Goldman Sachs Research

ISSUE 140 | June 12, 2025 | 4:00 PM EDT

TOP of MIND

US FISCAL WORRIES: IS THIS TIME DIFFERENT?

US fiscal concerns have surged on the back of the Trump Administration's "One Big Beautiful Bill Act", which has helped fuel a sharp rise in long-dated bond yields. But such concerns are nothing new, so is this time really different? We ask three economy-watchers long concerned about the US fiscal trajectory: Bridgewater's Ray Dalio, Harvard's Kenneth Rogoff, and historian Sir Niall Ferguson. All three believe the answer is "yes" and make their case for why they think a crisis lies ahead and what it might look like. GS' Alec Phillips is also worried over the longer term but notes that tariff revenues should offset the deficit impacts of the fiscal package over the next decade. We also look at other places that have long elicited fiscal concern—the European periphery, Asian debt giants Japan and China, and EMs—and see fewer—but not no—reasons to worry. Finally, we assess the market impacts of these shifting fiscal dynamics, concluding that US long-end rates will likely remain high, and the Dollar should weaken further.

"We should be very worried as all the previously mentioned conditions and my indicators that reflect them point toward an impending crisis.

- Ray Dalio

Higher rates are the primary reason the fiscal outlook is so concerning. If rates were to fall sharply, I would become far less worried.

- Kenneth Rogoff

History is ripe with examples of superpowers that have spent more on debt service than defense and subsequently were no longer super or powerful. That's exactly the position the US is in today.

- Sir Niall Ferguson"

WHAT'S INSIDE

INTERVIEWS WITH:

Ray Dalio, Founder, Bridgewater Associates

Kenneth Rogoff, Professor at Harvard University, former Chief Economist, International Monetary Fund

Sir Niall Ferguson, Senior Fellow, Hoover Institution at Stanford University, Senior Fellow, Belfer Center for Science and International Affairs at Harvard University

NOT GETTING WORSE IS NOT GOOD ENOUGH
Alec Phillips, GS Economics Research

Q&A: MARKETS, TARIFFS, AND FISCAL FEARS
Kamakshya Trivedi, GS Markets Research

EUROPE: SHIFTING FISCAL FOCUS
Filippo Taddei, James Moberly, and Alexandre Stott, GS European Economics Research

ASIA'S BIG (DOMESTIC) DEBT BOOMS
Andrew Tilton, GS Asia Economics Research

EM DEBT: NO CRISIS, BUT COSTLY
Alberto Ramos, GS LatAm Economics Research

EM DEBT: FOCUS ON EXTERNAL BALANCES
Kevin Daly, GS CEEMEA Economics Research

...AND MORE

Allison Nathan | allison.nathan@gs.com
Jenny Grimberg | jenny.grimberg@gs.com
Ashley Rhodes | ashley.rhodes@gs.com

Macro news and views

We provide a brief snapshot on the most important economies for the global markets

US

Latest GS proprietary datapoints/major changes in views

- We revised our US growth, inflation, unemployment rate, and recession forecasts to reflect a smaller tariff effect and now forecast 2025 real GDP growth of 1.25% (Q4/Q4), YE core PCE inflation of 3.3% yoy, a YE unemployment rate of 4.4%, and 30% odds of a recession over the next 12m.

Datapoints/trends we're focused on

- Fed policy; we expect the Fed to deliver three 25bp cuts starting in Dec and cut at an every-other-meeting pace.
- One Big Beautiful Bill Act, which we think will have only a modest impact on the US fiscal balance relative to current policy and is unlikely to fully offset the tariff growth drag.

Japan

Latest GS proprietary datapoints/major changes in views

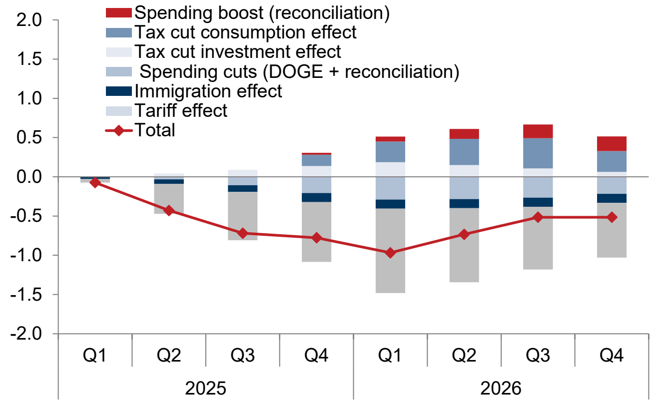
- No major changes in views.

Datapoints/trends we're focused on

- BoJ policy; we expect the next rate hike in January 2026, when next year's *shunto* negotiations can confirm wage growth momentum, though uncertainty around the timing of the next hike is high and will depend on US tariff policy.
- Japanese domestic demand, which we expect to remain robust, though a significant deterioration in growth abroad could spill over to Japan's economy.
- Japan's debt sustainability; we think still-low interest rates and higher nominal growth makes the risk of undermining debt sustainability low for now.

A smaller and later fiscal boost vs. tariff drag

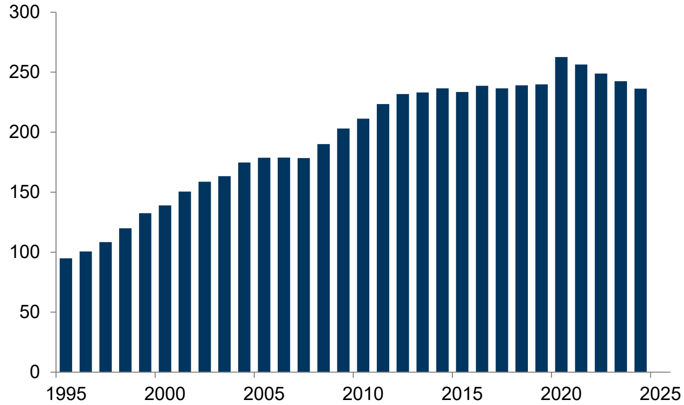
Impact on year-over-year GDP growth, pp



Source: Goldman Sachs GIR.

Japan debt-to-GDP: on a downward path

Government debt-to-GDP ratio, %



Source: IMF, Goldman Sachs GIR.

Europe

Latest GS proprietary datapoints/major changes in views

- We revised our ECB forecast and now expect the last 25bp cut in Sep (vs. Jul before) as President Lagarde's recent comments suggest that a pause in July is the baseline.
- We lowered our 2025 UK growth forecast to 1.1% yoy (from 1.2%) following weak April monthly GDP data.

Datapoints/trends we're focused on

- US tariffs; we think President Trump's threatened 50% tariff on the EU would result in a tariff drag of 1.6% of GDP (vs. a 0.7% tariff drag in our current baseline), partly reflecting the substitutability of EU goods by US buyers.
- UK defense spending; limited fiscal space likely reduces the near-term growth boost from additional defense spending.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

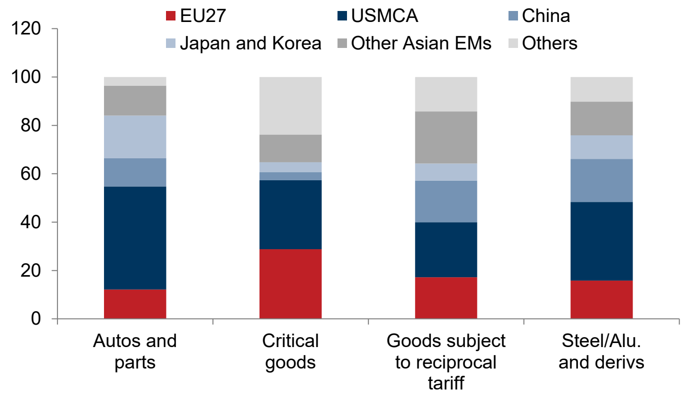
- We recently lowered our 2025/2026 China headline PPI inflation forecasts to -2.4%/-0.7% yoy (from -2.1%/-0.6%) owing to weak May PPI data and falling commodity prices.

Datapoints/trends we're focused on

- Chinese exports, which have remained remarkably resilient despite higher US tariffs, with no meaningful rotation from external to domestic demand yet.
- Asia ex-Japan inflation, which has fallen, with the potential for lower oil prices and deflationary China goods spillovers presenting additional downside risks to inflation from here.
- EM population growth; EM economies as a group are currently at a 'demographic turning point'.

European goods: not irreplaceable, but substitutable

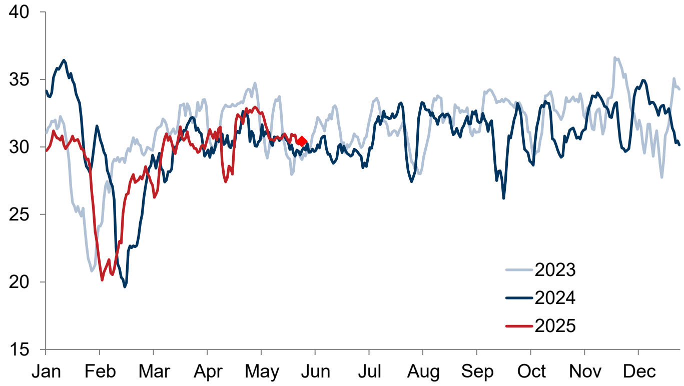
Market share in total US imports by type, %



Source: Haver Analytics, Goldman Sachs GIR.

China exports: more resilient than expected

Deadweight tonnage of departing ships at 20 major ports, million tons, 7-day moving average



Source: CEIC, Goldman Sachs GIR.

US fiscal worries: Is this time different?

US fiscal concerns have surged on the back of the Trump Administration's "One Big Beautiful Bill Act", which the CBO estimates will increase the deficit by a staggering $2.4tn over the next decade at a time when the US deficit and debt as a share of GDP are already at their highest levels outside of crisis periods (see pg. 5). But while fiscal concerns led Moody's to strip the US of its last triple-A rating (see pg. 19) and helped fuel a sharp bond selloff (with all eyes closely trained on bond auctions these days), they aren't anything new—we've heard them time and again, but a crisis hasn't occurred. So, is this time really different?

We ask three economy-watchers long concerned about the US fiscal trajectory: Bridgewater Founder Ray Dalio, Harvard professor and former IMF Chief Economist Kenneth Rogoff, and historian Sir Niall Ferguson. Perhaps unsurprisingly, all three believe that the answer is "yes" and are quite worried about the US fiscal situation today. But, given that they have all long sounded the alarm about US fiscal sustainability, we pressed them on why they think this time is (finally) different.

Dalio, for his part, makes the case that the US is now nearing an unsustainable point in what he calls the "big debt cycle"—which he says virtually all countries have experienced—whereby a demand/supply imbalance for government debt that becomes increasingly costly to service forces the constriction of debt-financed spending. Rogoff argues that the key difference today is much higher real interest rates that are set to endure, which will leave the US with a crippling fiscal burden given its already record-high debt levels. And Ferguson sees a critical turning point in that the US is now violating "Ferguson's Law" as debt service costs are exceeding defense spending for the first time since the era of isolationism nearly a century ago.

These shifts are also coming at a time when US exceptionalism is increasingly in question, with investors not only moving away from Treasuries but also the Dollar. So, the Dollar's dominant global role—which has long underpinned arguments that the US is less vulnerable to debt crises—gives Rogoff, Ferguson, and Dalio little such comfort today, with Rogoff arguing that much of the cushion that the Dollar once provided for America's fiscal policies "is now exhausted". So, all three of them are very worried about a coming US crisis, with Rogoff seeing the potential for such a crisis in as soon as four to five years.

GS Chief US Political Economist Alec Phillips is also concerned, but over the longer term. He estimates that tariff revenues will more than offset the impact of the tax cuts in the "One Big Beautiful Bill Act", resulting in a slightly smaller deficit alongside a growth hit over the near term and a roughly unchanged deficit and debt trajectory over the next decade. But he warns that this would still leave an unsustainable US fiscal position over the longer term, as the US will continue to run an unusually large primary deficit even before a recession hits, which history suggests would inevitably occur.

So, what would a crisis look like? Rogoff doesn't foresee an outright US debt default, but rather thinks a crisis could entail a surge in inflation alongside an economic shock, which he believes would be more painful than the pandemic inflation shock, requiring a much larger bond market adjustment. Financial repression is another possibility, which Rogoff says could relieve the debt burden but would come at the expense of economic growth (think Japan and Europe). Dalio warns that a debt-induced "economic heart attack" has led to the breakdown of all previous monetary orders, and the Dollar-based monetary order could well suffer a similar fate. And Ferguson goes one step further, arguing that a crisis could take the form of a military challenge that results in the US losing its status as a great power, as has occurred with nearly every superpower in history that has violated Ferguson's Law.

All that said, Dalio, Rogoff, Ferguson, and Phillips don't believe a crisis is inevitable. But they agree that avoiding a crisis will require the US to significantly lower its budget deficit, especially if real interest rates remain elevated. And Rogoff and Ferguson are not optimistic that voters and politicians are motivated to make such changes, with Phillips also noting that no obvious catalyst lies on the horizon that would force policymakers to grapple with the US' fiscal problems.

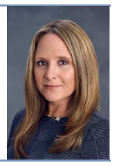
We then explore the fiscal dynamics of other places that have long elicited perhaps even more concern than the US: the European periphery, Asian debt giants Japan and China, and emerging markets (EMs) more broadly. GS senior European economists Filippo Taddei, James Moberly, and Alexandre Stott interestingly note that concerns about the fiscal outlook in France and the UK have supplanted concerns about Italy and Spain, a shift they expect to persist as the deficit trajectories, macroeconomic backdrops, and political constraints of the two groups of countries continue to diverge in the periphery's favor.

GS Chief Asia Pacific Economist Andrew Tilton also sees reason to be less concerned about the fiscal situation in Japan and China given their high domestic savings, which has allowed both countries to run persistent current account surpluses and accumulate large positive net international investment positions. This provides some comfort as GS Co-head of CEEMEA Economics Kevin Daly finds that external imbalances have better predicted sovereign and financial crises than public deficits and debt, which also leaves him less worried about EMs more broadly given their relatively limited external imbalances. That said, Daly, Tilton, and GS Head of LatAm Economics Research Alberto Ramos warn that EMs are not totally in the clear given their high debt burdens, which Ramos stresses come with significant macro costs that will likely only rise from here.

So, what does all of this mean for markets? GS Head of Global FX, Rates, and EM Strategy Kamakshya Trivedi doesn't necessarily think that the US will experience a Gilt-style crisis, though he does expect long-end rates to remain high and the Dollar to weaken further as US exceptionalism continues to erode. Rogoff expects a much more volatile period for financial markets and risk assets ahead alongside higher real rates. And Dalio expects most major countries to undergo a debt and currency devaluation process, and therefore recommends investors: diversify in asset classes and countries in strong fiscal positions, underweight debt assets, and overweight non-government fiat monies like gold and a bit of bitcoin.

Allison Nathan, Editor

Email: allison.nathan@gs.com
Tel: 212-357-7504
Goldman Sachs & Co. LLC



Q&A with Ray Dalio

Ray Dalio is Founder of Bridgewater Associates and author of *How Countries Go Broke: The Big Cycle*. Below, he explains why US debt is so worrying.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.

Q: You've extensively studied past big debt cycles, which you say are not well understood. What drives big debt cycles?

A: Big debt cycles occur and can be measured by 1) the amount of government debt service relative to government revenue, 2) the amount of debt the government needs to sell relative to the amount of demand for government debt, and 3) the amount of money central banks need to print to purchase government debt in order to make up for the shortfall in demand relative to the supply of government debt being sold. All of these measures increase in a long-term, multi-decade cycle until they can't anymore because 1) debt service expenses unacceptably crowd out other spending, 2) the supply of the debt that has to be bought is so large relative to the demand that interest rates have to rise a lot, which sends the markets and the economy down a lot, or 3) the central bank prints a lot of money and buys a lot of government debt to make up for the demand shortfall, which reduces the value of money. In any of these cases, bond returns remain poor until bonds become so cheap that they can attract demand and/or the debt can be restructured. One can easily measure these signs of deterioration and see movement toward an impending debt crisis. Such a crisis occurs when the constriction of debt-financed spending happens, like a debt-induced economic heart attack. I use this diagnostic process as an investment tool, which I am now sharing with others in my book, *How Countries Go Broke: The Big Cycle*.

Q: In the context of big debt cycles, does the current moment have a historical analogue?

