Capital Markets Strategy

Essential inCights for the C-Suite

MUFG

Coping With October Rate Volatility

Bear Market Steepening, Fed QT & UST Issuance-Ownership Trends

OCT 2023

Treasury Secretary Alexander Hamilton's First Report on Public Credit to the US House of Representatives, January 1790

"That an adequate provision for the support of the Public Credit, is a matter of high importance to the honor and prosperity of the United States…

And as on the one hand, the necessity for borrowing in particular emergencies cannot be doubted, so on the other, it is equally evident, **that to be able to borrow upon good terms, it is essential that the credit of a nation should be well established.**

For when the credit of a country is in any degree questionable, it never fails to give an extravagant premium, in one shape or another, upon all the loans it has occasion to make. Nor does the evil end here; the same disadvantage must be sustained upon whatever is to be bought on terms of future payment.

From this constant necessity of borrowing and buying dear, it is easy to conceive how immensely the expenses of a nation, in a course of time, will be augmented by an unsound state of the public credit…

…This reflection derives additional strength from the nature of the debt of the United States. It was the price of liberty. The faith of America has been repeatedly pledged for it, and with solemnities, that give peculiar force to the obligation…"

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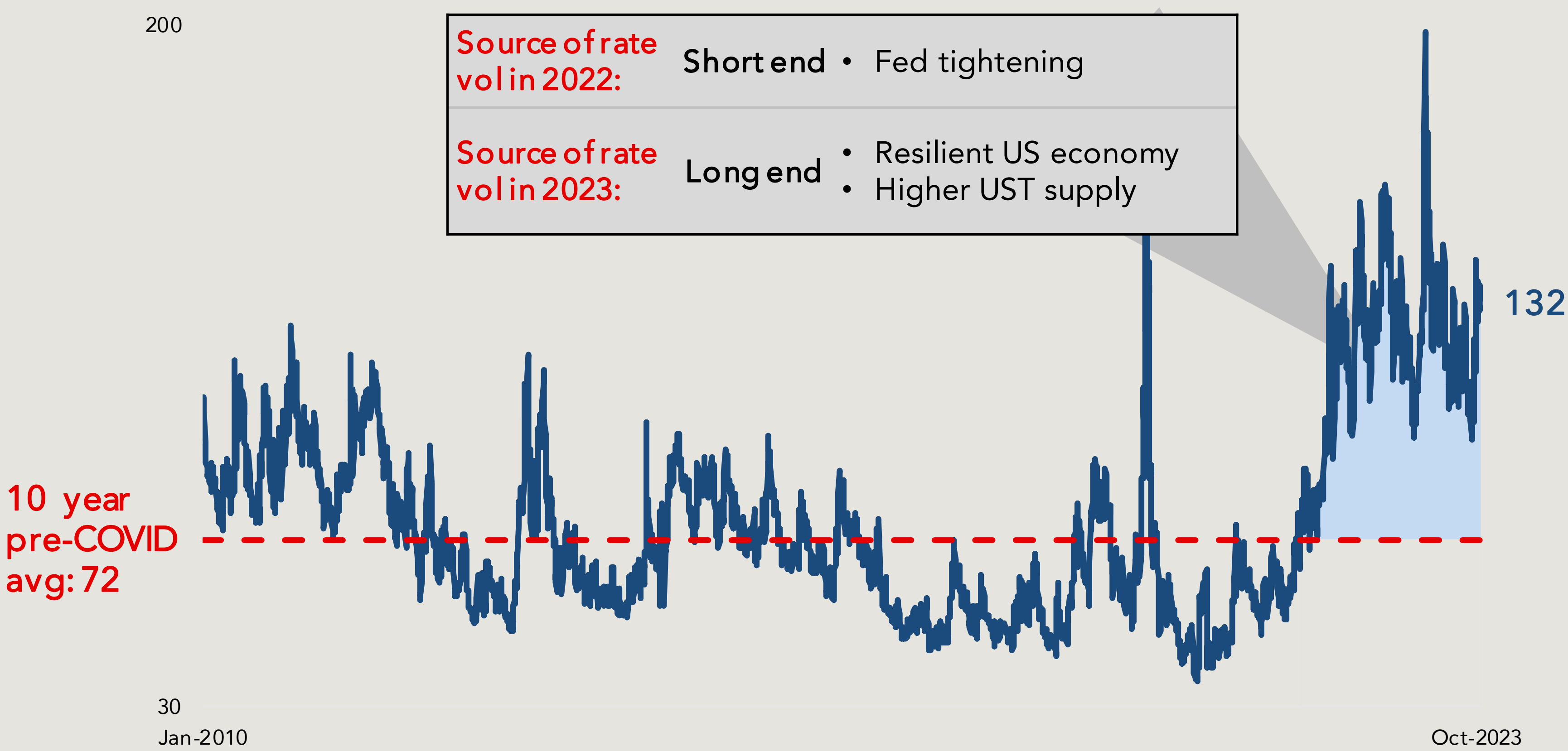
Contents

01 Atypical Bear Steepening

Coping with Higher UST Rate Volatility

US rate volatility remains high; but interestingly, the source of that volatility has shifted. For most of the Fed's tightening cycle, elevated rate vol has originated at the front end of the curve. Today, however, the prevailing drivers of rate vol are coming from the longer end of the curve as the US Treasury has sharply increased supply and the Fed continues to scale back its balance sheet (QT).

UST rate volatility (MOVE index)

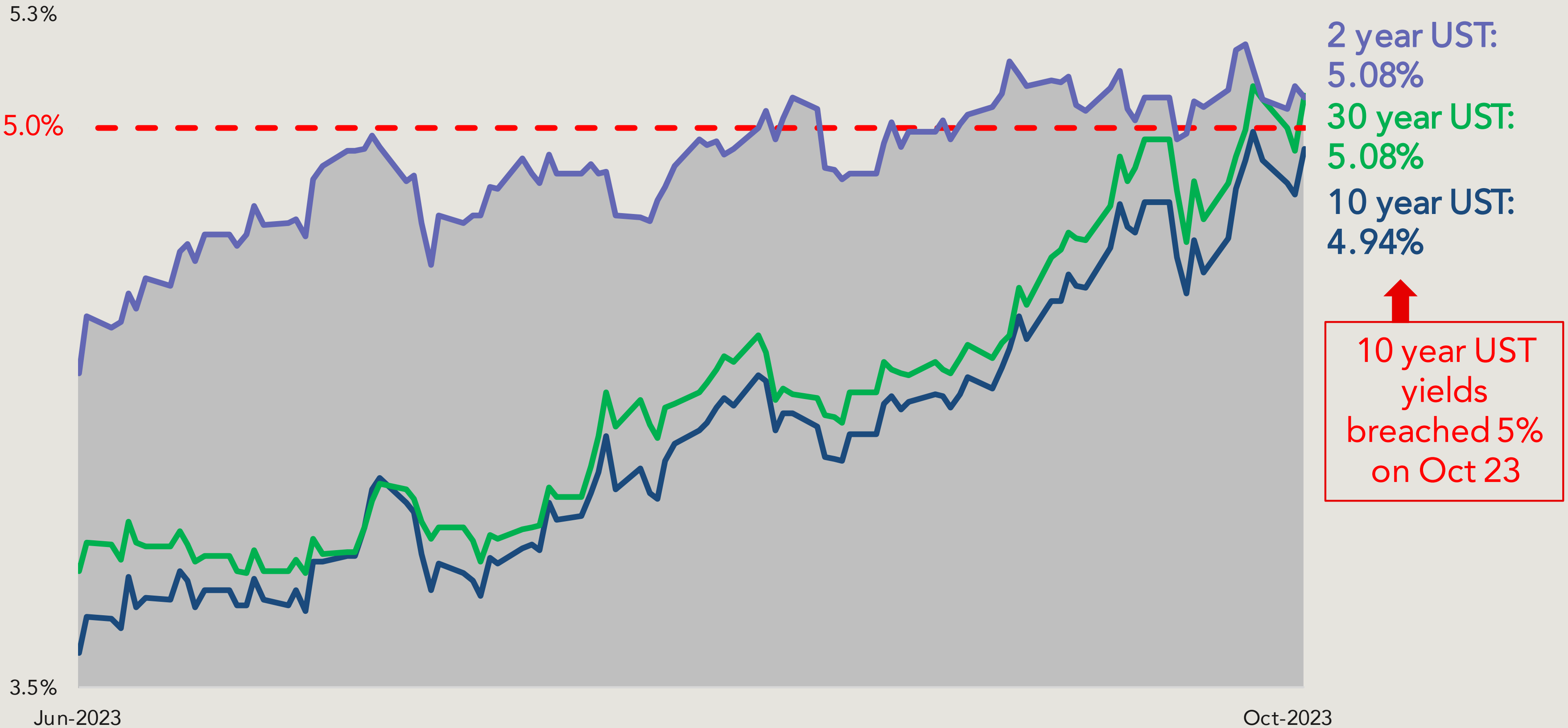


Source: (1) Bloomberg. Data as of October 24, 2023.

Financial Markets Doing the Tightening

The timing of the US debt ceiling resolution on June 1, and Washington's punting of Gov't shutdown risk on October 1, have become catalysts for the rapid rise of UST yields. With US rates reaching new YTD highs on nearly a daily basis, 10 and 30 year UST yields jumped above to 5% for the first time since before the GFC.

10 year and 30 year UST yields since debt ceiling resolution on June 1

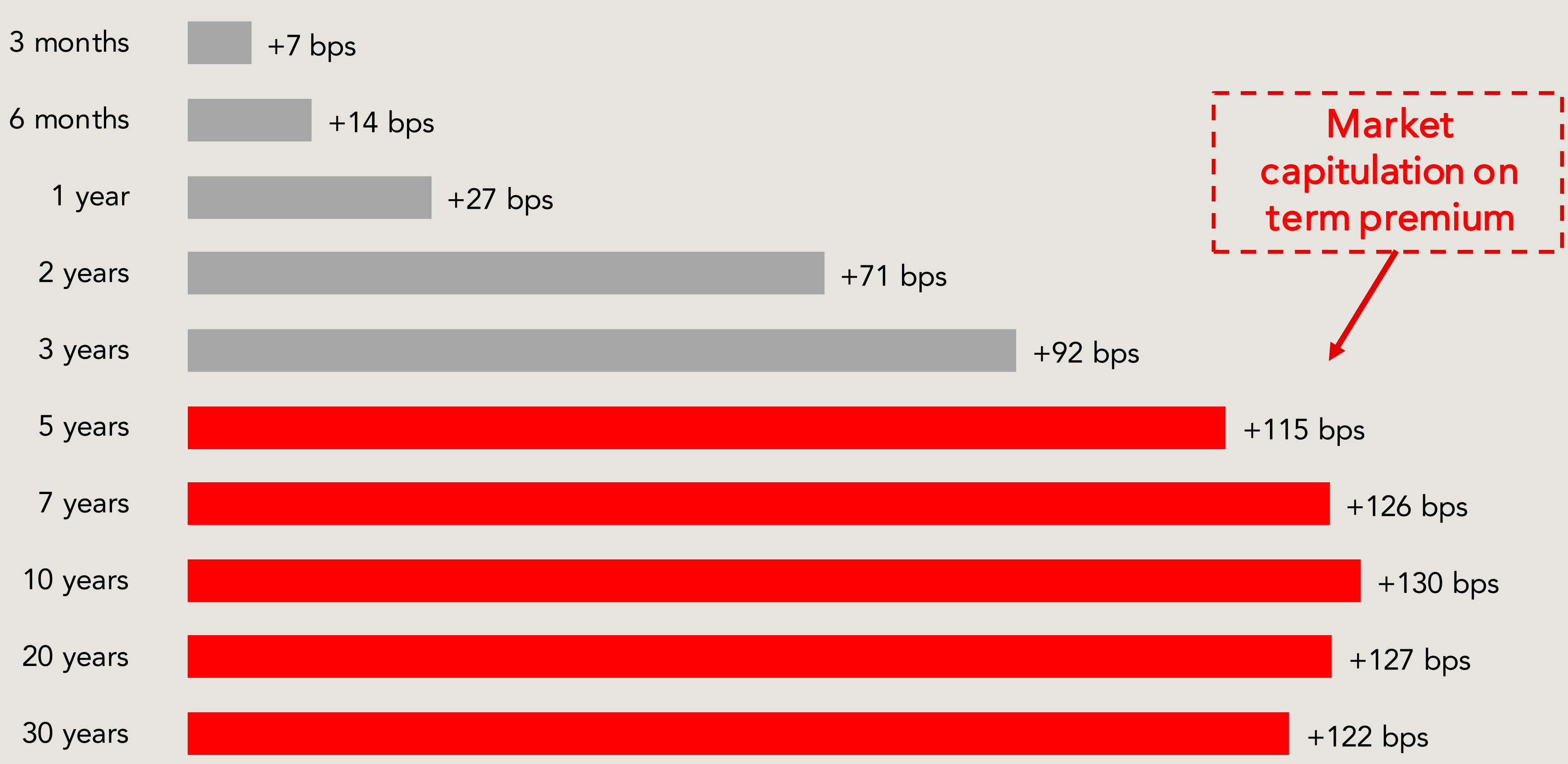


Source: (1) Bloomberg. Data as of October 25, 2023.

Losing Control of the Long End

With US rates rising so quickly, the Fed risks losing control of the back end of the $25 trillion US Treasury market, which in turn could have adverse implications for growth and risk assets (stocks, bonds, EM).

Change in UST rates since debt ceiling resolution on June 1

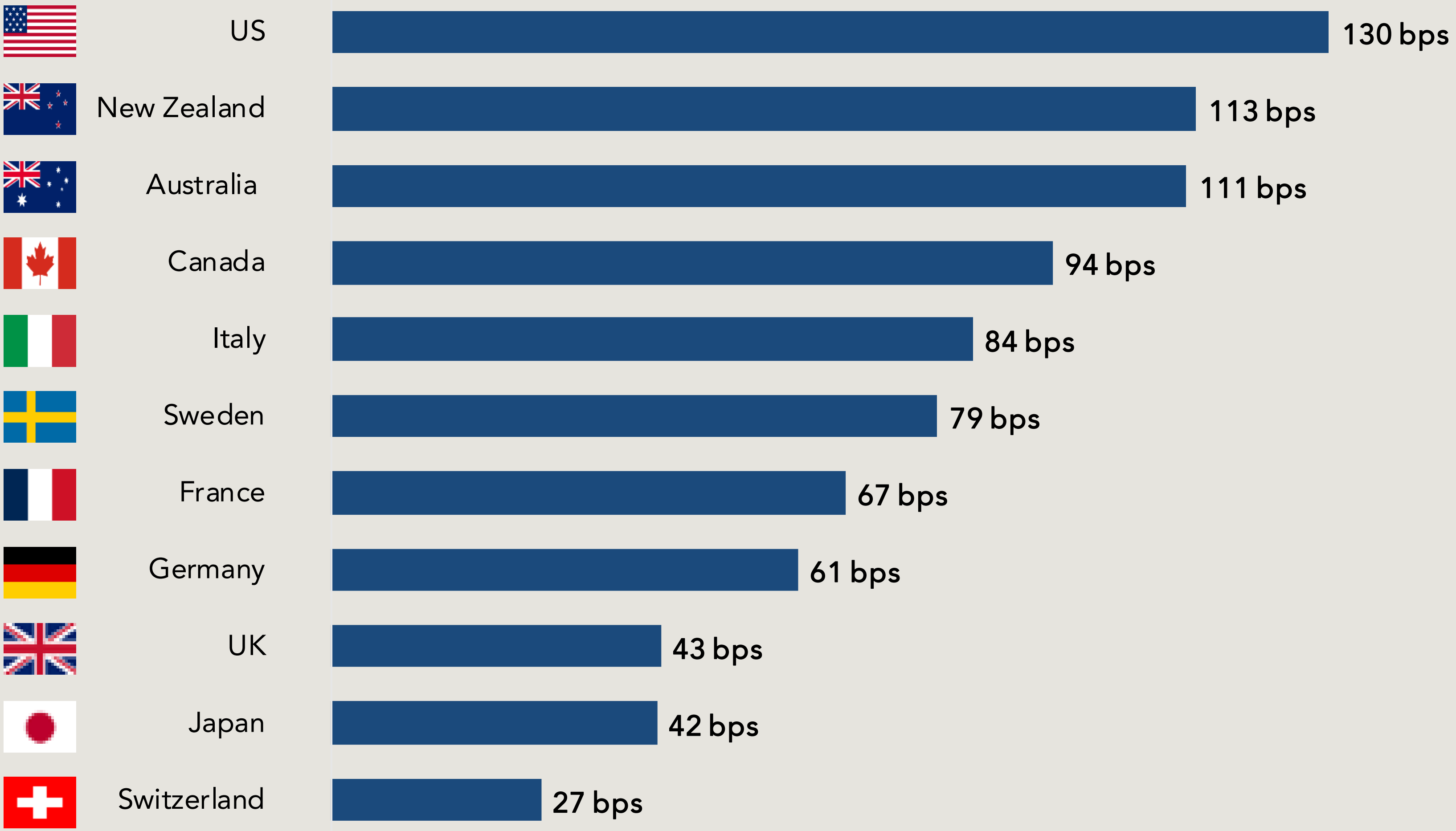


Source: (1) Bloomberg. Data as of October 25, 2023.

Global Government Bond Yields

Developed market 10 year yields have jumped sharply higher in the 2H 2023, with USTs leading the bear steepening.

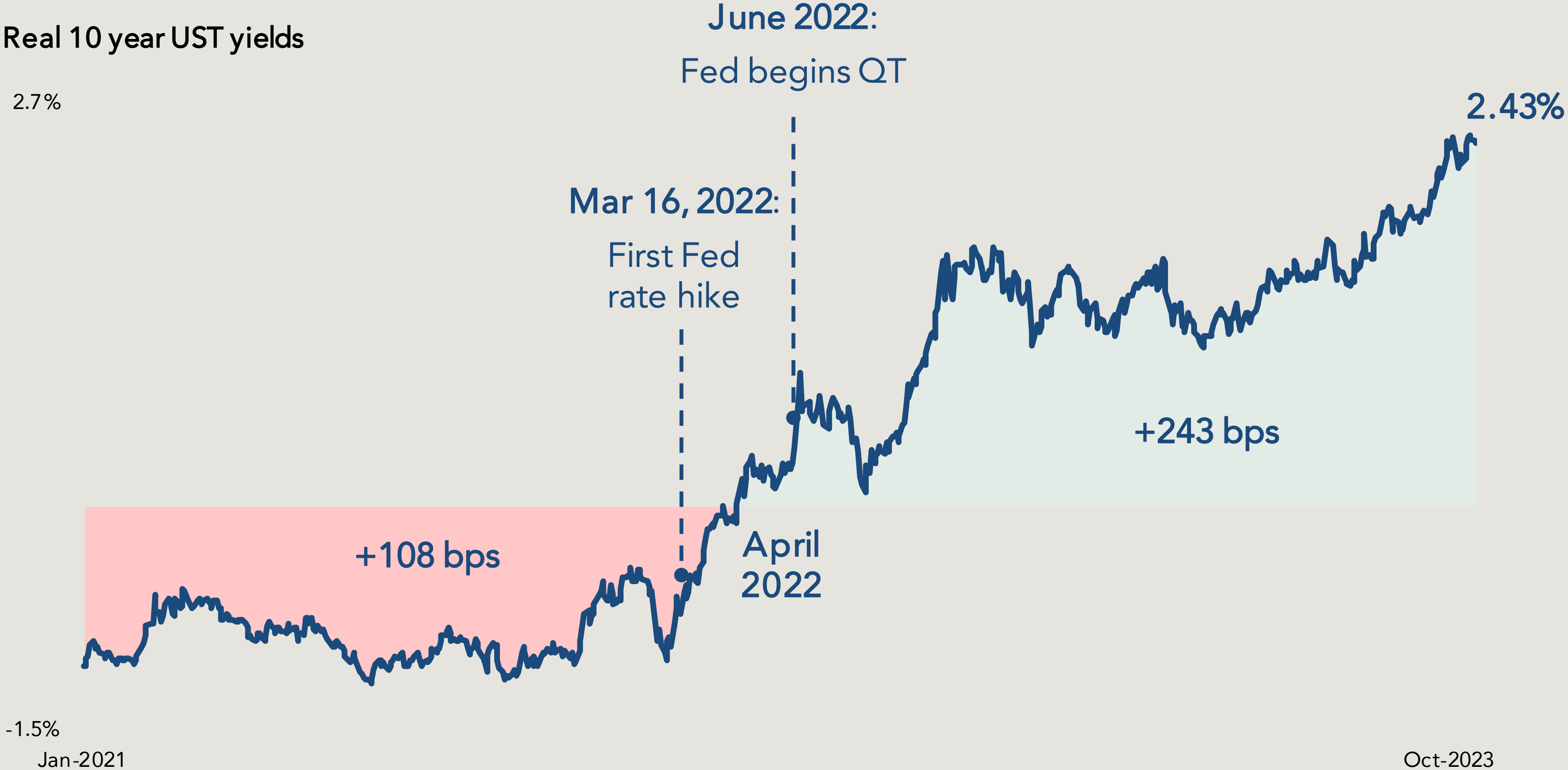
Change in global government 10 year bond yields since debt ceiling resolution on June 1



Source: (1) Bloomberg. Data as of October 25, 2023.

