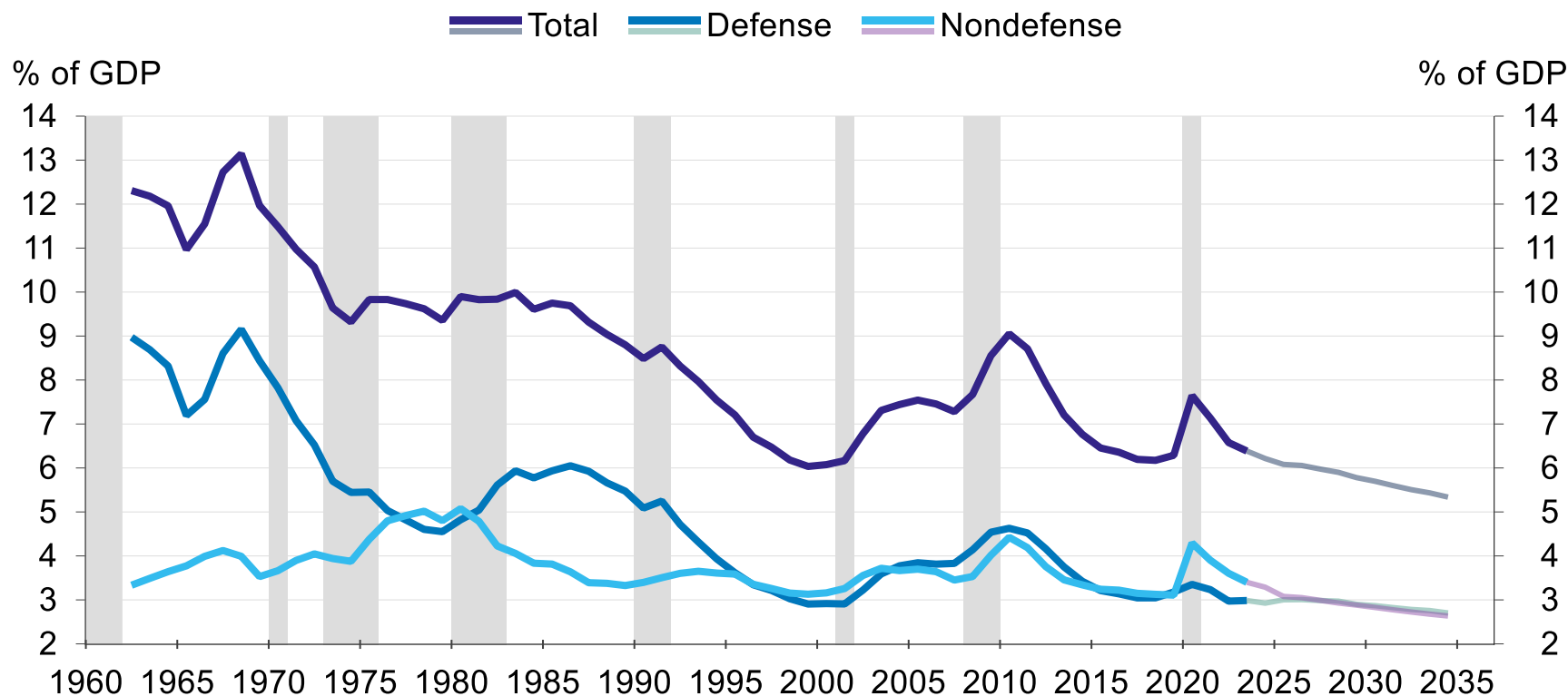


Source: CBO, Macrobond, Deutsche Bank



CBO projection of defense versus non-defense spending

Discretionary Outlays, by Category

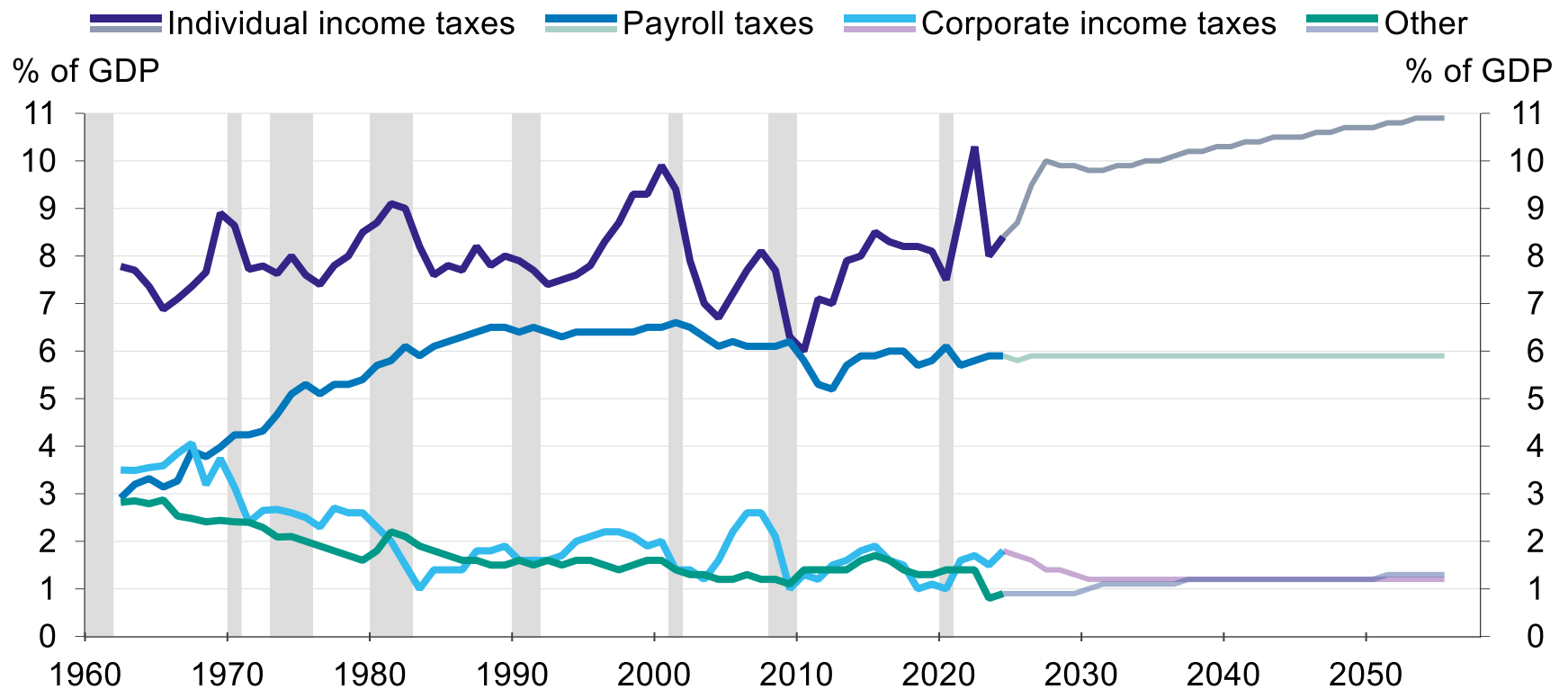


Source: CBO, Macrobond, Deutsche Bank



CBO projection of tax revenues by category