A: My book discusses the most recent 35 cases, but the current moment has hundreds of historical analogues that go back as far as recorded history. In fact, virtually all countries have gone through this process, sometimes repeatedly, which has caused the breakdowns of all monetary orders, including the breakdowns of all reserve currencies like the British Pound and, before that, the Dutch Guilder. The process is not well understood as it happens only about once in a lifetime—when monetary orders break down—so studies of it were strikingly non-existent. I only discovered it because I saw it happening when investing in sovereign bond markets, which prompted me to study other historical cases so that I could navigate such moments well. This understanding is what gave me an edge in markets and helped me navigate the 2008 Global Financial Crisis and the 2010-15 European Debt Crisis.

Q: How worried should we be about a "heart attack" US debt crisis?

A: We should be very worried as all the previously mentioned conditions and my indicators that reflect them point toward an impending crisis, yet concern about such a crisis is lower than it should be because the dynamic that causes such crises isn't well understood and premature warnings of a crisis have led to complacency. It's like someone with a lot of plaque in their arteries who eats a lot of fatty food and doesn't exercise saying to their doctor, "You've warned me that bad things would happen to me if I didn't change my ways, but nothing has happened to me yet. Why should I believe you now?"

Q: So, what could be the catalyst for a US debt crisis today?

A: The catalysts will be a convergence of the three influences I mentioned, which may be hastened or postponed by policy. For example, if the budget deficit is lowered to about 3% of GDP from what I and most others project to be about 7% of GDP, that would go a long way toward reducing the risks.

Q: What are those who think the US is less vulnerable to a debt crisis given the Dollar's reserve currency status missing?

A: They are missing an understanding of the mechanics and the lessons of history that have taught us that currency and debt must be effective stores of wealth or else they are devalued and abandoned, as has happened with all prior reserve currencies that ultimately lost their reserve status.

Q: Japan has long had very high debt levels but has never experienced a debt crisis. Why don't you take comfort from that?

A: Japan exemplifies and will continue to exemplify my theory in practice. The government's significant indebtedness has made Japanese bonds and debt terrible investments. To make up for a shortage of demand for Japanese debt assets at low enough interest rates to be good for the country, the BoJ printed a lot of money and bought a lot of government debt which led to Japanese bond holders losing 45% relative to holders of US dollar debt and 60% relative to holders of gold since 2013. Concurrently, typical wages of a Japanese worker have fallen 58% since 2013 in common currency terms relative to the wages of an American worker.

Q: What can/should the US do to address its indebtedness and prevent a debt crisis?

A: The government can and should reduce the budget deficit to 3% of GDP in a way that balances spending cuts and tax revenue increases so as not to inflict fiscal trauma on any part of the economy. I estimate that this would lead interest rates to decline to about 1.5%, which would both reduce debt service payments by about 2% of GDP per year and stimulate a rise in asset prices and economic activity, which would generate much more government revenue.

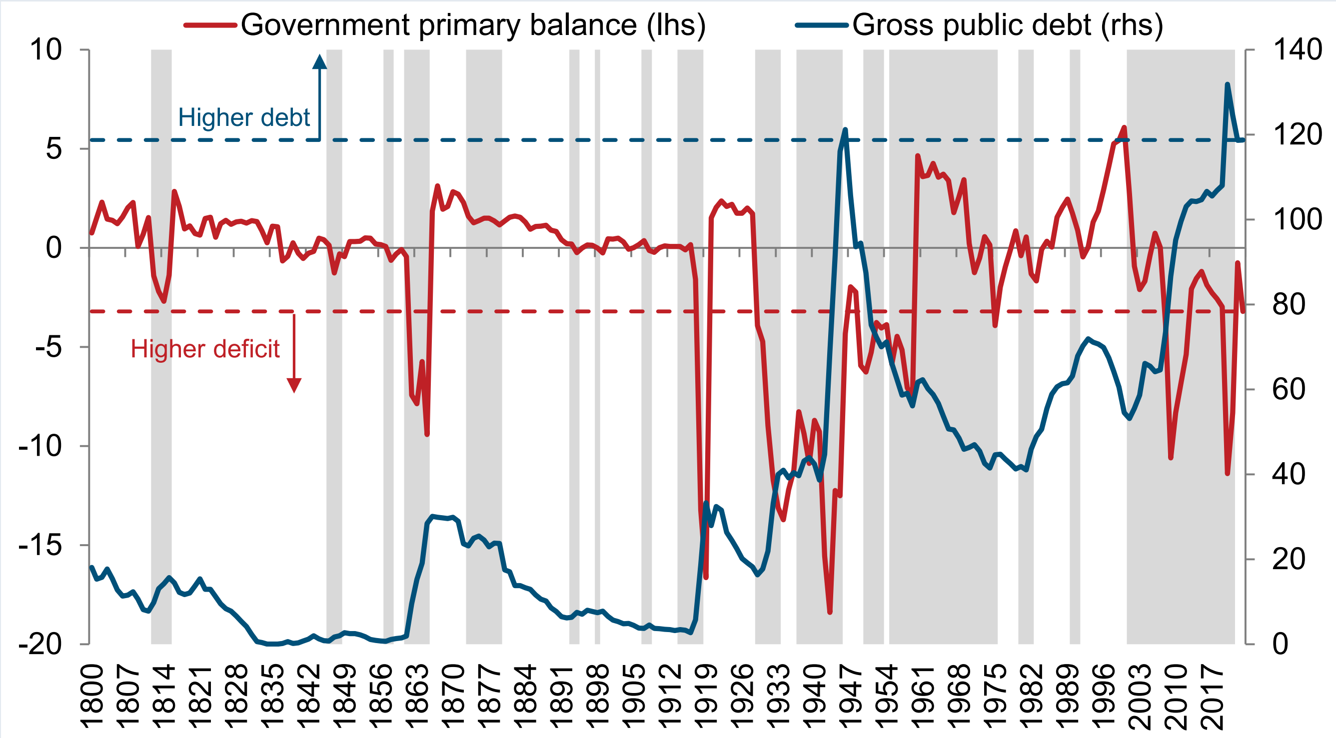
Q: How should investors be positioned to navigate this risk?

A: With most major countries—the UK, EU, China, and Japan in addition to the US—facing debt and deficit problems, which I expect to lead to a debt and currency devaluation process, I would say 1) diversify well in asset classes and countries that have strong income statements and balance sheets and are not dealing with great internal political and external geopolitical conflicts, 2) underweight debt assets like bonds, and 3) overweight non-government produced fiat monies like gold and a bit of bitcoin. Having a small amount of one's money in gold can reduce a portfolio's risk and should also raise its return.

An unusual US fiscal situation

The US deficit and debt as a share of GDP are at their highest levels outside of crisis periods...

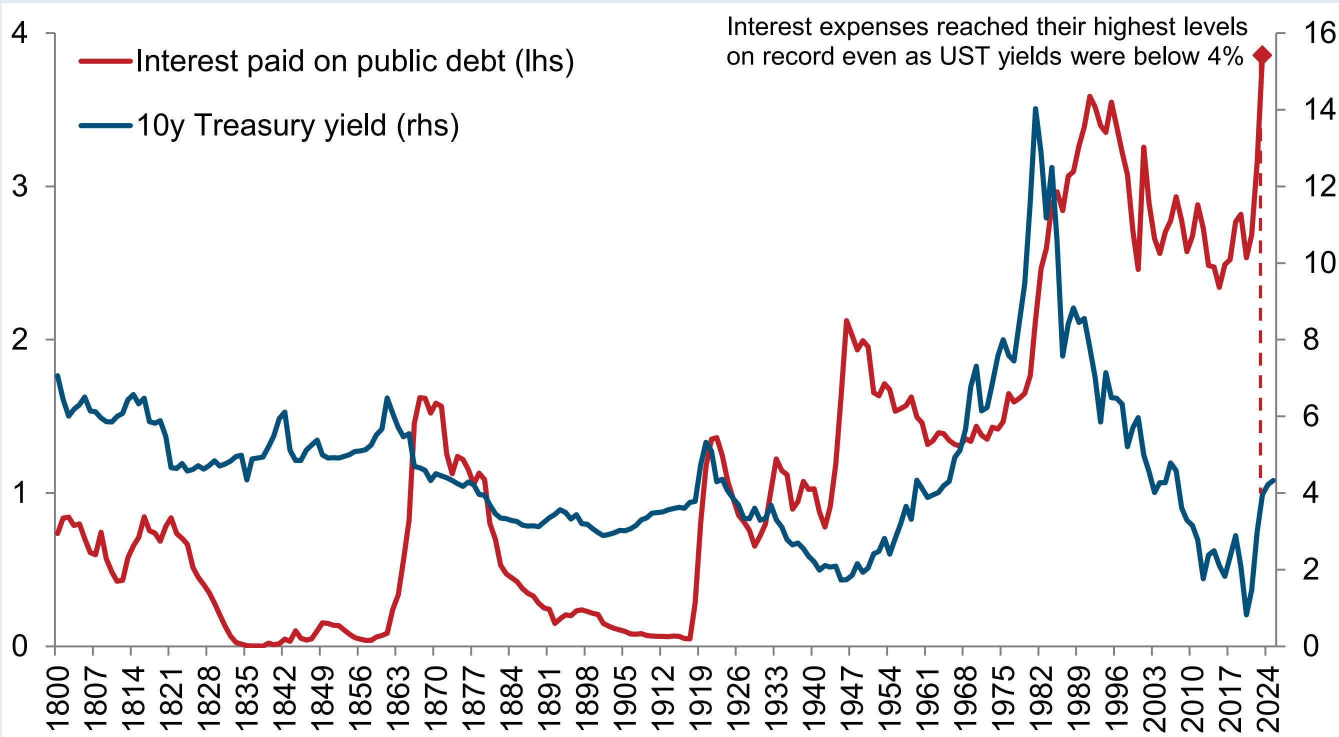
US government primary balance (lhs) and gross public debt* (rhs) as % of GDP (data through 2023)



**Gross public debt includes central, state, and local government debt. Grey shaded areas represent times of major recessions, crises, or wars in US history.*
Source: IMF Public Finances in Modern History database, NBER, Federal Depository Library Program (dates of major wars), compiled by Goldman Sachs GIR.

...while interest expenses were at record highs even before the most recent rise in interest rates

Interest paid on public debt as % of GDP (lhs) (data through 2023), annual average 10y Treasury yield (%, rhs) (current data)



Source: IMF Public Finances in Modern History database, Global Financial Data, Inc., Federal Reserve Board, Haver Analytics, compiled by Goldman Sachs GIR.

Interview with Kenneth Rogoff

Kenneth Rogoff is Maurits C. Boas Professor at Harvard University and author of *Our Dollar, Your Problem: An Insider's View of Seven Turbulent Decades of Global Finance, and the Road Ahead*. Previously, he served as Chief Economist at the International Monetary Fund. Below, he argues that US fiscal dynamics are unsustainable given the rise in real interest rates that is likely here to stay, setting up for a crisis that will necessitate a significant adjustment.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.

Allison Nathan: Concerns about the US fiscal situation aren't new. So, what makes this time different?

Kenneth Rogoff: What sets this moment apart is the rise in global long-term real interest rates. After a prolonged period of declining and persistently low rates following the Global Financial Crisis (GFC), many economy-watchers—including economists and policymakers—wrongly came to believe that rates would remain low forever. Under such an assumption, there is no reason to be concerned about high debt levels. But that assumption has proved flawed because real interest rates tend to mean-revert, albeit this is a slight trend. So, the ongoing rise in rates should be thought of as a normalization, not an aberration. When US Treasury officials invited me to opine on their debt management plans a decade ago, I tried to warn them about this coming normalization, only to be met with skepticism. Now that rates have indeed risen, fiscal concerns have grown, but not by nearly enough given that many still cling to the overly-optimistic notion that rates will very likely return to pre-pandemic levels.

On the contrary, the forces driving up rates, including already-high global debt as well as the additional fiscal demands associated with global fragmentation, geopolitical uncertainty, rising energy demand to accommodate the growth in AI technology, and remilitarization, will undoubtedly persist. And, in the US, President Trump's push to reduce the trade deficit could lower the capital inflows that have put downward pressure on US interest rates. The combination of these forces poses a serious challenge for countries—particularly the US, but many other economies as well—that have grown accustomed to piling on debt.

Allison Nathan: So, is the concern all about higher real interest rates?

Kenneth Rogoff: Higher rates are the primary reason the fiscal outlook is so concerning. If rates were to fall sharply, I would become far less worried. But, of course, the reason that higher rates are so concerning is because debt levels are so high. As much as some may argue that high debt is irrelevant, countries that are large debtors face serious repercussions when interest rates rise significantly. US public debt has risen from roughly 30% of GDP in 1980 to over 120% today. And, troublingly, the Trump Administration appears set to increase the already unusually-large deficit, which is mind-blowing given that Trump's campaign centered around the inflationary consequences of the Biden-era deficits.

The notion that debt is a free lunch that had been pushed by many economy-watchers is absurd. Unsustainable fiscal dynamics can persist for a while, but not forever. Today's larger deficit on top of already-high debt levels is setting up for a crisis that will necessitate a significant adjustment. As Rudi Dornbusch once noted—following Herb Stein—financial crises take longer to happen than you think they should, but when they do, they unfold faster than you think they could.

> "The notion that debt is a free lunch that had been pushed by many economy-watchers is absurd."

Allison Nathan: When could a crisis unfold?

Kenneth Rogoff: In my book, *Our Dollar, Your Problem*, which I wrote before Trump was reelected, I predicted that such a crisis was more likely than not within five to seven years. But the Administration's current policy agenda suggests that timing could be shortened to just four or five years. It's possible that stronger economic growth—perhaps driven by AI—could help avert a debt-related crisis. But I'm skeptical that will happen quickly or smoothly enough to make a difference.

Economists often do what I would describe as silly arithmetic by looking at the differential between growth and interest rates to gauge how close or far a country is from a crisis. But such debt calculus is not helpful in predicting when a crisis could unfold—almost every country that has defaulted has done so long before its debt calculus would have suggested.

Allison Nathan: What might such a crisis look like?

Kenneth Rogoff: I don't expect the US to experience a debt default, like it did in the 1930s when FDR raised the price of gold from $20 to $35 per ounce, which resulted in a default as foreign creditors incurred significant losses. Instead, America's debt problems will likely unfold in one of two ways. The first, and most likely, is through a sharp rise in inflation that occurs in conjunction with an economic shock. Exactly what that shock will look like is difficult to say, but it will likely be more painful than the Covid inflation shock that precipitated only relatively minor adjustments in bond markets. If inflation were to spike again owing to debt concerns, I would expect a much bigger adjustment that investors aren't anticipating or prepared for.

Another possibility is that the government could resort to financial repression, which involves keeping interest rates artificially low through policies such as interest rate caps and high reserve requirements as well as restrictions on capital flows to make it easier to finance the debt. While financial repression can help manage government debt, it comes at the cost of growth as it is essentially a tax on savers and reduces inflows to the private sector. Japan has gone this route with its yield curve control policy, which has allowed it to forestall a crisis despite its roughly 250% debt-to-GDP ratio but has also mired the country in a two-decade growth crisis. Europe also resorted to financial repression in the aftermath of the GFC to relieve its growing fiscal burden, which has contributed to the region's ongoing growth woes.

Allison Nathan: What would this mean for markets?

Kenneth Rogoff: The events of the 1970s offer the closest analogy, with Trump echoing many of the same policies and beliefs as the Nixon Administration. Whether the dynamics will unfold now exactly as they did then is hard to say, but the parallels are clear. While we may understand monetary policy much better today, I'm not convinced we understand the political economy of fiscal policy any better. And it's very hard for the Fed to be an island of technocratic competence in a sea of political turmoil. Consequently, we can expect a much more volatile period for financial markets that entails higher real interest rates, bursts of inflation, and more volatility in growth, exchange rates, commodity prices, and other risk assets.

Allison Nathan: Some people have argued that the US is generally less vulnerable to debt-related crises because of the dominant role of the Dollar in the global economy. Does this Dollar dominance give you any comfort?

Kenneth Rogoff: The Dollar's dominance has provided a cushion for the US' fiscal policies, but much of that cushion is now exhausted. Foreign demand for US debt isn't unlimited, and the massive amounts of debt the US has been pouring into the world has likely brought it close to the point of saturation.

Importantly, the Dollar's dominance is far from guaranteed—after the collapse of the Bretton Woods system in the 1970s, Europe largely abandoned the Dollar, causing it to lose significant global market share. It would be wrong to assume that can't happen again. In fact, the Dollar bloc has already begun to splinter as China has aggressively moved away from the Dollar over the last few years and growing distrust of the US has prompted African and Latin American countries to seek out Dollar alternatives like the RMB for some trade. And the US' increased use of sanctions is absolutely incentivizing many countries to try to break free from the Dollar-centric monetary order. These shifts are not just about reserve holdings or the denomination of trade, but also about global financial flows.