Real Rates Elevated Even After The Pause

Even after the Fed pause, US real rates may remain elevated. Since the Fed began its accelerated "double tightening" (raising rates, reducing balance sheet) in March 2022, and as the economy has shown resilience with inflation declining, US "real" rates have moved more firmly positive. With "real" rates likely to remain elevated during a "higher for longer" Fed pause, assessing the impact of "sufficiently restrictive" becomes more challenging.

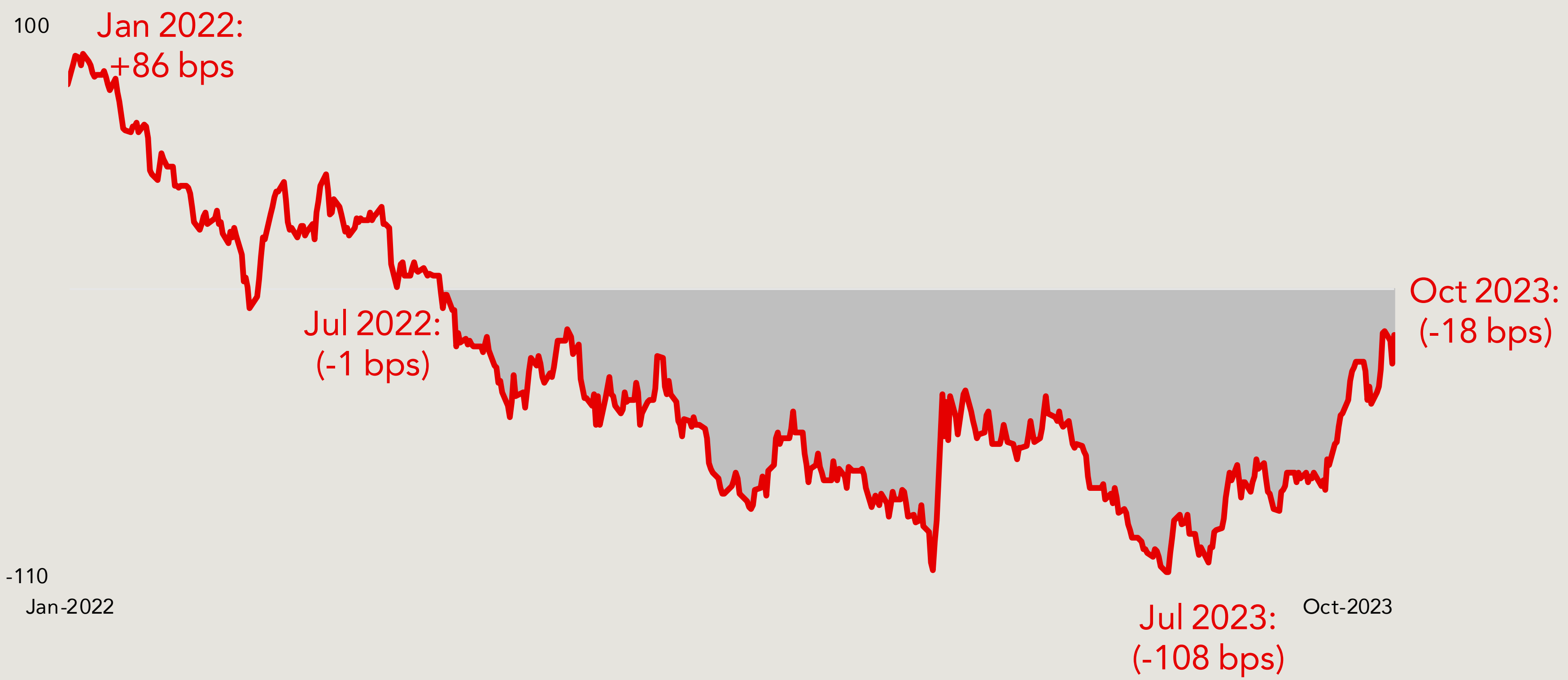


Source: (1) Bloomberg. Data as of October 25, 2023.

Dis-Inversion of the UST Yield Curve

Historically, US recessions have followed 12-18 months after the yield curve initially inverts. In fact, inversion is frequently over by the time the recession "officially" begins. The 2s10s UST yield curve initially inverted 15 months ago in July 2022. Rapid dis-inversion commenced in Q3 and is now near its lowest level in 12 months. However, dis-inversions are typically caused by a "bull steepening," (i.e., ST rates lower) rather than a "bear steepening" (LT rates higher), and so the feed-through mechanism to the real economy may take longer this time.

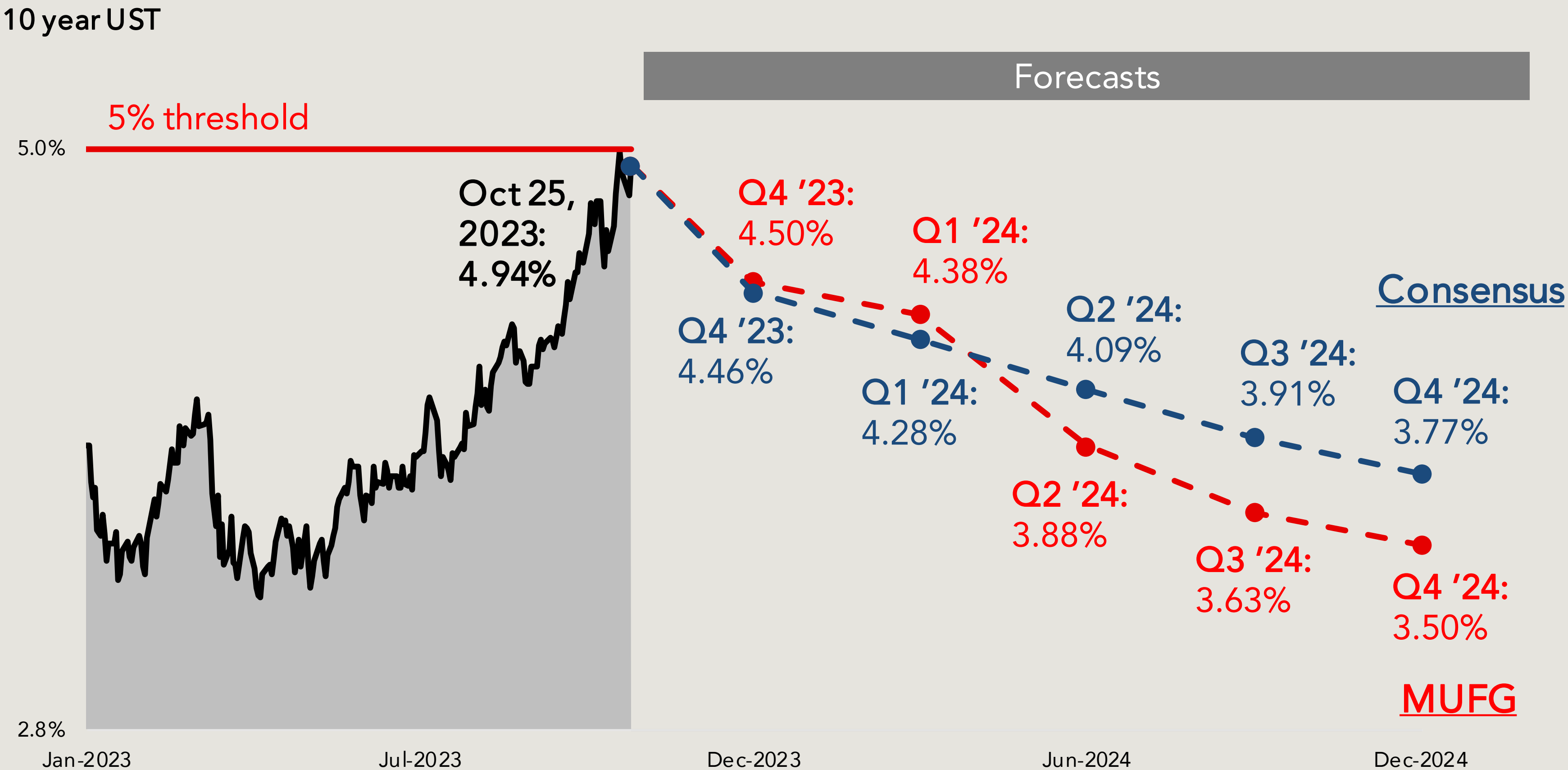
2s10s UST yield curve



Source: (1) Bloomberg. Data as of October 25, 2023.

More Bullish Outlook for UST Yields in 2024

Historically, the first Fed interest rate cut occurs about 6-8 months after the last rate hike. The more rates continue to rise, the more tenuous the consensus "higher for longer" thesis becomes. While 10 year UST yields may test the 5% threshold in the weeks ahead, MUFG believes they will move progressively lower in the year ahead as US recession risk and Fed rate cuts come closer into view.



Source: (1) Bloomberg. Data as of October 25, 2023. MUFG Rate Strategy (George Goncalves).


02 Converging Forces

Converging Forces Drive Bear Steepening

With long end yields crossing the 5% threshold and dis-inversion of the yield curve progressing rapidly, the recent bear steepening of the US yield curve has been driven by a confluence of converging forces.

1. Extraordinary fiscal easing (6-7% deficits during an expansion)
2. Over $1.3 trillion of UST issuance since June 1st debt ceiling resolution
3. Hawkish "double" Fed tightening cycle (rate increases & QT)
4. Resilient US economic and labor market data
5. Rising energy prices complicating inflation outlook (tight supply, geopolitical risk premium)
6. Less overseas demand (BoJ YCC policy pivot, China slowdown, US deficits)

US Recession Framework Flashing "Mostly Green"

The National Bureau of Economic Research (NBER), responsible for defining US recession periods, relies heavily on a six-part framework with significant emphasis on the US consumer and labor markets. While four of the six key metrics are still flashing "green", a number of near-term catalysts could lead to a rapid change in 2024 (higher energy prices, depleted COVID savings, resumption in student loan payments, tighter lending conditions).

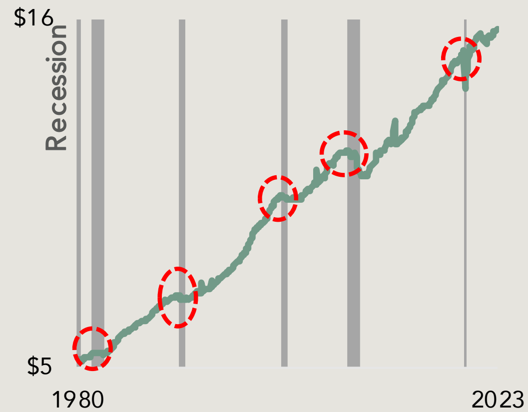
NBER indicators

Metric	Recent	Recession threshold	Current Status
More heavily weighted by NBER in recent decades			
Real personal income (less transfers)	$16 bn	Steady decline from peak	✓ Trending higher
Nonfarm-payroll employment	+0.2% m/m	Decline in 3 month average	✓ Structurally tight labor markets
Labor Department employment survey	162 mn	Steady decline from peak	✓ Structurally tight labor markets
Real retail & wholesale sales	**Retail:** +3.8% y/y **Wholesale:** (-1.7% y/y)	Steady contraction <0% y/y	✓ Resilient post-COVID consumer
Real Personal Consumption Expenditure (PCE)	+3.9% y/y	Sharp decline	✓ Multi-month contraction from peak
Industrial production	+0.1% y/y	Prolonged decline from peak	✓ Multi-month contraction from peak

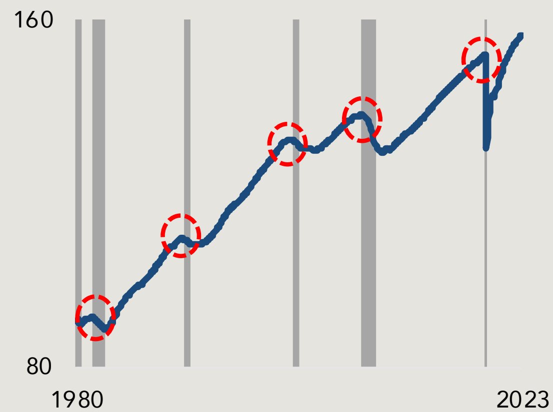
Source: (1) Bloomberg. Data as of October 23, 2023. NBER.

Resilient US Economic Data (NBER Framework)

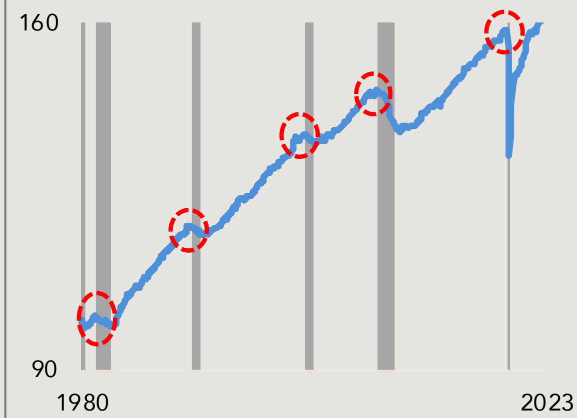
Real personal income less transfers, USD bn



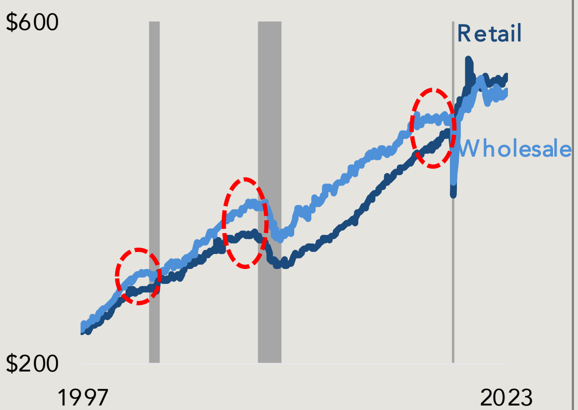
Nonfarm-payroll employment, mm



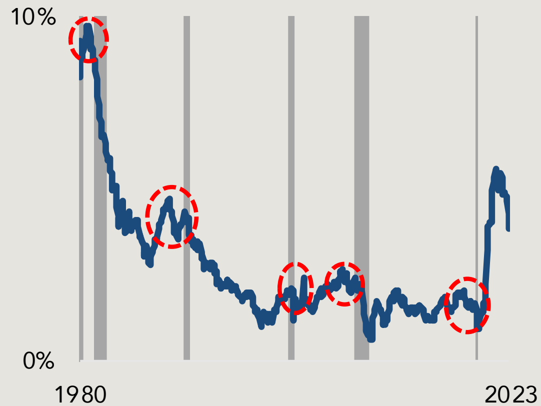
Labor Department employment survey, mm



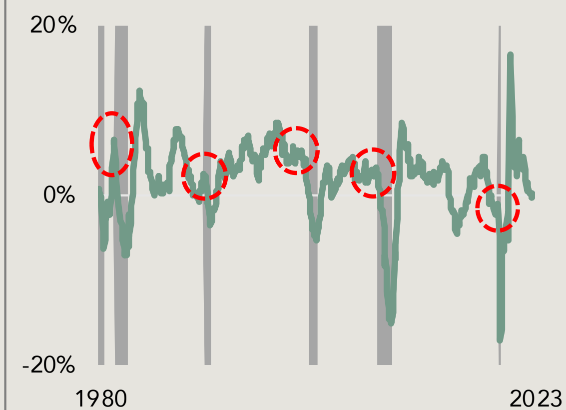
Real wholesale and retail sales, USD bn



Real PCE, m/m



Industrial production, y/y

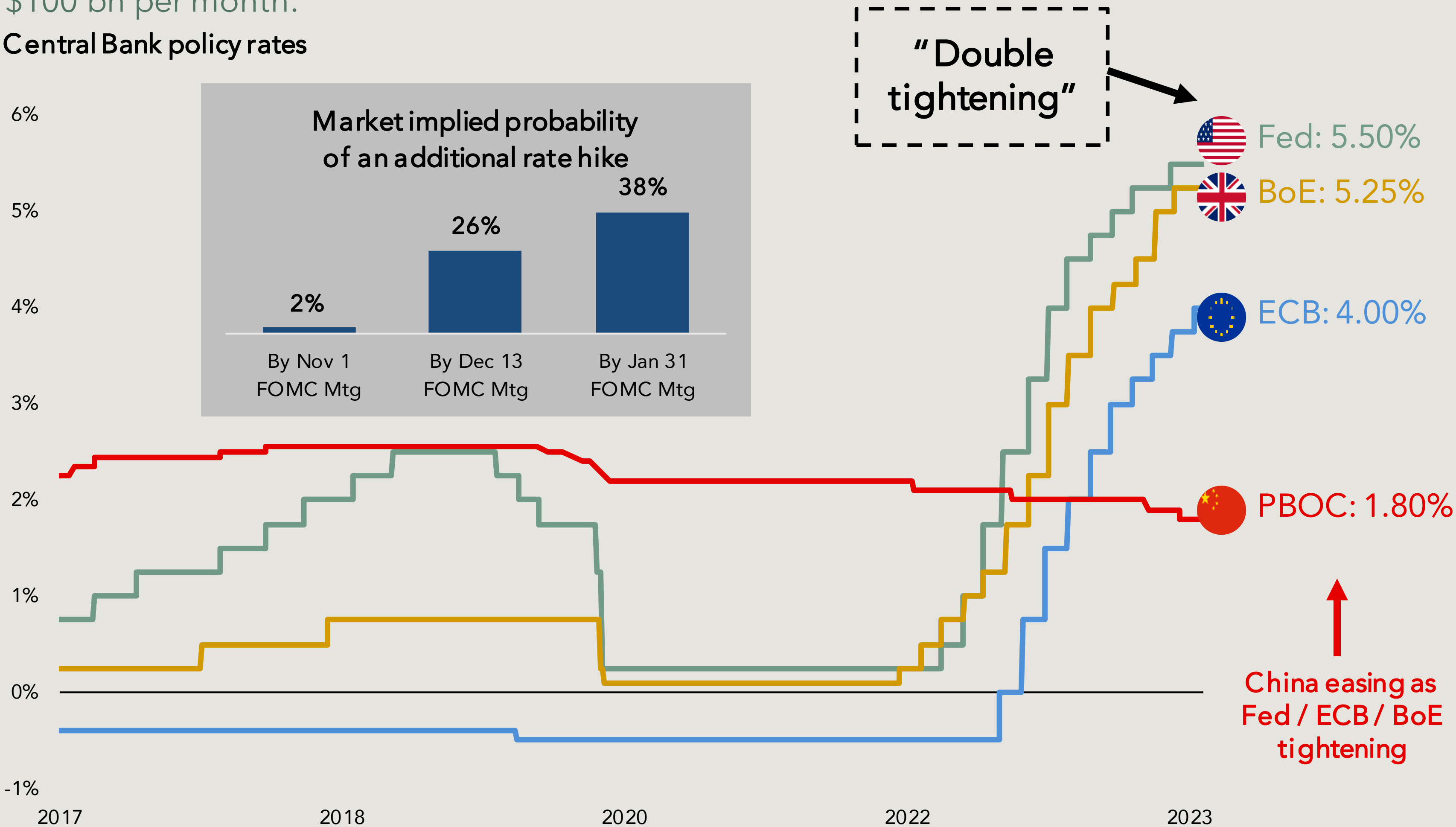


Source: (1-6) Bloomberg. Data as of October 24, 2023.

Accelerated "Double Tightening" Fed Cycle

The current Fed rate cycle has been accelerated by historic standards, both in terms of the rapid pace of rate increases (2x historic avg pace) and the concurrent reduction in its balance sheet at nearly $100 bn per month.