Revenues, by Category

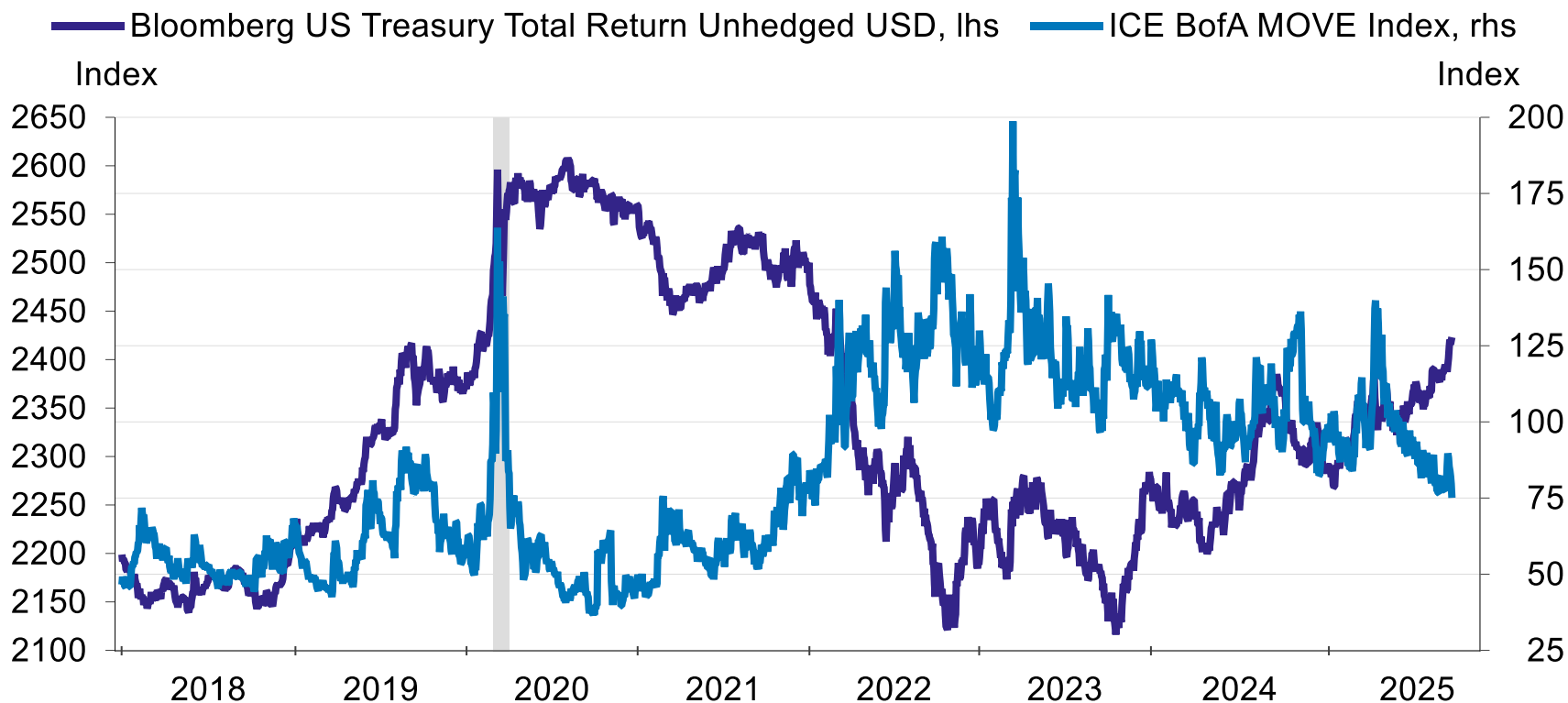


Source: CBO, Macrobond, Deutsche Bank



Treasury index YTD return: 5.8% through Sep. 12th

Bloomberg US Treasury Total Return Unhedged USD and MOVE Index

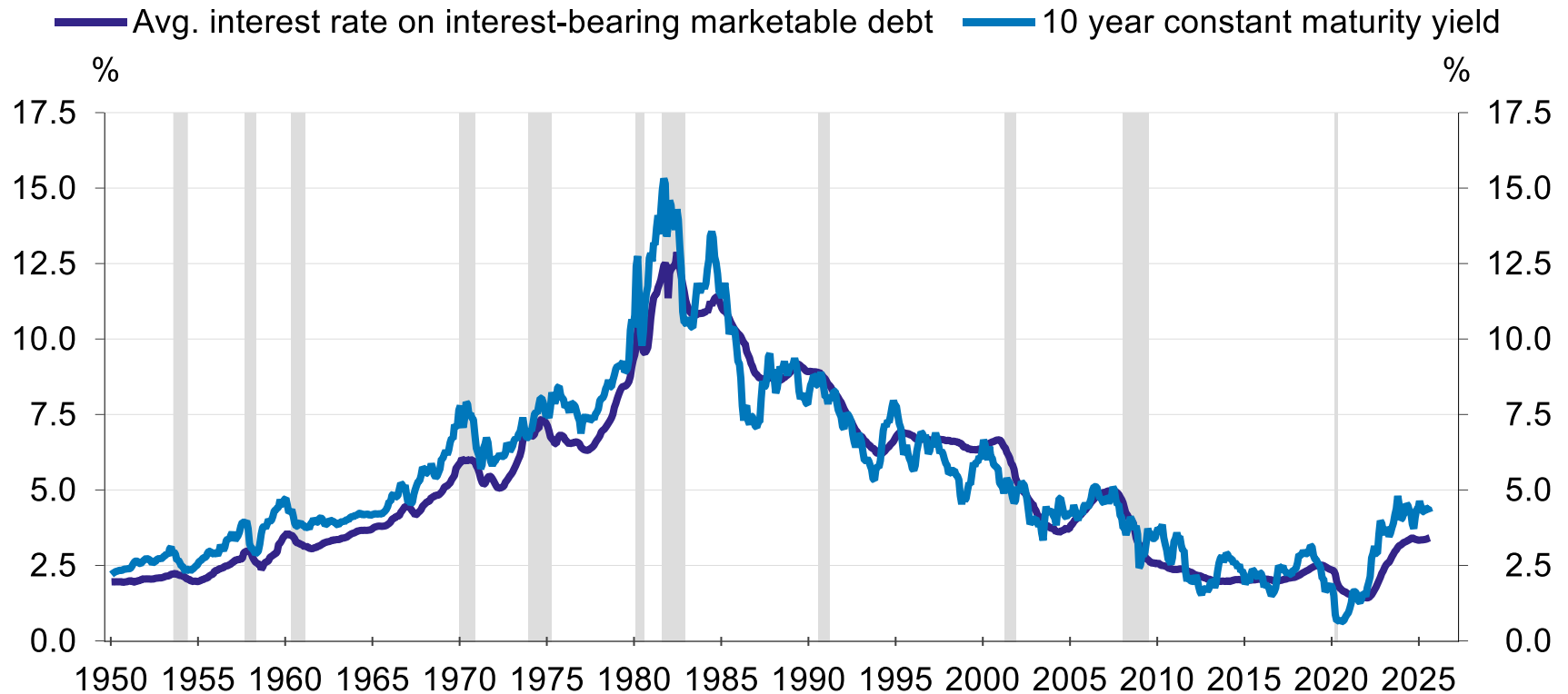


Source: Bloomberg Finance LP, Macrobond, Deutsche Bank



Average interest rate on public debt: 3.4%

10 yr Treasury and interest rate on government debt



Source: U.S. Treasury, Fed, Macrobond, Deutsche Bank



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Appendix 1

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