So, while I don't expect the Dollar to be outright replaced, its dominance will likely further diminish. Over the next decade or two, I envision a more tripolar currency landscape with the Dollar still on top but with the RMB and Euro having further encroached on its share as the global colonization of the Dollar declines. Cryptocurrencies will also chip away at the Dollar's role in the underground economy which, by my estimate, accounts for around 20% of global GDP, further eroding the exorbitant privilege the Dollar has enjoyed.

Beyond these external factors, internal factors will also likely weigh on the Dollar's appeal. As we've discussed, the US' mounting debt issues—which I think will ultimately end in another inflation surge—will undermine confidence in the Dollar. Eroding Fed independence could also lessen the appeal of Dollar holdings. Many people believe that Fed independence is sacrosanct, taking comfort from recent Supreme Court signaling that it views the Fed differently from other independent government agencies and would be unlikely to grant the President permission to replace Fed officials without "cause". But this independence is not guaranteed and could disappear at the whim of Congress. All of these factors are causing the Dollar to fray at the edges, which will exacerbate the US debt problem because the pool of foreigners willing to hold US debt is shrinking.

Allison Nathan: While the US is currently at the center of fiscal concerns, deficits and debt have risen in many other economies. What other areas of the world worry you?

Kenneth Rogoff: Europe's fiscal outlook is also increasingly concerning owing to the surge in debt following the pandemic and the energy crisis triggered by the Russia-Ukraine war. And Europe's funding needs will only grow to support its green energy goals, boost energy independence, and significantly increase military spending—all of which will require substantial public investment. While more fiscally conservative countries like Germany are fortunate enough to have the space to absorb a rapid rise in debt-to-GDP—which is well underway—much of the rest of Europe is already heavily indebted. And decades of underinvestment, especially in defense, have left Europe now playing catch-up. Europe's military spending will likely need to rise from the ~2% of GDP it is now targeting to 4-5% of GDP. Compounding these challenges, Europe faces both cyclical and structural economic difficulties that hinder its ability to grow out of its fiscal burdens.

Emerging markets—which have long been a source of fiscal concerns—will also find themselves under pressure amid the rise in global yields. Many small- and medium-sized emerging markets have already defaulted, and the risk of defaults in much larger ones has grown significantly. So, the persistently higher real interest rates that I expect will likely prove challenging for many developed and emerging market economies alike, which just underscores that this is a global problem.

Allison Nathan: What has to happen for politicians to take fiscal issues seriously, particularly in the US?

Kenneth Rogoff: People need to recognize that higher interest rates are here to stay and that a return to the low-rate era of the past might well prove wishful thinking. The macro environment is fundamentally different today than the post-GFC and post-pandemic eras, yet fiscal policy has not adjusted. While companies are beginning to adjust to this new reality—many blue-chip firms now forecast much higher rates over the next decade—voters remain in denial, which is preventing politicians from taking serious steps to grapple with the issue. Right now, neither party can remain in power by trying to bring down deficits—no politician, save for a couple of mavericks, is willing to draw a line in the sand on this issue. Ultimately, voters need to see the deficit as a problem that must be addressed. Unfortunately, that is unlikely until a crisis of some type emerges. But waiting for such a crisis before addressing the fiscal situation would be a costly mistake.

Not getting worse is not good enough

Alec Phillips argues that President Trump's policies avoid a material worsening of the debt trajectory, but still leave the US in an unsustainable fiscal position longer term

Two sets of Trump Administration policies look likely to shape the fiscal outlook over the next few years. First, the fiscal package—the "One Big Beautiful Bill Act"—that we expect to pass by August will increase the deficit in the near term compared with current policies. Second, the tariffs President Trump has implemented would raise revenue and reduce the deficit. This policy combination looks likely to result in slight deficit reduction along with a hit to growth, on net. However, while these policies avoid a material increase in the debt and deficit trajectory, they still leave the US fiscal outlook in an unsustainable position over the longer term.

Beauty is in the eye of the bill holder

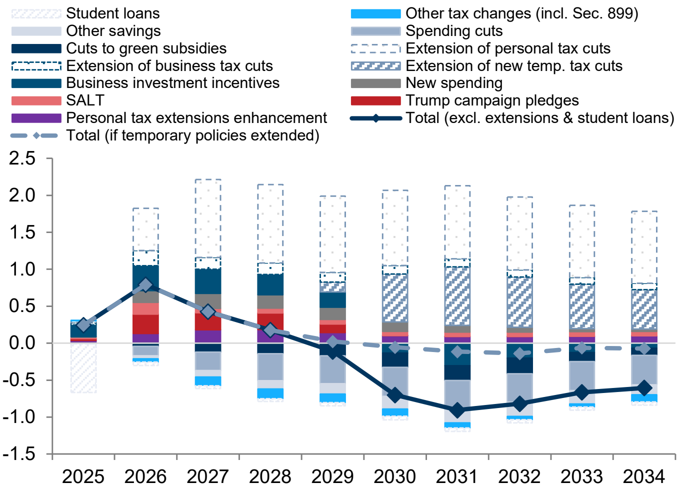
The House-passed fiscal package includes five main components:

1. **Extension and expansion of expiring individual tax cuts:** The bill would extend roughly \$3.3tn over 10 years (1% of GDP) in personal tax cuts that are set to expire at the end of 2025. While this adds to the deficit compared to official forecasts that assume they will expire, it doesn't increase the deficit from the current level. That said, the bill expands a few of these tax cuts, reducing taxes by around \$60bn/yr (0.1% of GDP) over the next few years on top of the extension.
2. **Trump campaign tax pledges:** The bill would eliminate taxes on tips and extra overtime pay (with limits), allow deduction of auto loan interest, and provide a larger standard deduction to seniors. Deductibility of state and local taxes (SALT) would also expand incrementally. Together, these changes would reduce personal taxes by around \$75bn/yr (0.2% of GDP) over the next few years.
3. **Business investment incentives:** The House-passed bill would reinstate three policies: 100% expensing for equipment investment, full expensing of R&D costs, and slightly more generous interest deductibility. The bill also adds a new incentive: full expensing of factories, chemical plants, and refineries. These provisions would boost the deficit by more than \$100bn in FY2026, but much of this is a timing change and the longer-term annual cost is smaller.
4. **New spending:** The legislation adds roughly \$400bn in new funding for immigration enforcement (\$184bn), defense (\$150bn), air traffic control (\$12bn), and farm subsidies (\$59bn). These funds would be spent at a pace of \$60-70bn/yr (0.2% of GDP) for the next several years.
5. **Spending cuts:** The legislation would reduce spending by roughly \$1.6tn over 10 years (0.4% of GDP) by limiting eligibility for Medicaid and food stamps and shifting some of the cost of these programs to states. Smaller cuts to student loans and federal employee benefits and would add to the savings. The bill also cuts green spending and subsidies by roughly \$600bn over 10 years (0.15% of GDP).

The impending expiration of the 2017 tax cuts and the temporary nature of several new personal and business tax cuts complicate the analysis of the bill's ultimate impact. Assuming that the tax cuts expire on schedule, the bill would boost the primary deficit by \$2.4tn (0.6% of GDP) through 2034. But compared with current policies, it would reduce the primary deficit by around \$1.8tn (0.5% of GDP). If Congress extends temporary tax cuts past 2028-2029, the bill would add around \$400bn/10yrs (0.1% of GDP) to the primary deficit. We expect the Senate version to make the business investment incentives permanent, but not the personal tax cuts.

The Trump Administration's fiscal package is set to worsen the deficit over the next few years

Deficit impact of House-passed fiscal legislation vs. current policies, % of GDP



Source: Congressional Budget Office, Joint Committee on Taxation, GS GIR.

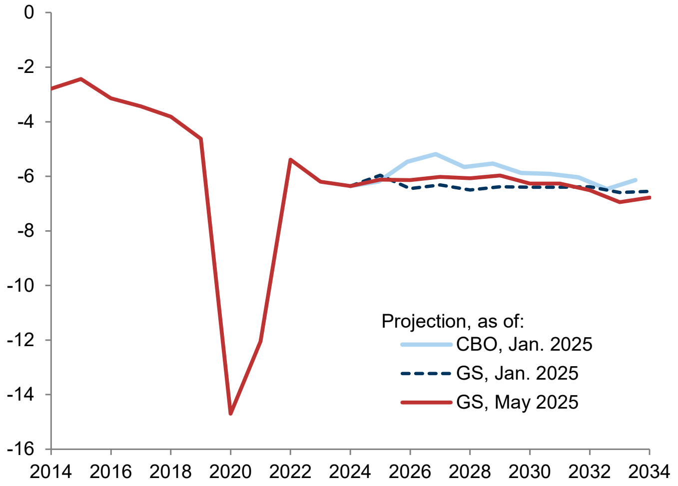
A tariff revenue offset

While the legislation would worsen the deficit over the next few years, revenue from the Administration's tariffs would likely raise more than this. Goods imports in 2024 totaled roughly 11% of GDP. Assuming that goods imports decline roughly proportionately to the 13pp rise in tariffs we assume, tariffs should raise around 1.25% of GDP, or around \$400bn, in FY2026. The overall increase in federal revenues would be somewhat smaller, as we have lowered our expectations for other revenues slightly as a result of the growth hit from tariffs.

Compared to the start of the year, the combined effect reduces the deficit slightly over the next few years, as the additional revenue from larger-than-expected tariffs more than offsets the effects of the slightly larger-than-expected tax cuts in the pending fiscal package. Our projected marketable Treasury debt level is roughly unchanged compared with our projections in January, at around 120% of GDP 10 years out, up from around 100% today. The limited change in our deficit and debt projections for the coming decade from the start of the year to now reflects the economic and revenue effects of implemented and expected tariffs as well as the House-passed legislation, with the assumption that temporary tax policies in that legislation would continue past their scheduled sunset at the end of 2028.

The House-passed fiscal package does not materially change our deficit projections…

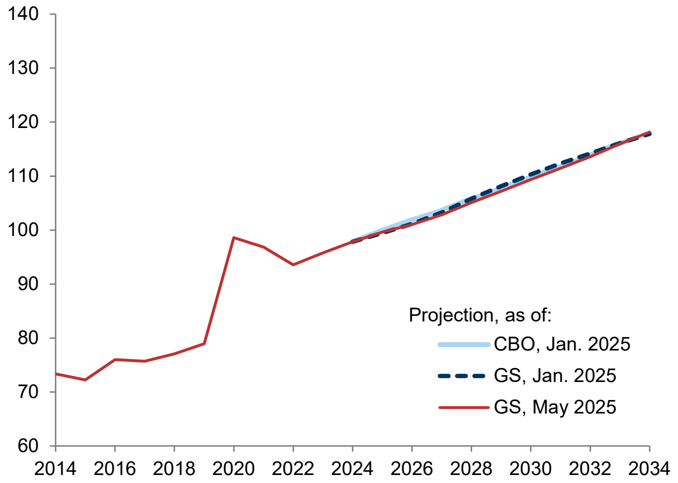
Projected federal budget deficit, % of GDP



Source: Congressional Budget Office, Goldman Sachs GIR.

…or our debt projections for the coming decade

Projected federal debt, % of GDP



Source: Congressional Budget Office, Goldman Sachs GIR.

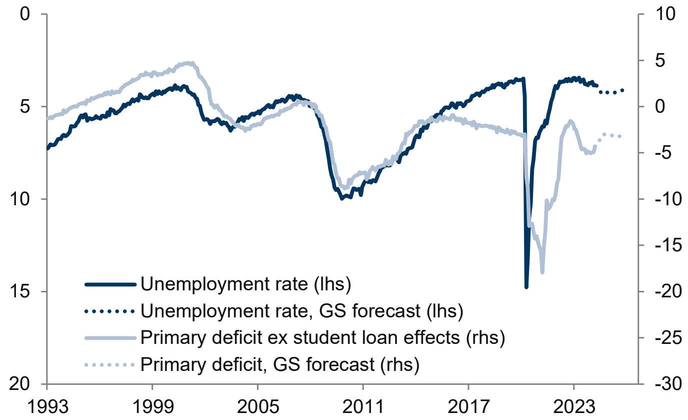
Not worsening is not good enough

However, simply avoiding a further increase in the debt or deficit trajectory over the next 10 years still leaves the US fiscal outlook in an unsustainable position over the longer term. The primary deficit is already roughly 5% of GDP wider than is typical during periods of full employment. And while we don't expect a recession in our baseline forecast, recessions occur on average once every 10 years and have typically added 5pp to the cumulative primary deficit through cyclical effects and another 8pp on average as a result of countercyclical policies.

This is particularly striking in light of the rise in the debt level over the last two decades. On average, US fiscal policy has historically tightened in response to a rising public debt burden through a combination of tax increases and spending cuts. More recently, though, the response has been in the other direction, perhaps partly due to multiple economic shocks over the last couple of decades but also likely due to a shift in the politics around deficit reduction.

The US primary deficit is roughly 5% of GDP wider than is typical during periods of full employment

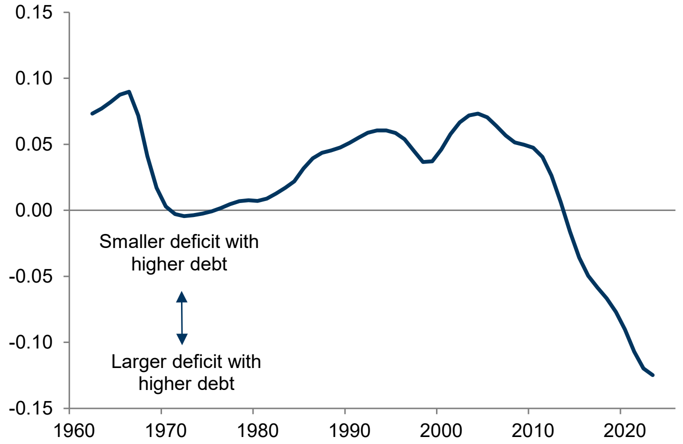
Unemployment rate (lhs, inverted, %) vs. US primary budget deficit (rhs, % of GDP, 12m avg.)



Source: Department of Labor, Congressional Budget Office, Goldman Sachs GIR.

Fiscal policy has historically tightened in response to a rising public debt burden, but this has not been true more recently

Rolling sensitivity* of cyclically-adjusted primary balance to 1pp increase in debt-to-GDP ratio, pp



**Coefficients from 40yr rolling regression of the 3yr average cyclically-adjusted primary deficit on the lagged debt-to-GDP ratio, controlling for the output gap and temporary military spending as in Bohn (2008). Data are exponentially weighted with a half-life of 15 years.*

Source: Bohn (2008), Goldman Sachs GIR.

No obvious catalyst for meaningful policy changes

Once the fiscal package passes—we expect enactment by August—it's not clear what could force lawmakers to grapple with deficit reduction. A debt limit debate in 2027 might put a spotlight on the fiscal outlook but has historically not been a driver of major reforms. The expiration of temporary tax cuts at the end of 2028 or 2029 could prompt a fiscal debate, though it seems unlikely on its own to lead to net deficit reduction. The most obvious catalyst on the horizon won't arrive until the early 2030s, when the Medicare and Social Security programs are projected to exhaust the trust funds that finance them. This risk has historically led to substantial policy changes, though at the moment neither party appears interested in reducing such spending. Without an obvious policy event on the horizon likely to force lawmakers to reevaluate fiscal policy, an adverse financial market response might ultimately be the forcing factor for more meaningful policy changes.

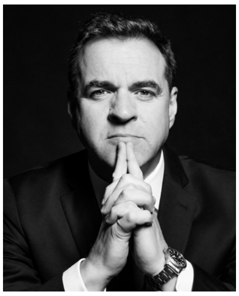
Alec Phillips, Chief US Political Economist

Email: *alec.phillips@gs.com* *Goldman Sachs & Co. LLC*
Tel: *202-637-3746*

Interview with Sir Niall Ferguson

Sir Niall Ferguson is Senior Fellow at the Hoover Institution at Stanford University and Senior Fellow of the Belfer Center for Science and International Affairs at Harvard University. Below, he argues that the US' reckless fiscal policy, which has allowed the interest payments on its debt to exceed defense spending, has put it at risk of losing its status as a great power.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.



Jenny Grimberg: How much government debt is too much has long been a matter of debate. What does the historical record say?