Central Bank policy rates

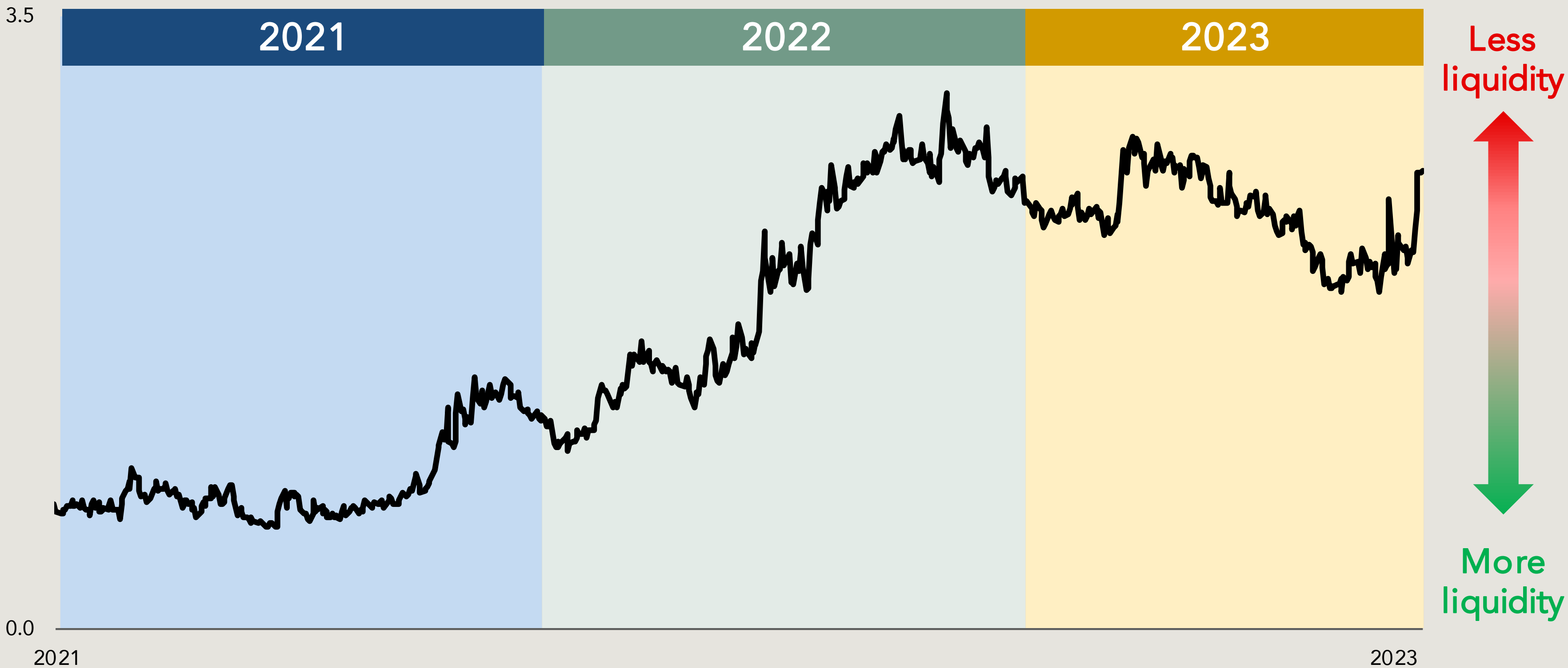


Source: (1-2) Bloomberg. Data as of October 24, 2023. BoE is the bank rate. ECB is deposit rate. China is the 7-day reverse repo rate.

Low Liquidity Correlated With Risk & Term Premium

Historically, liquidity in the US Treasury market and risk / term premium tend to move together. Liquidity in the world's largest bond market has tightened sharply since 2022 as a result of: (i) banks carrying less inventory due to regulatory constraints; (ii) elevated rate volatility on policy tightening; (iii) Fed QT; and (iv) underperformance of the asset class as rates rise.

US government securities liquidity index



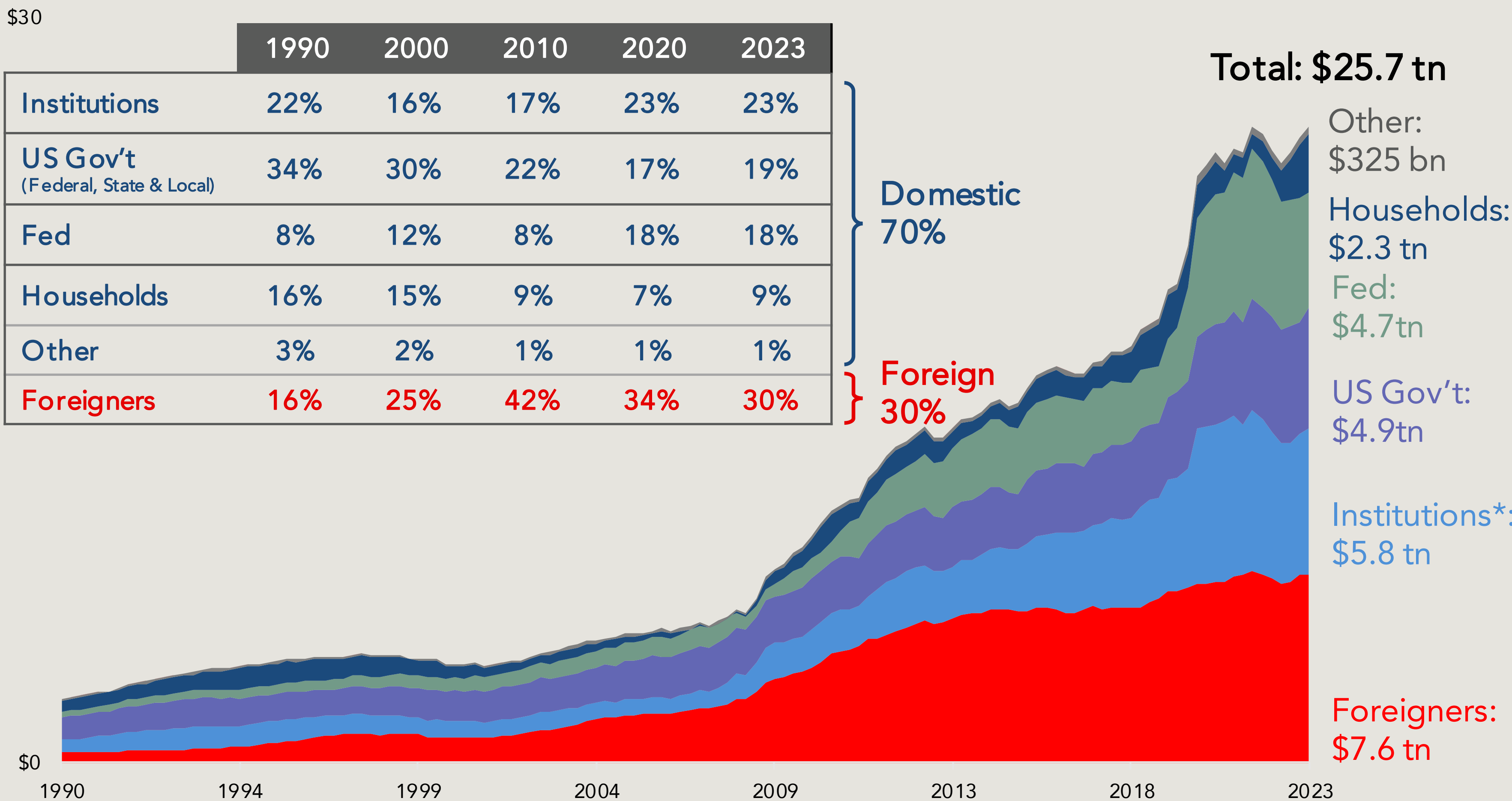
Source: (1) Bloomberg. Data as of October 24, 2023.


03 Who Owns
US Treasuries?

Ownership of $25 Trillion UST Market

Holders of US Treasury securities, USD tn

	1990	2000	2010	2020	2023
Institutions	22%	16%	17%	23%	23%
US Gov't (Federal, State & Local)	34%	30%	22%	17%	19%
Fed	8%	12%	8%	18%	18%
Households	16%	15%	9%	7%	9%
Other	3%	2%	1%	1%	1%
Foreigners	16%	25%	42%	34%	30%



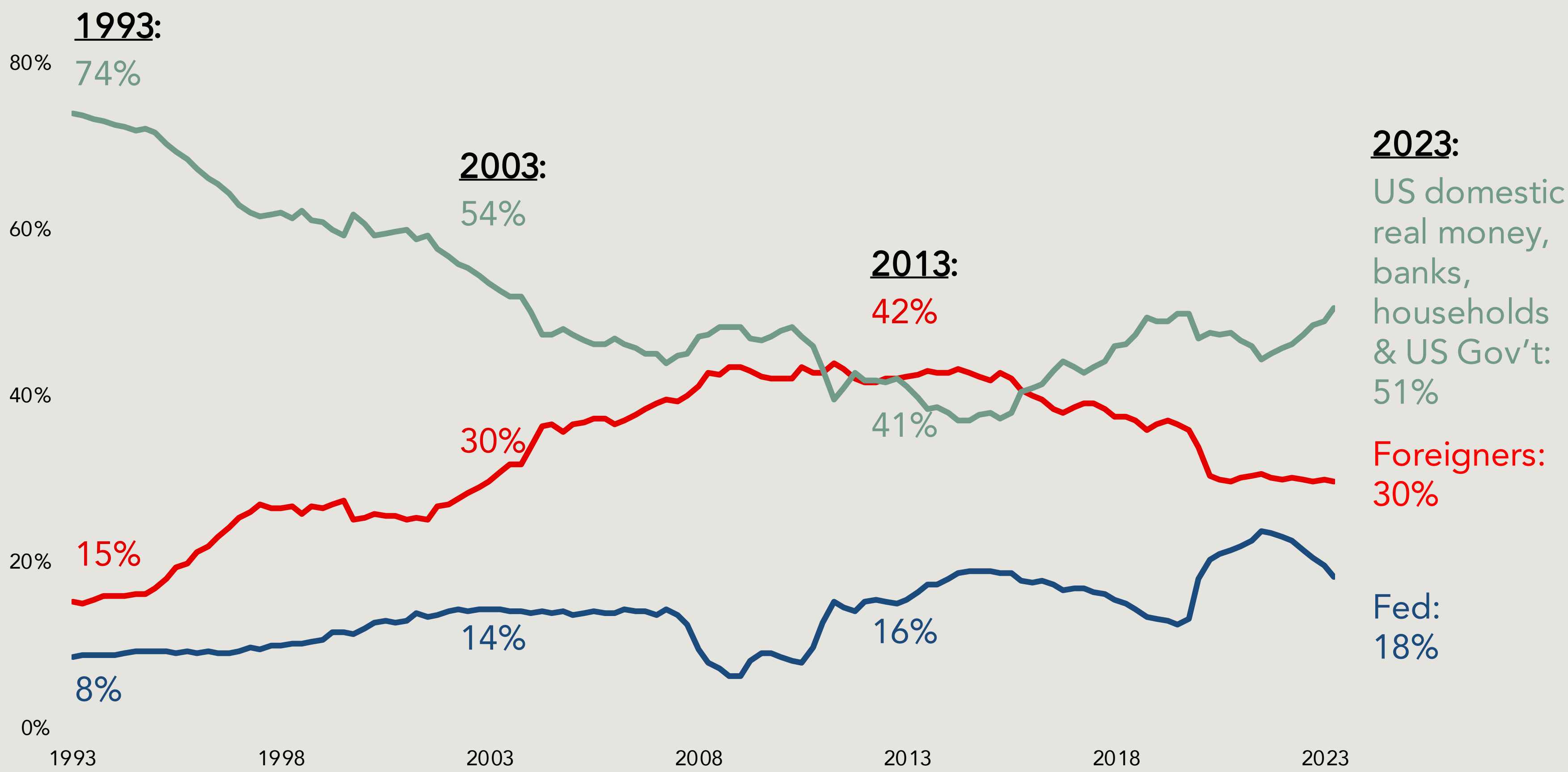
*Institutional ownership includes banks, mutual, closed-end & ETF funds, pensions, insurance, ABS issuers & broker-dealers

Source: (1) Federal Reserve. Data as of October 24, 2023. Financial Accounts of the United States, L.210 Treasury Securities. Gov't includes Federal, State & local governments, retirement funds and gov't sponsored enterprises. Total represents total marketable US Treasury debt.

Domestic & Foreign Ownership of USTs

While foreign central bank purchases of US Treasuries have increased on an absolute basis over the last decade, their relative share of today's $25 trillion UST market has declined sharply since peak China and EM growth in 2014. Investment fund purchases of USTs (pension funds, insurance funds, money market funds) have increased notably since the Fed tightening cycle began in March 2022.

Holdings of Treasuries as a % of total Treasury debt outstanding

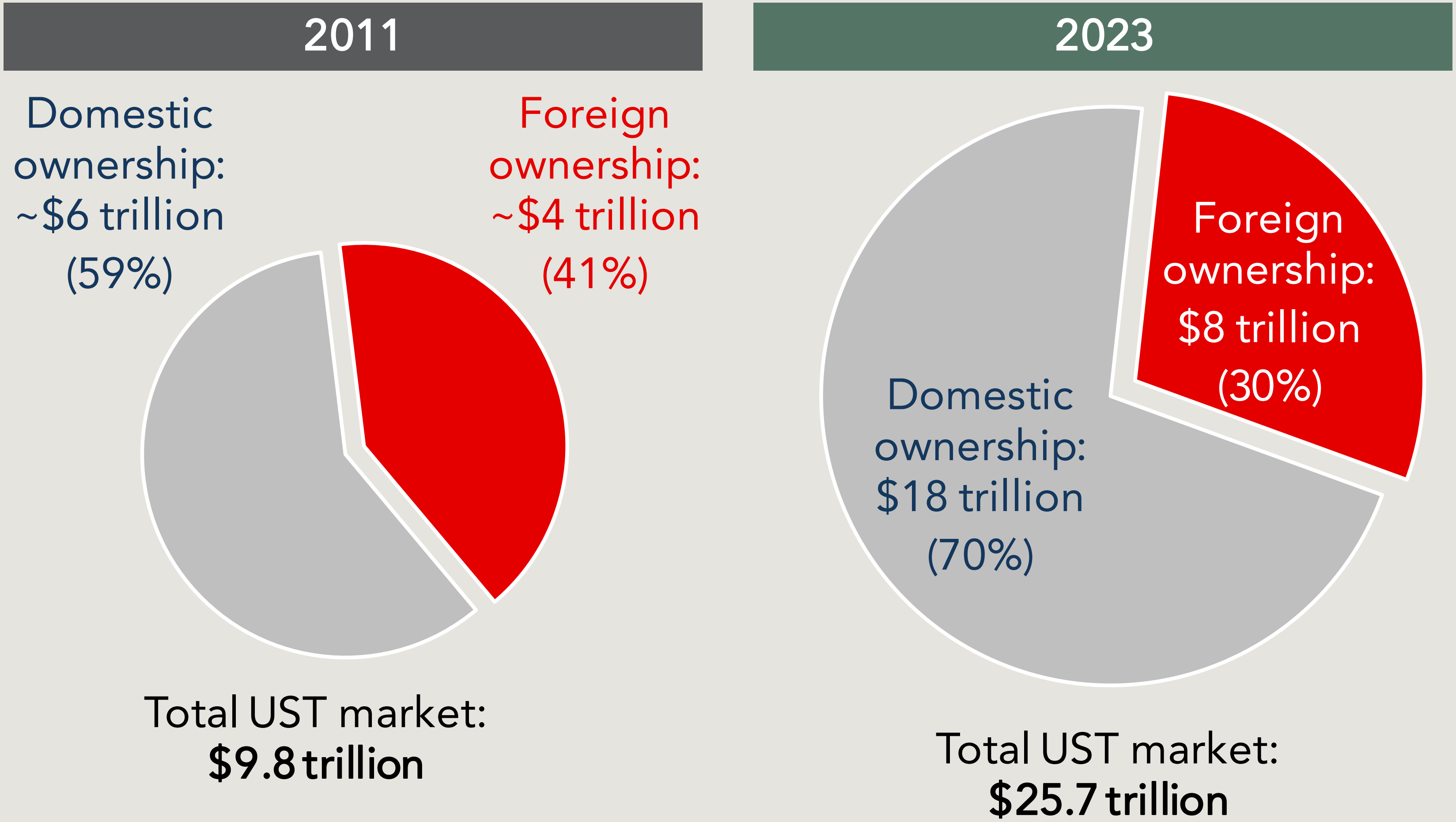


Source: (1) Federal Reserve. Data as of October 7, 2023. Financial Accounts of the United States, L.210 Treasury Securities. US Government includes Federal, State & local.

Domestic & Foreign Ownership of US Treasuries

With China and EM growth (and annual surpluses) peaking around 2014, foreign central banks' ownership share of US Treasuries has been on a multi-year decline.

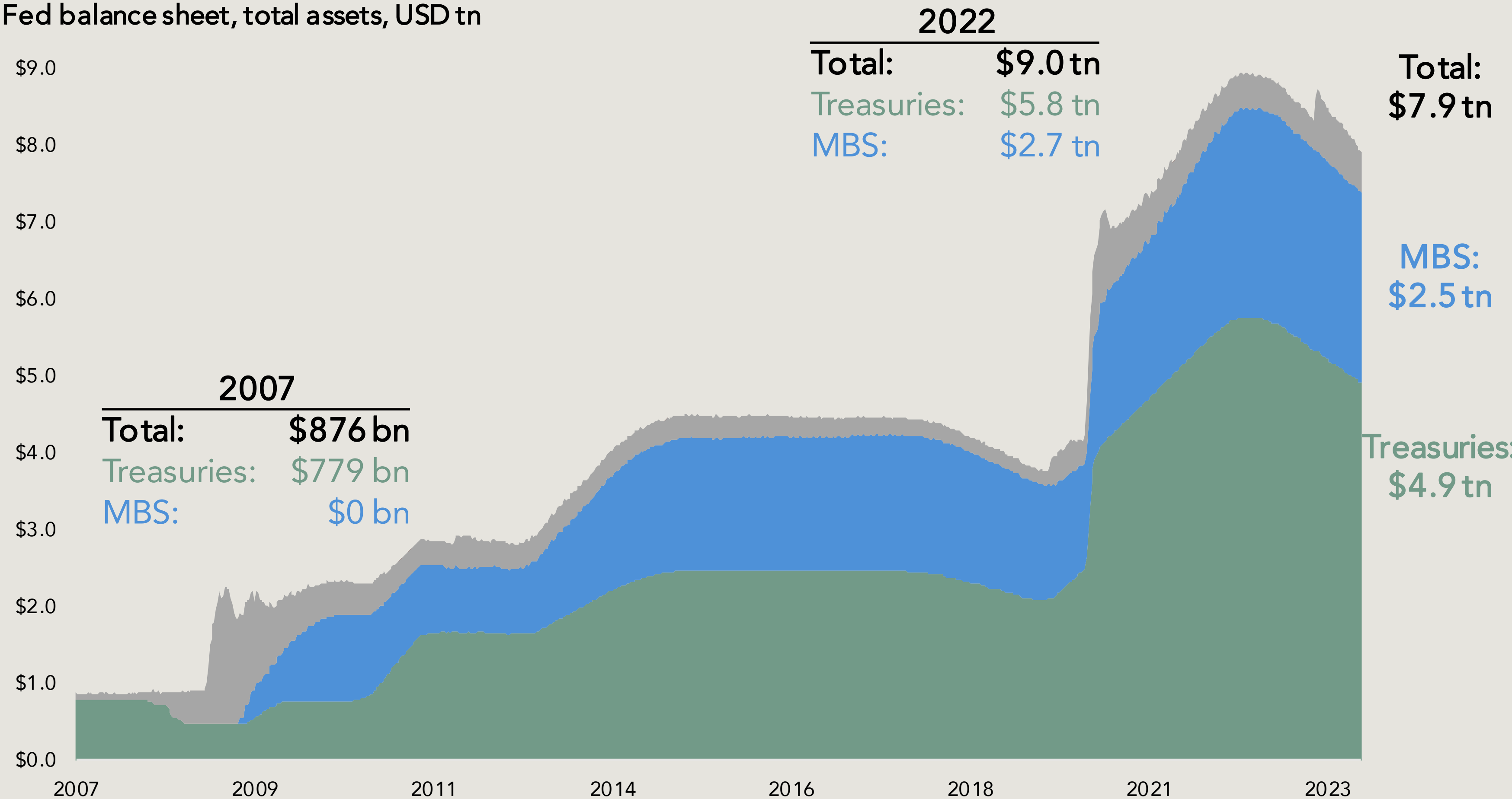
Size of US Treasury market



Fed Ownership of USTs

The Fed's Balance Sheet and UST holdings peaked at $9.0 and $5.8 trillion, respectively, in Q2 2022. Since QT began, the Fed's balance sheet has declined by over $1 trillion and Treasury holdings have declined by $860 billion.