Niall Ferguson: The historical record provides two key insights. First, there is no maximum threshold of public debt as a percent of GDP; great powers have historically enjoyed an extraordinary ability to issue debt and manage significant debt stocks. The classic example is Britain in the 18th, 19th, and 20th centuries, when major wars pushed the debt-to-GDP ratio above 200% for significant periods, well above the 90-100% that some economists say is too much debt. Japan's gross debt-to-GDP ratio stands at an even higher 250% today, and, contrary to economic wisdom, it long suffered from deflation rather than inflation.

Second, better ways exist of measuring a country's debt sustainability, such as comparing interest costs to growth or to tax receipts. My personal favorite is what I call Ferguson's Law, a simple heuristic that compares interest expenses to defense spending. The former exceeding the latter spells trouble—history is ripe with examples of superpowers that have spent more on debt service than defense and subsequently were no longer super or powerful. That's exactly the position the US is in today. Although the gross debt-to-GDP ratio is at its post-WWII level of roughly 120%, America is spending more on interest payments than on defense. So, I am very concerned about the US fiscal situation.

Jenny Grimberg: Concerns about the state of America's finances aren't new, though. So, why is this time different?

Niall Ferguson: Such concerns indeed aren't new; I've warned the US is on an unsustainable fiscal path for 20 years now, and so at times have felt like the boy who cried "wolf." But a key lesson of history is that a great power like the US—the world's top military power and issuer of the global reserve currency as well as what has long been considered risk-free debt—can light many matches in the dynamite room and get away with it for a time. Yet eventually the sentiment shifts.

That shift has now arrived, and in quite dramatic fashion, as investors have started reducing their US Treasury holdings and moving away from the Dollar. These moves have led to the very unusual combination of higher bond yields and a weaker Dollar, which has raised alarms. James Carville famously said in 1993 that if he were to be reincarnated, he wouldn't come back as the pope or the president but as the bond market, because it terrifies everybody. And the bond market is threatening to do that today for really the first time since the Clinton Administration, with the bond vigilantes back to remind everyone that deficits and debt do matter.

The fact that the US is spending more on interest than on defense for the first time since the era of isolationism also matters. Throughout its reign as the global hegemon, the US has been able to spend a large share of GDP on its military. America's defense budget averaged close to 7% of GDP from 1960 through the Cold War compared to around 3% today, which allowed it to accumulate significant stocks of the world's most sophisticated military hardware. Over the same period, the massive debt the US ran up in WWII shrank relative to GDP owing to rapid growth and some inflation, so the US left its debt problem behind for most of the latter half of the 20th century.

That's no longer the case; the US now faces real fiscal constraints on its ability to field the world's leading military, a precarious position at a time when China has become a serious military power and warfare is increasingly shifting toward next-gen, cheap, disposable hardware from the expensive hardware that dominated the 1990s. So, the US will need to invest significant resources to keep up in this new military era. But the current US trajectory suggests that the US will spend more on interest payments than on defense for the next two decades, and the Trump Administration's "One Big Beautiful Bill Act" will likely worsen that trajectory.

"Any great power that pursues a reckless fiscal policy by allowing the cost of its debt to exceed the cost of its armed services is opening itself up to challenge."

Jenny Grimberg: So, is the US at risk of losing its status as a great power?

Niall Ferguson: Yes—any great power that pursues a reckless fiscal policy by allowing the cost of its debt to exceed the cost of its armed services is opening itself up to challenge. I have looked at this as a historian, tracing the story back to the very origins of public debt, before and during the Italian Renaissance.

Public debt first featured as a crucial part of a global power's dominance during the Spanish Empire in the 16th and 17th centuries. Throughout the 1500s, Spain raised both long- and short-term debt to finance its military endeavors, and the interest on this debt began exceeding the empire's defense spending after 1600. Spain fairly quickly found itself facing multiple challenges to its empire and effectively ceased to become a great power in Europe later that century. The same happened with the Dutch Republic and France in the 18th century, the Ottoman Empire and Austria-Hungary in the 19th century, and Great Britain in the late 20th century.

The US is just the latest great power to find itself in this fiscal jam. And the lesson of the 20th century is that deterrence is vastly preferable to fighting a major war. Had Britain been able to deter Germany in 1914 and again in 1939, it wouldn't have ended up exhausted and declining in the late 20th century. If the US fails to put itself in a fiscal position to deter China, it could very well meet the same fate.

Jenny Grimberg: Has any country ever been able to violate Ferguson's Law and remain a great power? If so, what lessons should we take from that?

Niall Ferguson: Great Britain in the 19th and first half of the 20th centuries is a rare, albeit reassuring, example. Britain violated Ferguson's Law several times during that period, but in each case managed to reduce its debt service costs and increase its defense budget, which partly explains the longevity of the British Empire. In the wake of WWI, Britain was saddled with a mountain of debt, with interest costs exceeding military spending every year from 1920 to 1936. This was the real rationale for the policy of "appeasement". But prudent fiscal management made rearmament possible just in time for Great Britain to win the Battle of Britain and avoid defeat at the hands of Hitler.

The case of interwar Britain may be the most relevant for the US today—the US is similarly overextended in its global commitments, has a large debt burden it can't seem to grow out of, and is in an interwar period between the first Cold War with Russia and the second, looming Cold War with China. If US leaders recognize this reality and act swiftly to address the debt problem and modernize the military, America just might be able to replicate Britain's example. But while a bipartisan consensus exists about the China challenge, no consensus exists about how to lower the deficit and stabilize the debt. The only consensus around this issue seems to be to not do anything about it. So, I worry.

Jenny Grimberg: Does the Dollar's dominant role in the global economy provide any comfort that the US can violate Ferguson's Law and retain its great power status?

Niall Ferguson: Not particularly. I agree with Kenneth Rogoff that the idea of "exorbitant privilege", a French term coined in the 1960s to characterize the Dollar's global reserve currency status, is a bit misleading because if such status bestowed a country with tremendous privilege, wouldn't the US enjoy a premium in the form of very low borrowing costs relative to those of less powerful countries without such privilege? But it doesn't—the US today faces higher borrowing costs than many advanced countries. That suggests that the privilege has eroded over time as the US has exploited it to excess since severing the link between the Dollar and gold through its aggressive use of economic and financial sanctions. That, together with the shift toward a more multipolar world, has led contenders like the Euro and RMB to emerge, with China's capital controls the only thing stopping the RMB from posing a proper challenge to the Dollar. So, we shouldn't expect the Dollar to save the US from the consequences of its fiscal recklessness.

Jenny Grimberg: The US is not the only country facing this challenge. How ubiquitous are violations of Ferguson's Law today, and how problematic is that for the world?

Niall Ferguson: Many countries are currently violating Ferguson's Law. The only G7 member not doing so is Germany, which has long imposed a constitutional debt brake on themselves. But that is changing as the new government loosens the fiscal purse strings to pursue rearmament. Several other countries, including Italy and Japan, are in even worse fiscal straits than the US. And all the G7 countries have much smaller military capabilities than the US and little ability to change that. It would be a heroic achievement for most European countries just to increase defense spending to 3.5% of GDP, let alone the 5% of GDP target that President Trump is demanding.

China also has its own version of this problem. While central government debt doesn't look too bad, the local government debt problem is terrible. So, we're living in a strange world in which every country is weak in a similar way. The three big players—the US, China, and Europe—are bogged down by excessive public debt and struggling to muster the resources for an arms race, which means that none of them is strong enough to control a sphere of influence. This gives economically weak countries such as Russia and Iran the opportunity to pose meaningful military threats. The world feels as volatile and unstable as it does today largely because of fiscal constraints on the big players.

Jenny Grimberg: With many countries needing to spend more on defense that they can't afford, is the world set to become even more unstable and volatile?

Niall Ferguson: The situation is certainly troubling, but the worst case is not inevitable. If AI technology proves even a quarter as good as its proponents claim, that could unleash a productivity boom that could allow countries to grow their way out of their debt problems, just as the Industrial Revolution did for Great Britain. The cost of national security may also decline dramatically as the expensive hardware of the late 20th century increasingly gives way to less costly military technologies like drones. We should always remember how non-linear and surprising history is, so such discontinuities are absolutely possible. And if any country is in pole position to harness the benefits of these innovations, especially AI, it is the US. I have long argued that the federal government's inefficiencies and excessive costs mainly reflect the failure to apply technological solutions to America's greatest problem, which is the high cost and low quality of many public services. AI could solve those issues.

Ultimately, though, the obstacles to solving America's fiscal problems are not technological, but political. The fact that the two-party system produces budgets that never balance is an especially bizarre political-economy problem in a country as economically successful as the US. So, politicians must get their act together to deploy technological solutions to the provision of public goods. If they fail to do so, not even brilliant AI technology will prevent the great era of American primacy from coming to an end, with significant repercussions not only for the US, but also for the world as a whole.

Q&A: Markets, tariffs, and fiscal fears

Kamakshya Trivedi answers key questions about the impact of fiscal concerns on markets in the US and globally

Just as markets began to recover from the Liberation Day-induced selloff, taking comfort from the de-escalation in US trade policy, concerns about the US' fiscal outlook have come to the fore. Here, we address key questions about the impact of fiscal concerns on markets, both in the US and globally, and how market dynamics could evolve from here.

Q. How are US fiscal concerns showing up in markets?

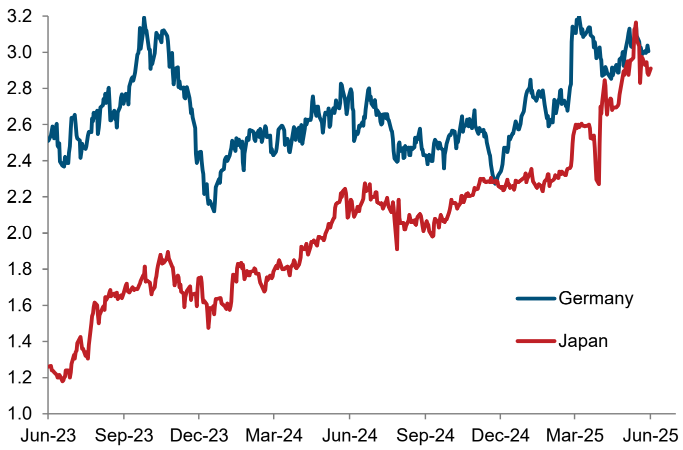
A: Market focus on US fiscal risks has undoubtedly increased over the past few months. In May alone, the cost of long-term borrowing in the US (spanning the 10-year and 30-year maturities) rose 25-30bp, before subsequently moderating. At the same time, the Dollar has continued to depreciate. So, while equity markets have recovered from their post-Liberation Day selloff, the pressure on US bonds and the Dollar has continued unabated off the back of fiscal concerns.

Q. To what extent are fiscal pressures being reflected in other DM and EM markets?

A: While the focus is unquestionably on the US, with US rates experiencing the largest moves across G4 markets, ripples of concern have arisen elsewhere. In particular, long-end Japanese yields surged last month, with 30y JGB yields briefly eclipsing 30y Bund yields. While market technicals—in particular, reduced demand for long-dated duration alongside BoJ quantitative tightening—may be locally responsible for the increase in rates, part of the move owes to the underlying risk factors of fiscal deficits and resilient inflation in Japan. However, unlike in the US, the selloff in Japanese bonds was not associated with broader weakness in other Japanese assets such as equities or the currency. Long-end yields have also risen in the UK and Euro area, although to a lesser extent.

Long duration Japanese rates have moved higher after a subdued period

30-year Japanese and German government bond benchmark yields, %

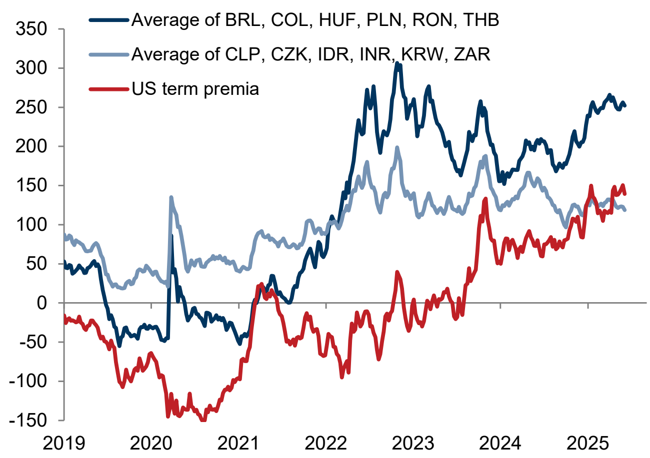


Source: Goldman Sachs FICC and Equities, Goldman Sachs GIR.

The pressures across EMs have also been contained so far. Given the broadly lower level of debt compared to DMs, improvement in external fundamentals, and currency strength, EM fiscal pressures have been less in focus, and adverse market spillovers from US rates have been more limited than normal. That said, while EM fiscal consolidation has broadly continued post-pandemic, the improvement has stalled in some places including Colombia, parts of Central and Eastern Europe, and Brazil. Long-end yields in these regions have also exhibited more pressure in sympathy with the pressures in core DM fixed income.

Long-end risk premia in EMs with weaker fiscal positions have traded similarly to the US, but areas where fiscal risk is more contained have been more resilient

Term premia across regions, bp



Source: Bloomberg, Goldman Sachs GIR.

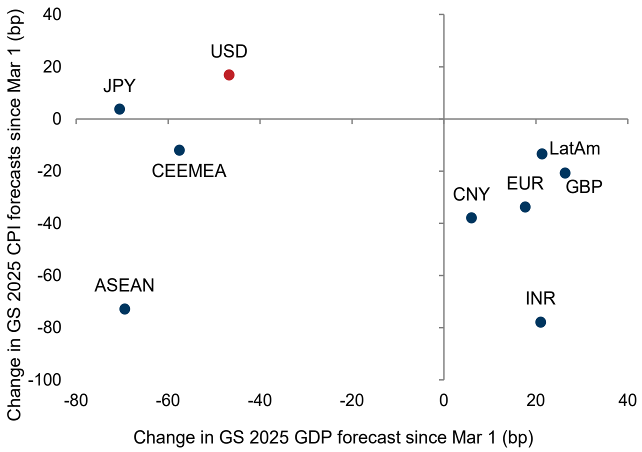
Q: US fiscal concerns have been brewing for some time and our economists expect the Trump Administration's tax and spending bill to have only a modest impact on the US fiscal balance relative to current policy. So, why are markets so focused on the US fiscal situation now?

A: Paradoxically, the de-escalation in trade policy after peak Liberation Day tariffs that assuaged market growth concerns may have contributed to increased market focus on the US fiscal situation; the more markets moved away from worries about recession and the chances of Fed easing, the more right-tail risks associated with higher rates from the deficit have come into focus. And, on the margin, the prospect of lower tariff revenues also technically worsens the fiscal outlook.

The coincidence of the fiscal bill taking center-stage at the same time as an increasingly challenging growth-inflation mix has also underscored fiscal concerns. Market focus on an issue tends to increase when cyclical variables exacerbate the issue. So, even though the final contours of the deficit in the "One Big Beautiful Bill Act" are not too different from expectations at the start of the year and are unlikely to cause a material shift in the fiscal outlook, the potentially tariff-induced stagflationary mix of higher inflation and lower growth has heightened the focus on the US fiscal position.

The US has seen the clearest stagflationary shift in our forecasts relative to other major DMs and EM economies

Change in GS 2025 CPI forecast vs. change in GDP forecast since March 1, bp



Source: Goldman Sachs GIR.

The fiscal debate has also coincided with other policies that raise risks that overseas investors reduce US bond allocations at a time of significant external borrowing—not only tariffs but also a provision in the House-passed fiscal bill that could potentially change tax rates on foreign entities. Even if the application of this provision is relatively narrow, such a tool would exacerbate concerns about risks to US investments at a time when investors are already seeing ongoing Dollar weakness and shifting cross-asset correlations as reasons to seek greater diversification away from US assets. More scope exists to skew Treasury issuance toward shorter-dated bills and create capacity in domestic financial and household sectors to absorb US bonds, but eroding US exceptionalism is proving (literally) costly at a time of large funding needs.

Q: Could the US experience a similar crisis to the 2022 Gilt crisis triggered by the UK mini-budget?

A: There are some parallels, including the stagflationary macro backdrop, the sidelining of independent agencies such as the OBR and the CBO, and, of course, the extension of large unfunded tax cuts at a time when the unemployment rate is already quite low. But the non-linear moves in UK bond markets also owed to the leverage embedded in financial structures used by UK pension funds. Such dynamics are currently absent in US markets, although these structures are often only apparent in retrospect.