Fed balance sheet, total assets, USD tn

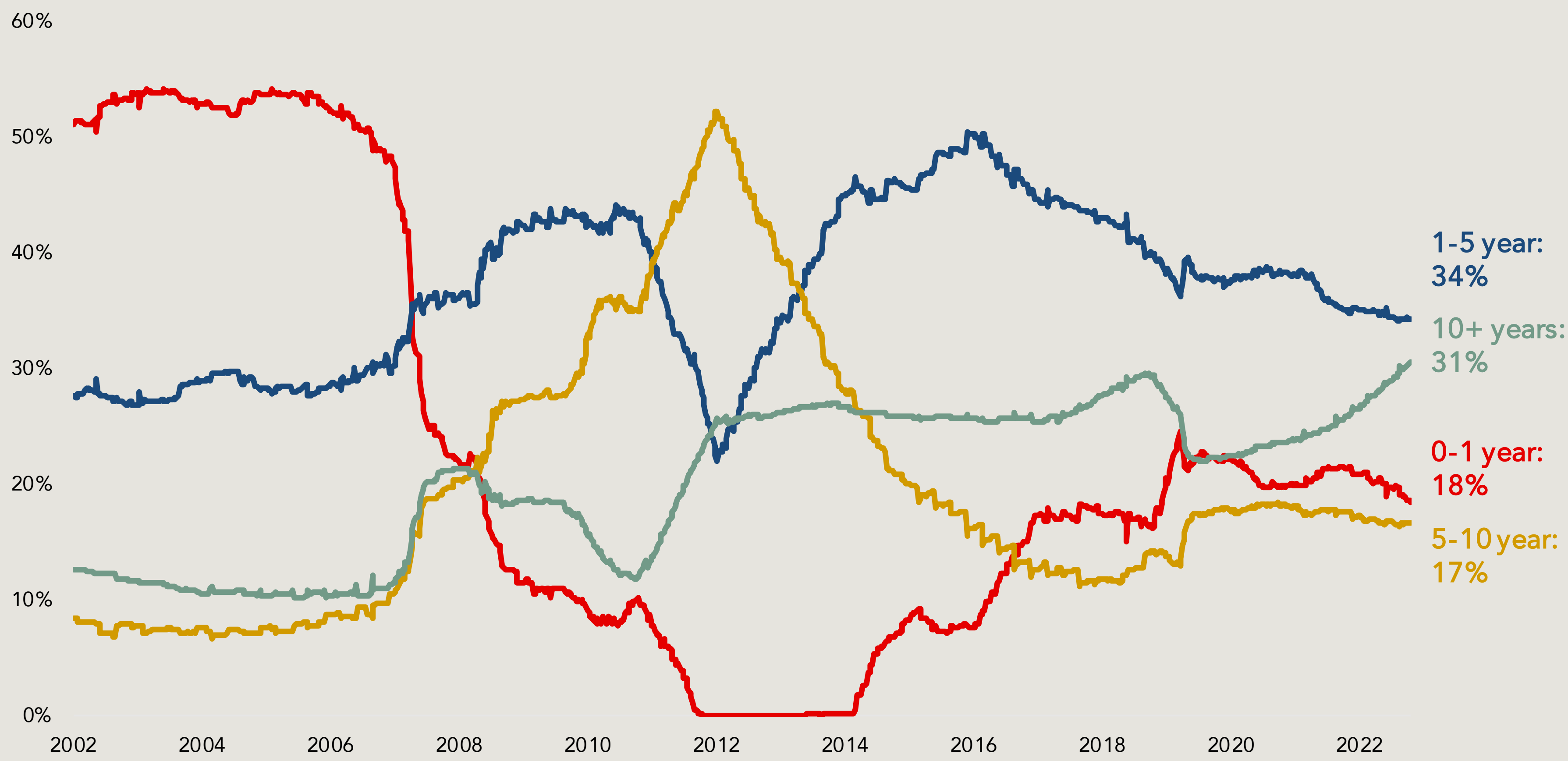


Source: (1) Bloomberg. Data as of October 24, 2023. FRED.

QE Lengthened Duration of Fed Balance Sheet

Prior to the GFC, the Fed's UST holdings were mostly in the short end of the curve (<12 months). However, through multiple rounds of Quantitative Easing, the Fed has significantly increased its exposure to the mid and long end of the UST curve.

Fed holdings of treasury securities outstanding, % by maturity

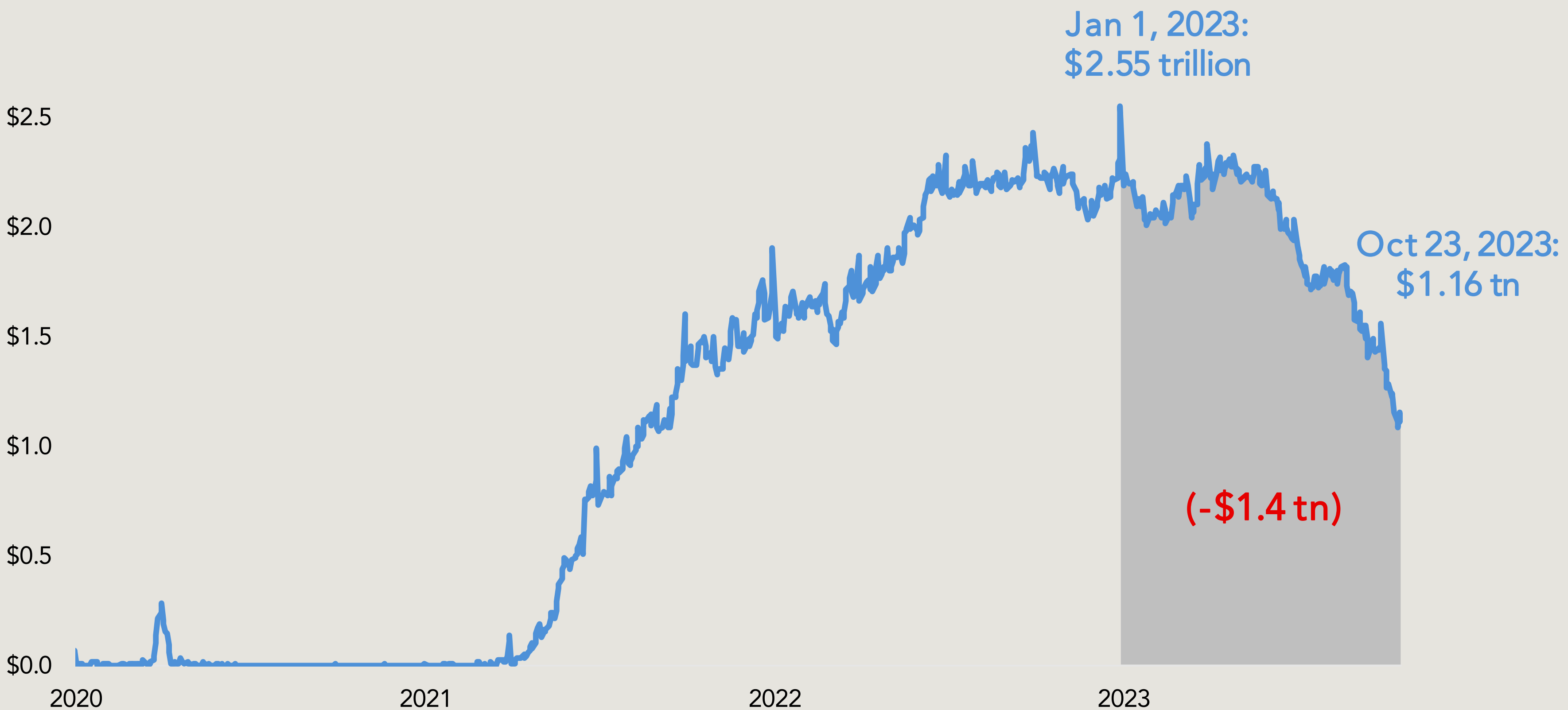


Source: (1) Federal Reserve Board. Data as of October 24, 2023.

MMF Funds in RRP Facility Absorbing Supply

Earlier this year, US Money Market Funds had nearly $2 trillion of their $5 trillion in funds parked in the Fed's Reverse Repo (RRP) facility. Fed RRP balances have declined in lock-step with the $1.3 trillion of US Treasury issuance since the debt ceiling was resolved on June 1. To lure private investors and MMFs, Treasury has faced higher interest costs which, in turn, exacerbate US deficits.

NY Fed reverse repo accepted bids, USD tn

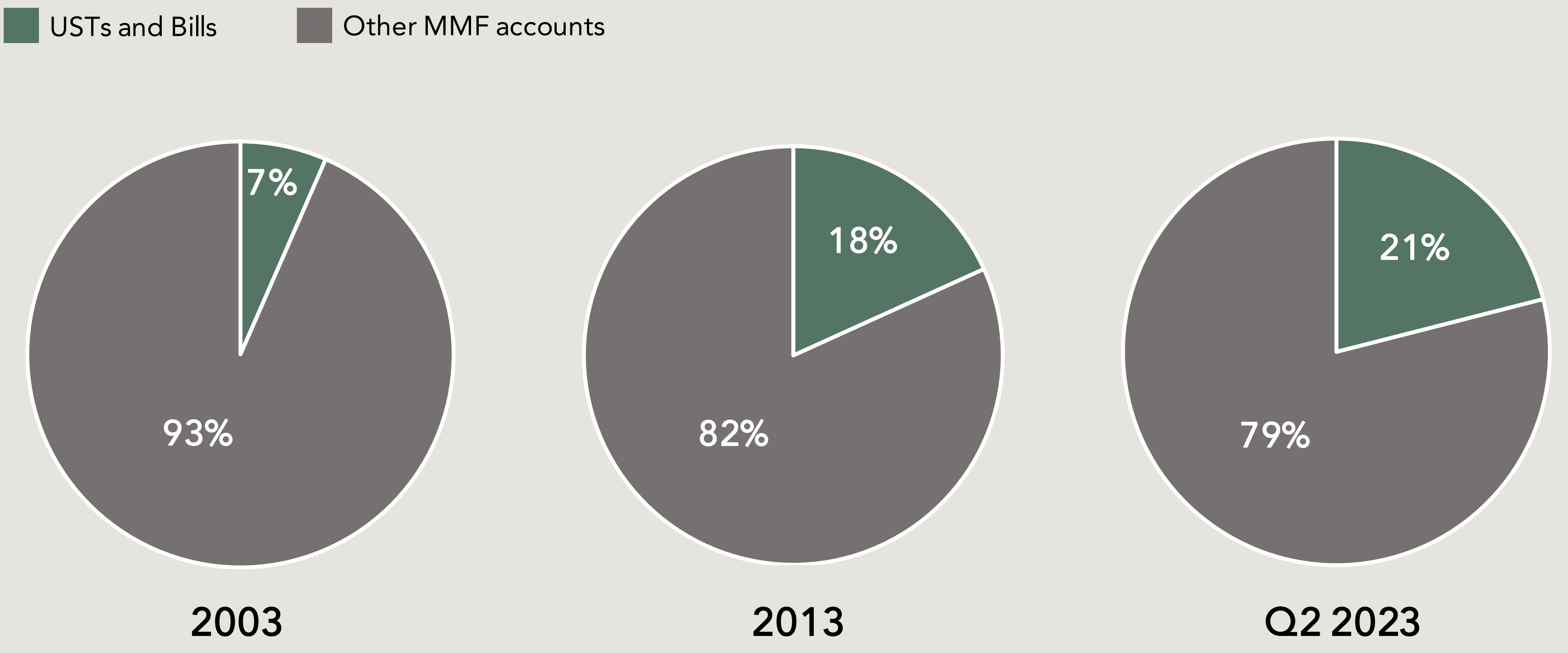


Source: (1) Bloomberg. Data as of October 24, 2023.

Evolution of Money Market Fund UST Purchases

Flows into money market funds, and money market fund purchases of UST securities, increased significantly since the Fed tightening cycle began in March 2022 - a dynamic that accelerated further post the bank sector stress of March 2023.

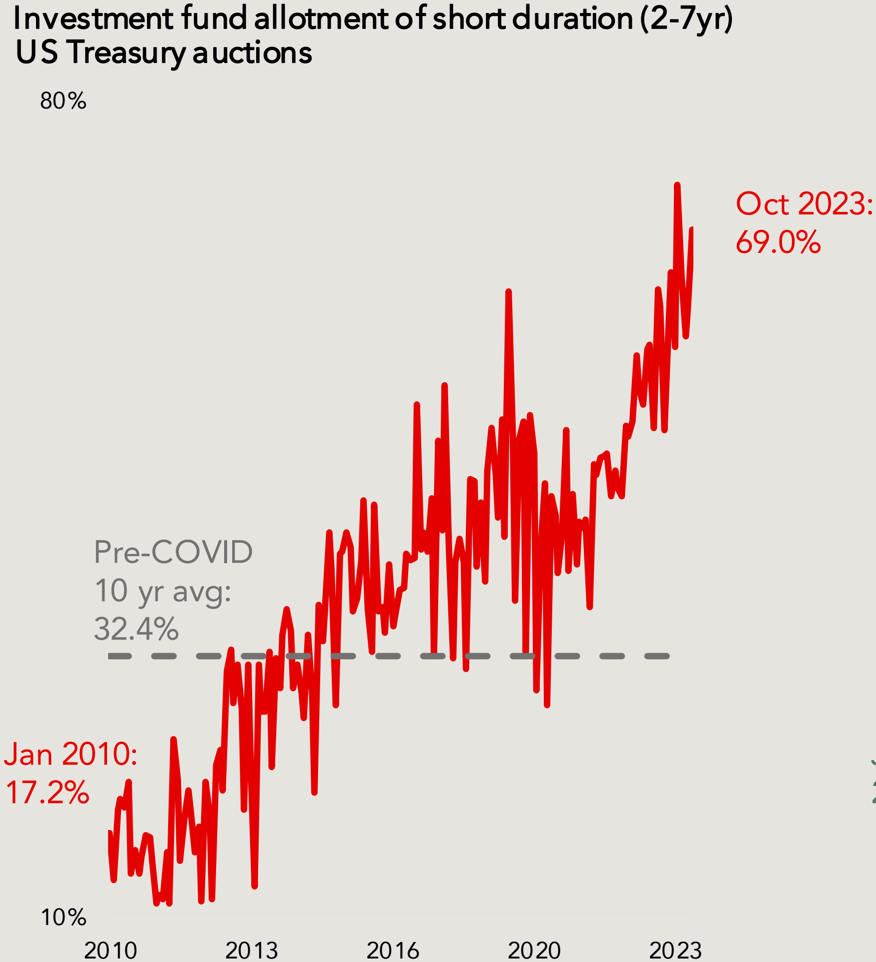
Money market mutual funds holdings by sector

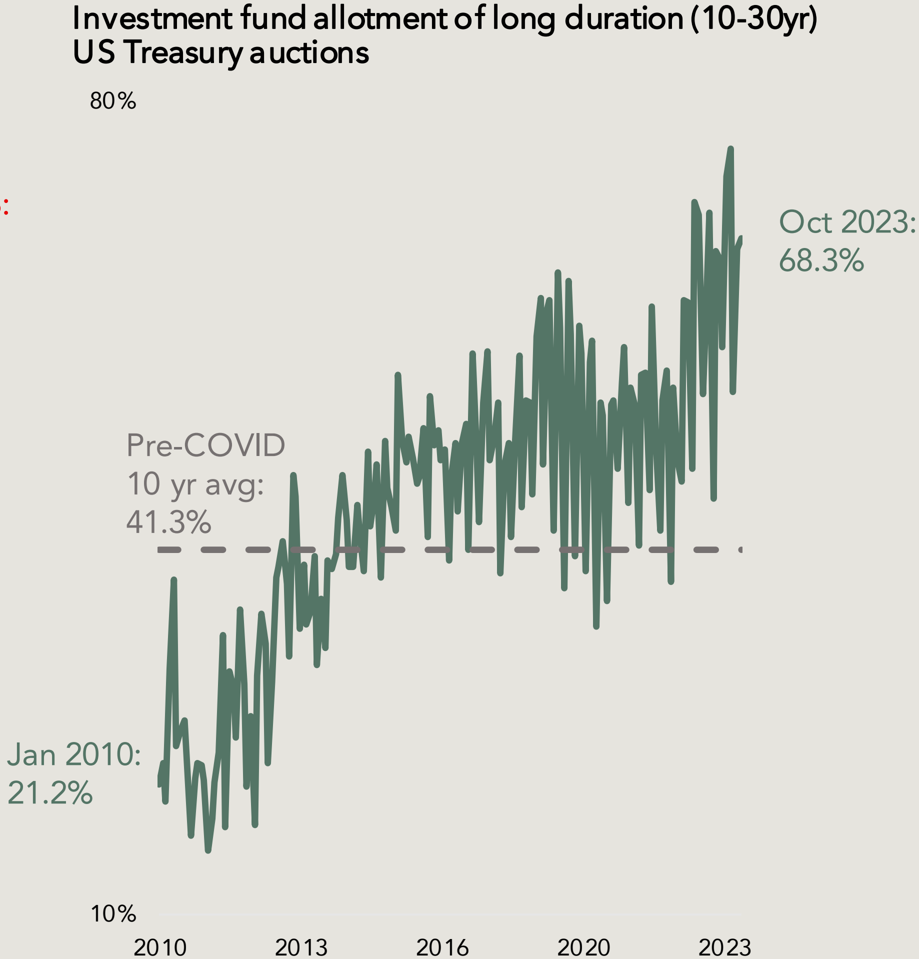


Source: (1) Federal Reserve Board. Data as of October 8, 2023.

Investment Fund Purchases of USTs

Investment fund purchases of both the short and long end of the UST curve have risen since the COVID crisis and current Fed tightening cycle began.



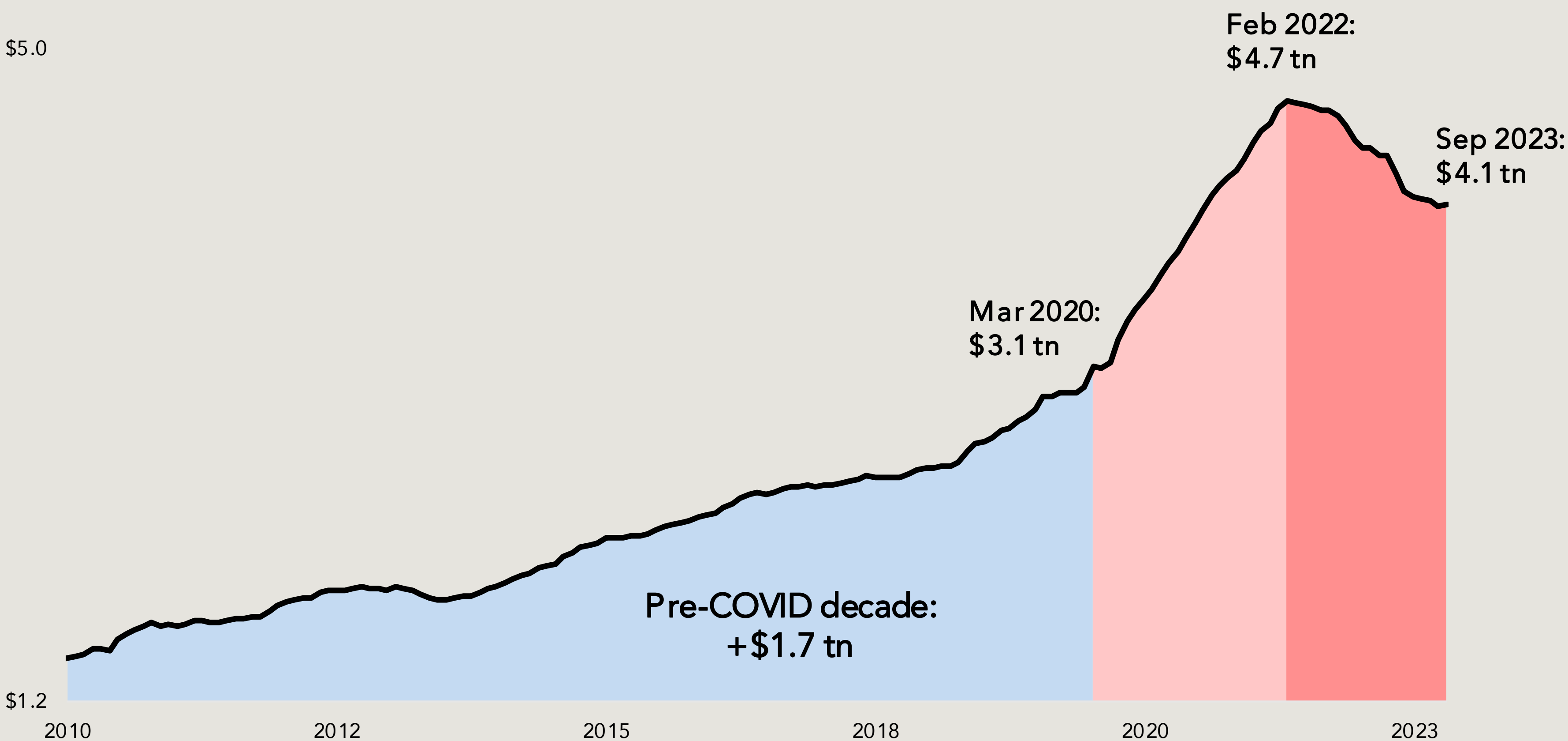


Source: (1-2) US Department of the Treasury. Data as of October 24, 2023.

COVID Era Increase in Regional Bank UST Holdings

Commercial banks significantly increased their holdings of US Treasury and agency securities during the COVID period. Those inventories peaked in early 2022 and have declined by $604 bn since.