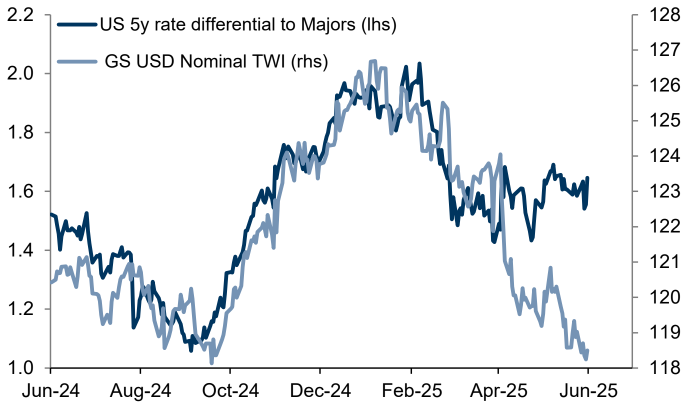
Another important distinction is that, in the US, the Senate acts as a safeguard against unchecked fiscal plans, though only to the extent that it performs its intended role as a check on the House. The reaction of the bond market itself could ultimately act as the most important safeguard, and the experience both in the UK in 2022 and during many EM fiscal crises suggests that policymakers are particularly focused on bond market moves. A further sharp increase in already-higher US long-term yields, which would make the fiscal arithmetic more forbidding, is likely to do more to turn Washington's focus on fiscal matters than any other institutional mechanism.

Q: Even if US bond markets are unlikely to experience a full-blown crisis, are lasting market impacts likely?

A: Yes. The recent fiscal concerns have contributed to a breakdown in traditional asset correlations, which are likely to be longer lasting, as has been the case in the UK since the Gilt crisis. And this could have serious implications for portfolio allocation. While not on the same scale, the fact that US bonds and the Dollar have provided less of a hedge to risky investments in recent months poses an important challenge to asset allocators. Safe-haven assets like US Treasuries are meant to rally in times of negative growth shocks, and even when high inflation and tighter monetary policy are the source of the shock, the Dollar has helped to hedge equity exposures. But the recent episodes of higher yields, Dollar weakness, and occasionally lower equity prices is likely to lead to a longer-lasting reassessment of safe portfolios and a 'right-sizing' of US allocations even if near-term fiscal concerns fade.

Fiscal risks explain part of the correlation breakdown between US rates and the Dollar

5y US rate diff. to majors (lhs, %) vs. nominal trade-weighted USD (rhs, index)



Source: Goldman Sachs FICC and Equities, Goldman Sachs GIR.

Q: What does all this mean for the likely direction of US bond yields ahead?

A: Given heightened fiscal concerns—and their impact on dampening demand for US assets—we expect the factors supporting sticky longer-term US yields to remain in place. Treasury yields could also rise again if fiscal worries intensify. So, we see limited scope for significant further relief at the long-end of the curve. All told, we expect long US rates to remain in a higher neighborhood than the post-GFC era until the underlying fiscal deficit is restrained. And in the meantime, higher yields will also likely make fiscal expansion more costly.

Q: How could fiscal risks impact the Dollar?

A: The effect of fiscal expansion on the Dollar is empirically mixed and typically depends on the state of the business cycle and monetary policy. But, on average, greater US net issuance tends to be Dollar-positive. That said, while foreign inflows typically increase with greater net Treasury issuance, starting from already-high allocations the breakdown in correlations between rates and the currency suggests lower demand for US assets as a result of these fiscal risks. That, along with less exceptional US growth and capital return prospects, is why we expect more Dollar weakness this time.

Kamakshya Trivedi, Head of Global FX, Rates, and EM Strategy

Email: kamakshya.trivedi@gs.com *Goldman Sachs International*
Tel: 44-20-7051-4005

Europe: shifting fiscal focus

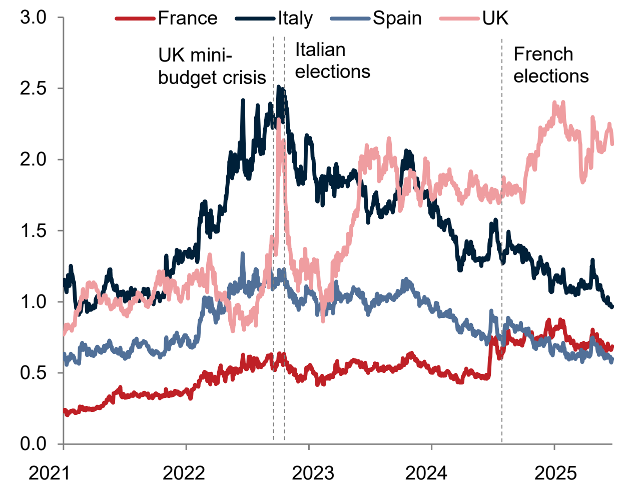
Filippo Taddei, James Moberly, and Alexandre Stott argue that the shift in European fiscal concerns from the periphery to France and the UK will likely persist

President Trump's tariffs and demands for European countries to increase their defense spending have led European governments to reconsider their focus on reducing deficits. While Germany has understandably been leading the charge given its relatively high exposure to trade, underinvestment in defense, and available fiscal space, other major European countries may face more challenges on the road to addressing these new priorities.

In particular, concerns about the fiscal outlook in France and the UK have increased sharply, marking a notable shift away from concerns about the traditionally more troubled European periphery. This shift is evident in markets, as Italian and Spanish sovereign spreads continue to tighten, recently reaching their lowest level in about 15 years, while UK Gilts are contending with lasting impacts from the 2022 "mini-budget" crisis and 2024 fiscal slippage and France's snap general election earlier this year has led to a sizable widening in OAT-Bund spreads. We expect this shift in fiscal focus away from the periphery to persist as diverging deficit trajectories, macroeconomic backdrops, and political constraints point to ongoing challenges in the UK and France.

Sovereign spreads lower in the periphery, but higher in France and the UK

10-year interest rate spread to Germany, pp



Note: Chart shows spread between 10y national government bond and 10y Bund.
Source: Haver Analytics, Goldman Sachs GIR.

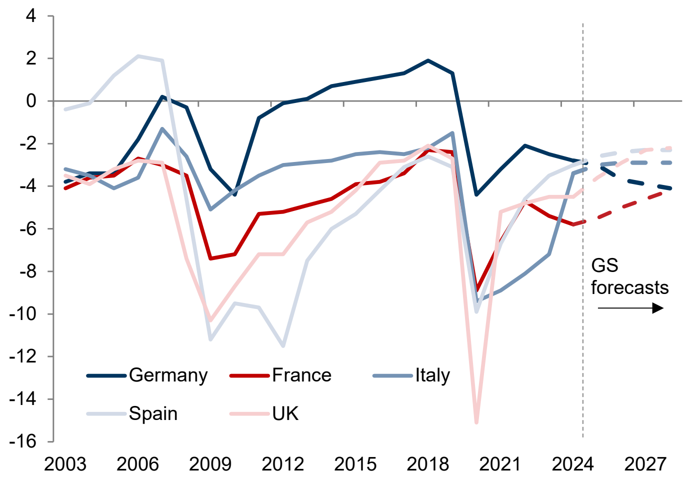
Diverging deficit trajectories

The trajectories of government deficits across Europe have diverged amid a faster reduction in the fiscal deficit of peripheral countries than France and the UK. We expect this trend to persist as Italy and Spain continue to benefit this year and next from the support of the European Recovery Fund, which accounts for around 1.5-2% of GDP in fiscal support through grants and subsidized loans. Moreover, EU debt is likely to fund additional defense spending in Italy and Spain, thanks to the upcoming European Defense Facility (EDF). While such spending would still contribute to deficits and debt in the periphery, the EDF would decrease the cost of funding while also extending the average maturity of public debt.

By contrast, France and the UK continue to face fiscal challenges. In France, lowering the fiscal deficit requires shifting the composition of fiscal consolidation from higher taxes to lower spending. And, in the UK, further tax changes will likely be required in the autumn to keep the government's consolidation plans on track.

Two speeds in fiscal deficit reduction

Government fiscal balance, % of GDP



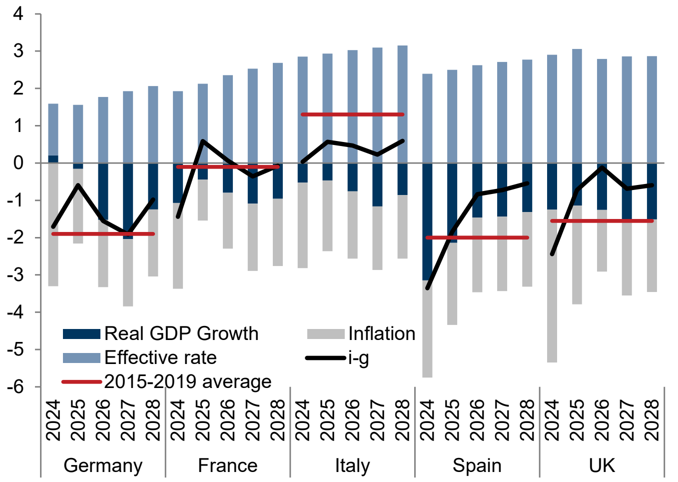
Source: Eurostat, OBR, Goldman Sachs GIR.

Diverging macroeconomic backdrops

The difference between sovereign yields and nominal growth—the sovereign real rate, a key determinant of the debt outlook—has deteriorated in Europe as a whole as rising trade tensions have led to slowing growth, downward pressure on inflation, and upward pressure on long-end yields. However, the macroeconomic backdrop remains less challenging for the periphery than in the run-up to the Covid pandemic—Italian and Spanish sovereign real rates are still approximately 100bp and 20bp lower than their pre-pandemic average, respectively. By contrast, the increase in long-end yields in France and the UK has pushed interest rate-growth differentials above their pre-pandemic levels, complicating their fiscal outlook.

The snowball effect has restarted

Interest rate-growth differential (i-g), pp



Source: Eurostat, OBR, Goldman Sachs GIR.

Diverging political constraints

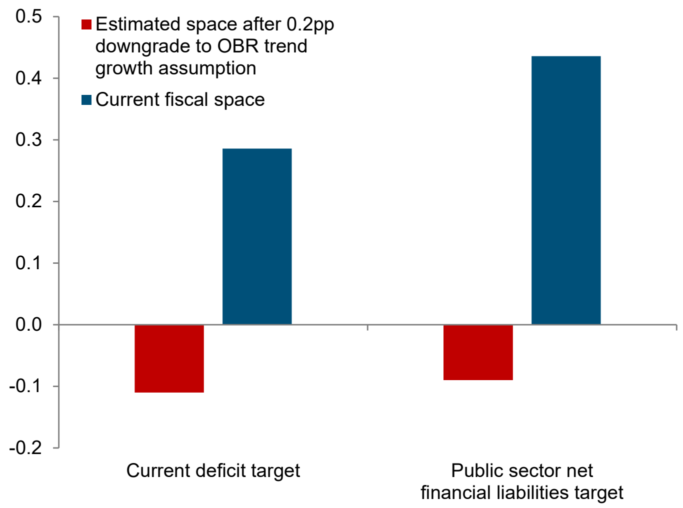
In the last 15 years, with the sole exception of the pandemic period, wider sovereign spreads have been tightly linked to the inability of the sitting government to effectively contain fiscal deficits. At present, this risk seems relatively contained in Italy and Spain. In Italy, the government is backed by a large parliamentary majority that remains committed to gradual but steady fiscal consolidation. Moreover, the Italian government is still enjoying an almost unprecedented consensus according to opinion polls. In Spain, while the minority government led by Prime Minister Sanchez has been unable to approve the budget, this challenge has actually helped keep the Spanish fiscal deficit in check, preventing additional slippage. At the same time, the Spanish government has been able to make strategic decisions on industrial support that could require additional funding. We do not see upcoming political catalysts that could challenge political stability in the periphery.

While political uncertainty has receded notably in the periphery, it has increased sharply in France. The 2024 snap elections resulted in a hung parliament, with no clear majority to support a government. The parties that ultimately supported the passage of a 2025 budget earlier this year included the Socialist Party, President Macron's allies, and the center-right. But this fragile coalition will be tested from the summer onwards as Prime Minister Bayrou attempts to reduce the deficit further with an ambitious 2026 budget. Fresh snap elections become possible starting in July, which further complicates the political landscape and raises the risks of a potential government collapse. These political constraints to reducing the deficit and associated uncertainty are important reasons for market participants to remain focused on the French fiscal outlook.

In the UK, the government is likely to face increasing pressure to raise defense spending above 2.5% of GDP before the next election. The Chancellor is set to partially reverse cuts to winter fuel payments and is reportedly considering scrapping the two-child benefit cap, both of which would use up fiscal space. But the government has little room to maneuver given limited headroom against the deficit target, and the fiscal constraints could tighten further as even a modest downgrade to the OBR's comparatively optimistic growth assumptions would wipe out that headroom entirely. The Autumn Budget expected between October and November is therefore likely to be a test for the Chancellor. The Prime Minister's recent comments have emphasized the importance of fiscal prudence, suggesting that the government will most likely respond to fiscal pressures through tax hikes rather than changes to the fiscal rules. An extension of the freeze on personal tax thresholds seems the most likely option, but further adjustments could be needed if defense spending rises above 2.5% of GDP in the current parliament. Tax increases should allow the government to reduce the deficit over time, despite the current fiscal challenges.

Risks to UK fiscal space

UK space against fiscal targets, % of GDP



Source: OBR, Goldman Sachs GIR.

Shift in focus will persist

Taken together, the fundamental drivers behind the shift in fiscal focus from the periphery to France and the UK—diverging deficit trajectories, growth and interest rate differentials, and political constraints—will likely remain in place. Nevertheless, we continue to expect fiscal policy in the Euro area to increasingly become supportive of growth through efforts to ramp up spending on defense and investment. However, in the UK, we expect continued fiscal consolidation to exert a moderate drag on growth.

Filippo Taddei, Senior European Economist

Email: *filippo.taddei@gs.com* *Goldman Sachs International*
Tel: *44-20-7774-5458*

James Moberly, Senior European Economist

Email: *james.r.moberly@gs.com* *Goldman Sachs International*
Tel: *44-20-7774-9444*

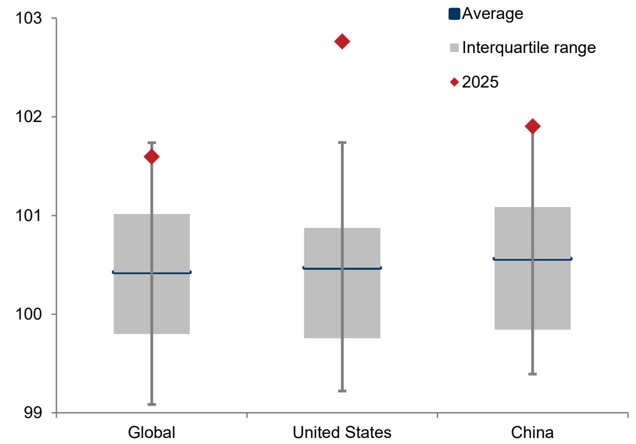
Alexandre Stott, Senior European Economist

Email: *alexandre.stott@gs.com* *Goldman Sachs Bank Europe SE - Paris Branch*
Tel: *33-1-42-12-11-08*

A look at global fiscal dynamics

Fiscal policy uncertainty around the world is high, particularly in the US amid the Trump Administration's pending fiscal bill…

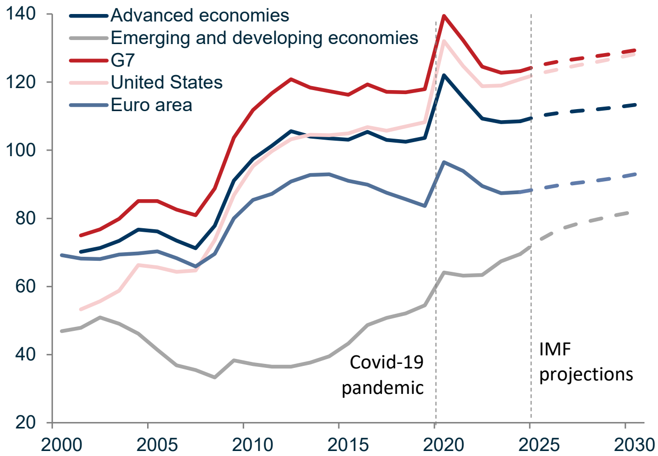
Fiscal policy uncertainty index, 2005-2025



Source: IMF, Goldman Sachs GIR.