Commercial bank holdings of treasury and agency securities, USD tn

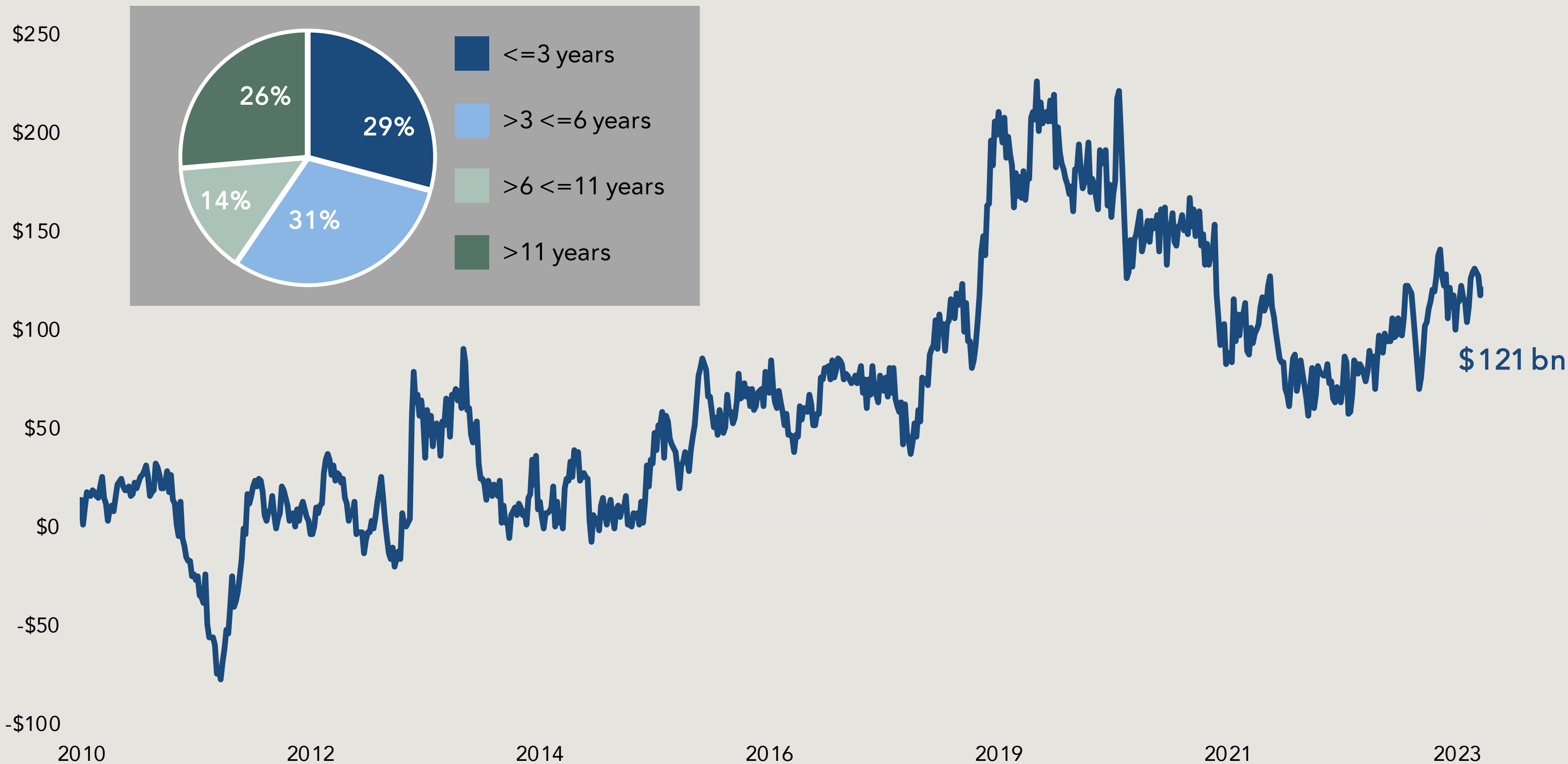


Source: (1) Federal Reserve Board. Data as of October 24, 2023.

Primary Dealers Holding Longer Dated Treasuries

Due in part to recent Bank regulatory changes, primary dealer inventories of UST holdings have declined since their COVID-era peak, but the remaining inventories are heavily weighed to longer duration USTs.

Primary dealer positions in coupon treasuries by maturity, USD bn

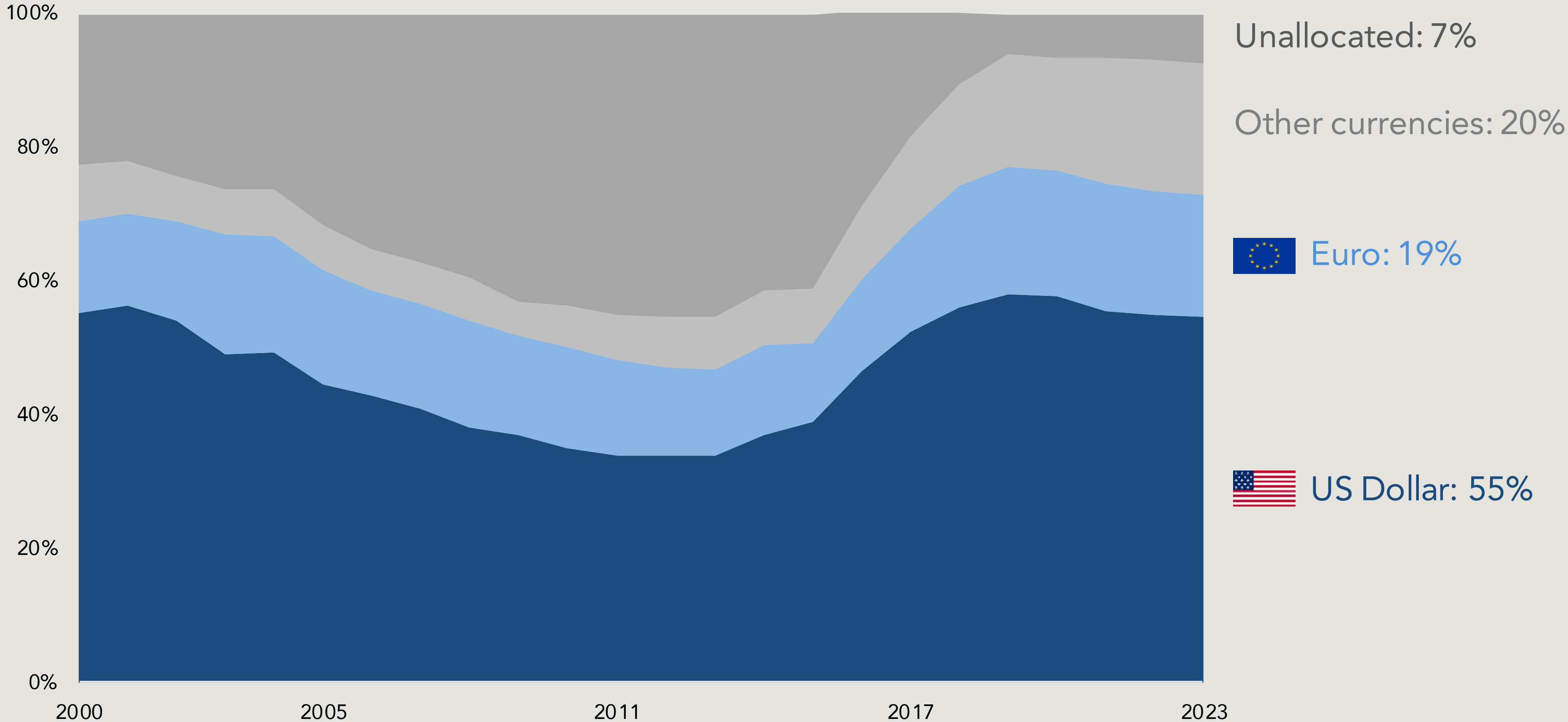


Source: (1) Federal Reserve Board. Data through week ended October 11, 2023.

Nearly 60% of Global FX Reserves in USD

While multi-currency settlement has become more common in selected markets such as commodities, Central Bank FX reserves invested in US Dollars have held steady in the 50-60% range in recent years.

Reserves in different currencies

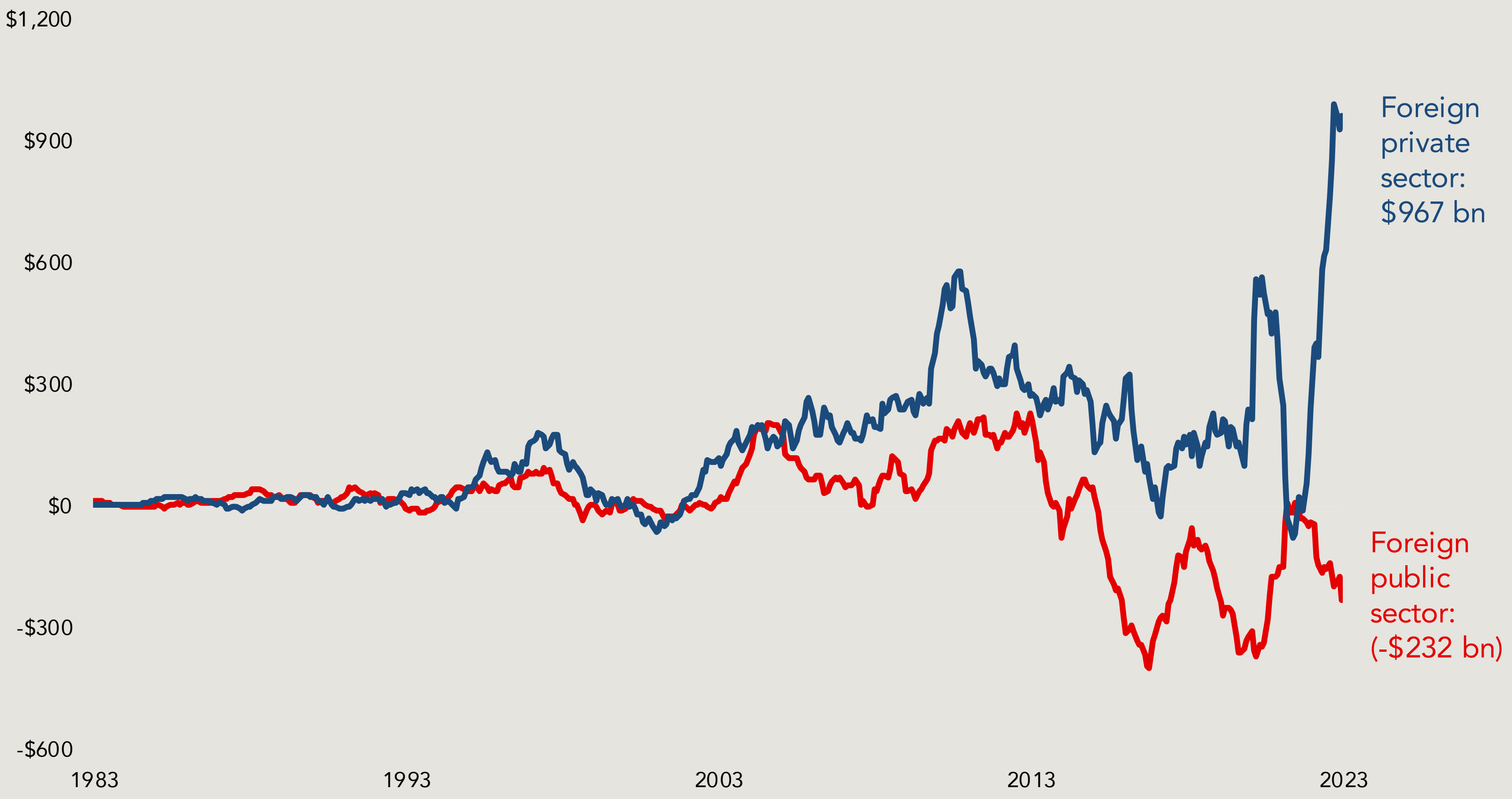


Source: (1) IMF COFER. Data through Q2 2023.

Overseas Demand More Recently From Private Sector

While foreign purchases of US Treasuries are net positive, “official” or Public foreign purchases have actually been negative since 2021 and have been offset by overseas demand from the private sector.

Foreign purchases of USTs by private / public sector, 12 month rolling sum (USD, bn)

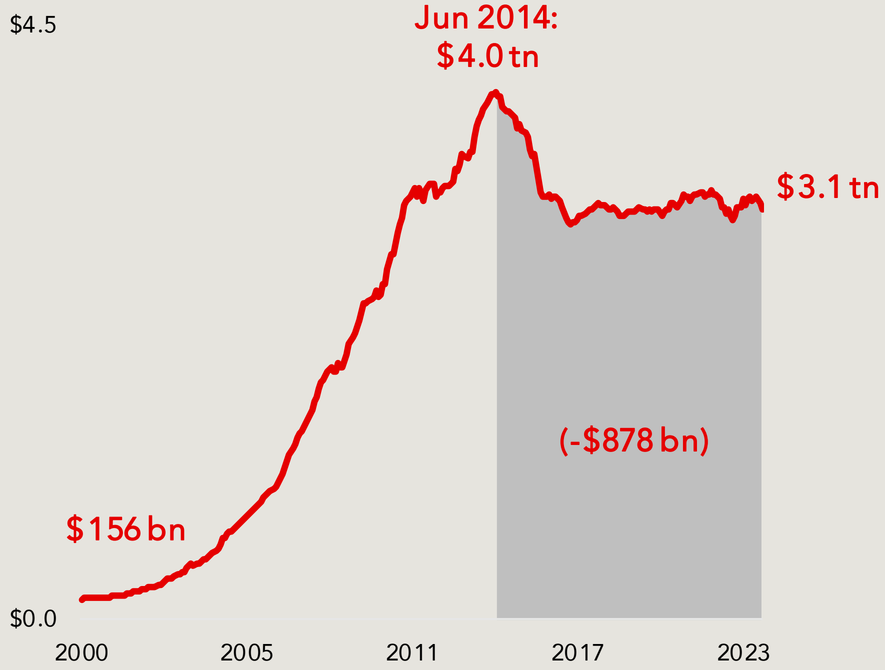


Source: (1) Bloomberg. US Treasury. MUFG US Macro Strategy. UST purchases include bonds and notes. Data through January 2023.

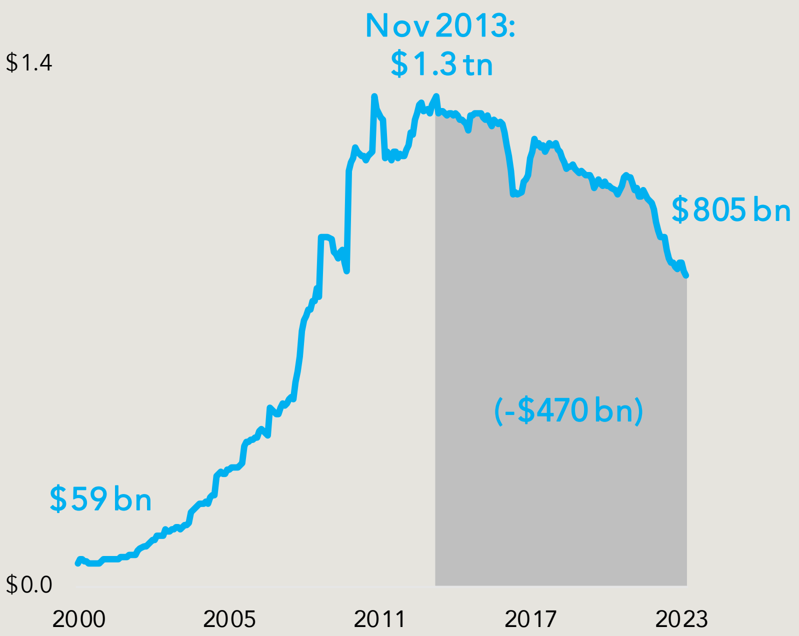
China's Recycling of Surpluses Into USTs

China's economy reached peak growth in approximately 2014, as their cumulative FX reserve balances also peaked at $4 trillion. As China's growth rate has slowed down over the past decade, and as Xi Jinping's "rebalancing efforts" toward more domestically-driven consumer growth unfolds, China's need to recycle surpluses into the large liquid UST market has also declined. We expect this directional trend to continue in the years ahead, and marginally increase as economic tensions between the US and China persist.

China's FX reserves, USD tn



China's UST holdings, USD tn

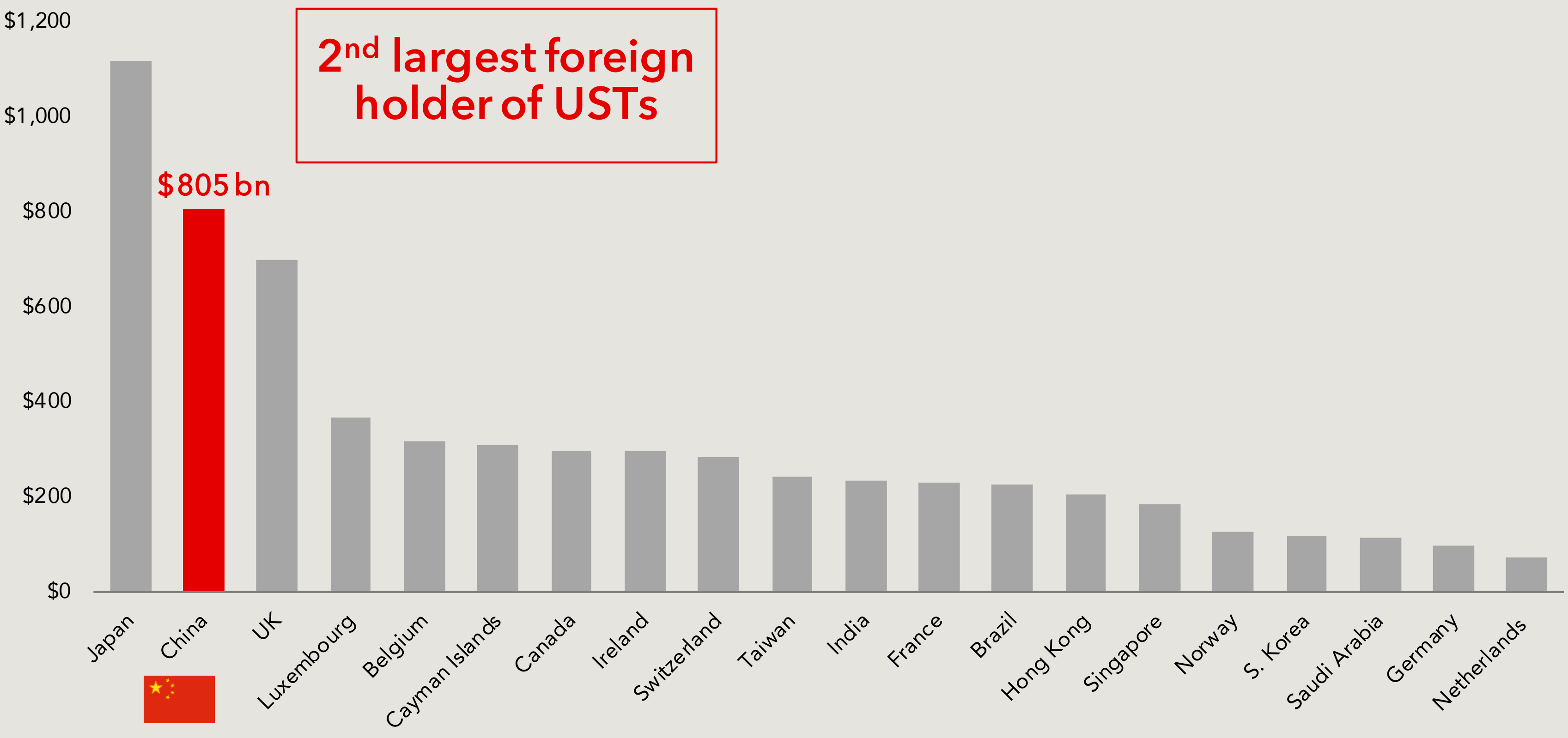


Source: (1-2) US Department of the Treasury. Data is latest available - June 2023. Reuters "China slips away from Treasuries but sticks with dollar bonds". Council on Foreign Relations "The Dollar: The World's Reserve Currency". World Bank. Central Bank of the Republic of China (Taiwan) With the exception of Taiwan, total comprise foreign exchange reserves held by monetary authorities, reserves held by the IMF, and IMF Special Drawing Rights. Bloomberg. Data as of October 24, 2023.

China’s Holdings of UST Securities

China’s holdings of US Treasuries peaked in 2013 at $1.3 trillion. Despite selling over $100 bn in USTs over the past year, China is still the second largest foreign holder of US government debt. While data is not fully transparent, evidence suggests that UST sales have been offset by purchases of US agency debt and other USD bonds.

Foreign Holders of US Treasury Securities



Source: (1) US Department of the Treasury. Data is latest available - August 2023. Netherlands as of July 2023. Reuters “China slips away from Treasuries but sticks with dollar bonds”.