…at a time when global debt levels are elevated with debt-to-GDP ratios across regions expected to rise further…

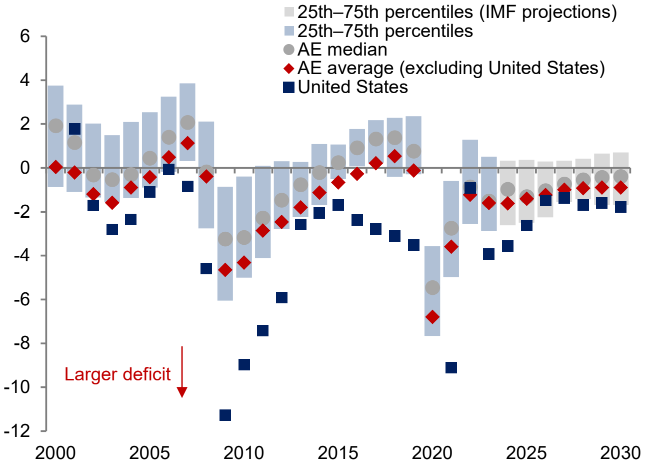
General government debt-to-GDP by country grouping, %



Source: IMF, Goldman Sachs GIR.

…and deficits across advanced economies…

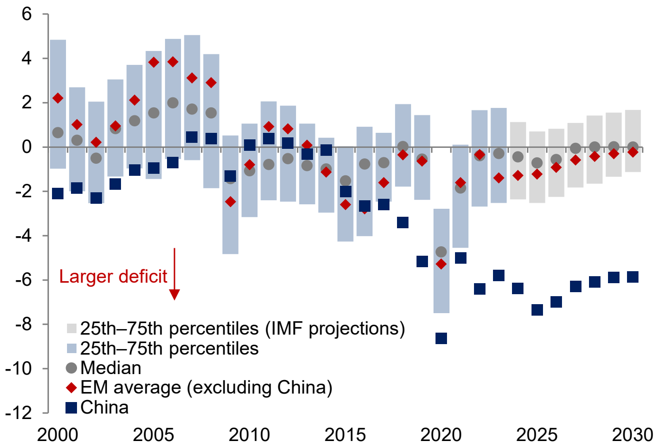
Primary balances in advanced economies (AE), % of GDP



Source: IMF, Goldman Sachs GIR.

…as well as emerging markets are particularly elevated relative to history

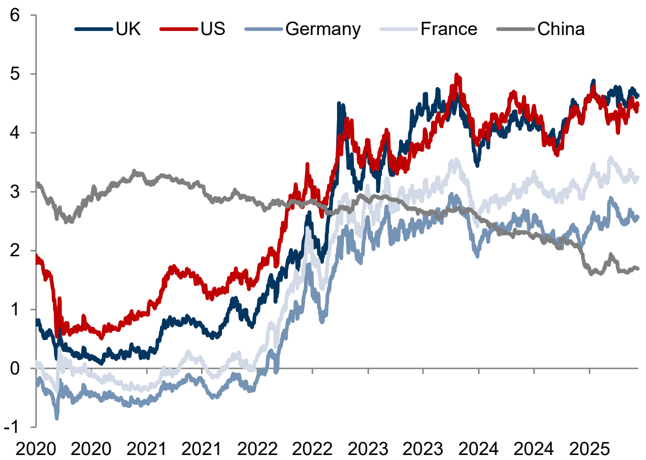
Primary balances in emerging markets (EM), % of GDP



Source: IMF, Goldman Sachs GIR.

At the same time, global interest rates have generally risen recently, although Chinese yields have declined somewhat…

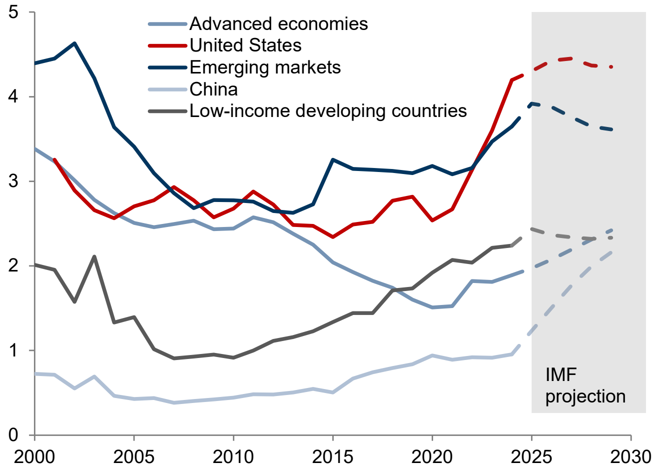
10-year sovereign bond yields, %



Source: IMF, Goldman Sachs GIR.

…contributing to rising government interest expenses, which is set to increase even further in most regions

General government interest expense, % of GDP



Source: IMF, World Economic Outlook database, Goldman Sachs GIR.

Asia's big (domestic) debt booms

Andrew Tilton explores the impacts of big domestic debt booms in China and Japan

Asia has seen its share of debt booms in the past half-century, many with global consequences. Japan's housing and equity bubble in the 1980s coincided with a sharp rise in private sector debt. As the bubble deflated in the 1990s, government deficits expanded to (partly) fill the demand gap, with the government debt ratio more than doubling over the decade to more than 120% of GDP. A prolonged deflation kept nominal growth low, and the debt ratio doubled over the subsequent two decades.

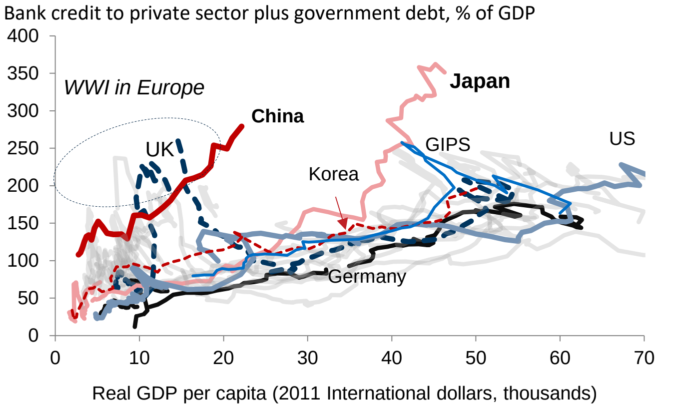
As Japan entered an extended period of economic malaise, several EM Asia economies—including South Korea, Thailand, Malaysia, and Indonesia—experienced their own periods of high debt growth. With less developed local capital markets and low global interest rates, foreigners financed a significant fraction of this borrowing. These debt surges ended in the "sudden stop" of the 1997-98 Asian Financial Crisis.

And, in the 1990s and 2000s, China emerged as an export powerhouse. But as demand for its goods slowed following the Global Financial Crisis (GFC), policymakers implemented large-scale fiscal and credit stimulus that facilitated an economic rebound (both in China and globally) but also initiated a prolonged credit boom. With the additional burden of the Covid pandemic response, China's overall nonfinancial debt ratio has more than doubled since 2008.

These debt booms have often been associated with export market slowdowns and housing sector bubbles. In Japan, the Yen appreciation after the Plaza Accord, and US resistance to rapidly rising imports from Japan (e.g. "voluntary export restraints" on Japanese cars) posed challenges for export growth. China's debt rose sharply after the GFC. Tapping foreign demand allowed these Asian giants to focus resources on the supply side of the economy—to the extent borrowing was involved, it was disproportionately by the customers (trading partner countries). But when exports slowed, budgets deteriorated as tax revenues slowed and governments came under much more pressure to support the economy.

Two of the largest debt booms have occurred in Japan and China

Bank credit to private sector plus government debt, % of GDP



Note: Data on bank credit to the private sector leaves out some market-based private sector borrowing, as wars/conflicts usually result in large govt borrowing, and some of the high-debt/low per capita income paths followed World War I.
Source: Schularick-Taylor Dataset, BIS, World Bank, IMF, Penn World Tables, National Statistical Offices, Goldman Sachs GIR.

High domestic savings a comfort...

Today, Japan and China stand out in the region and globally with their very high total debt-to-GDP ratios, with Japan's government debt ratio particularly standing out at roughly 250% of GDP and China also experiencing a sharp rise in debt at a much lower per capita income level than Japan.

However, a key differentiator in credit booms, beyond the scale of the booms themselves, is the composition of debt—what currencies, and what creditors. As Japan and especially China have high levels of domestic savings, their debt is essentially all issued in domestic currency (in contrast to many EMs) and overwhelmingly held by domestic investors (in contrast to the US). Other institutional factors—capital controls in China, and a strong degree of 'home bias" in Japan—encourage the channeling of domestic savings pools to domestic borrowers.

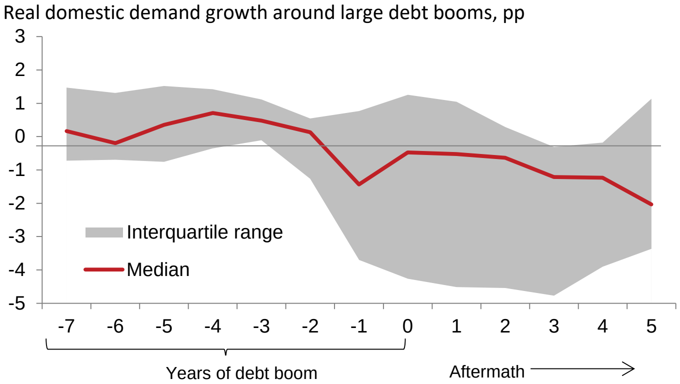
With their relatively high savings, both countries ran persistent current account surpluses for decades and have accumulated large positive net international investment positions. As such, domestic borrowers are not beholden to foreign creditors, and debt service is not sensitive to the exchange rate—FX depreciation is actually debt-stabilizing on the margin, as it boosts growth without effects on the local currency value of debt. Policymakers in Japan and especially China have considerable flexibility to manage debt by implementing accommodative monetary policies or by directing banks to exercise forbearance with respect to struggling borrowers.

...but high debt still has drawbacks

While these characteristics of the debt stock reduce the risk of a "sudden stop" in credit provision in China or Japan, large debt buildups nonetheless still have adverse consequences. High debt, and particularly rapidly growing debt, is associated with slower growth, lower inflation, and falling interest rates in subsequent years. Forbearance keeps less productive "zombie" firms in operation, slowing "creative destruction" and the associated productivity growth. In Japan, real GDP growth slowed from 4-5% during the boom years to around 1% over the next two decades, alongside persistent deflation; 10y Japanese Government Bond (JGB) yields underwent a similar decline, ultimately turning negative in 2016. In the aftermath of China's debt boom of the 2010s, growth has slowed below 5% in recent years, inflation has dropped to near zero, and the 10y Chinese Government Bond (CGB) yield has dropped below 2%. So, high debt has undoubtedly weighed on economic performance—and will likely continue to do so—even if we don't expect high debt to turn into a full-blown debt crisis.

Domestic demand growth usually slows after large debt booms

Real domestic demand growth around large debt booms, pp



Source: BIS, World Bank, IMF, Penn World Tables, National Statistical Offices, Goldman Sachs GIR.

Andrew Tilton, Chief Asia Pacific Economist
Email: andrew.tilton@gs.com Goldman Sachs (Asia) LLC
Tel: 852-2978-1802

EM debt: no crisis, but costly

Alberto Ramos argues that even if high debt levels in EMs are unlikely to result in a crisis, they still come with significant macro costs

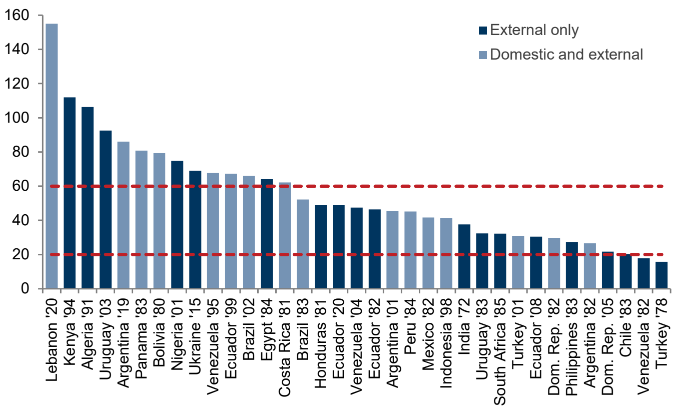
While budget deficits and debt sustainability have moved to the forefront of the policy debate in several DM economies, fiscal vulnerabilities have been a longstanding issue for many EM economies. Although fiscal positions vary widely across EMs, external balances (current account deficits and net foreign asset positions) are relatively strong in most economies, and many meet their fiscal funding needs in local markets and currencies. This suggests that the risk of a sudden-stop capital-account funding crisis should be relatively contained. However, high public debt comes with several macro costs, which will likely only rise from here as EM debt loads increase further over the coming years.

EM is more *debt-intolerant* than DM…

In contrast to DMs, EMs don't have a successful track record of seamlessly working out large debt burdens. In many cases, it didn't take a very large debt burden to rock the boat. In fact, many EM sovereign debt crises have occurred against a backdrop of low/moderate levels of public indebtedness, leading some observers to characterize emerging markets as ***debt-intolerant***. Such intolerance is particularly prominent when governments can't count on deep local markets to satisfy a significant portion of fiscal funding needs. This suggests that something distinctive about the macro environment, policy credibility, funding conditions, and institutional setup in many EM economies renders them less resilient and capable of carrying heavy debt loads than DM economies.

Exorbitant debt levels aren't a necessary condition for EM defaults

EM central government debt one year before credit event, % of GDP



Source: Goldman Sachs GIR.

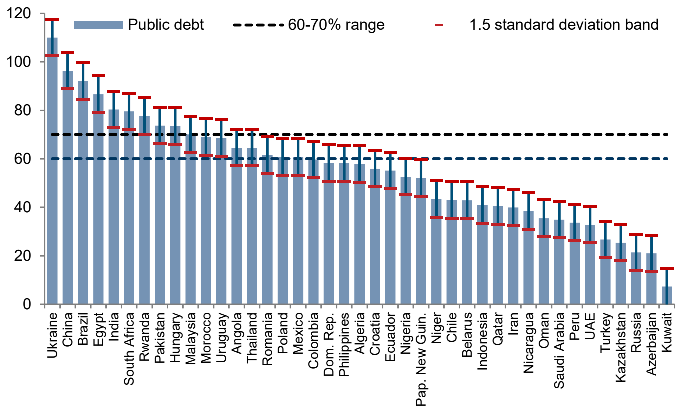
…and EM debt burdens are large

Several large, systemic EMs carry debt loads that are either already above or reasonably close to conventionally accepted debt thresholds. The IMF expects EM public debt to rise from 55% of GDP in 2018 to 74% of GDP in 2025 and 84% of GDP by 2030—well above the 60-70% of GDP debt range indicative of high distress risk for EM economies historically[1]. Overall, public indebtedness is expected to reach particularly high levels in Latin America (70% of GDP) and emerging Asia (100% of GDP), with emerging Europe faring significantly better.

Even under optimistic fiscal consolidation assumptions, debt as a share of GDP is expected to exceed the 70% threshold in 10 out of the 42 EMs the IMF tracks (18 will likely exceed the 60% threshold) by end-2025, with another seven countries projected to be relatively close to that threshold (less than 1.5-sigma of the historical annual variation of debt ratios away from the threshold). Tellingly, 26/29 of the 42 economies are forecasted to have higher debt ratios in 2025/2030 than they did in 2019. Large, systemic economies like Brazil, China, India, and South Africa are expected to dominate the group of highly indebted EMs. This is all the more concerning in light of the fact that several EM debt/fiscal crises have occurred at much lower debt levels than the 70% threshold.

High indebtedness will be a feature of many EMs this year

% of GDP



Source: IMF, Goldman Sachs GIR.

High debt, high costs

All else constant, higher debt burdens increase the risk of a credit/funding event. But even if EMs are unlikely to experience a full-blown debt crisis in the near term, rising government indebtedness is costly. We have found that high levels of public indebtedness tend to (1) reduce the policy room to pursue counter-cyclical fiscal policies, (2) reduce fiscal multipliers, with multipliers potentially even turning negative at very high debt levels, and (3) are associated with higher macro volatility (growth, rates, and inflation). Higher public debt also (4) correlates with lower medium-term per-capita real GDP growth and higher inflation. And fiscal fragilities and high debt burdens may (5) reduce the ability to calibrate monetary policy—at the extreme, monetary policy could fall under the grip of the classical fiscal dominance trap.