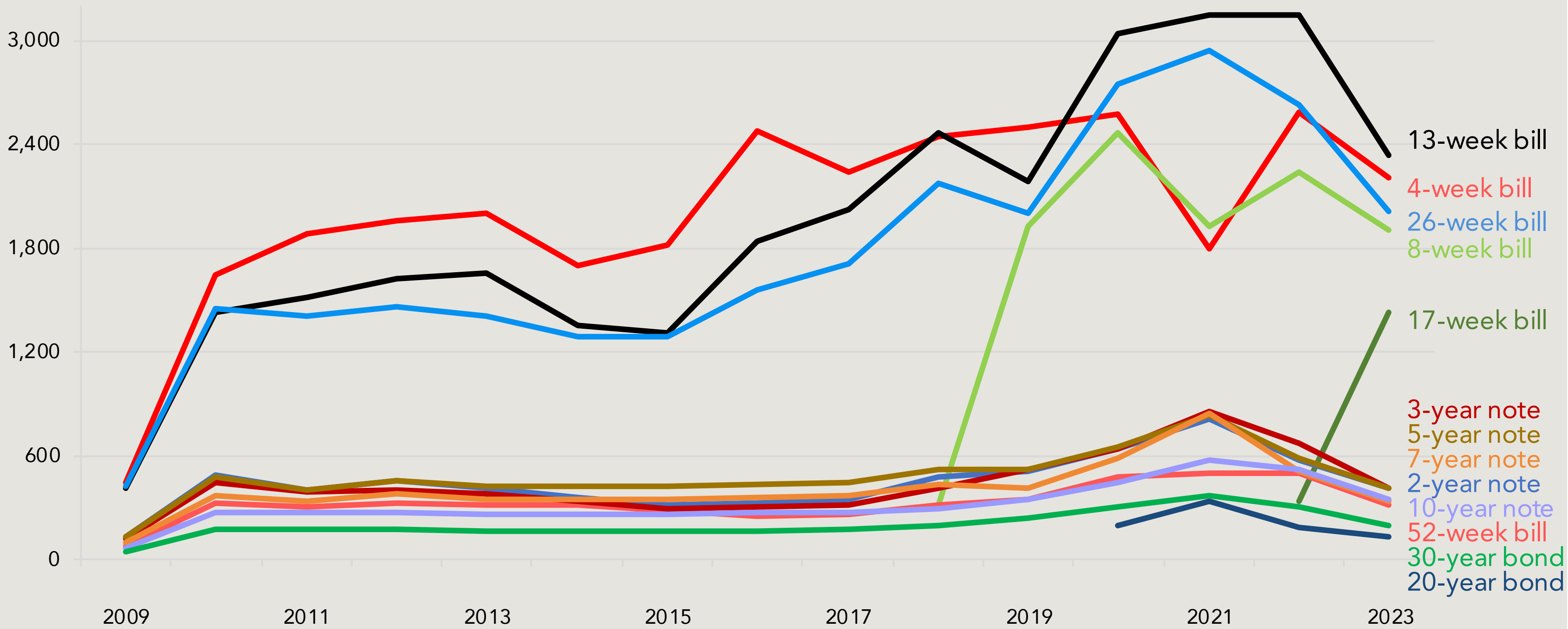
04 US Treasury Issuance Trends

US Treasury Issuance Volume: Historical Perspective

Between 2009 and 2023, the US Treasury Department Auctioned over $138 Trillion of Bills, Notes and Bonds.

Issuance volumes, USD bn

Total Issuance Volume, in Billions of USD												
4-Week Bill	8-Week Bill	13-Week Bill	17-Week Bill	26-Week Bill	52-Week Bill	2-Year Note	3-Year Note	5-Year Note	7-Year Note	10-Year Note	20-Year Bond	30-Year Bond
30,293	10,777	29,489	1,765	26,527	4,918	6,655	6,488	7,130	6,061	4,753	846	3,012

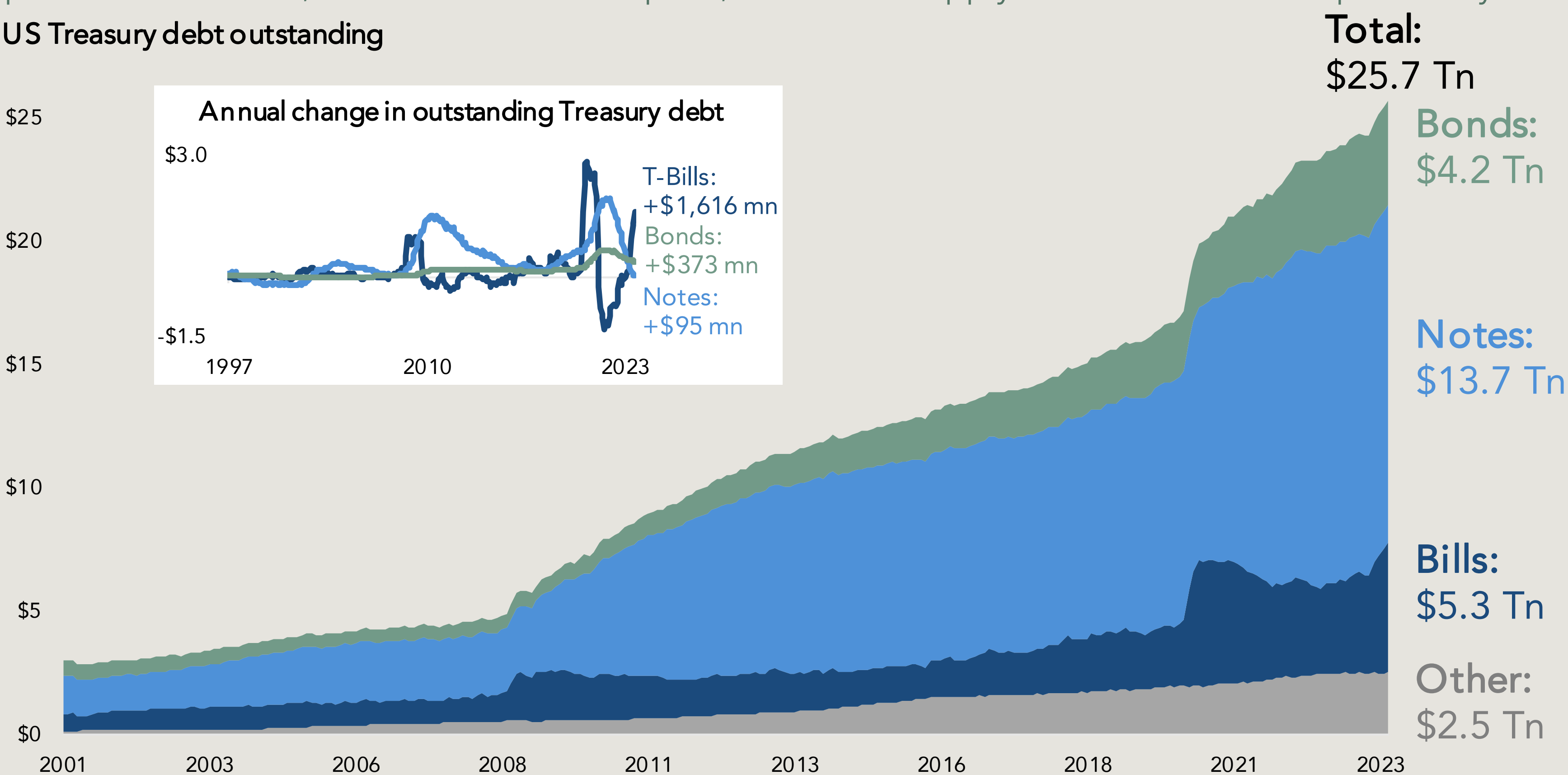


Source: (1) MUFG. Bloomberg.

Shifts in US Treasury Supply

As the June 1 US debt ceiling approached, Secretary Yellen sharply increased the use of T-Bills to fund the US Gov't given constraints during that period. Since then, two notable developments have occurred: (1) Treasury has issued more than $1.3 trillion of securities, much higher than anticipated; and (2) with T-Bills having risen to nearly 20% of UST debt outstanding, Treasury shifted toward increased Notes supply to term out more of its short-dated obligations. Historically, the level of term premium increases, and/or the curve steepens, when such supply shifts have occurred previously.

US Treasury debt outstanding

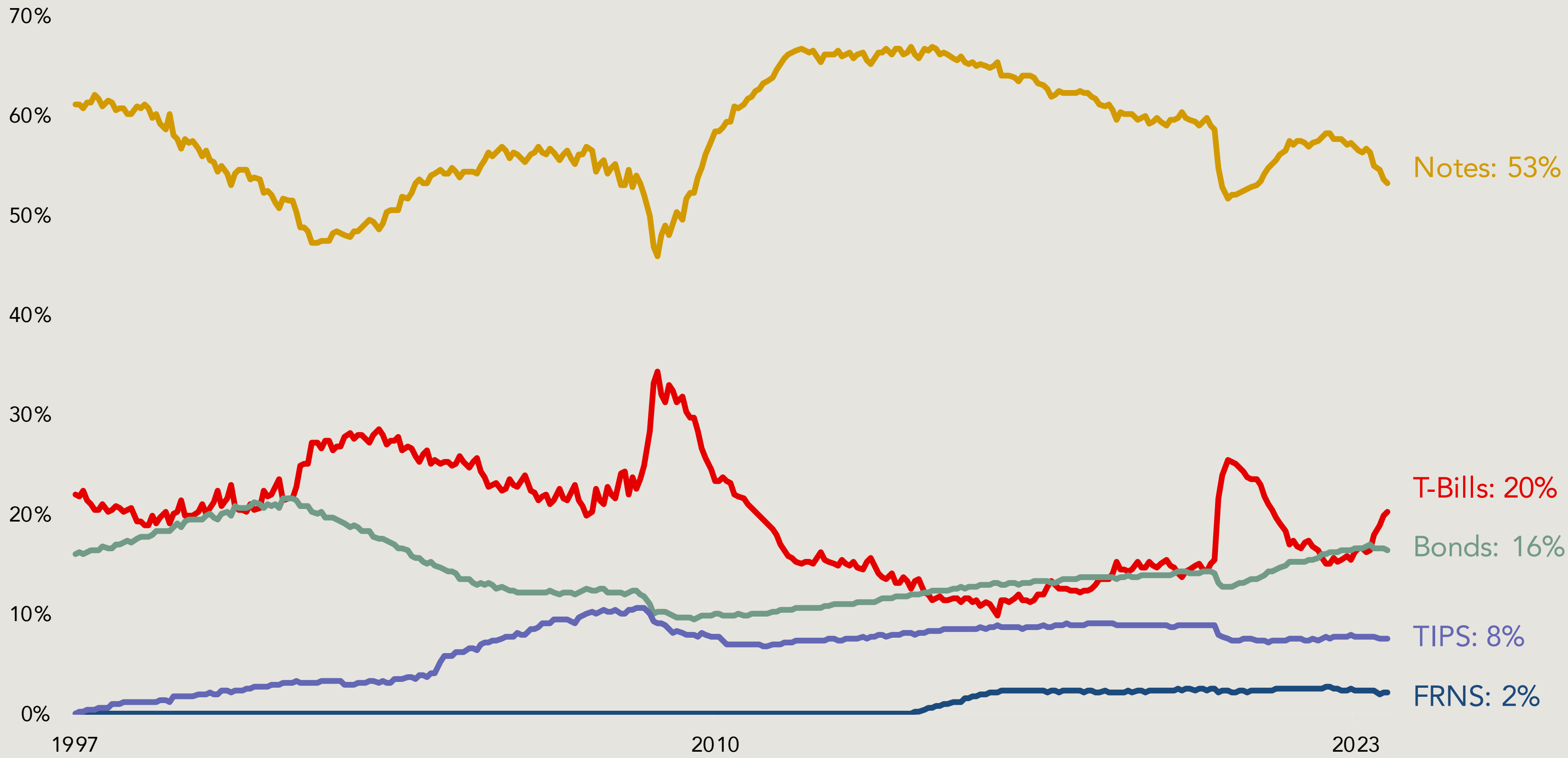


Source: (1-2) US Treasury. Total marketable debt outstanding. Data available through September 30, 2023.

Shifts in US Treasury Supply

The US Treasury does not opportunistically change its issuance patterns based on interest rate levels. For the most part, they have adhered to the practice of "regular and predictable issuance" where the one area that allowed for adjustments was T-Bills (as happened prior to the debt ceiling deadline).

Treasury debt outstanding by type (as a % of total UST debt)



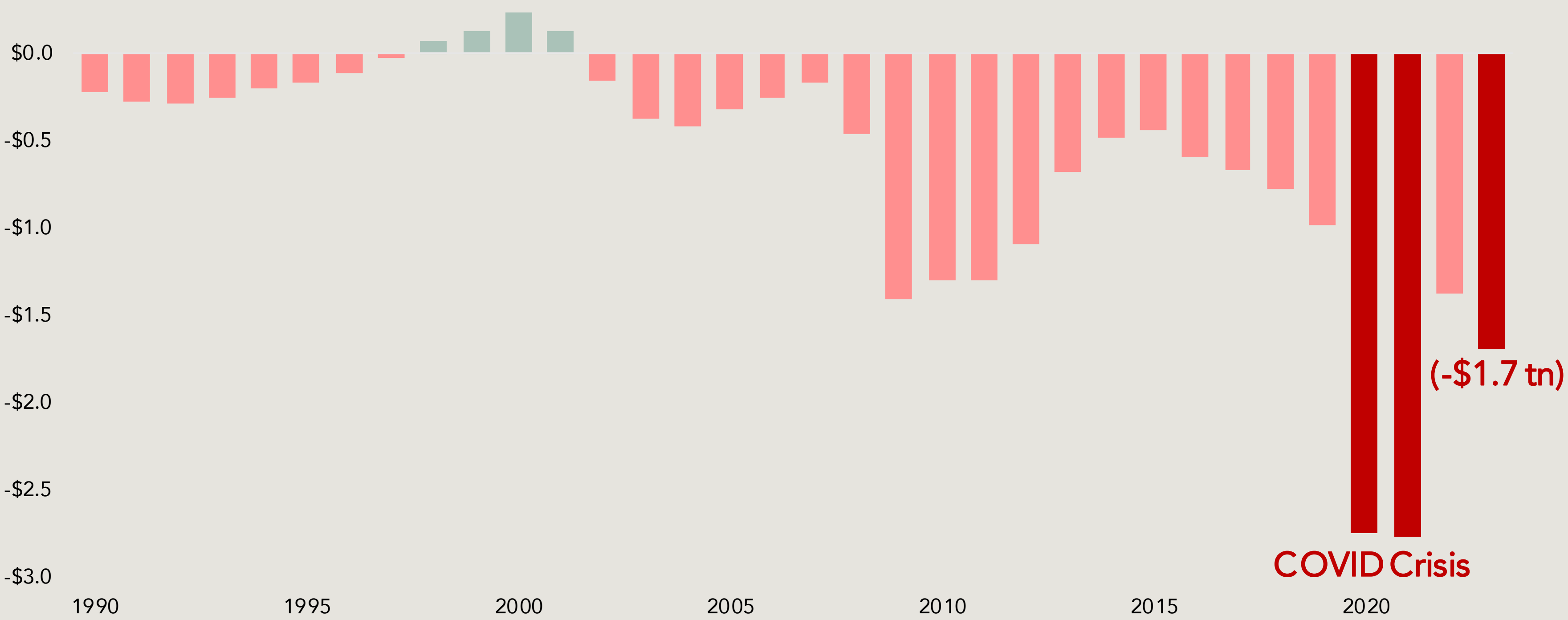
Source: (1) Bloomberg. US Treasury. MUFG US Macro Strategy. Data as of October 25, 2023. Total marketable Treasury debt outstanding.


05 Rising US Debt
& Deficits

Record FY 2023 US Budget Deficits

On Friday Oct 20, the US Treasury announced a FY 2023 US budget deficit of $1.7 trillion (for FY ended Sept 30, 2023), a 23% jump from the prior year, and the largest ever US budget deficit outside of the 2020-21 COVID period. Key drivers of the record ex-COVID deficit included declining revenue, higher interest expense, and COLA adjustments on Social Security spending. The 2023 deficit would have been $321 bn larger if the Supreme Court had not struck down the President's debt forgiveness program as unconstitutional. The sharp deficit increase comes as President Biden is asking for $100 bn of funding for Ukraine ($60 bn), Israel ($14bn), the Pacific region (Taiwan) and US southern border security.

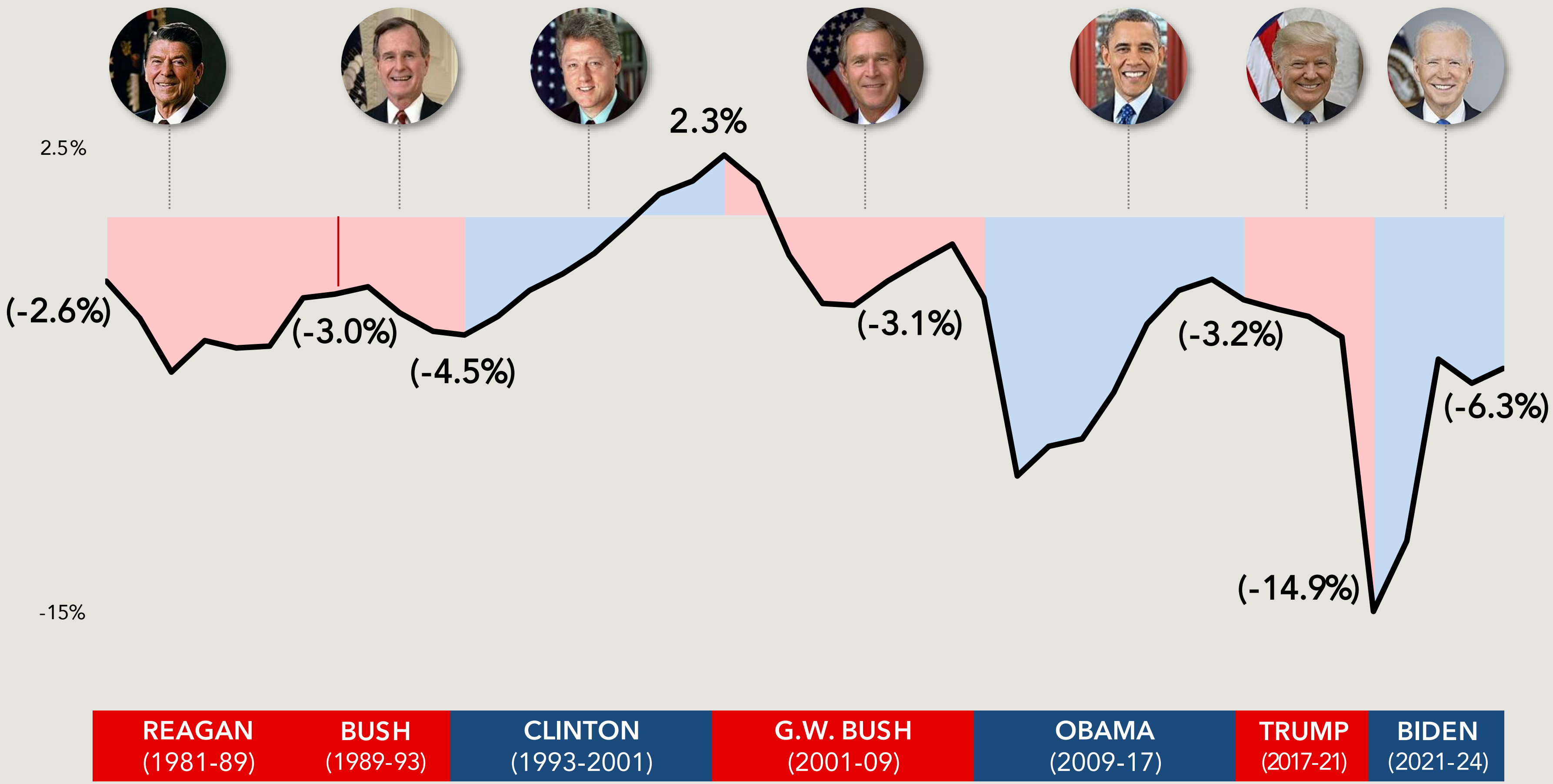
US Federal budget deficit, USD tn



Source: (1) Bloomberg. Data as of October 23, 2023. Year is by US government fiscal year.