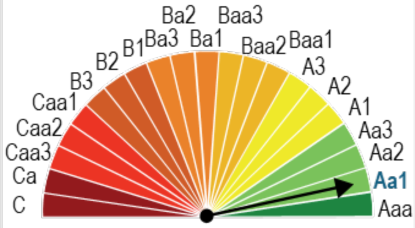
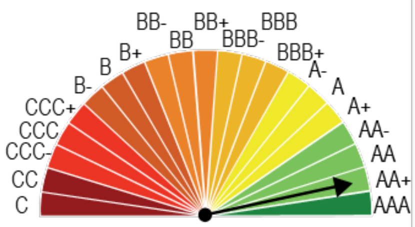
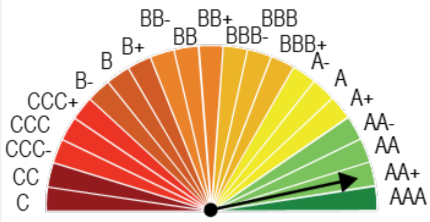
All told, even if an EM fiscal crisis doesn't appear imminent, some degree of fiscal consolidation, debt deleveraging, and rebuilding of fiscal buffers would be valuable to generate positive spillovers for growth/investment and to endow policymakers with extra flexibility to calibrate fiscal and monetary policy.

Alberto Ramos, Head of LatAm Economics Research

Email: alberto.ramos@gs.com Goldman Sachs & Co. LLC
Tel: 212-357-5768

1 The 60% figure comes from Kaminsky et al.'s *Leading Indicators of Currency Crises* (1998) and the 70% figure from the IMF guidance note for risk-based fiscal policy and public debt sustainability analysis in market-access countries. The 70% threshold is broadly in line with our own analysis.

A look at US credit ratings

	MOODY'S RATINGS	Fitch Ratings	S&P Global Ratings
US Credit Rating			
US Outlook	***Stable***	***Stable***	***Stable***
Most recent ratings change…	**In May 2025, Moody's downgraded the US' credit rating by one notch from Aaa to Aa1, citing the increase in government debt owing to increased spending and reduced tax revenues, the inability of the government to address such issues, as well as growing federal interest payments.**	**In 2023, Fitch downgraded the US' credit rating by one notch from AAA to AA+, citing the high and growing debt burden, an expected fiscal deterioration, and an erosion of good governance related to debt limit negotiations.**	**In 2011, S&P became the first major credit rating agency to downgrade the US, lowering its credit rating from AAA to AA+, primarily reflecting political brinksmanship over the debt ceiling and concerns about the stability of US governance and policymaking.**
…and what they've said about it	*"This one-notch downgrade on our 21-notch rating scale reflects the increase over more than a decade in government debt and interest payment ratios to levels that are significantly higher than similarly rated sovereigns."* *"Successive US administrations and Congress have failed to agree on measures to reverse the trend of large annual fiscal deficits and growing interest costs. We do not believe that material multi-year reductions in mandatory spending and deficits will result from current fiscal proposals under consideration."*	*"The rating downgrade of the United States reflects the expected fiscal deterioration over the next three years, a high and growing general government debt burden, and the erosion of governance relative to 'AA' and 'AAA' rated peers over the last two decades that has manifested in repeated debt limit standoffs and last-minute resolutions."* *"Fitch's longer-term projections forecast additional debt/GDP rises, increasing the vulnerability of the US fiscal position to future economic shocks."*	*"The downgrade reflects our view that the effectiveness, stability, and predictability of American policymaking and political institutions have weakened at a time of ongoing fiscal and economic challenges."* *"The prolonged controversy over raising the statutory debt ceiling and the related fiscal policy debate indicate that further near-term progress containing the growth in public spending, especially on entitlements, or on reaching an agreement on raising revenues is less likely."*

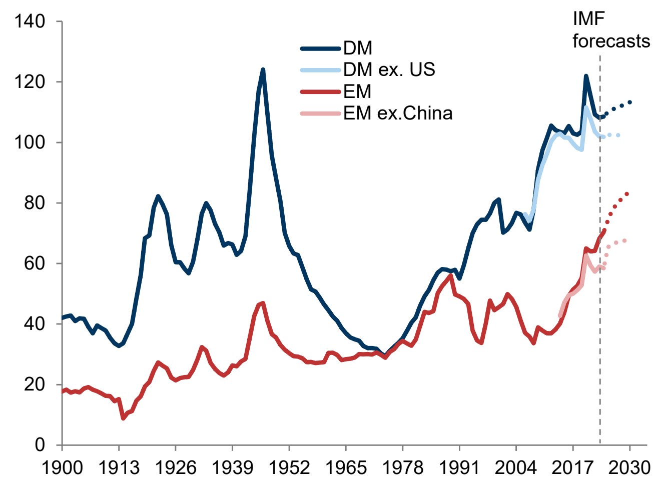
EM debt: focus on external balances

Kevin Daly argues that external imbalances are typically a better predictor of sovereign and financial crises than government imbalances, which offers some reassurance for EMs

History suggests that external imbalances are typically a better predictor of sovereign and financial crises than government imbalances. This offers some reassurance for most EM economies, as their external imbalances are currently smaller than those of DM economies. Nevertheless, the increase in EM government deficits and debt is significant and requires careful monitoring. And, while most EMs have limited external imbalances, some countries—notably Romania, and to a lesser extent Brazil and Colombia—warrant concern.

DM public debt as a share of GDP is expected to remain higher than in EM, but EM is projected to see a steeper increase

General government debt, % of GDP



Source: IMF, Goldman Sachs GIR.

Rising EM government debt

Government debt levels are significantly higher in DMs than in EMs. However, EM debt has risen sharply. Over the past decade, total global gross government debt in EM economies has increased from 40% to 70% of GDP, with an outsized contribution from China. Among EMs, government debt as a share of GDP is highest in China (88% of GDP in 2024)[1], Brazil (87%), Argentina (85%), India (81%), and South Africa (76%).

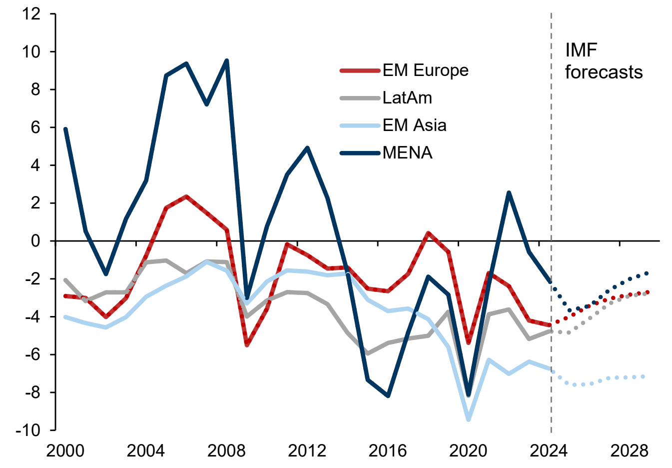
Similar to DM economies, EM government deficits widened significantly during the pandemic and have remained wide in its aftermath. This is particularly true for EM Asia, but deficits are also substantial in Latin America and EM Europe. For MENA economies, government balances swung into surplus in 2022 when oil prices were high, but have since deteriorated. That said, because EM economies grow faster on average than DM economies, EMs can run larger primary deficits in equilibrium. Nevertheless, fiscal balances are currently far away from debt-stabilizing levels in China, Romania, Israel, and Poland.

Could this rise in EM government debt have been avoided? A forceful fiscal response to the Covid pandemic was necessary to help offset the human cost of the crisis. It was also justifiable on narrower economic grounds—the alternative would have implied a sharp loss of productive capacity and with it the destruction of a substantial share of the fiscal base. This would have been much more damaging for national income, and not necessarily better for government credit.

However, the persistence of large EM government deficits in the aftermath of the pandemic is more difficult to justify on economic grounds. And given a tariff-induced slowdown in global economic growth this year and minimal fiscal consolidation efforts across EMs, EM deficits appear likely to remain high, further increasing EM debt levels in the years ahead.

EM government deficits to remain larger than pre-pandemic levels

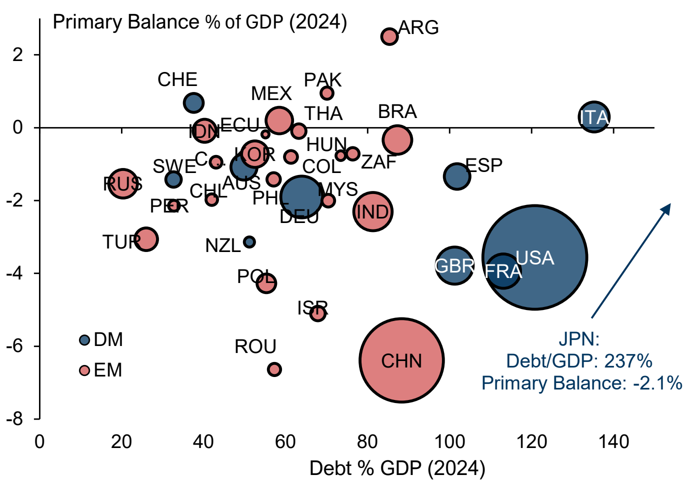
Government budget balances, % of GDP



Source: IMF, Goldman Sachs GIR.

High levels of debt and primary deficits across major DM economies, China, and some EMs

Primary government balances and general government debt, % of GDP



Source: IMF, Goldman Sachs GIR.

[1] China's 'augmented' government debt—which is more broadly defined to include the debt of state-owned banks—is even larger, at approximately 130% of GDP. However, this includes the liabilities of state-owned banks, which are typically excluded from government debt metrics.

Large external imbalances pose the largest risk

How much of a risk does rising EM government debt pose? While debt levels remain higher in DMs than in EM economies, high government debt poses some unique challenges for EMs. Developed economies are generally in a stronger position to absorb higher debt levels due to their credible institutional frameworks and relatively developed financial markets. This has allowed most DM governments to run substantial deficits without driving up interest rates and inflation. By contrast, most EMs, with the notable exception of China, face more stringent borrowing constraints, particularly as DMs are also borrowing heavily.[2] This leaves EM economies especially vulnerable to a general rise in global borrowing costs.

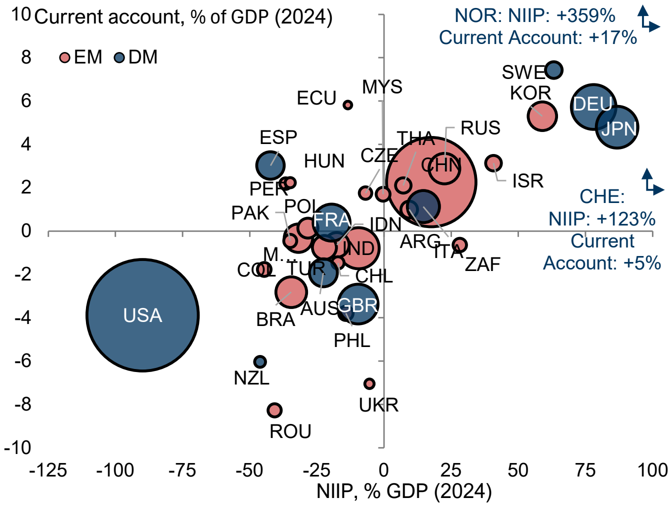
That said, historical evidence importantly suggests that external imbalances are a more reliable indicator of sovereign and financial crises than government budget deficits and debt, and most EM economies exhibit relatively low risk in this regard. We have found that current account imbalances (the net flow of external assets and liabilities) and net international investment positions (NIIPs; the net stock of external assets and liabilities) have better predicted output losses following the Global Financial Crisis (GFC) than gross debt levels. Indeed, some of the worst affected countries during the GFC and subsequent European sovereign crisis, like Iceland, Spain, and Ireland, had low government deficits and debt but significant current account imbalances before the crisis. More generally, academic studies suggest that external imbalances rather than debt levels are a better predictor of sovereign crises.[3]

A key factor driving this result is that, in countries with high government deficits and debt levels but current account surpluses and positive NIIPs—such as China and Japan—most of the debt is held within the domestic economy. In such cases, rising levels of gross debt are not riskless, but the economy is not reliant on net capital inflows, and the risks are typically more limited than those arising from increasing net liabilities, where creditors are located abroad. The data for most EM economies offer reassurance in this regard, as their external imbalances are currently smaller than those of DM economies. Nevertheless, while most EMs have limited external imbalances, some countries, notably Romania, and to a lesser extent Brazil and Colombia, warrant concern.

The data also highlight US imbalances. The US benefits significantly from the *exorbitant privilege* of being the world's reserve currency. However, it is currently pushing the boundaries of this privilege: its fiscal deficit, rising debt levels, current account deficit, and large net international liabilities would likely have already triggered a crisis in weaker economies with less robust institutions.

EM external balances are mostly in the middle of the pack, while DMs are at the extremes

Current account balances and net international investment positions, % of GDP



Source: IMF, Goldman Sachs GIR.

Less risky, but not riskless

For EM economies, there is no room for complacency, but the situation seems quite different from those that preceded past debt crises. We are not arguing that rising levels of gross debt are riskless, but rather that those risks are typically more limited than those associated with running either a large current account deficit or a significantly negative NIIP. An unsustainably large current account deficit or unsustainable negative NIIP requires a spending adjustment that has a direct negative effect on growth.

The risks associated with high gross debt levels—if they occur in the absence of a large current account and/or NIIP imbalance—are less direct in nature and are typically related to other underlying vulnerabilities, but they are still concerning. One obvious risk associated with high levels of gross debt relates to the quality of the assets used as collateral against the buildup in liabilities. Another risk relates to the possibility of specific currency or duration mismatches in gross debt that can exist in pockets, even if the net liability picture appears benign. Therefore, the increase in EM government deficits and debt still requires careful monitoring.

And irrespective of the dangers that large deficits and debt present, they act as a constraint on policy at a time when global growth is slowing. Fiscal space is limited across both EMs and DMs, with debt levels and servicing costs higher than pre-pandemic levels, and fiscal deficits larger than during previous growth slowdowns. That makes high debt costly even if it is not the best indicator of a coming crisis.

Kevin Daly, Co-head of CEEMEA Economics

Email: kevin.daly@gs.com *Goldman Sachs International*
Tel: 44-20-7774-5908

[2] While many EMs have overcome the 'original sin' of borrowing predominantly in DM currencies—a factor that has historically raised credit risks in times of stress—they still face what Carstens and Shin (2019) have described as 'original sin redux': because the performance of the majority of investors in EM local currency markets is still judged on a USD basis, this results in capital flight in times of stress, with the result that borrowing costs in many EMs remain pro-cyclical, even if credit risk is contained.

[3] See, for example, Dawood, Horsewood, and Strobel "*Predicting sovereign debt crises: An early warning system approach*" (2017).

Summary of our key forecasts

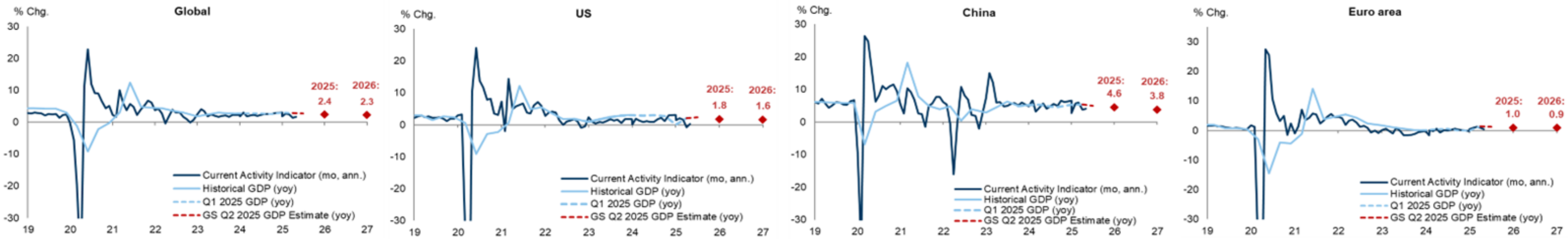
GS GIR: Macro at a glance

Watching

- **Globally,** we expect real GDP growth to slow to 2.4% yoy in 2025, reflecting headwinds from higher US tariffs. We expect global core inflation to remain relatively steady this year and end the year at around 2.6% as the tariff-driven boost to inflation in the US is largely offset by disinflationary impulses from declines in shelter inflation and wage inflation as well as lower energy prices.
- **In the US,** we expect real GDP growth to slow to 1.25% in 2025 on a Q4/Q4 basis as higher tariffs weigh on disposable income, consumer spending, and business investment. We expect core PCE inflation to rise to 3.3% yoy by end-2025 reflecting a boost from higher tariffs. We expect the unemployment rate to rise to 4.4% by end-2025.
- **We expect the Fed** to deliver three 25bp rate cuts starting in December and cut at every other meeting to a terminal rate range of 3.5-3.75%.
- **In the Euro area,** we expect real GDP growth of 1.0% yoy in 2025 amid higher US tariffs and still elevated trade policy uncertainty, although firmer growth abroad and easier financial conditions should provide some support. We expect core inflation to fall to 1.9% by end-2025, reflecting a further cooling in services inflation, lower demand, as well as a modest disinflationary impulse from excess supply amid higher US tariffs.
- **We expect the ECB** to deliver its next and final 25bp rate cut in September 2025 for a terminal policy rate of 1.75%.
- **In China,** we expect above-consensus real GDP growth of 4.6% yoy in 2025 amid the de-escalation in US-China trade tensions, although the forward tariff trajectory remains uncertain and domestic data show continued challenges in the property market. We expect inflation to remain very low this year with CPI inflation and PPI inflation likely to end the year at 0% and -2.4%, respectively, amid deflationary forces from the trade war and falling commodity prices.
- **WATCH US POLICY AND GEOPOLITICAL DEVELOPMENTS.** Uncertainty about US policy and especially tariff policy remains high, presenting substantial risk to the US and global economies. Geopolitical developments also remain important to watch as the conflict in the Middle East continues, US-China relations remain fraught, and a potential resolution to the Russia-Ukraine war remains highly uncertain.