Unusually High Deficits For An Expansion

Federal government deficit (or surplus), % of GDP

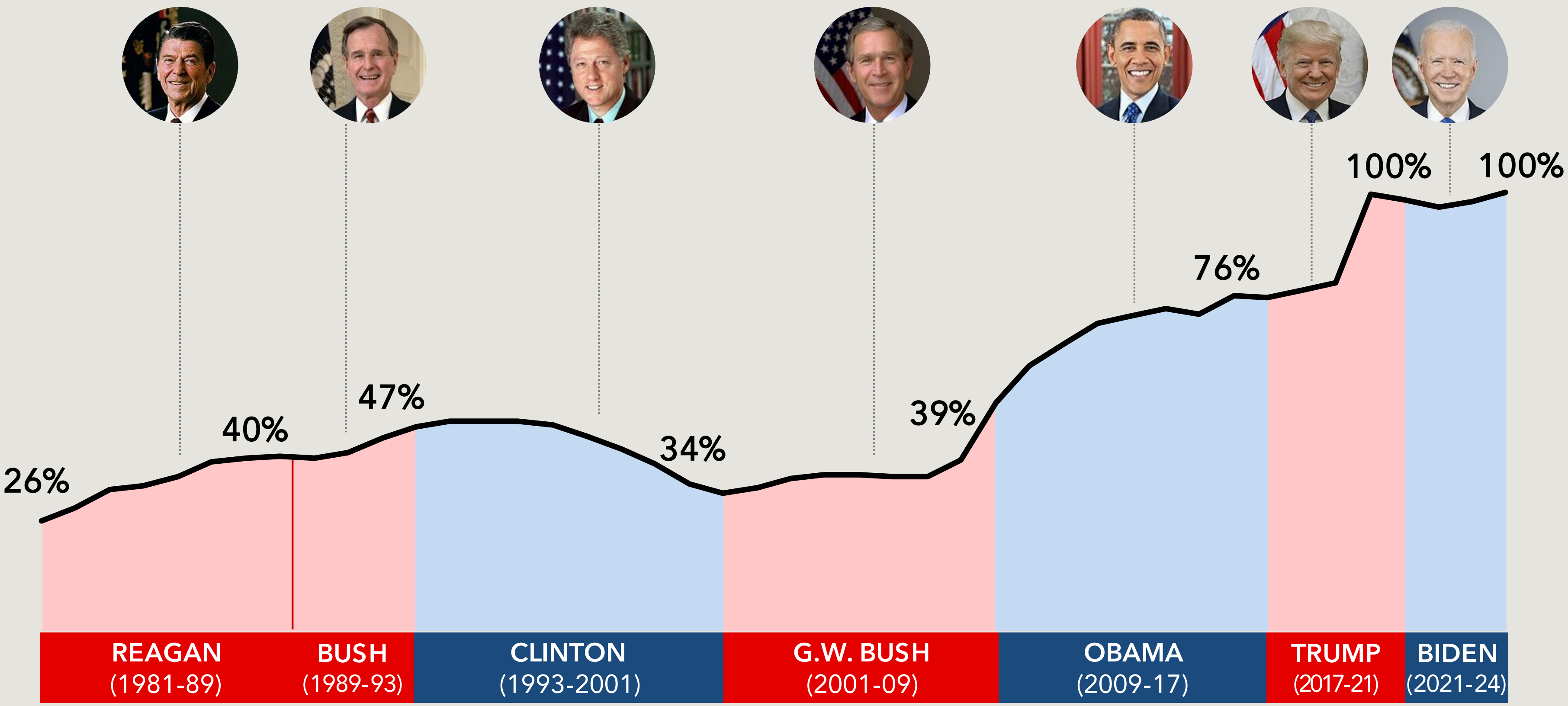


Source: (1) Congressional Budget Office. Long-Term Budget Projections (Jun 2023). Historical Data on federal Debt Held by the Public. Bloomberg. Data as of October 23, 2023. 2023FY deficit is actual. 2024 is CBO forecast.

Full Decade of Debt Build During COVID

US Government Debt has risen above 100% of GDP, more than double the 39% average of the nine countries still rated AAA by Fitch. While debt to GDP has risen most significantly in response to recessions (GFC, COVID), the increase has actually spanned decades and occurred across both Republican and Democratic administrations.

Federal debt held by the public, % of GDP

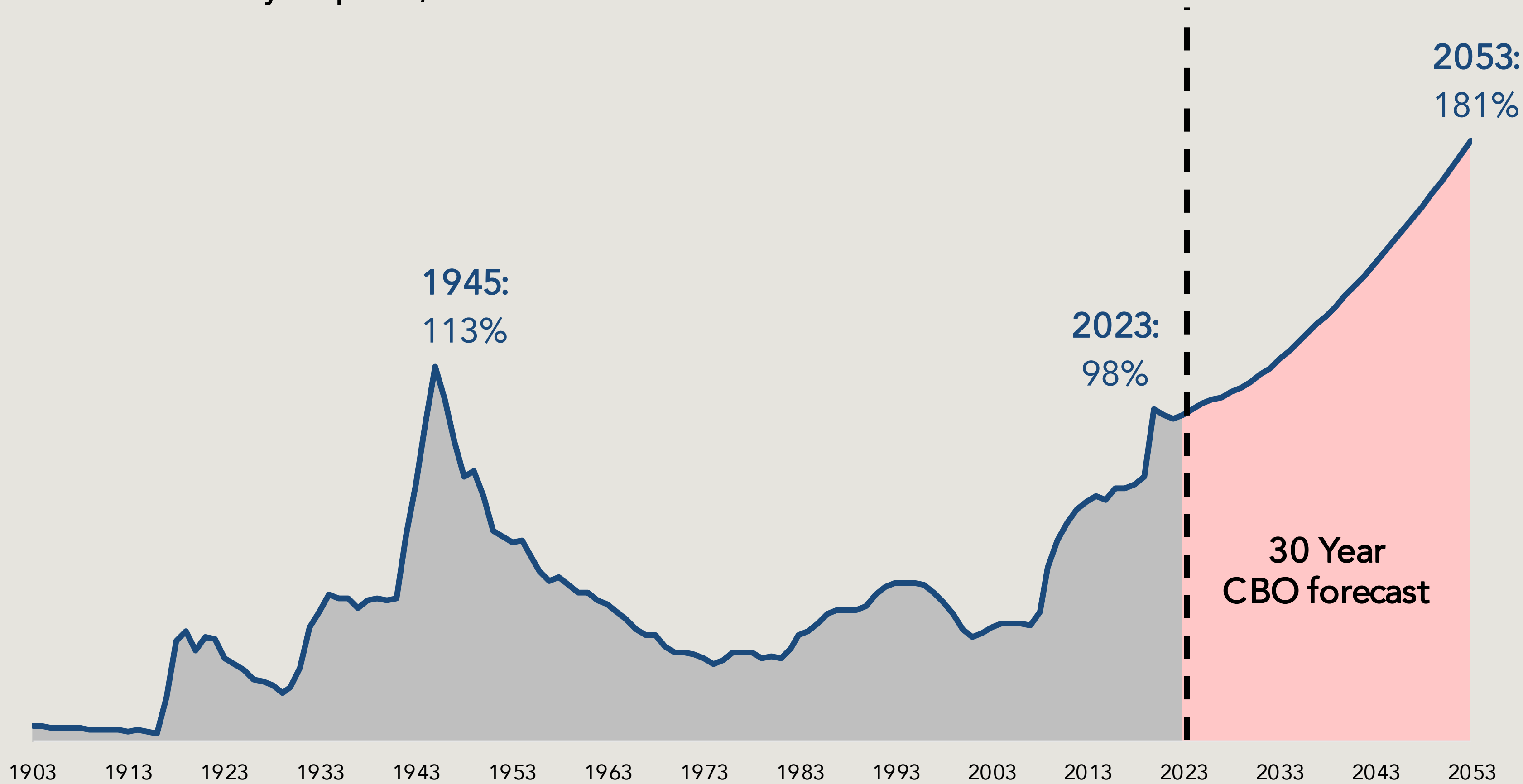


Source: (1) Congressional Budget Office. Long-Term Budget Projections (Jun 2023). Historical Data on federal Debt Held by the Public. 2024 Federal debt is CBO estimate.

Federal Debt to Reach 181% of GDP in 2053

Over the three years since COVID began, US Government debt/GDP increased from approximately 70% to nearly 100% today, a milestone previously not expected to be reached for a decade. Current CBO projections have US debt rising to 115% in 2033, and 181% in 2053.

Federal debt held by the public, % of GDP

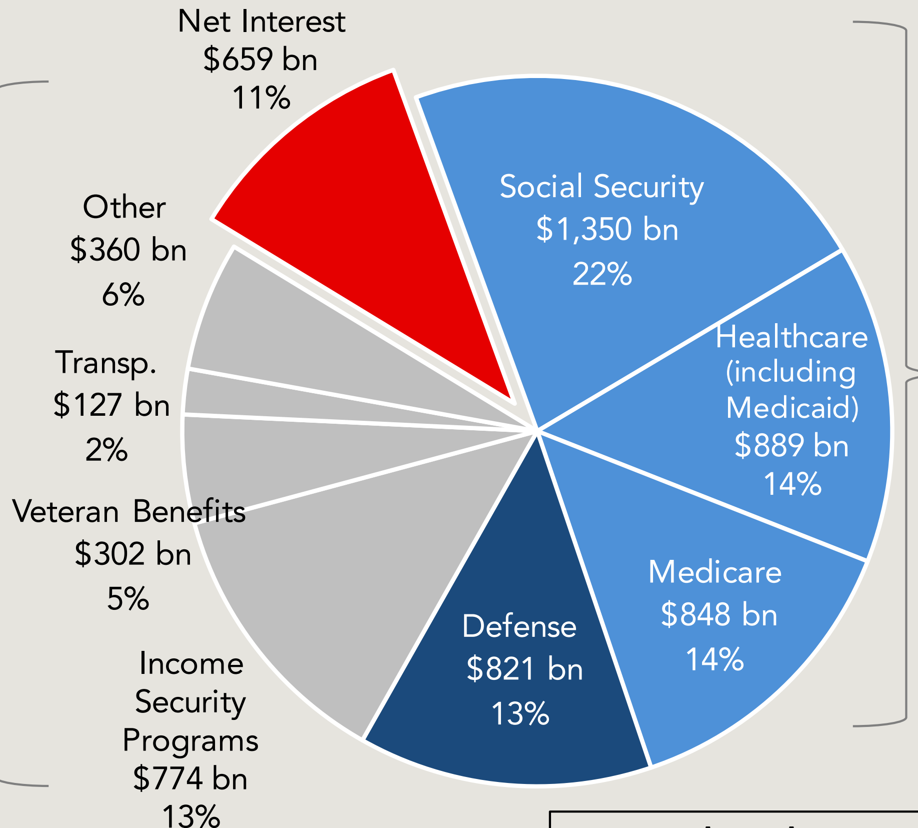


Source: (1) Congressional Budget Office. Long-Term Budget Projections (Jun 2023). Historical Data on federal Debt Held by the Public.

Breaking Down US Government Spending

The three largest categories of "mandatory US spending" – Social Security, Medicare and Medicaid – accounted for 50% of US Government outlays in 2023. Defense spending, which Congress is highly unlikely to reduce, accounts for an additional 13%. In the years ahead, net interest expense on US Gov't debt will rise to become the US government's largest individual outlay.

US federal budget in fiscal year 2023, USD bn



25% of spending:
Smaller discretionary buckets not easy to sufficiently cut path to debt sustainability

75% of spending:
Largely mandatory spending that Congress is either unwilling or unable to reduce **(entitlements, defense & net interest)**

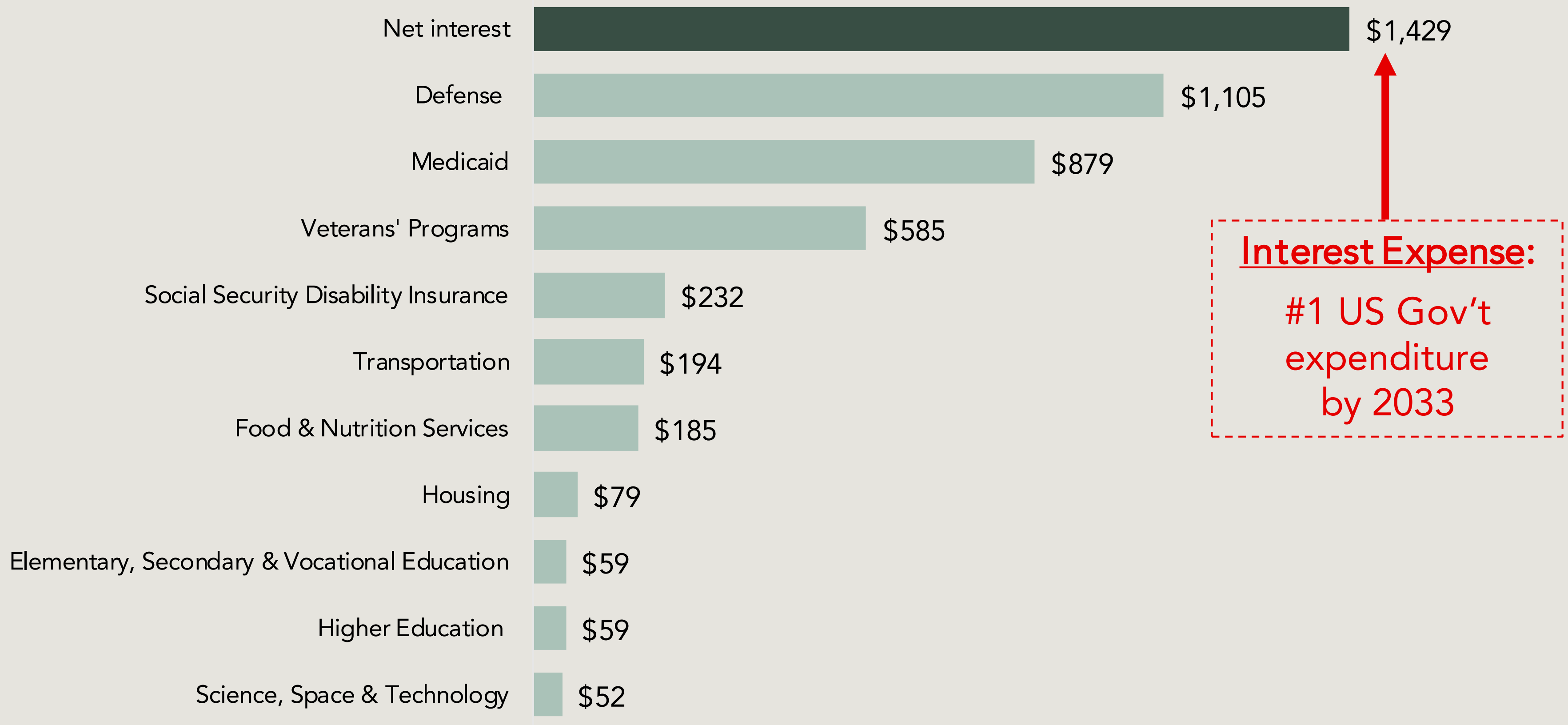
Total outlays: $6.13 trillion

Source: (1) Fiscal Data. US Treasury.

Net Interest Will Exceed Key Programs in 2033

Within 10 years, the annual net interest on US Treasury securities will become the #1 outlay for the US Government.

Cost of key programs, USD bn



Source: (1) Congressional Budget Office.

Nine Countries with AAA Ratings

Following Fitch's downgrade of US government debt from AAA to AA+ on August 1, there are now nine remaining countries with AAA ratings from Fitch. Notably, US debt and deficit metrics deviate considerably from the AAA sovereign peer group.

Country	Fitch Rating	GDP, USD bn	General Gov Debt to GDP	Annual Deficit (% of GDP)
Germany	AAA	$4,345 bn	65.9%	(-2.3%)
Australia	AAA	$1,716 bn	49.1%	(-1.2%)
Netherlands	AAA	$1,055 bn	50.5%	(-1.3%)
Switzerland	AAA	$853 bn	26.5%	+0.3%
Sweden	AAA	$608 bn	30.9%	(-0.1%)
Norway	AAA	$568 bn	38.9%	+20.8%
Singapore	AAA	$510 bn	39.6%	+6.2%
Denmark	AAA	$353 bn	29.9%	+1.4%
Luxembourg	AAA	$88 bn	26.1%	(-1.6%)
Median			**39.3%**	**(-0.1%)**
US	*AA+*	*$26,722 bn*	*112.9%*	*(-6.3%)*

Source: (1) Fitch Ratings. Debt to GDP and annual deficits are Fitch calculated general government debt and deficits. 2023 estimates.

06 Implications for Risk Assets

Implications for Risk Assets

UST long term rates above 5% for a sustained period are likely to exert upward pressure on volatility and downward pressure on risk assets

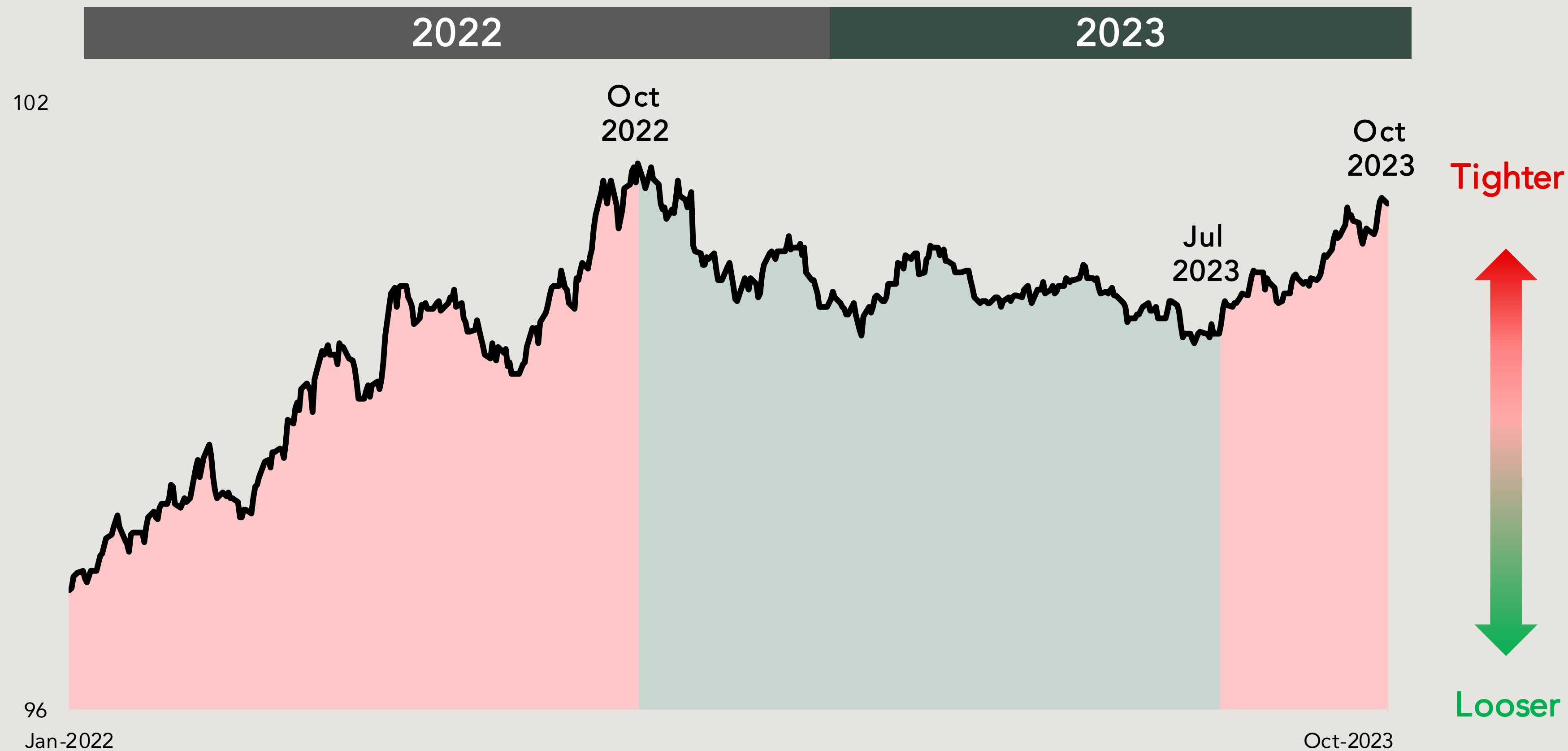
Summary implications of higher LT UST rates on risk assets

Risk Assets	Impact of Higher Rates	Description
Equities	↓	• P/E multiple compression • Downward pressure on earnings
USD credit spreads	↑	• Pressure on earnings & margins • Spread widening with higher volatility • Accelerates timing of default cycle turn
G10 FX	↓	• Rate differentials favor USD • Relative macro favor USD
EMFX	↓	• Rate differentials favor USD • Capital outflow pressures in EMFX
Commodity prices	↓	• Downward pressure on consumer demand • Extends US Dollar resilience • Complicates inflation outlook • Rising geopolitical risk premiums may offset

Financial Market Conditions Tightening

Since the bear market steepening in US rates began after the US debt ceiling resolution on June 1st, the combination of higher rates, wider credit spreads, softer equities and a stronger US dollar have led to a material tightening in US financial market conditions. With financial markets now doing the tightening, the Fed has more flexibility to "pause" at the upcoming Nov and Dec FOMC meetings.