Goldman Sachs Global Investment Research.

Growth



Source: Haver Analytics, Goldman Sachs Global Investment Research.
Note: GS CAI is a measure of current growth. For more information on the methodology of the CAI please see "Improving Our Within-Month CAI Forecasts," Global Economics Comment, Mar. 06, 2023.

Forecasts

Economics

GDP growth (%)	2025 GS (Q4/Q4)	2025 Cons. (Q4/Q4)	2025 GS (CY)	2025 Cons. (CY)	2026 GS (CY)	2026 Cons. (CY)
Global	1.8	--	2.4	2.3	2.3	2.3
US	1.25	0.9	1.8	1.4	1.6	1.6
China	3.7	4.0	4.6	4.5	3.8	4.2
Euro area	0.5	0.7	1.0	0.9	0.9	1.1

Policy rates (%)	2025 GS	2025 Mkt.	2026 GS	2026 Mkt.
US	4.13	3.85	3.63	3.26
Euro area	1.75	1.67	1.75	1.75
China	1.30	1.30	1.10	--
Japan	0.50	0.90	1.00	1.01

Markets

Interest rates 10Yr (%)	Last	E2025	E2026
US	4.41	4.50	4.55
Germany	2.53	2.80	3.25
Japan	1.46	1.80	1.90
UK	4.50	4.25	4.25

Commodities	Last	3m	12m
Crude Oil, Brent ($/bbl)	70	60	56
Nat Gas, NYMEX ($/mmBtu)	3.51	3.90	4.50
Nat Gas, TTF (EUR/MWh)	35.82	39	29
Copper ($/mt)	9,703	9,100	10,050
Gold ($/troy oz)	3,330	3,370	3,920

FX	Last	3m	12m
EUR/$	1.15	1.17	1.25
GBP/$	1.36	1.38	1.44
$/JPY	144	142	135
$/CNY	7.17	7.20	7.00

Credit (bp)		Last	2Q25	4Q25
USD	IG	84	105	95
	HY	300	335	303
EUR	IG	105	116	108
	HY	304	355	330

Equities

S&P 500	E2025 GS	E2025 Cons.	E2026 GS	E2026 Cons.
Price	6,100			
EPS	$262	$263	$280	$300
Growth	7%	7%	7%	14%

Returns (%)	12m	YTD	E2025 P/E
S&P 500	7.9	2.4	23.3x
MXAPJ	6.1	11.7	15x
Topix	4.2	1.0	14.8x
STOXX 600	3.3	8.7	15.1x

Consumer	2025 CPI (%, yoy)	2025 Unemp. Rate	2026 CPI (%, yoy)	2026 Unemp. Rate
US	2.8	4.4	2.9	4.4
Euro area	2.0	6.4	1.8	6.5
China	0.0	--	1.0	--

Wage Tracker 2025 (%)	Q1	Q2	Q3	Q4
US	3.9	3.8	--	--
Euro area	--	--	--	--
China	--	--	--	--

Source: Bloomberg, Goldman Sachs Global Investment Research. For important disclosures, see the Disclosure Appendix or go to www.gs.com/research/hedge.html.

Market pricing as of June 11, 2025

Glossary of GS proprietary indices

Current Activity Indicator (CAI)

GS CAIs measure the growth signal in a broad range of weekly and monthly indicators, offering an alternative to Gross Domestic Product (GDP). GDP is an imperfect guide to current activity: In most countries, it is only available quarterly and is released with a substantial delay, and its initial estimates are often heavily revised. GDP also ignores important measures of real activity, such as employment and the purchasing managers' indexes (PMIs). All of these problems reduce the effectiveness of GDP for investment and policy decisions. Our CAIs aim to address GDP's shortcomings and provide a timelier read on the pace of growth.

For more, see our CAI page and Global Economics Analyst: Trackin' All Over the World – Our New Global CAI, 25 February 2017.

Dynamic Equilibrium Exchange Rates (DEER)

The GSDEER framework establishes an equilibrium (or "fair") value of the real exchange rate based on relative productivity and terms-of-trade differentials.

For more, see our GSDEER page, Global Economics Paper No. 227: Finding Fair Value in EM FX, 26 January 2016, and Global Markets Analyst: A Look at Valuation Across G10 FX, 29 June 2017.

Financial Conditions Index (FCI)

GS FCIs gauge the "looseness" or "tightness" of financial conditions across the world's major economies, incorporating variables that directly affect spending on domestically produced goods and services. FCIs can provide valuable information about the economic growth outlook and the direct and indirect effects of monetary policy on real economic activity.

FCIs for the G10 economies are calculated as a weighted average of a policy rate, a long-term risk-free bond yield, a corporate credit spread, an equity price variable, and a trade-weighted exchange rate; the Euro area FCI also includes a sovereign credit spread. The weights mirror the effects of the financial variables on real GDP growth in our models over a one-year horizon. FCIs for emerging markets are calculated as a weighted average of a short-term interest rate, a long-term swap rate, a CDS spread, an equity price variable, a trade-weighted exchange rate, and—in economies with large foreign-currency-denominated debt stocks—a debt-weighted exchange rate index.

For more, see our FCI page, Global Economics Analyst: Our New G10 Financial Conditions Indices, 20 April 2017, and Global Economics Analyst: Tracking EM Financial Conditions – Our New FCIs, 6 October 2017.

Goldman Sachs Analyst Index (GSAI)

The US GSAI is based on a monthly survey of GS equity analysts to obtain their assessments of business conditions in the industries they follow. The results provide timely "bottom-up" information about US economic activity to supplement and cross-check our analysis of "top-down" data. Based on analysts' responses, we create a diffusion index for economic activity comparable to the ISM's indexes for activity in the manufacturing and nonmanufacturing sectors.

Macro-Data Assessment Platform (MAP)

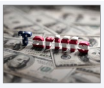
GS MAP scores facilitate rapid interpretation of new data releases for economic indicators worldwide. MAP summarizes the importance of a specific data release (i.e., its historical correlation with GDP) and the degree of surprise relative to the consensus forecast. The sign on the degree of surprise characterizes underperformance with a negative number and outperformance with a positive number. Each of these two components is ranked on a scale from 0 to 5, with the MAP score being the product of the two, i.e., from -25 to +25. For example, a MAP score of +20 (5;+4) would indicate that the data has a very high correlation to GDP (5) and that it came out well above consensus expectations (+4), for a total MAP value of +20.

Top of Mind archive: click to access

Issue 139
Fed independence: how concerning?
May 15, 2025

Issue 138
Tariff-induced recession risk
April 17, 2025

Issue 137
Europe's shifting security landscape
March 13, 2025



Issue 136
Trump tariffs: mostly talk, or big action?
February 26, 2025

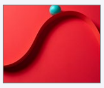
Issue 135
High bond yields: here to stay?
February 5, 2025

Special Issue
2024: 4 themes in charts
December 18, 2024

Issue 134
Will China's policy stimulus be enough?
December 11, 2024

Issue 133
Market concentration: how big a worry?
November 25, 2024

Issue 132
Post-election economic policies
October 21, 2024



Issue 131
Is the Fed behind the curve?
September 3, 2024

Issue 130
How investable is Europe?
August 1, 2024

Issue 129
Gen AI: too much spend, too little benefit?
June 25, 2024

Issue 128
Central bank divergence room to run?
May 21, 2024

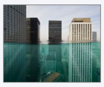
Issue 127
Weighing the GLP-1 market
April 12, 2024

Issue 126
Global transit & trade: in rough waters
March 12, 2024

Issue 125
2024: The year of elections
February 1, 2024

Issue 124
Middle East risks
December 5, 2023

Issue 123
US outperformance: at a turning point?
October 30, 2023



Issue 122
Commercial real estate risks
October 9, 2023

Issue 121
Corporate credit concerns
August 10, 2023

Issue 120
Generative AI: hype, or truly transformative?
July 5, 2023

Issue 119
Daunting debt limit dynamics
May 22, 2023

Issue 118
US-China: more decoupling ahead?
May 1, 2023

Issue 117
All about bank(panic)s
April 3, 2023

Issue 116
(Japanese) Bonds, Bonds, Bonds
February 23, 2023

Issue 115
The Bigger Worry: Growth or Inflation?
January 27, 2023

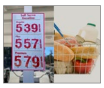
Special Issue
2022: 3 themes in charts
December 15, 2022

Issue 114
The Winter of Crypto's Discontents
December 9, 2022

Issue 113
Central Bank Tightening: what could break?
November 11, 2022

Issue 112
China's Congress: an inflection point?
October 11, 2022

Issue 111
Will slaying inflation require recession?
September 13, 2022



Issue 110
Food, Fuel, and the Cost-of-Living Crisis
July 28, 2022

Issue 109
Equity bear market: a paradigm shift?
June 14, 2022

Issue 108
(De)Globalization Ahead?
April 28, 2022

Source of photos: www.gettyimages.com, www.istockphoto.com, www.shutterstock.com, US Department of State/Wikimedia Commons/Public Domain.

Disclosure Appendix

Reg AC

We, Allison Nathan, Jenny Grimberg, Ashley Rhodes, Andrew Tilton, Kevin Daly, Alec Phillips, Alberto Ramos, Filippo Taddei, Kamakshya Trivedi, James Moberly, and Alexandre Stott, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

Logo disclosure

Please note: Third party brands used in this report are the property of their respective owners, and are used here for informational purposes only. The use of such brands should not be viewed as an endorsement, affiliation or sponsorship by or for Goldman Sachs or any of its products/services.

Disclosures

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage. **Analyst compensation:** Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of Global Investment Research of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. **Brazil:** Disclosure information in relation to CVM Resolution n. 20 is available at https://www.gs.com/worldwide/brazil/area/gir/index.html. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 20 of CVM Resolution n. 20, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** This information is being provided to you for information purposes only and is not, and under no circumstances should be construed as, an advertisement, offering or solicitation by Goldman Sachs & Co. LLC for purchasers of securities in Canada to trade in any Canadian security. Goldman Sachs & Co. LLC is not registered as a dealer in any jurisdiction in Canada under applicable Canadian securities laws and generally is not permitted to trade in Canadian securities and may be prohibited from selling certain securities and products in certain jurisdictions in Canada. If you wish to trade in any Canadian securities or other products in Canada please contact Goldman Sachs Canada Inc., an affiliate of The Goldman Sachs Group Inc., or another registered Canadian dealer. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained on request from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 951-A, Rational

House, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. Investment in securities market are subject to market risks. Read all the related documents carefully before investing. Registration granted by SEBI and certification from NISM in no way guarantee performance of the intermediary or provide any assurance of returns to investors. Goldman Sachs (India) Securities Private Limited compliance officer and investor grievance contact details can be found at this link: https://publishing.gs.com/disclosures/hedge.html - /general/equity. **Japan:** See below. **Korea:** This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. **Singapore:** Goldman Sachs (Singapore) Pte. (Company Number: 198602165W), which is regulated by the Monetary Authority of Singapore, accepts legal responsibility for this research, and should be contacted with respect to any matters arising from, or in connection with, this research. **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union and United Kingdom: Disclosure information in relation to Article 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council (including as that Delegated Regulation is implemented into United Kingdom domestic law and regulation following the United Kingdom's departure from the European Union and the European Economic Area) with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at https://www.gs.com/disclosures/europeanpolicy.html which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan Type II Financial Instruments Firms Association, The Investment Trusts Association, Japan, and Japan Investment Advisers Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Global product; distributing entities

Goldman Sachs Global Investment Research produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Public Communication Channel Goldman Sachs Brazil: 0800 727 5764 and / or contatogoldmanbrasil@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Canal de Comunicação com o Público Goldman Sachs Brasil: 0800 727 5764 e/ou contatogoldmanbrasil@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom.

Goldman Sachs International ("GSI"), authorised by the Prudential Regulation Authority ("PRA") and regulated by the Financial Conduct Authority ("FCA") and the PRA, has approved this research in connection with its distribution in the United Kingdom.

European Economic Area: GSI, authorised by the PRA and regulated by the FCA and the PRA, disseminates research in the following jurisdictions within the European Economic Area: the Grand Duchy of Luxembourg, Italy, the Kingdom of Belgium, the Kingdom of Denmark, the Kingdom of Norway, the Republic of Finland and the Republic of Ireland; GSI - Succursale de Paris (Paris branch) which is authorised by the French Autorité de contrôle prudentiel et de resolution ("ACPR") and regulated by the Autorité de contrôle prudentiel et de resolution and the Autorité des marches financiers ("AMF") disseminates research in France; GSI - Sucursal en España (Madrid branch) authorized in Spain by the Comisión Nacional del Mercado de Valores disseminates research in the Kingdom of Spain; GSI - Sweden Bankfilial (Stockholm branch) is authorized by the SFSA as a "third country branch" in accordance with Chapter 4, Section 4 of the Swedish Securities and Market Act (Sw. lag (2007:528) om värdepappersmarknaden) disseminates research in the Kingdom of Sweden; Goldman Sachs Bank Europe SE ("GSBE") is a credit institution incorporated in Germany and, within the Single Supervisory Mechanism, subject to direct prudential supervision by the European Central Bank and in other respects supervised by German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) and Deutsche Bundesbank and disseminates research in the Federal Republic of Germany and those jurisdictions within the European Economic Area where GSI is not authorised to disseminate research and additionally, GSBE, Copenhagen Branch filial af GSBE, Tyskland, supervised by the Danish Financial Authority disseminates research in the Kingdom of Denmark; GSBE - Sucursal en España (Madrid branch) subject (to a limited extent) to local supervision by the Bank of Spain disseminates research in the Kingdom of Spain; GSBE - Succursale Italia (Milan branch) to the relevant applicable extent, subject to local supervision by the Bank of Italy (Banca d'Italia) and the Italian Companies and Exchange Commission (Commissione Nazionale per le Società e la Borsa "Consob") disseminates research in Italy; GSBE - Succursale de Paris (Paris branch), supervised by the AMF and by the ACPR disseminates research in France; and GSBE - Sweden Bankfilial (Stockholm branch), to a limited extent, subject to local supervision by the Swedish Financial Supervisory Authority (Finansinpektionen) disseminates research in the Kingdom of Sweden.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by Global Investment Research. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (https://www.sipc.org).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

We and our affiliates, officers, directors, and employees will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research, unless otherwise prohibited by regulation or Goldman Sachs policy.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is focused on investment themes across markets, industries and sectors. It does not attempt to distinguish between the prospects or performance of, or provide analysis of, individual companies within any industry or sector we describe.

Any trading recommendation in this research relating to an equity or credit security or securities within an industry or sector is reflective of the investment theme being discussed and is not a recommendation of any such security in isolation.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options and futures disclosure documents which are available from Goldman Sachs sales representatives or at https://www.theocc.com/about/publications/characterrisks.jsp and https://www.fiadocumentation.org/fia/regulatory—disclosures/fia—uniform—futures—and—options—on—futures—risk—disclosures—booklet—pdf—version—2018. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by Goldman Sachs Global Investment Research may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to https://research.gs.com.

Disclosure information is also available at https://www.gs.com/research/hedge.html or from Research Compliance, 200 West Street, New York, NY 10282.