US Financial Conditions Index

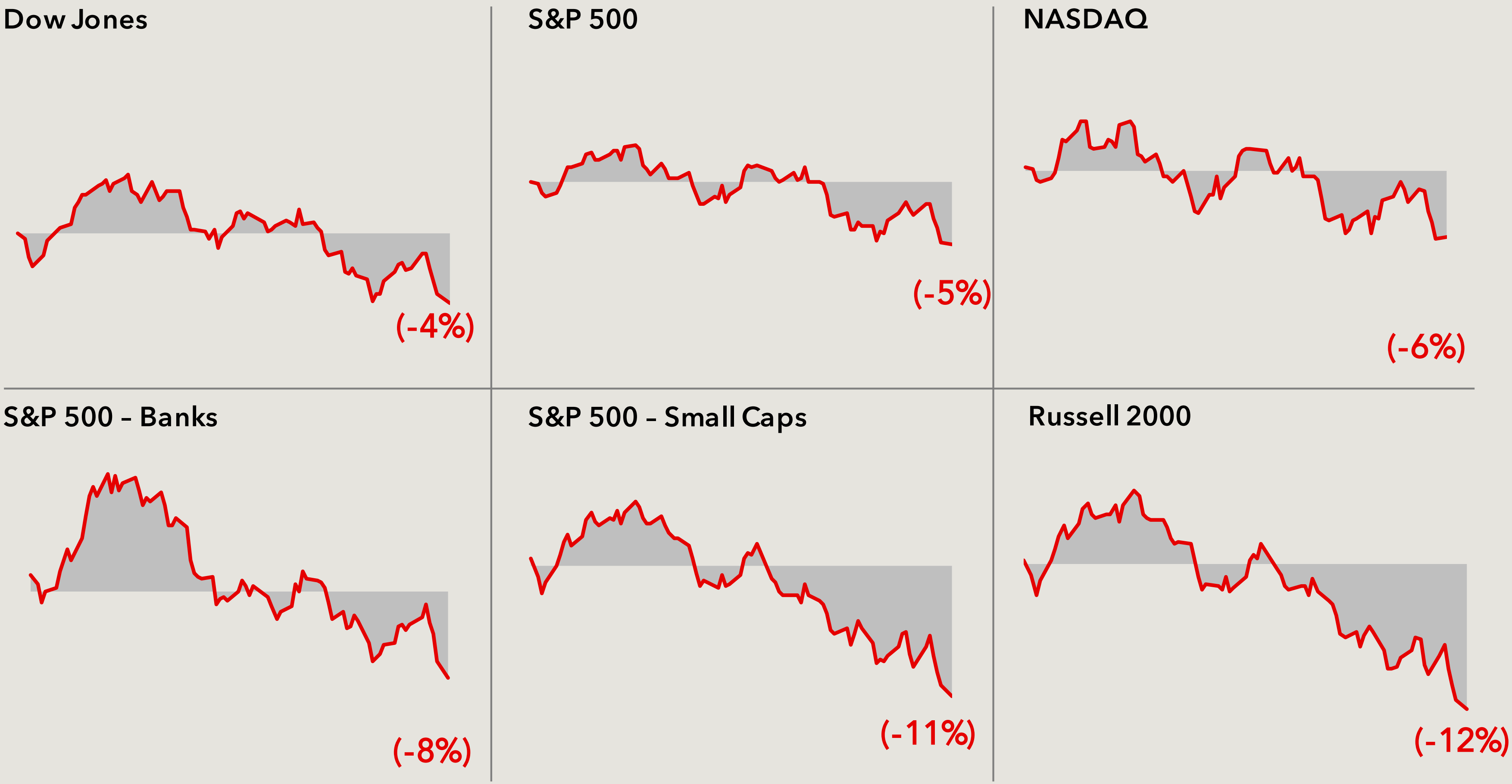


Source: (1) Bloomberg. Data as of October 24, 2023. Financial conditions index is Goldman Sachs.

Higher Rates Exert Pressure on US Equities

The rates sell-off in the 2H 2023 adversely impacted US equities in two dimensions: (1) higher rates result in P/E multiple compression; and (2) higher rates weigh heavily on corporate earnings and margins

US equities since July 1, 2023

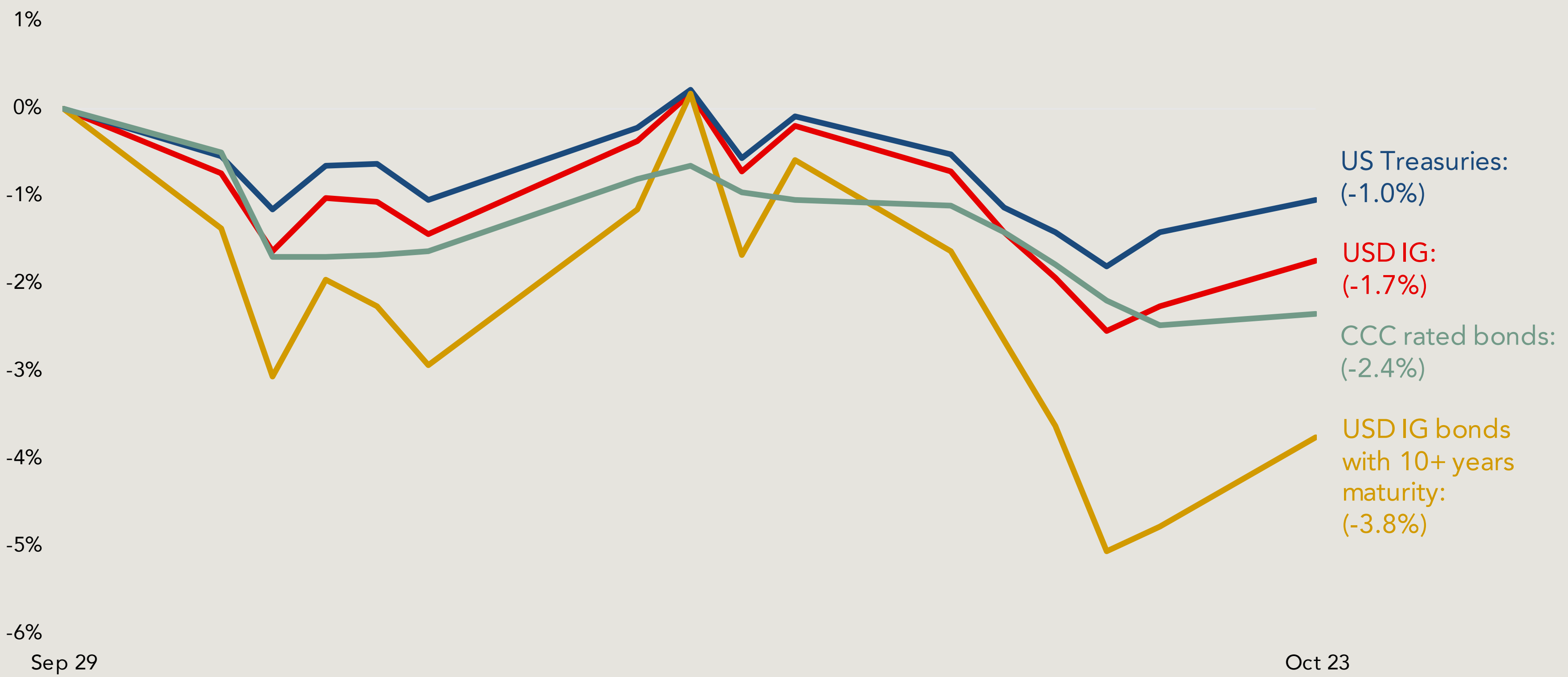


Source: (1-6) Bloomberg. Data as of October 24, 2023

Downward Pressure on USD Credit Market Returns

The rise in UST yields to 17 year highs has spilled over to nearly every corner of USD credit markets. Risk premiums in IG corporate bonds have risen to their highest level since June. The ripple effects of higher rates have also impacted new issue execution across the ratings spectrum, from IG to HY and asset-backed securities. Bond market returns have trended increasingly negative throughout October, with longer dated securities the most adversely impacted.

Bond risk premiums

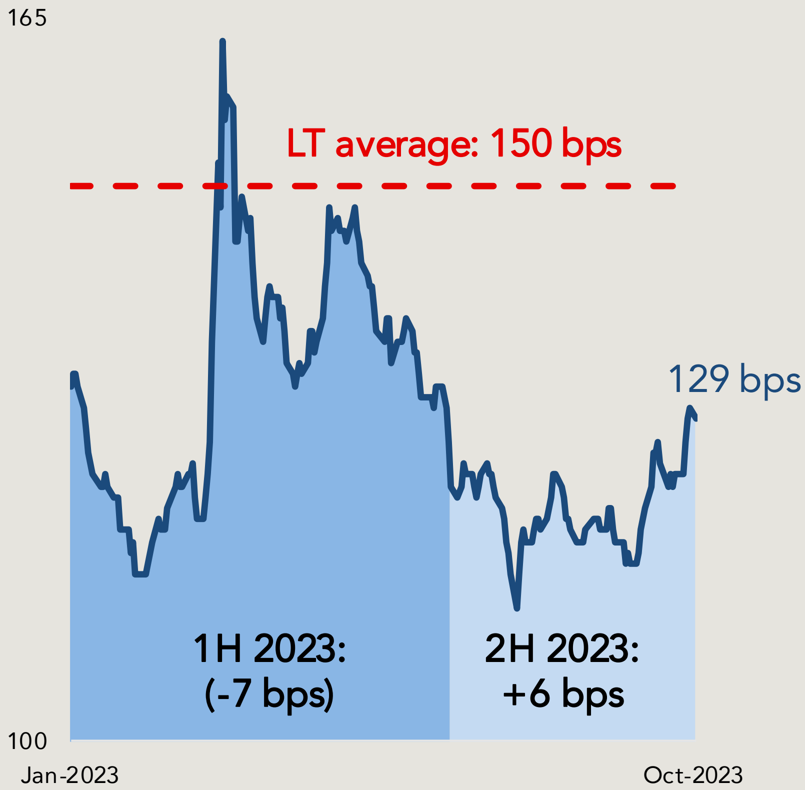


Source: (1) Bloomberg (Michael Tobin). Data as of October 24, 2023. Data normalized as of September 29, 2023.

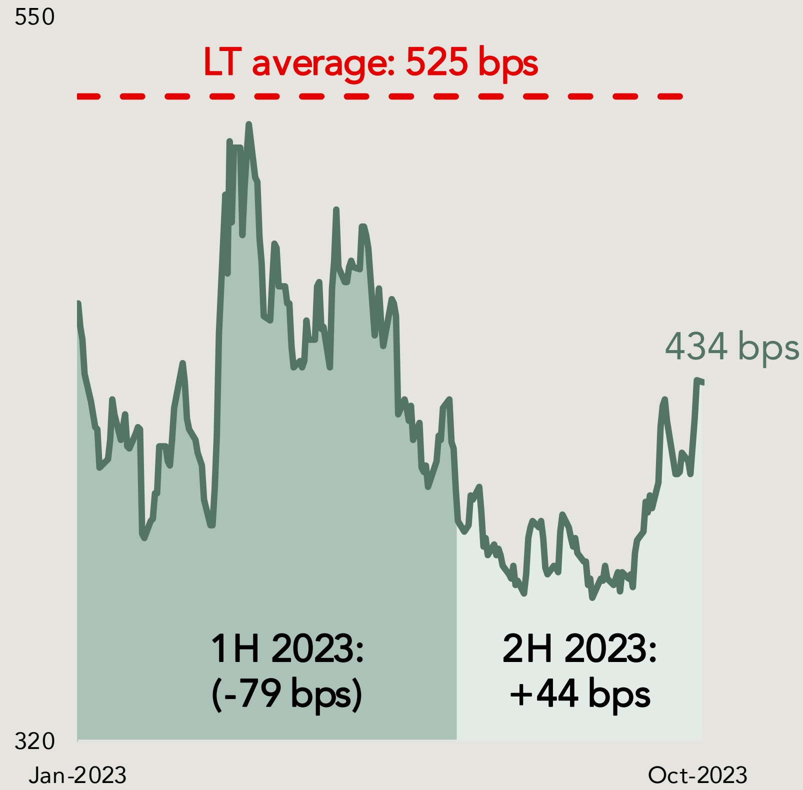
USD Credit Spreads Vulnerable to Widening

Based on data going back more than three decades, IG & HY spreads are currently trading below long-term averages and well below recession thresholds. Following resolution of US banking sector stress in March, USD credit spreads tightened sharply in Q2, but have begun to move wider with the higher rate volatility in the 2H 2023.

USD IG OAS (2023 YTD)



USD HY OAS (2023 YTD)

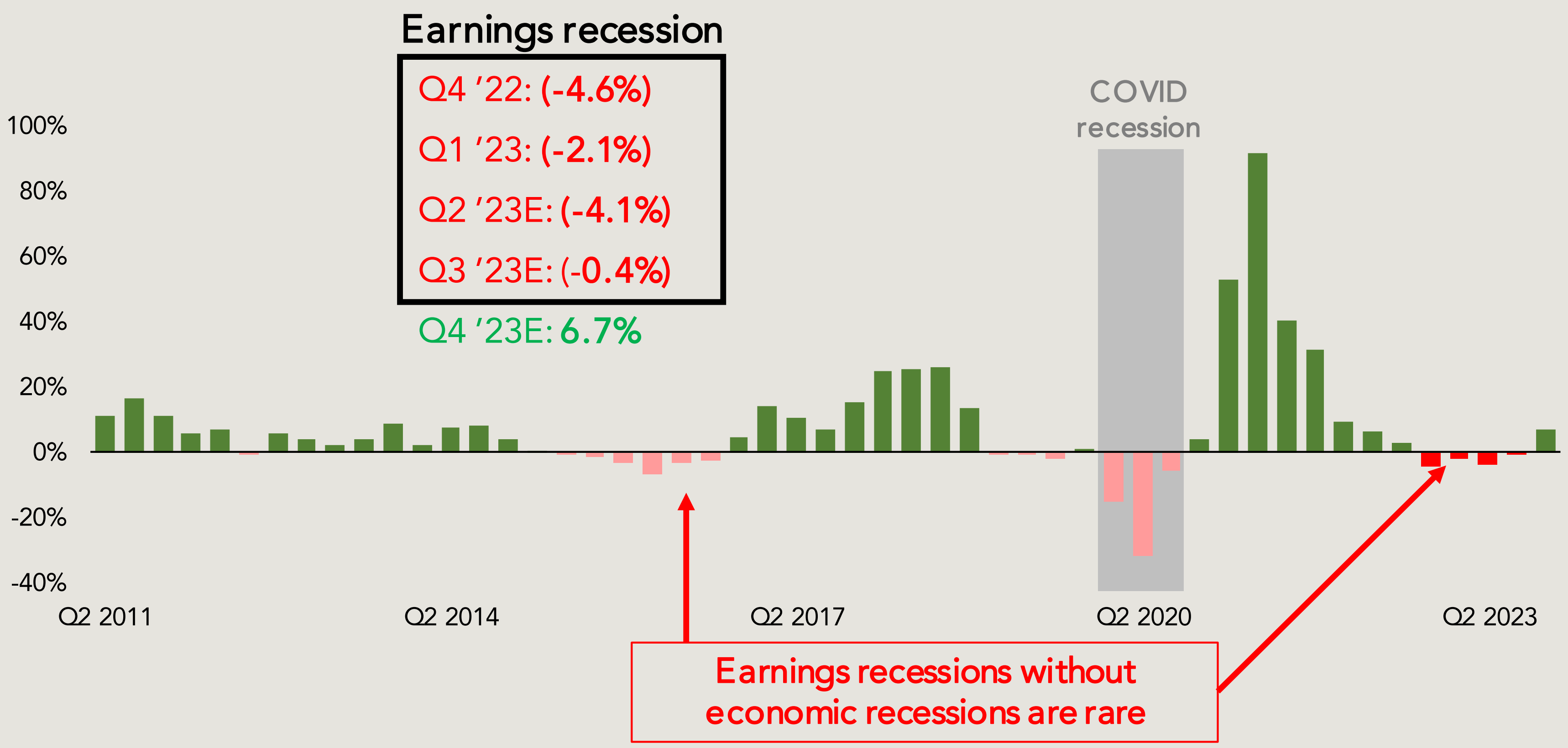


Source: (1-2) Bloomberg. Data as of October 24, 2023.

Higher Rates Become a Headwind for Earnings

Higher UST rates, a stronger dollar and elevated energy prices are a toxic mix for US earnings as evidenced by the "earnings recession" for the S&P 500 over the last 12 months. Looking ahead to 2024, the modest earnings recovery projections would come into question should longer term US rates stay at or above the 5% threshold (which is not our base case scenario).

S&P 500 quarterly earnings growth, y/y



Source: (1) FactSet, Earnings Insight Report (October 20, 2023).

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Role

Tom Joyce is a Managing Director and Capital Markets Strategist within MUFG's global capital markets and investment banking business. Based in New York, Tom heads a team that creates customized analytical content for multi-national S&P 500 companies. His team provides in depth analysis on the impact of economic, political, public policy and regulatory dynamics on the US credit, foreign exchange, rates and commodities markets.

Experience

Tom has over 25 years of Investment Banking experience in New York, London, Hong Kong, and San Francisco. Over the last 15 years, Tom created and built the Capital Markets Strategy role, advising corporate C-Suite executives (Boards, CEOs, CFOs, and Treasurers) on the pervasive macro forces driving markets. Tom also presents at dozens of corporate events each year including Board meetings, CEO ExCo sessions, CFO and Treasury off-sites, corporate leadership events and conferences.

Education

Tom's educational background includes a year of study at Oxford University from 1991 - 1992, a Bachelor of Arts in Political Science from Holy Cross College in 1993, and a MBA from Kellogg Business School, Northwestern University in 2000.

Personal

Tom resides in New Canaan, CT with his wife and four sons, where he serves on the Board of Trustees of the New Canaan Library as well as the Holy Cross College President's Council.

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Experience

Hailey has a decade of Wall Street experience, including three years as a Consumer Sector Specialist in Equity Sales and seven years as a Capital Markets Strategist. Hailey is also a member of MUFG's Inclusion & Diversity Council and has devoted years to participating in and developing Wall Street recruiting programs.

Education

Hailey graduated with honors from the University of Michigan's Ross School of Business with a BBA and a minor in International Studies.

Personal

In March 2020, Crain's New York Business Magazine named Hailey one of the "Rising Stars in Banking and Finance".

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Experience

Stephanie has spent over five years as a Capital Markets Strategist. She is an active member of the University of Michigan recruiting team and is focused on the diversity recruiting effort at MUFG. Stephanie is also a part of MUFG's DEI, Culture & Philanthropy (DCP) Council.

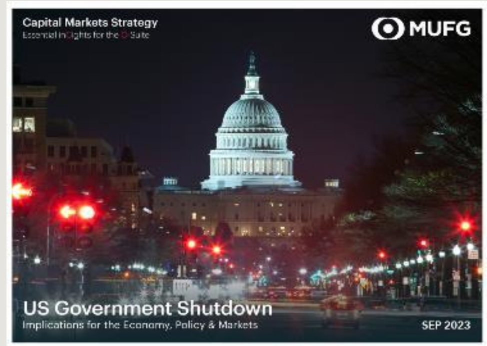
Education

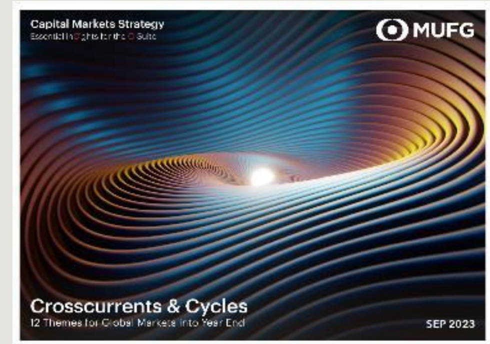
Stephanie graduated with honors from the University of Michigan's Ross School of Business with a BBA .

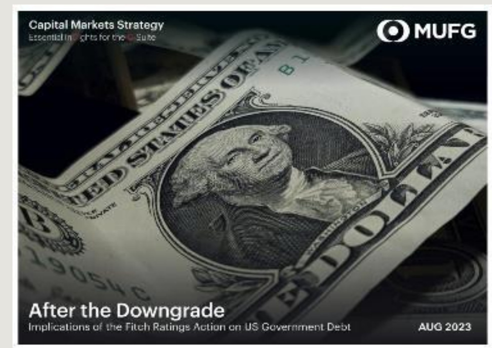
Personal

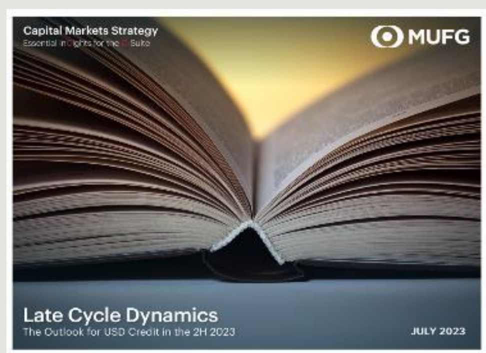
Stephanie is actively involved in NYC's iMentor program, mentoring high school students with their journey to college graduation.

MUFG's Capital Markets Strategy Team









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